A. Specific Comments on Incentives

2. Oil Companies

b. Oil from Shale

Incentive 1. Direct Grant (2/3--1/3) for Pilot Plant

See comment under Incentive 1 for high and low BTU coal gasification.

We are not particularly excited by this incentive.

Incentive 2. Direct Grant (1/2--1/2) for Demonstration Plant

See comment under Incentive 2 for high and low BTU coal gasification.

We are not particularly excited by this incentive.

Incentive 4. Loan Guarantee

See comment under Incentive 4 for high and low BTU coal gasification.

This is our number one choice. A one-hundred percent guarantee would permit us to proceed on all three of our projects. (So would 90 percent.) A 75 percent guarantee would permit completion of one of our projects.

This incentive would require no government expenditure over the next few years, whereas the grants would require considerable expenditures. This is an important factor in this era of tight budgets and deficit financing.

We would require both the loan guarantee (for the first plant) and the guaranteed procurement/fixed price incentive for subsequent plants. This is the package needed to get shale oil production going.

Incentive 5. Guaranteed Procurement/Fixed Price

This is a companion (with the loan guarantee) preferred incentive. It would apply after the first plant has been operating (unless government

policy otherwise establishes a viable market for domestic synthetic fuels). The fixed price version is preferred to CPFF.

This incentive is unattractive because of the problem of crude availability, the difficulty of determining future prices under technical uncertainty and inflation, and because this incentive does not overcome the basic problem of supplying the needed construction capital for the synfuel plants.

We require both the loan guarantee (for the first plant) and the guaranteed procurement/fixed price incentive for subsequent plants. This is the package needed to get shale oil production going.

Incentive 6. Guaranteed Procurement/Cost Plus Fixed Fee

See next-to-last comment under Incentive 5 above.

This would probably be the most unpopular incentive in Congress.

If a good business deal were possible, we would find a guaranteed procurement/CPFF approach acceptable, but the government should recognize there is no pressure on the contractor to hold down costs.

Incentive 7a. Guaranteed Price

See comment under Incentives 7a and 7b for high and low BTU coal gasification.

This is not a particularly good incentive; it would tend to limit certain technologies because of stiff competition for the first generation plants. The more economic second generation plants must necessarily result from demonstration of several operating technologies or techniques.

Incentive 7b. Guaranteed Price with Loan Guarantee

See comment under Incentives 7a and 7b for high and low BTU coal gasification.

This (or incentive 7d) is our "super-preferred" incentive. We would, of course, prefer more than 75 percent financing, although that would be adequate to complete one of our three projects.

This incentive is considerably attractive to us. We suggest that the government might itself issue debentures under this incentive, which we view as attractive.

Incentive 7c. Guaranteed Price--Alternative

See comment under Incentives 7c and 7d for high and low BTU coal gasification.

This would tie up everybody in litigation; it would just never happen.

Incentive 7d. Guaranteed Price--Alternative with Loan Guarantee

See comment under Incentives 7c and 7d for high and low BTU coal gasification.

See second comment under Incentive 7b, preceding page.

Incentive 8. Limited Price (and alternatives)

See comments under Incentives 8a and 8b for high and low BTU coal gasification.

This, at the 50 percent level, simply cannot get the job done. We doubt the government would get enough takers to make this incentive worthwhile, particularly on the first generation plants.

The percentage (50) is simply not enough. The advance payments clause of 8b would ease the capital burden, but it would be very difficult to negotiate in practice.

Incentive 9. Sale of Options/Guaranteed Price

This is a complicated approach to Incentives 7a and 7b. It has the disadvantage of a substantial front-end payment. It is not desirable.

This would lead to unrealistic costs. In addition, it does not solve the capital problem.

See comment under Incentive 9 for high and low BTU coal gasification.

A. Specific Comments on Incentives

2. Oil Companies

c. General

Incentive 3. Convertible Grant

This offers more of an incentive than either of the direct grants.

This is the best of a bad lot. It would, nevertheless, have some beneficial effect.

