CHAPTER VI ANALYSIS OF ALTERNATE SCENARIOS FOR SYNTHETIC FUELS COMMERCIALIZATION

A. ALTERNATIVES

The four alternative synthetic fuel commercialization programs are analyzed in this section:

1. No Program - no official commercialization program, but continuation of research and development.

2. Information Program - a program designed to produce approximately 350,000 bbl/day of synthetic fuel by 1985.

3. Medium Program - a program designed to produce approximately 1,000,000 bbl/day of synthetic fuel by 1985.

4. Maximum Program - a program designed to produce approximately 1,700,000 bbl/day of synthetic fuel by 1985.

(Each program level consists of a specific mix of plants for analysis purposes).

B. INFORMATION PROGRAM

1. Structure

The essential structure of the synthetic fuels program decision model is shown in Figure 25. The time scale is represented by three critical years. In 1975 a strategic program decision must be made. This decision point is indicated by the small box at the left of the figure called a "decision node." Four "alternative branches" emanate from this node representing the four program levels under consideration. These alternatives represent the decision to be made now.

The decade from 1980 to 1990 is captured by the next five stages. The important events of this decade are defined in terms of the typical year, 1985. The small circle under "1995 Synthetic Fuels Cost" represents a forecast summarizing 1985 U.S. energy industry beliefs about the price of synthetic fuel in 1995 (representing the years 1990-

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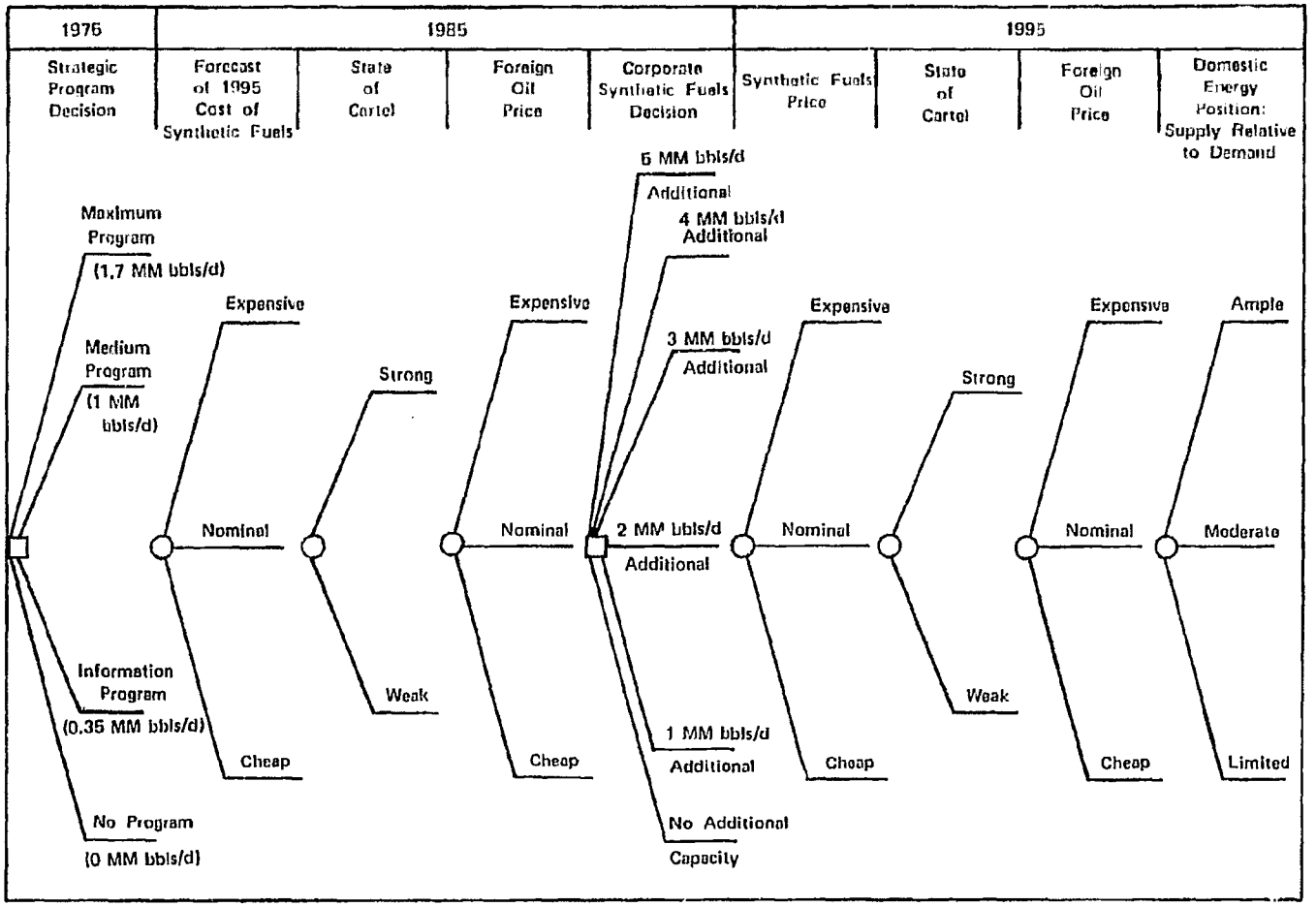

FIGURE 25 SYNTHETIC FUELS DECISION TREE

2000). The forecast is of the median 1995 price based on all of the accumulated sythetic fuels experience and research results of both government and industry prior to 1985. The three "outcome branches" characterize three ways that the forecast might turn out. With the information program, for example, expensive synthetic fuels might be assessed at $20/bbl, nominal at $15/bbl, and cheap at $11/bbl.[2] With other levels of commercialization prior to 1985, different forecasts would be expected. To show this level of detail the tree must be expanded from the form of Figure 25 by replicating a copy of the 1995 forecast at the end of each program branch and adding the appropriate price forecasts in each case. The first two stages of the expanded tree are shown in Figure 26. To represent all possible evolutionary sequences each stage of the tree must be expanded successively by this process resulting in a tree representing several thousand possible scenarios.

The next stage is the 1985 state of the OPEC cartel. This state is defined as the ability of the cartel to influence prices and to absorb shortfalls and is characterized as either "strong" or "weak." Although no net benefits are directly associated with the state of the cartel, it influences quantities later in the tree, for example the 1985 foreign oil price in the following stage. Figure 27 is an expanded tree section illustrating this influence. In Figure 27, the potential consequences of a strong or a weak cartel are each captured by three possible foreign oil prices that are markedly different for the two cases.

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[2] In this discussion all oil prices are taken as sweet crude equivalent delivered to the Gulf Coast. The values given above are approximate; synthetic fuel costs are assumed to depend on program size. For more precise values, see Figure 26 and Appendix I for the development of these values.