Incentive 4. Loan Guarantee

We have little interest in this incentive as it does not "get it off our books." The debt/equity ratio problem rears its head and has significant repercussions for even a large company when it is appreciated that potential investments are involved on the order of $1 billion for future syncrude plants. In our view, this incentive would be of far greater interest to smaller companies who might have difficulty raising capital. It might also be of interest to consortia of companies involved in a joint venture syncrude development program.

Incentive 5. Guaranteed Procurement/Fixed Price

This incentive assumes there is a viable technical process, which has yet to be proven in most instances.

This could act as an incentive for poorer companies. It would potentially be wasteful of the nation's capital by supporting poorer companies and/or bad technology.

We doubt whether it would be possible to find mutually acceptable terms for guaranteed purchases on a fixed basis, as we now interpret the incentive.

Incentive 6. Guaranteed Procurement/Cost Plus Fixed Fee

This places industry in the position of a utility. We look upon ourselves as a high-risk company and do not want to be placed in that position.

See first two comments under Incentive 5, preceding page.

Incentive 7. Guaranteed Price (and alternatives)

We do not like to share any excess profits with the government. Therefore, this incentive is not attractive. The loan guarantee "sweetener" adds very little attractiveness to the incentive. Guaranteed price by itself is of absolutely no interest.

Any price floor type incentive demands an escalation clause. The history of such clauses has not been promising in our eyes. It would have to be renegotiable to be of value, and in such instances might be even more detrimental to private industry, as it leaves an opportunity for the government to renegotiate downward in the future. The various indicators presently proposed as escalators for use in such escalator clauses are unsatisfactory. The BLS indicators, for example, are redefined too frequently over a period of years to serve as such references.

Once a demonstration stage plant was operating and experience gained at government expense, then guaranteed price incentives with an escalator clause might be acceptable incentives for subsequent plants. The operating demonstrator plant is required to "blaze the way."

A. Specific Comments on Incentives

3. Utilities

a. Low BTU Coal Gasification

Incentive 1. Direct Grant (2/3--1/3) for Pilot Plant

We prefer this incentive.

Incentive 7. Guaranteed Price (and alternatives)

We do not consider this incentive attractive; it is aimed at other products, primarily shale oil.

Incentive 8. Limited Price (and alternatives)

We do not consider this incentive attractive; it is aimed at other products, primarily shale oil.

Incentive 9. Sale of Options/Guaranteed Price

We do not consider this incentive attractive; it is aimed at other products, primarily shale oil.

b. General

Incentives 1 and 2. Direct Grants for Pilot and Demonstration Plants

These incentives most nearly appear to parallel what our experience would recommend, but neither of them have present or important application to our requirements and plans.

Incentive 4. Loan Guarantee

This is not appealing for, quite simply, the borrower is mortgaging his assets in any event.

A. Specific Comments on Incentives

4. Others

a. High and Low BTU Coal Gasification

Incentive 1. Direct Grant (2/3--1/3) for Pilot Plant

We are presently part of a consortium of five companies whose objective is production of low BTU gas from coal for combined cycle use. The terms of the OCR contract present proprietary advantages to the innovator. Our only interest, therefore, is possible expansion of coal production and of the coal market.

Incentive 2. Direct Grant (1/2--1/2) for Demonstration Plant

See comment under Incentive 1 above.

b. Oil from Shale

Incentive 1. Direct Grant (2/3--1/3) for Pilot Plant

Direct government grants for both pilot plants and demonstrator plant development are necessary to us, as R&D is still required for our proposed synfuel projects. But two-thirds government participation is inadequate.

Incentive 2. Direct Grant (1/2--1/2) for Demonstration Plant

Direct government grants for both pilot plants and demonstrator plant development are necessary to us, as R&D is still required for our proposed synfuel projects. But one-half government participation is inadequate.

Incentive 3. Convertible Grant

This is a very attractive incentive.

Incentive 4. Loan Guarantee

The loan guarantee itself without guaranteed procurement is not an attractive incentive.

Incentive 6. Guaranteed Procurement/Cost Plus Fixed Fee

This is more attractive than Incentive 5 because it overcomes the cost forecasting problem.

Incentive 7. Guaranteed Price (and alternatives)

The loan guarantee feature is no incentive to us, and the escalator indices are not adequate.

Incentive 8. Limited Price (and alternative)

In the absence of reliable cost projections, limited price and loan guarantees are not attractive. The advance payment feature of Incentive 8b is, however, attractive.

Incentive 9. Sale of Options/Guaranteed Price

The government probably cannot ascertain the price per barrel at which a given quantity of syncrude will sell in the future. If the price stipulated by the government were high enough, then there would be bidders. But what is that price? No one knows.

B. Specific Comments on Hypothetical Terms and Conditions and Suggestions for Changes in the Incentives

1. Gas Companies

a. High BTU Coal Gasification

Incentive 1. Direct Grant (2/3--1/3) for Pilot Plant

The cost of the necessary pipeline additions to any gasification project would need to be considered as part of the plant construction costs.

The pilot plant cost overrun condition is totally unacceptable. Provision would have to be made for sharing of overruns by the government.

Patent provisions set out for the direct grant program appear very favorable. We are a member of a consortium which is piloting what potentially could be very good high BTU technology. While significant progress has been made, it could have moved even more quickly had government funds been available at the outset without industry giving up all of its proprietary rights in technology as appeared to be necessary. The consortium was unwilling to do this.

The Phase II booklet seems to imply that the government's recourse in the case of a default is to take over the plant. We think that option should be better spelled out and modified more realistically.

There is need for a better definition of costs. The incentive must include all cost elements which are actually involved in the production of the SNG plant.

Incentive 2. Direct Grant (1/2--1/2) for Demonstration Plant

See first and last comments under Incentive 1 above.

The upgrading of demonstrator to commercial plants should be covered by this incentive.

The 50-50 ratio is probably insufficient. Consideration should be given to the higher government funding. The demonstration plant costs on page 19 of the booklet are substantially underestimated. For example, we are a member of a consortium developing a high BTU

coal gasification process. A pilot plant is presently in operation and a minimal demonstration step is contemplated. This minimal demonstration step, contemplating gasifying 500 to 1,000 tons per day of coal, would cost $60-$80 million and there is a substantial question as to whether this money can be raised from industry. Business judgment would dictate that the demonstration step ought to be a commercial-size train with a coal feed of 7,000-9,000 tons per day, but such a plant would cost in excess of $200 million and this would not be financable by private industry, probably even with a 50-50 government funding ratio. Additionally, patent restrictions set out for this direct grant program are not attractive. Patent provisions differ from those relating to the pilot plant and we do not know why.

Incentive 3. Convertible Grant

The possibility of recapturing the government's interest is intriguing from the standpoint of patent protection, but only on the basis that the demonstration step would be of such size as to be a train of a commercial plant.

See first and last comments under Incentive 1, preceding page.

See second comment under Incentive 2, preceding page.

Were this available for first commercial plants, it would probably be of interest. However, in our eyes it is unlikely the government will give any one company, even one as capable as we are, a $1 billion grant for the construction of one synthetic fuel plant.

We would suggest that a grant equivalent to 50 percent of the cost is not realistic; at least 90 percent of the cost of a demonstration project should be supported by a convertible grant.

We would prefer to have an option under which the company could buy back a first commercial plant under such an arrangement.

There is a contradiction in the terms of the convertible grant as stated in Appendix B of the Phase II booklet and the illustrative example offered by Harbridge House.

Incentive 4. Loan Guarantee

This should be coupled with regulatory assurance of cost recovery if investors are to be attracted to projects of this type.

Having the government as an equity partner would create serious problems for a private company. The government requirements for disclosure, information reviews, approvals, etc. would make progress difficult in developing the plant.

We do not grasp the significance of all the terms and conditions as set forth in the Phase II booklet. The principal problem is to define what is to be included as "costs" for which the government will offer a 90 percent loan guarantee.

An 80 percent rather than a 90 percent loan guarantee would be acceptable to us, but all the debt would have to be covered by the government loan guarantee, with the understanding that the 20 percent not covered would be subscribed privately by equity interests.

See last comment under Incentive 1.