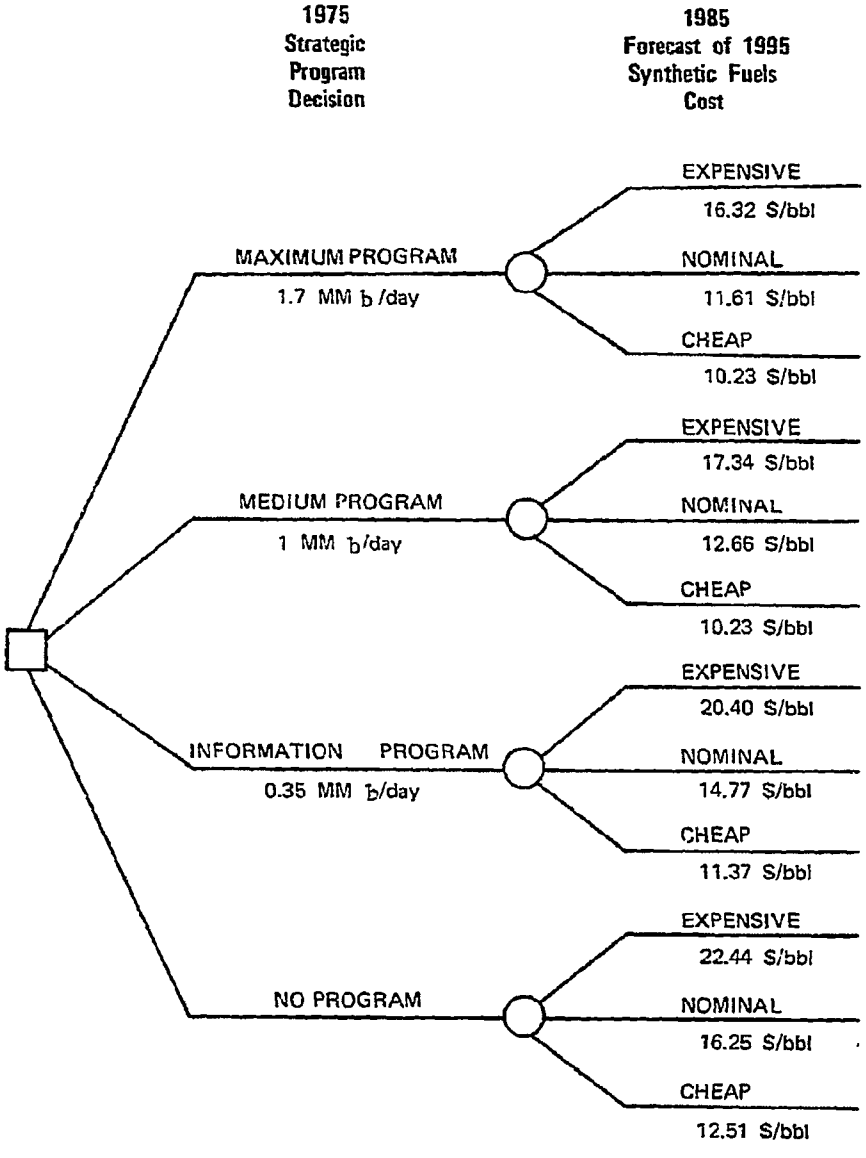

FIGURE 26 EXPANSION OF THE FIRST TWO STAGES OF THE SYNTHETIC FUELS PROGRAM DECISION TREE

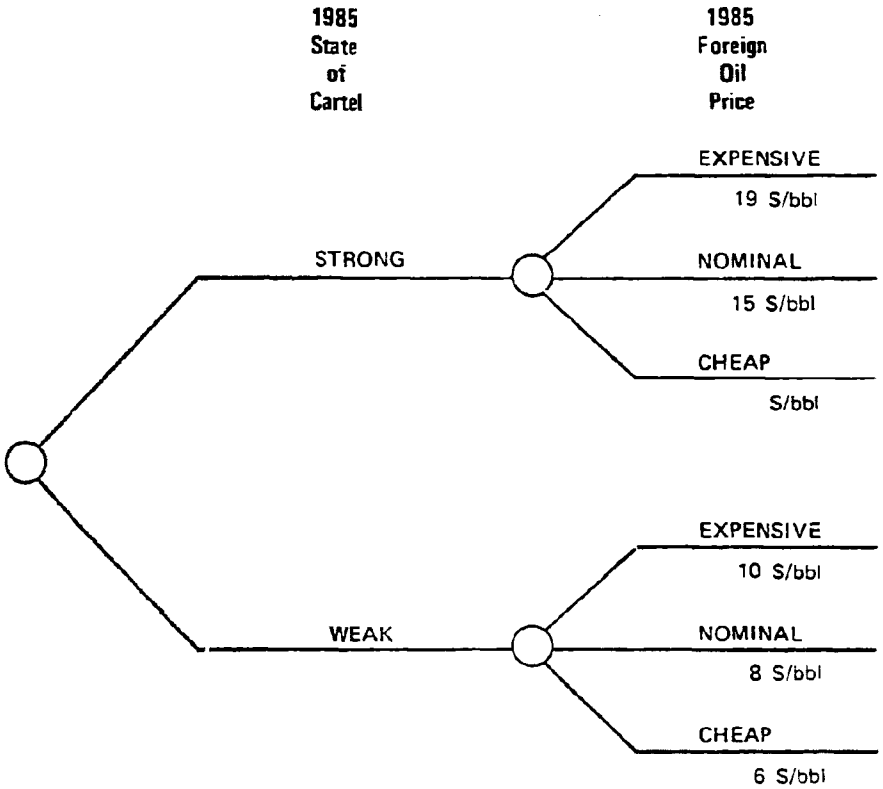

FIGURE 27 TREE SECTIONS ILLUSTRATING THE INFLUENCE OF THE OPEC CARTEL ON 1985 FOREIGN OIL PRICES

Corporate synthetic fuels expansion of supply during the 1990-2000 decade is represented by the decision node labeled "corporate synthetic fuels decision." Figure 25 shows six possible expansion levels ranging from zero to five million barrels per day additional capacity. The range of probable levels of actual cost of this additional capacity depends on the 1975 program decision as well as the revealed values of the preceding decision tree branches. Similarly, all of the remaining 1995 chance events may be influenced by the program evolution so far. Corporations must take all of this experience into account in making the best decisions.

As indicated, the 1990-2000 decade is characterized by the typical year of 1995 in the same manner as is the earlier decade. Unlike the earlier forecast, the actual 1995 synthetic fuels cost is revealed followed by 1995 state of the cartel and foreign oil price. In addition, the uncertainty in U.S. natural energy position in 1995, is represented as the final stage. Here, each of the three possible energy positions creates a separate demand curve for combined foreign and synthetic fuels which is used in the evaluation process. The specific forms for these demand curves and the relevant supply curves were derived using the SRI Energy Model (see Appendices A and I).

2. Uncertainty

Each chance node of Figure 25 represents a point at which uncertainty about the outcome branches will be resolved. Before such resolution, there is uncertainty about which outcome will occur. In general, the uncertainty will depend on what has been already observed in the path leading up to the present node. Uncertainties are represented numerically by assigning probabilities to each possible outcome which are conditioned on the preceding events and therefore must be assigned carefully. Often the probability assignments are independent of some of the preceding events resulting in important simplifications in the probability assignment process.

Assessment of the OPEC cartel probabilities provide a good example of a dependent assessment. The 1985 cartel uncertainty was judged to be independent of the entire preceding path, and the probability of a strong cartel was assessed at 0.5. The 1995 cartel strength was judged to be dependent on one stage in the preceding path-knowledge of the 1985 cartel state. If the 1985 cartel were to be strong, then the 1995 cartel would be assigned a 0.8 probability of also being strong and a 0.2 probability of being weak. On the other hand, if the 1985 cartel were to be weak then the cartel would be assigned only a 0.2 probability of being strong and a 0.8 probability of being weak. This set of dependent probability assignments is represented graphically in Figure 28.

For all of the other probability assignments in the tree, the three branch outcomes were defined as representing the 0.1, 0.5, and 0.9 fractiles of the probability distribution on the corresponding quantity.[3] Referring to Figure 29, for the case of a strong cartel, there are cheap, nominal and expensive foreign oil prices of $11/bbl, $15/bbl, and $19/bbl. These values were selected so that the foreign oil price would have a 0.1 probability of falling below $11/bbl, a 0.5 probability of falling below $15/bbl (the median) and a 0.9 probability of falling below $19/bbl. If the probabilities are specified this way, the three designated levels may be taken as representative of low, medium, and high outcomes having branch probabilities of 0.25, 0.50, and 0.25 respectively. This probability assignment is shown in Figure 29.

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3 The .1 fractile is the quantity such that there is a 10 percent chance of the actual value being less than this quantity. Similarly, the 0.5 fractile is the quantity such that there is a 50 percent chance of the actual value being less than this quantity. The .9 fractile is the quantity such that there is a 90 percent chance of the actual value being less than this quantity.

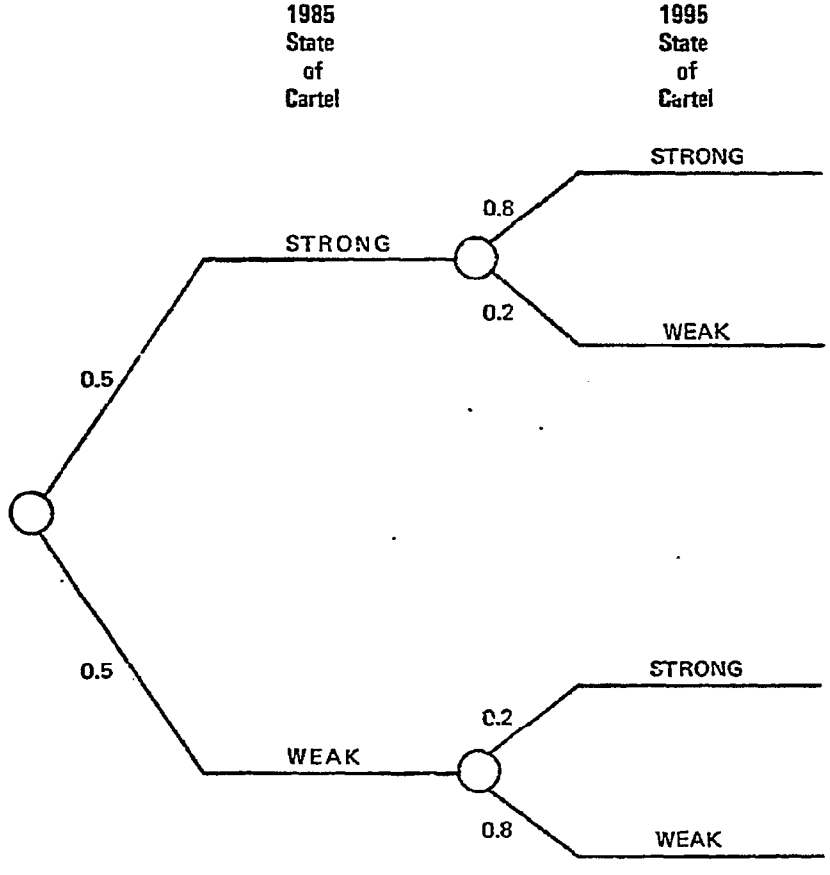

FIGURE 28 THE (DEPENDENT) PROBABILITY ASSIGNMENTS FOR THE OPEC CARTEL STATE IN 1985 AND 1995

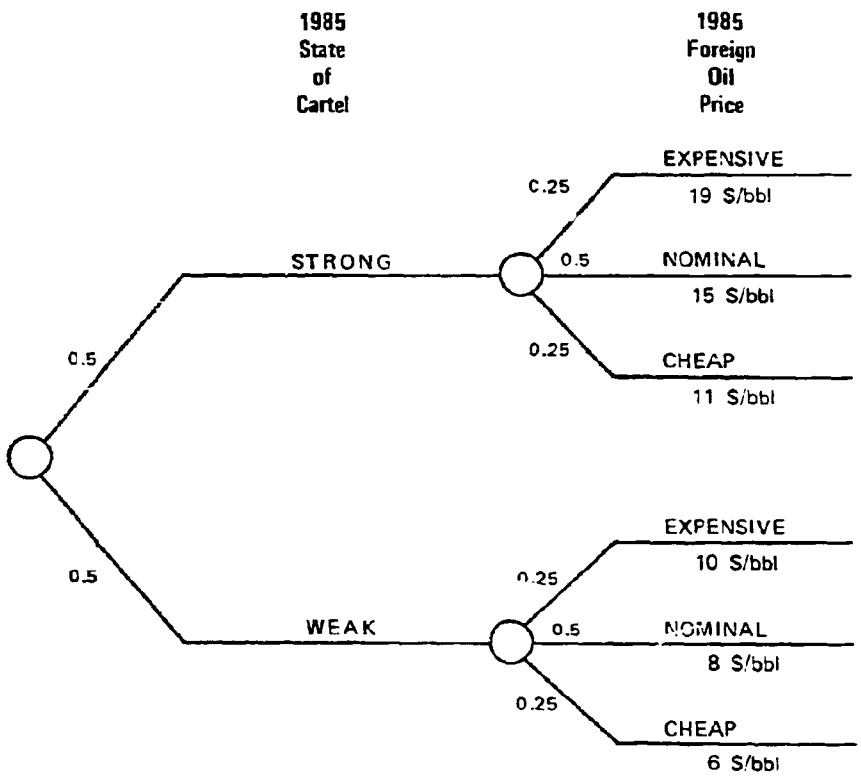

FIGURE 29 PROBABILISTIC INFLUENCE ON OPEC CARTEL ON 1985 FOREIGN OIL PRICES

For simplicity the embargo situation was not shown in Figure 25, because the probability of embargo was judged to be independent of all other events in the tree. The probability of an embargo was assessed as 0.1 (one chance in ten) per year in the decade 1980 to 1990 and 0.05 (once chance in 20) for 1990-2000. The typical duration was taken as five months. Short-term demand curves were used to calculate the economic effect of an embargo in each situation.