Once the plant went into operation, a variety of things could happen--for example, mechanical problems--or it could be subject to competition from some other lower cost source of energy; environmental conditions and regulations might also change which might force the plant out of operation. Under these conditions, the government guarantees would save the debt holder, but the equity holder would be left high and dry to the tune of perhaps $200 million or more. In order to gain equity purchases, better sets of assurances would have to be offered for the 20 or 25 percent to be covered by stock.

A most important part of a loan guarantee program is that relating to construction loan financing. It is not clear if a construction loan guarantee and permanent financing guarantee are one. Construction completion guarantee is vital. Also escalation of loan guarantees to cover escalating plant costs is necessary in the program.

Direct loans for first generation plants may be necessary; the availability of private capital is a possible problem.

This incentive would be very useful if it contemplated construction loan guarantee, completion guarantee (which is essential in the private capital market) and permanent financing guarantee. Add to this program a change in regulatory policy, by legislation if required, and we could move ahead today. Every year congress waits, we've lost a year.

Interest return on equity capital required would be a necessary minimum during the period of construction. With $200 million equity contemplated for construction, an ultimate $1.2 billion financing requirement and the long construction period, the equity return factor during construction is essential.

Incentive 5. Guaranteed Procurement/Fixed Price

This is not really applicable to gas companies contemplating high BTU coal gasification. Companies cannot guarantee first generation plant costs. This incentive is not flexible enough as written.

The incentive would be acceptable if the government handled all financing.

A government financial guarantee alone does not do the complete job required. In addition, regulatory approvals of "cost of service" treatment in the rates are required, as noted before. Certain contingencies must also be considered: what happens if the plant is not completed for any reason?

The inflation estimators suggested by the Phase II booklet are specialty items and inappropriate to the gas industry, and therefore unacceptable to the gas industry in any event.

Incentive 6. Guaranteed Procurement/Cost Plus Fixed Fee

See third comment under Incentive 5 above.

We think this incentive needs rather different terms than those spelled out in the booklet, particularly insofar as they relate to the definition of costs. The five-year contract period makes no sense at all.

The Phase II booklet suggests that the government must take title to all production. In our eyes, this implies the government should pay for the cost of the plant in toto.

See first comment under Incentive 5 above.

The five-year limit negates the value of this incentive. Inflation, the uncertainty of international crude oil prices, the lack of definitive government policy, make a five-year limitation unreasonable. A 25-year period might be more realistic.

There is no provision for changes in plant costs in either Incentive 5 or 6; this would be essential especially in first generation synfuel plants. Does the "feedstock" reference take the inflationary factor into account?

B. Specific Comments on Hypothetical Terms and Conditions and Suggestions for Changes in the Incentives

1. Gas Companies

b. Low BTU Coal Gasification

Incentive 1. Direct Grant (2/3--1/3) for Pilot Plant

This would be an attractive incentive, provided the FPC permits earnings on the 1/3 and inclusion under the rate base.

Incentive 2. Direct Grant (1/2--1/2) for Demonstration Plant

See comment under Incentive 1 above.

See third comment under Incentive 2 for high BTU coal gasification.

Incentive 3. Convertible Grant

This has some appeal but we're reluctant where the government's equity is concerned; such relationships always present problems.

See first comment under Incentive 3 for high BTU coal gasification.

Incentive 4. Loan Guarantee

Nowhere has the Federal Power Commission regulatory policy been considered. A change in regulatory policy, together with the loan guarantee, is also required.

See last four comments under Incentive 4 for high BTU coal gasification.

Incentive 6. Guaranteed Procurement/Cost Plus Fixed Fee

Yes, this would be an incentive, if the fixed fee were adequate. (It should be noted that these incentives are really directed to the unregulated industries.)

See fourth and fifth comments under Incentive 6 for high BTU coal gasification.

B. Specific Comments on Hypothetical Terms and Conditions and Suggestions for Changes in the Incentives

2. Oil Companies

a. High and Low BTU Coal Gasification

Incentive 1. Direct Grant (2/3--1/3) for Pilot Plant

This would be a most eligible direction in which to move, although the percentage cited would probably be negotiable; in situ and retorting should be included.