All of the uncertainties indicated in the synthetic fuels decision tree were treated in the manner described above. Some assessments were somewhat more complex because of the higher degrees of conditioning, but they follow directly from the same approach. Probabilities, other input data, and calculations used in the analysis are given in Appendix I.

3. Results

Based on the analysis, the difference in the expected discounted net benefit of the maximum, medium and information level program alternatives relative to no program are displayed in Figure 30.

The information program leads to an expected cost of $1.65 billion relative to no program. This means that the costs of the program are expected to exceed its benefits. The medium level program leads to a larger expected cost of $5.4 billion relative to no program. Finally, the maximum level program leads to an expected cost of $10.98 billion relative to no program.

Potential benefits which were not included in these results are:

- The International leverage (bargaining position) that would accrue to the United States as a result of a synthetic fuels program.
- The resolution of uncertainty with regard to government policy which may otherwise inhibit development of the synthetic fuel technologies close to commercial development.

TABLE 5 COMPONENTS OF EXPECTED DISCOUNTED NET BENEFIT

	Expected Discounted Net Benefit (billions of 1975 dollars)				
Program Alternative	Consumer Surplus	Producer Surplus	Embargo Protection	Environmental and Socioeconomic	Total
No Program	0	0	0	0	0
Information Program (0.35 mm bbl/day)	1.07	-2.71	0.43	0.44	-1.65
Medium Program (1 mm bbl/day)	3.29	-8.74	1.18	-1.14	-5.41
Maximum Program (1.7 mm bbl/day)	4.55	-15.77	2.23	-1.99	-10.98

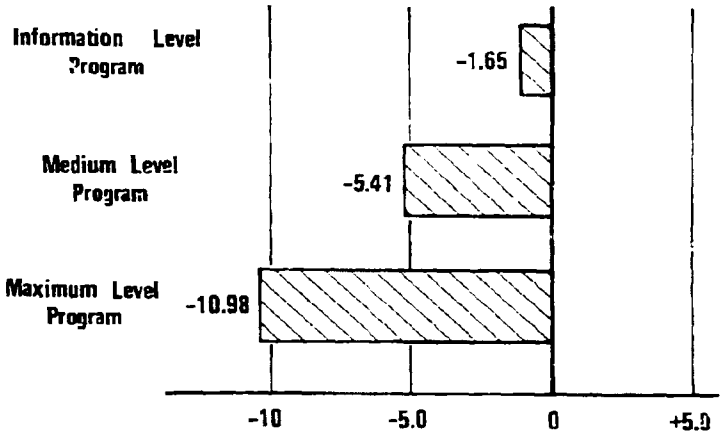

FIGURE 30 BENEFITS OF SYNTHETIC FUELS PROGRAM ALTERNATIVES RELATIVE TO NO PROGRAM

- The value to the United States of lower oil payments made by other importing nations.
- The world and domestic leadership value of an activist position.
- Possible favorable impact on cartel strength.

To further interpret the results of the analysis, an examination of the components of the expected discounted net benefit is required. The components of benefit, consumer surplus, producer surplus, embargo protection and environmental/socio-economic, are shown in Table 5. The expected benefit from consumer surplus reflects the value to consumers of synthetic fuels or imports. The informational program increases consumer surplus by 1.07 billion dollars as shown in Table 5. This increase in consumer surplus stems from cheaper synthetic fuels due to learning from building synthetic fuels plants sooner than would otherwise occur, thus resulting in a small reduction in imported fuel prices. The medium and high level programs produce even larger increases in consumer surplus.

The producer surplus is the difference between what producers in the U.S. economy receive for synthetic fuels and what they are willing to sell them for. The information program decreases producer surplus by 2.71 billion dollars. Thus, without a subsidy, producers would not be willing to build the plants required by the information program.[4] The medium and high level programs produce even larger decreases in producers' surplus.

The expected discounted cost of embargoes is the third component of net benefit. With the information program additional synthetic fuel plants are installed, reducing the nation's dependence on foreign supply and thereby reducing expected discounted embargo losses by 0.43 billion dollars. Thus, while the expected embargo losses are large, the effect of the synthetic fuel program on embargo losses is relatively small.

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[4] The amount of direct government support required is not necessarily equal to the loss in producers' surplus.

Environmental and socio-economic costs reflect social costs of synthetic fuels that are not already internalized in the price of synthetic fuels. In the base case these costs are assessed at $.40 per barrel of synthetic fuel. The net effect of those costs is to reduce the expected benefits of the informational program by $.44 billion.

One way to illustrate the uncertainty in the net benefit of the program is with a probability distribution showing the difference in benefits between the informational program and no program. Figure 31 displays a histogram which approximates this distribution. The expected difference of -$1.65 billion represents a range of differences. The difference is equally likely to be greater or smaller than minus $3.91 billion. There is a 10 percent chance that it will be more negative than -$9.23 billion and a 10 percent chance that it will be more positive than +$6.65 billion. The probability that the information program results in a larger total benefit than no program is 30 percent.

Another way of displaying the results of the analysis would be to show the discounted net benefit along each of the several thousand branches of the decision tree. Such a display would illustrate the wide-range of possible outcomes and the discounted net benefit associated with each outcome. Figure 32 shows only the first three stages of the decision tree since the full tree is too large to draw. At the left of the figure are the strategic program decision, followed by the forecast of 1995 sythetic fuel costs and the state of the cartel in 1985. For each end branch the additional 1995 synthetic fuels capacity is shown. To illustrate, the lowest branch of the tree represents the no program alternative, cheap synthetic fuels forecast, and weak cartel in 1985. In this situation, the best corporate decision in 1985 is

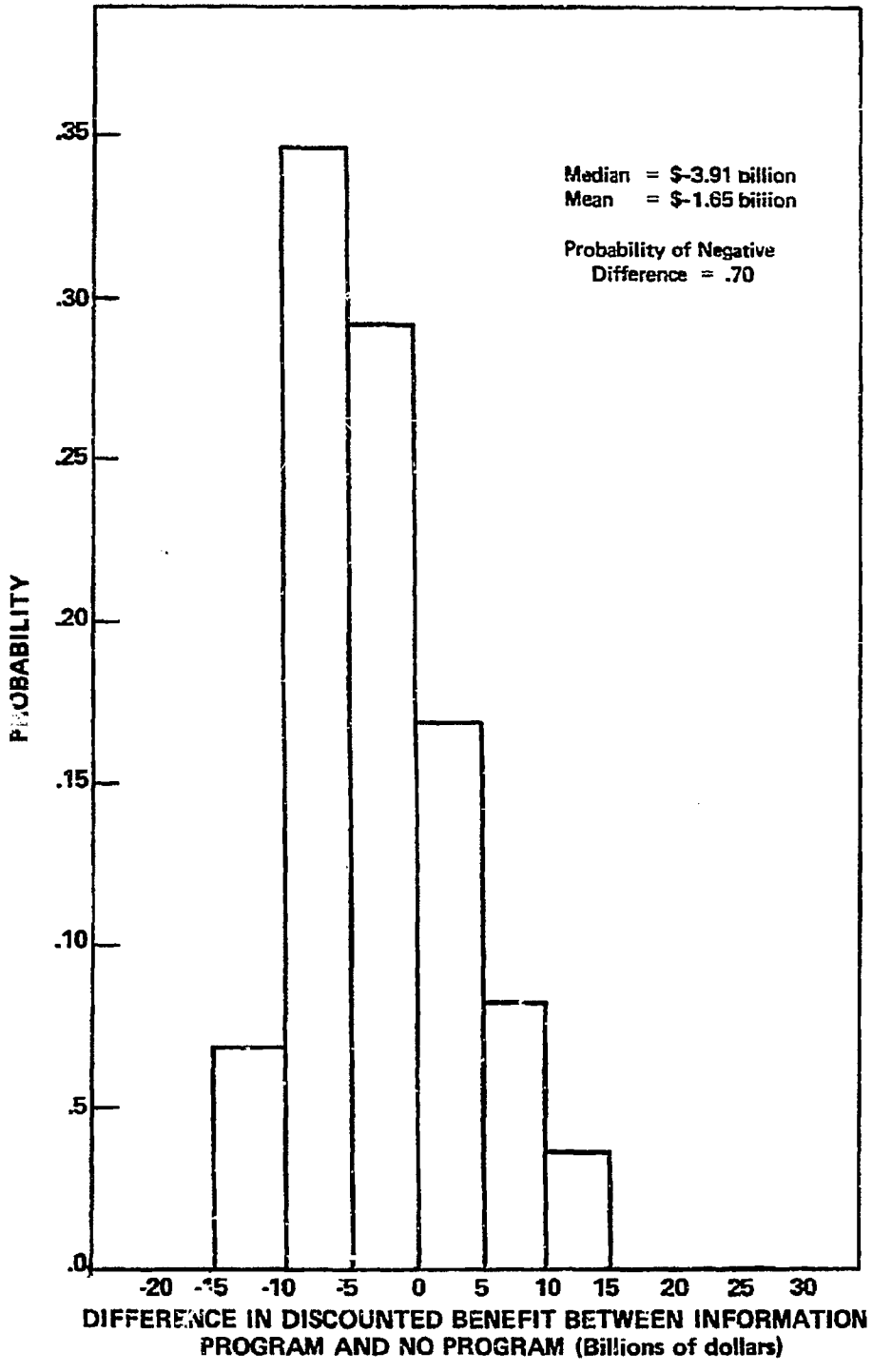

FIGURE 31 DISTRIBUTION OF THE DIFFERENCE IN BENEFITS (INFORMATIONAL PROGRAM MINUS NO PROGRAM)

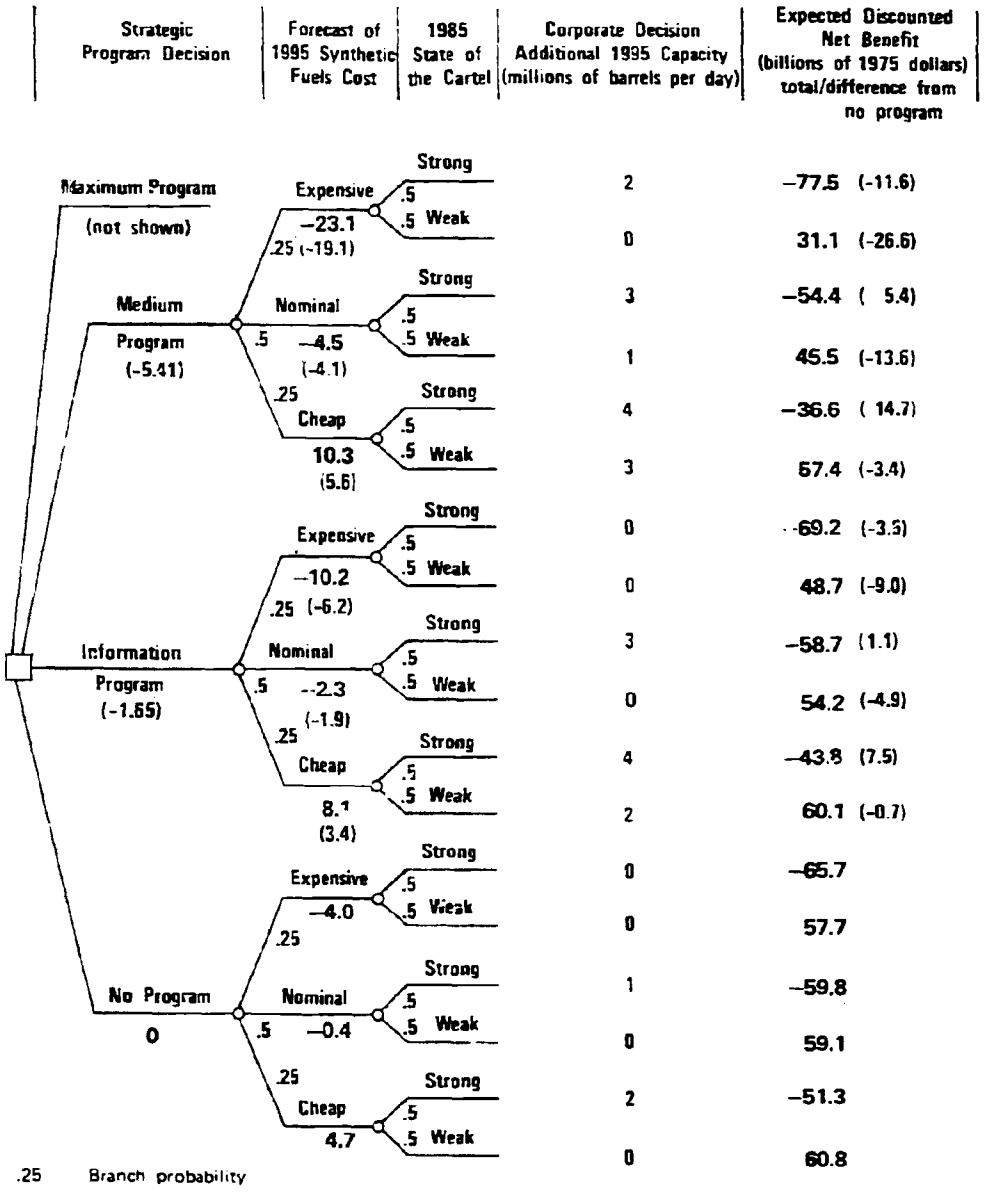

FIGURE 32 PARTIAL DECISION TREE DISPLAY OF RESULTS

no additional synthetic fuels capacity for 1995. On the other hand, if the 1985 cartel is strong, according to the probability assessments used in this analysis there is an 80 percent chance it will stay strong. A strong cartel means higher foreign oil prices and a more favorable situation for U.S. industry investment in synthetic fuels. Thus, based on no program, a forecast of cheap synthetic fuels given a strong cartel in 1985, industry would install some two million barrels per day of synthetic fuels.

Also shown for each end branch in Figure 32 is the expected discounted net benefit. Notice that the effect of the cartel on the total benefits dominates the effect of the program and the effect of the cost of synthetic fuels.