The 180-day term specified must be made more flexible and negotiable to be practical and acceptable.

Although we have been willing to license any responsible party under our patents, we resist the compulsory licensing aspect of this proposal. Both industry and the nation would be hurt by acquiescing to the government's request for compulsory licensing. Industry loses when "reasonable royalties" are determined by the courts or government agencies and the nation loses because there is little incentive for companies to do research on new or competitive processes when they know that the best technology will be available at a bargain royalty.

The term "reasonable royalty" should be defined. This can be done in a number of ways, as, for example, defining the maximum royalty which may be charged under the circumstances or by requiring some form of arbitration.

We agree with the Industry Team that the size of the grant should be a negotiable percentage of cost, within a predetermined range of percentages, dependent upon the characteristics of the pilot plant project. Direct grants should minimize the controls attached to the government funds, compared with other forms of incentives.

Incentive 2. Direct Grant (1/2--1/2) for Demonstration Plant

See third comment under Incentive 1 above.

The item of most concern to us is the apparent definition of pilot and demonstration plants as comparable. The jointly owned property concept is bothersome as well. The option to purchase should not be solely the government's. Industry should have one that is equal. How much supervision by the government would be involved?

Incentive 3. Convertible Grant

See third comment under Incentive 1, preceding page.

One-half the cost of a demonstration plant does seem to be an appropriate government share; here again, a negotiating range is desirable depending upon the nature of the project. The rights and obligations of the government and the grantee in the conversion features of this incentive should be flexible and negotiable. These provisions should reflect the likely applicability of the demonstration plant facilities in a commercial project. If the demonstration plant is an expanded pilot project with little or no commercial use likely for the facilities, the rights of the government under a failure to convert should be correspondingly diminished. In any event, where the government has a right to the background intellectual property of the grantee, its value should be established in the grant negotiations prior to initiation of the demonstration plant.

Generally, we like this. Under this incentive we would have reached a point of serious commitment and would be ready to move ahead. The time-frame here, however, requires relief from the front-end load. This would help in that regard until we would be on our feet. Note, however, that any other funding under other incentives would be in addition to this. In enhanced oil recovery we face this: it will require years to get back the funds initially expended.

Incentive 5. Guaranteed Procurement/Fixed Price

Though the concept of a guaranteed procurement at a fixed price may be a viable incentive, the application of the concept under the hypothetical terms and conditions here is not appealing. While we realize that business risk requires commitment by the contractor to the initial price, if the government elects to require the contractor to sell the product on the open market, we would be required to share 15 percent of the net loss. The application of the hypothetical terms and conditions under this incentive is not clear and would require further analysis.

In this concept, ceasing production and going into a standby mode is impossible. Mothballing is just not practical in in situ work, or in any heat process. Everything could be lost by killing the fire, whether by smothering or by water; the project could not be revived. Not only the investment but the resource would be lost.

To implement price support, some form of balancing fund between the government and the contractor is definitely preferable to prorating the cost of any price support among refiners of conventional petroleum products. The combination of a price support incentive with some form of financing appears to be desirable for the commercial phase of synthetic fuels. Financing in the form of advance payments for production would definitely be preferable; alternatively, government-guaranteed financing for 75 percent of the cost of a commercial plant is viable. This combined incentive would also be viable for a demonstration plant facility which was integrated into a commercial application. In guaranteeing the contractor a market for a specified quantity at a contractual price, the fixed price contract should contain some form of economic escalator, even for a negotiated support price. This flexibility in the price provision protects against extreme risks when costs are difficult to project. One of the most difficult problems with this incentive will be the structure of mutually acceptable termination provisions. The unilateral rights of the government in the hypothetical terms and conditions for stop work orders and cessation of production are onerous.

Incentive 6. Guaranteed Procurement/Cost Plus Fixed Fee

This is not applicable as it is to tangible products, as in DOD procurement. The fixed fee could represent a loss potential. Close government control would inevitably result and this is not acceptable. Would you want to deploy resources, both human and monetary, for this return? The five-year limitation could not apply. This is not an appealing incentive.