The highest expected net benefit results from implementation of the information program when synthetic fuels are forecasted to be cheap and the cartel is strong. In this case, the expected benefit is 7.5 billion dollars. The worst outcome for the 350,000 bbl/day program is an expensive synthetic's forecast and a weak cartel where the expected benefit is -$9.0 billion. These results illustrate the considerable uncertainty in the program benefits.

The total expected benefit as shown by the decision tree is also highly uncertain. Cheaper synthetic fuels lead to higher total benefits (social surplus) because of the direct savings in energy costs due to synthetic fuels and the indirect effect through their influence on the prices of foreign fuels. A strong cartel leads to lower total benefits than a weak cartel; however, the synthetic fuels program appears more beneficial with a strong cartel. In other words, the synthetic fuels commercialization program looks particularly good in situations that are bad in a macro-economic perspective.

4. Sensitivity Analysis

The base case analysis whose results are described above employed the best information available to the Synthetic Fuels Commercialization task force at the time of the study. Since the analysis is probabilistic, it recognizes that many of the important quantities influencing the synthetic fuels program benefits are not accurately known. Nevertheless, it is recognized that there would be differences in opinion with regard to the probability of various events and the preferences of the country. Also, it is recognized that changes in related government energy policies such as the imposition of an import quota might change the desirability of the program.

The results of the sensitivity analysis for the information and medium level programs are shown in Table 6. The columns of numbers show the expected discounted net benefits for the no program case and the differences in expected benefit (relative to no program) for the information and medium alternatives. The numbers in parentheses show the changes in expected benefit attributable to the sensitivity cases.

The first set of sensitivities examines changes in the state of information. One such sensitivity is to changes in the probabilities of the oil producers' cartel being strong or weak for the rest of the century. In the base case analysis, the probability of a strong cartel is 0.5, and there is a 0.8 probability that the 1985 state of the cartel will prevail in 1995. If there is certainty that the cartel will be strong throughout the rest of the century, the expected net benefit drops by $68.5 billion with no program because of the higher cost of foreign oil associated with a strong cartel. With a strong cartel, both the information and the medium program have positive expected net benefits. Conversely, if there is certainty that the

TABLE 6

SENSITIVITY ANALYSIS FOR INFORMATION AND MEDIUM LEVEL PROGRAMS

	Expected Discounted Net Benefit (billions of 1975 dollars)		
		Changes	
	No Program	Information Program	Medium Program
BASE CASE	0	-1.65	-5.41
Sensitivity to Information			
1. Probability of Strong Cartel (in 1985, in 1995) (1.00, 1.00)	−68.5	2.73 (4.38)	6.50 (11.91)
(.80, .68)	−35.5	0.27 (1.92)	−0.07 (5.34)
(.50, .15)	17.3	−3.44 (−1.79)	−10.08 (−4.67)
(.20, .18)	42.5	−4.29 (−2.64)	−12.53 (−7.12)
(0, 0)	69.2	−5.65 (−4.00)	−16.50 (−11.09)
2. Import Quota (6 MBD)	−44.3	4.86 (6.51)	9.73 (15.14)
3. Storage of 0.6 to 1.0 billion barrels	11.0	−1.65 (0.01)	−5.43 (−0.02)
4. Environmental Costs			
None	−1.0	−1.21 (0.44)	−4.26 (1.15)
$1.00/barrel	−0.1	−2.32 (−0.67)	−7.12(−1.71)
5. Synthetic Capacity Expansion			
None	−0.2	−2.62 (−0.97)	−7.69 (−2.28)
Minimum of 2 MBD	−4.3	0.46 (2.11)	−1.78 (3.63)
6. Reduction in Synthetic Fuel Cost by $1.00/barrel	1.20	−0.51 (1.14)	−2.05 (3.36)
Sensitivity to Preferences			
1. 6% Social Discount Rate	116.2	−1.55 (0.10)	−5.62 (−0.21)
2. Risk Aversion			
Corporate Only	−0.2	−2.33 (−0.68)	−6.69 (−1.28)
Both Corporate and Government	N.A.	−1.75 (−0.10)	−5.15 (0.26)
Sensitivity to Alternatives			
Government Expansion Decision	0.1	−1.67 (0.02)	−5.43 (0.02)

( ) = Change from no program data

cartel will be weak throughout the rest of the century, the expected net benefit increases by $69.2 billion reflecting lower cost foreign fuels, but the synthetic fuels program would reduce this higher net benefit by $4.0 billion for the information alternative and $11.1 billion for the medium alternative.

Figure 33 shows the sensitivity of the expected net benefit of the programs (relative to no program) to changes in the probability of a strong cartel in 1985, assuming that the probability is .8 that the state of the cartel in 1995 is the same as in 1985. As the figure demonstrates, the expected net benefit of the information program is positive only if the probability of a strong cartel in 1985 exceeds 76 percent. The corresponding breakeven probabilities for the medium and maximum programs are 80 percent and 89 percent.

If imports are restricted to six million barrels per day either by tariffs or a quota through the end of the century, the expected net benefit given a weak cartel, decrease by $73 billion while under a strong cartel the expected net benefit decreases by $17 billion. As might be expected, however, the import quota makes either program much more desirable than no program, by recovering some of the losses in consumer surplus imposed by a quota.

An alternative that deals directly with the cost of embargoes is storage of oil. To test the effect of the storage option on the synthetic fuels program, a storage program ranging from .6 to 1.0 billion barrels was hypothesized. Such a program would provide five months supply of oil at a rate of about 4 - 7 million barrels per day. The cost of storage was assumed to be two dollars per barrel per year and the existence of the program was assumed to reduce both the opportunity cost of oil during an embargo and the probability of an embargo. The result of the sensitivity to this storage program shows little effect on the relative synthetic fuels program benefits but a substantial (7.0 billion dollars) increase in expected benefit for no program (see Appendix F for further details related to the stockpiling issue).

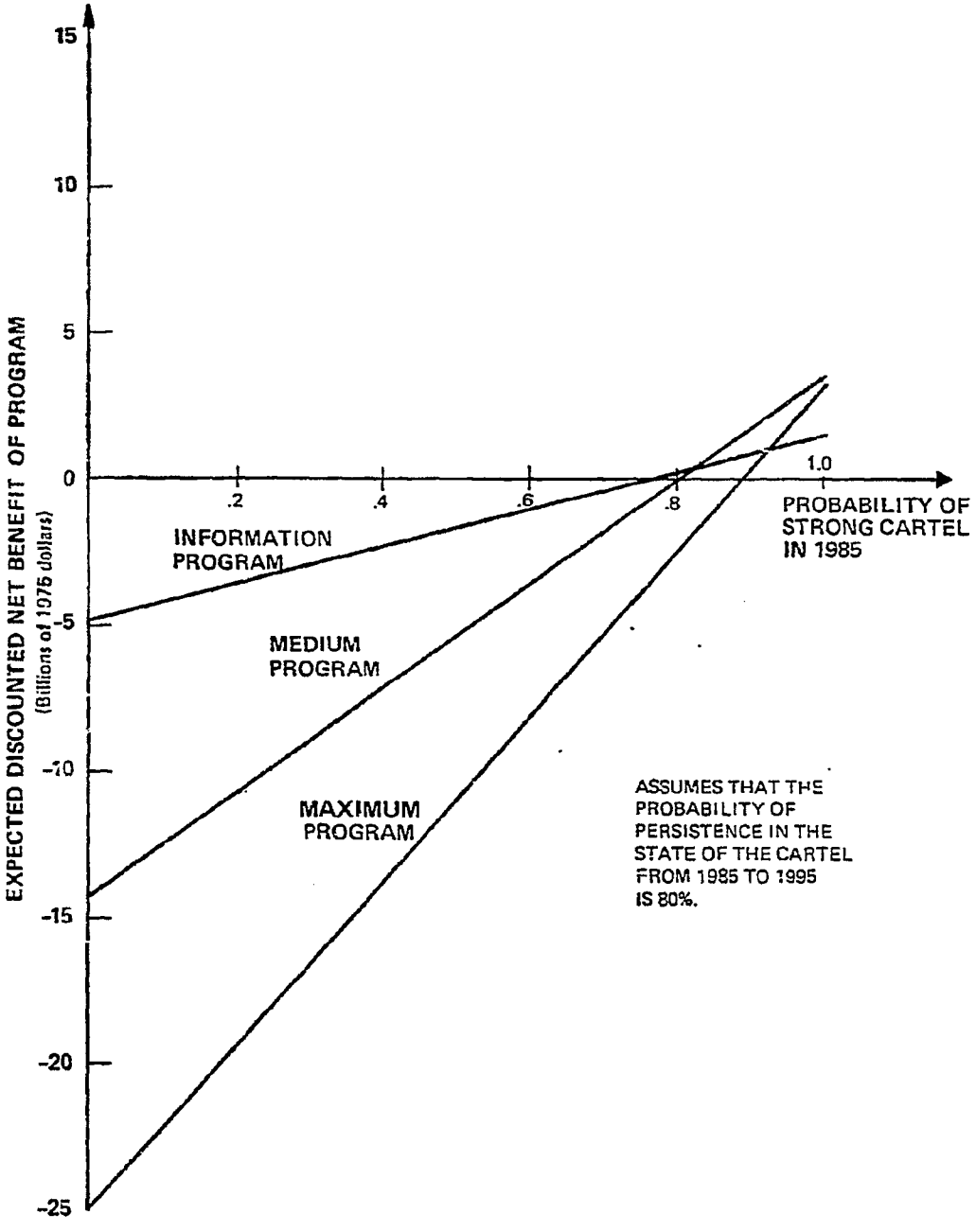

FIGURE 33 SENSITIVITY OF EXPECTED NET BENEFIT TO THE PROBABILITY OF A STRONG CARTEL IN 1985

The non-interalized environmental costs of synthetic fuel were estimated to be $.40 per barrel. Even if there is no such cost associated with synthetic fuels, the programs still show an expected net loss, as shown in Table 6.

The next sensitivities refer to changes in the 1995 decision by industry to expand synthetic fuels capacity for 1995. If there is no additional synthetic fuels capacity beyond that installed by the program, then either program alternative looks worse. If at least two million barrels per day of additional capacity is installed under all conditions for 1995, the information program turns slightly positive by $0.5 billion; however, the loss in next benefit due to a minimum of 2 MM b/d of additional capacity is $4.3 billion. Additional subsidies for synthetic fuels or errors in corporate decision making would be required to overcome the losses in producers' surplus (corporate profit) that would normally prevent such an expansion. To test the effect of bias in the analysis, the cost of synthetic fuels under all conditions was reduced by $1 per barrel. The effect is to increase the expected benefit of the information program by $1.1 billion and the medium program by $3.4 billion.

Time and risk preference judgments are different to assess and therefore important quantities for sensitivity analysis. A 10 percent discount rate on constant dollars was used in the analysis to reflect national time preference. At a 6 percent discount rate, the total expected benefits with no program increase dramatically but the effect on the differential net benefits of the informational and medium program are small.

In the analysis, the expected net benefit of each alternative is assumed to provide a relatively accurate measure of its value to the nation. This assumption is not strictly valid if the nation is risk averse, attaching diminishing marginal value to increases in wealth and weighing losses more heavily than gains. In such a case, the alternatives must be compared not on the basis of expected benefit but rather on the basis of expected utility using a risk preference (utility) curve that embodies the degree of the nation's risk aversion.

The effect of risk attitude can be explored by assuming a specific form for the risk preference curve and performing a sensitivity analysis. In the family of exponential risk preference curves, the degree of risk aversion is specified by a single variable called the risk aversion coefficient. The greater the risk aversion, the larger the coefficient; expected value decision making (i.e., risk neutrality) corresponds to a coefficient of zero.

One way to appreciate the degree of risk aversion expressed by a particular risk aversion coefficient is to consider its reciprocal, called the risk tolerance. A person's risk tolerance is the largest amount of money that he would willingly risk in a gamble that either doubles or halves his money with equal likelihood. So, the effect of risk aversion on the results of the analysis can be determined by using an appropriate risk tolerance (and, hence, risk aversion coefficient) to compute the expected utility of each alternative. In doing so, of course, risk aversion in the private sector decision in 1985 to expand synthetic fuel capacity must also be taken into account.

Figure 34 shows the desirability of the various synthetic fuel program levels as a function of the nation's risk aversion coefficient assuming that the risk tolerance of the private sector in making the capacity expansion decision is $5 billion. The desirability of each program level relative to no program is expressed as the difference in the certain equivalent, which is a monetary measure of expected utility.

Note that the informational program is more desirable than no program only if the nation's risk aversion coefficient is greater than about .015/$billion (risk tolerance less than $67 billion) and that the medium program is optimal only if the risk aversion coefficient is greater than .018/$billion (risk tolerance less than $56 billion). The large program is never optimal for any degree of risk aversion considered.

How risk averse should the nation be? The risk tolerance of a group of people is equal to the sum of their individual risk tolerances. Given that each individual in the nation has a risk tolerance of from one-fourth to one-half of his annual income, the nation's risk tolerance is from one-fourth to one-half of its total income, or gross national

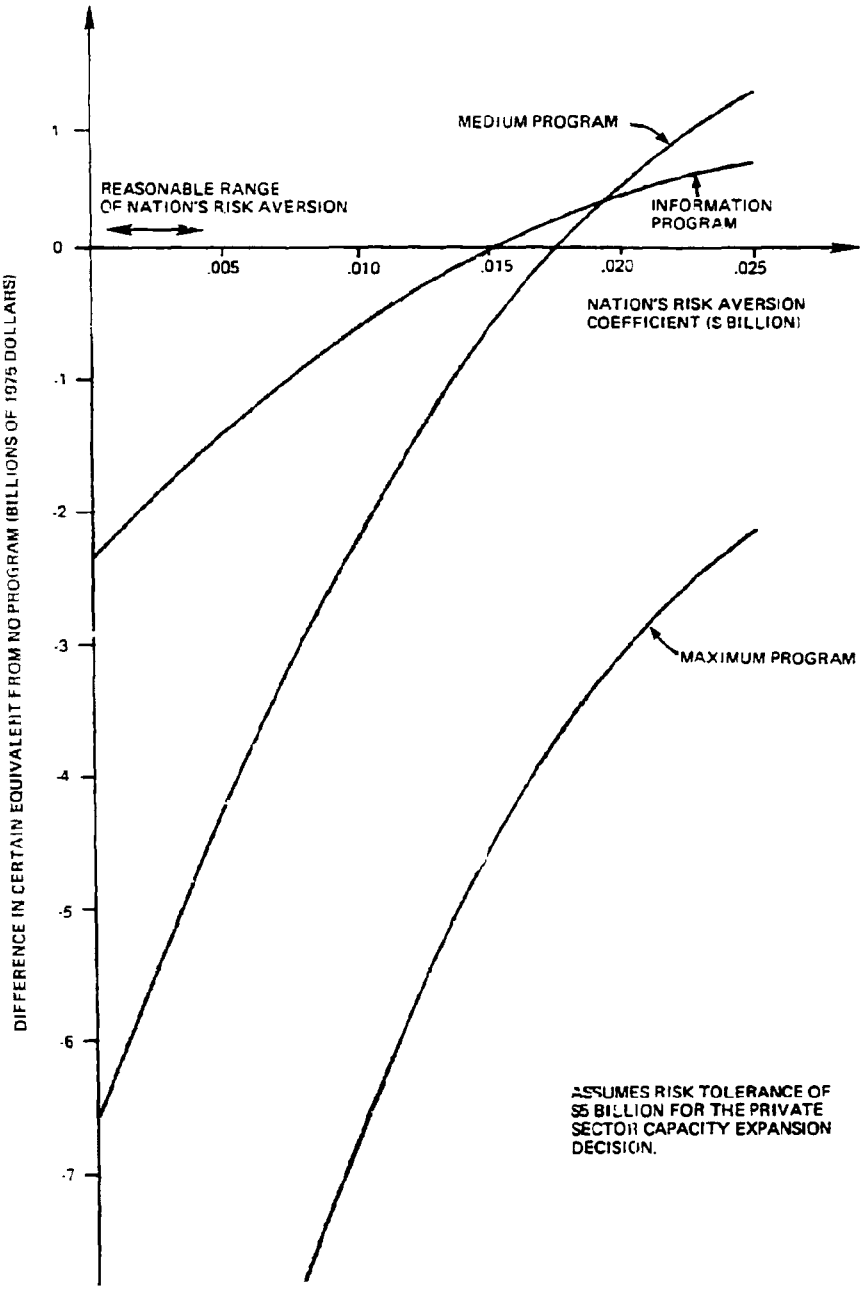

FIGURE 34. SENSITIVITY TO GOVERNMENT RISK AVERSION

product. For the United States, this would be about $300 billion to $600 billion, corresponding to risk aversion coefficients of from about .002/$billion to .003/$billion. Figure 34 shows that, for risk aversion of this degree, the relative desirability of the program levels remains unchanged from the risk neutral case, with the no program alternative being the optimal one.

An important question is whether corporate and social values are so diverse that continued subsidies or other incentives for synthetic fuels might be necessary. To test this hypothesis, the 1985 corporate expansion decision was allowed in the analysis to be made on the basis of expected discounted net benefit rather than corporate profitability (expected discounted producer surplus). The effect of the change was relatively minor since the social costs not internalized in the corporate costs are relatively small, and the expected cost of embargoes due to imports tend to balance the non-internalized environmental costs of synthetics.

In summary, the sensitivity analysis has shown that factors affecting the synthetic fuel decision are the expected strength of the cartel, the cost of synthetic fuels technology, and the domestic energy position in 1995 with respect to imports. This is particularly well illustrated in Table 7 for the information program, where assuming a case representing a strong cartel combined with high import demand and a low synthetic fuel cost would lead to a net benefit of almost 10 billion dollars. A weak cartel, low import demand, and high priced synthetic fuels would have a discounted loss of almost 10 billion dollars. A similar examination of the one million barrel per day program (see Table 8) shows expected benefits as high as 19 billion dollars and losses as high as $28 billion (see Table 9 for maximum program). A number of different cases can be examined resulting in varying outcomes depending upon the assumptions employed. The key to the results is how the individual observer assesses the probabilities and, in turn, the selection of some combination of the three variables to represent the likely outcome.

TABLE 7 CONDITIONAL NET BENEFIT OF INFORMATION
(350,000 BARRELS PER DAY) PROGRAM

		Expected Discounted Net Benefit (billions of 1975 dollars)					
		-1.65					
		1985 Cartel					
		Weak			Strong		
		-4.86			1.55		
		Synthetic Fuel Cost (1985 Forecast)			Synthetic Fuel Cost (1985 Forecast)		
		Low	Medium	High	Low	Medium	High
		-0.75	-4.87	-8.92	7.52	1.09	-3.49
1995 U.S. Energy Position Supply Relative to Demand	Ample	-1.37	-5.05	-9.29	5.30	0.00	-4.90
	Moderate	-0.77	-4.89	-8.96	7.52	1.15	-3.65
	Limited	-0.08	-4.67	-8.47	9.75	2.07	-1.76

TABLE 8 CONDITIONAL NET BENEFIT OF MEDIUM LEVEL (1 MILLION BARRELS PER DAY) PROGRAM

		Expected Discounted Net Benefit (billions of 1975 dollars)					
		-5.41					
		1985 Cartel					
		Weak			Strong		
		-14.30			3.48		
		Synthetic Fuel Cost (1985 Forecast)			Synthetic Fuel Cost (1985 Forecast)		
		Low	Medium	High	Low	Medium	High
		-3.36	-13.60	-26.63	14.68	5.40	-11.56
1995 U.S. Energy Position: Supply Relative to Demand	Ample	-4.52	-14.57	-27.50	10.98	1.43	-15.33
	Moderate	-3.40	-13.66	-26.71	14.54	5.33	-11.76
	Limited	-2.11	-12.53	-25.60	18.69	9.51	-7.41

TABLE 9 CONDITIONAL NET BENEFIT OF HIGH LEVEL (1.7 MILLION BARRELS PER DAY) PROGRAM

		Expected Discounted Net Benefit (billions of 1975 dollars)					
		-10.98					
		1985 Cartel					
		Weak			Strong		
		-25.05			3.08		
		Synthetic Fuel Cost (1985 Forecast)			Synthetic Fuel Cost (1985 Forecast)		
		Low	Medium	High	Low	Medium	High
		-7.82	-22.86	-46.64	19.04	7.69	-22.10
1995 U.S. Energy Position: Supply Relative to Demand	Ample	-9.27	-24.61	-47.73	14.36	1.44	-27.20
	Moderate	-7.84	-22.91	-46.73	19.06	7.60	-22.12
	Limited	-6.33	-21.02	-45.40	23.67	14.11	-15.96