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QUESTIONS AND ANSWERS CONCERNING THE  
ALASKA HIGHWAY GAS PIPELINE

by ARLON R. TUSSING

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These questions and answers were originally prepared for an October 1979 appearance by Dr. Tussing at a regulatory proceeding in Canada. This version has been slightly extended and revised for general audiences in Canada and the United States.

1.Q. Dr. Tussing, please state your address and occupation.

A. I have two professional addresses. First, I am adjunct professor of economics in the Institute of Social and Economic Research of the University of Alaska, 707 "A" Street, Anchorage, Alaska. I am also president of Arlon R. Tussing and Associates, Inc., economic consultants, 2720 Rainier Bank Tower, Seattle, Washington.

2.Q. Please briefly describe your education and professional experience.

A. I was graduated with bachelors' degrees from the University of Chicago and Oregon State College, pursued advanced study in economics at the Institute of Economic Research of Hitotsubashi University, Tokyo, and have a doctorate in economics from the University of Washington in Seattle.

I have been affiliated with the University of Alaska on a full- or part-time basis since 1965. In 1967 through 1969 I was staff economist of the Federal Field Committee for Development Planning in Alaska, and from 1972 through 1976 I was chief economist of the U.S. Senate Committee on Interior and Insular Affairs (now the Committee on Energy and Natural Resources).

I have served part-time as a consultant to government and industry since 1976, and about two years ago established a consulting firm based in Seattle. My clients have included agencies of the United States and Canadian federal governments; the states of Alaska, Washington, and California, and the provinces of British Columbia, Ontario, and Nova Scotia; petroleum, utility, and transportation companies; and Alaska Native corporations.

3.Q. You are reputed to have originated the concept of an Alaska Highway gas pipeline. Don Peacock, for example, in his book, People, Peregrines, and Arctic Pipelines, says that the pipeline "\*\*\* was the idea of none of the companies involved. It was the brainchild of a professor of economics at the University of Alaska, who was then serving as a consultant to the Senate Committee on Energy and Natural Resources, Dr. Arlen [sic] Tussing. \*\*\* He buttonholed Blair during a Washington visit in February 1976 to plead with him to give some serious thought to the idea." The author goes on for several pages about your contribution to the Alcan concept. Are you familiar with Mr. Peacock's book?

A. I am.

4.Q. Is his account accurate?

A. Mr. Peacock is substantially correct about my role in getting Mr. Blair and Foothills involved. But I was by no means the only person in the United States or Canada who had considered an Alaska Highway route for the gas line before 1976. The Mountain Pacific group under the leadership of Westcoast Transmission Company, for example, had begun to study an Alaska Highway proposal in 1970.

5.Q. Please outline the work you did for the Legislative Affairs Agency of the State of Alaska about the financing of the Alaska Highway pipeline.

A. In April 1978, Northwest Alaskan Pipeline Company, the chief American sponsor of the Alaska Highway gas pipeline, proposed that the State of Alaska participate in financing the pipeline segment within its borders. The Alaska Legislature's response to this request included a contract with the University of Alaska's Institute of Social and Economic Research to investigate the economics of the pipeline project, its commercial viability, and the effect (if any) that state investment might have on its chances for success. Under this contract, Connie C. Barlow and I published three reports on the pipeline venture.

6.Q. Could you tell us a little about Ms. Barlow.

A. Connie Barlow is a natural scientist by training, and immediately before joining my firm had served as assistant to the President of the Alaska State Senate, and then as staff assistant to Alaska's Commissioner of Natural Resources, dealing with management of the state's royalty oil and gas.

7.Q. Go on about your reports to the legislature.

The first preliminary report, Marketing and Financing Supplemental Gas, was adapted from earlier work Ms. Barlow and I had done for the U.S. Department of Energy's Office of Oil and Gas Policy. It was released by Alaska's Legislative Affairs Agency on October 25, 1978, along with a primer on natural gas, Introduction to the Gas Industry, which explained what natural gas was and how it was shipped, sold, and regulated. The report found that uncertainty about marketability of Alaska gas was large enough to warrant concern by all parties involved in its production, transportation, and distribution, and particularly by prospective suppliers of debt capital to the pipeline project.

The Alaska Highway Gas Pipeline: A Look at the Current Impasse, released on January 13, 1979, was

the second preliminary report in this series. Reviewing the events that led to the selection of the Alaska Highway route and its present sponsor, our report also examined the claims of Northwest and federal officials that government financial assistance was unnecessary. We concluded that Northwest, the Department of Energy, and the President had put themselves in a box with overly optimistic claims about the outlook for private financing, and that the venture surely would remain at an impasse until the sponsors and the federal government faced up to the matter of risk allocation and devised an honorable retreat from their earlier dogmatic assurances to Congress.

Financing the Alaska Gas Pipeline: What is to be Done? was the final report from this investigation. Published in April, 1979, it concluded that the pipeline was not a viable enterprise as then planned, and that even if Northwest's urgent demand on the State of Alaska for a half billion dollar equity contribution were met, the project would still be unworkable. In light of this finding, the final report concentrated on what had to be done, and by whom, if the project were to have a chance of success.

8.Q. John McMillian, Chairman of Northwest Alaskan, has denounced your report as incompetent, and claims that you and Ms. Barlow never bothered to obtain his views or those of his financial advisors. Before you published your reports, did you in fact make any effort to contact the people in industry and government who are actually involved in planning and financing the project?

A. The economic and financial analyses were our own, but we developed and refined them in the course of interviews with practically everyone connected with the project except Mr. McMillian, who refused to see us. We had interviews with the officers and staff of the three major North slope producing companies and several Canadian producers; a representative cross-section of the U.S. gas transmission and distribution companies, including Northwest's partners in the Alaska project and all of the major Canadian pipeline companies; a host of investment banking firms, including advisors to Northwest (Mr. McMillian to the contrary notwithstanding), and other financial institutions, including the two largest institutional lenders in the United States. We spoke with members and staff of the Federal Energy Regulatory Commission (FERC) and several state

utility commissions; top officials and analysts at the Department of Energy; members and staff of the United States House of Representatives and Senate, personnel of the Congressional Research Service, the General Accounting Office and the Congressional Budget office. We also consulted with Canadian federal and provincial government officials and staff, including members of the National Energy Board, and the Commissioner and staff of the Northern Pipeline Agency; and with the United States Ambassador and embassy staff.

Before us, Neither Northwest nor the responsible federal officials had bothered to talk to all of the concerned parties, or made any effort to put their respective motives and views into a larger perspective. Now, everybody seems to be communicating with everybody else, and I feel that our interviews and reports helped to initiate the current round of discussions and negotiations.

9.Q. What did you conclude about the economics of the pipeline project? Does it make sense economically?

A. It does. We started from the proposition that the pipeline would be worth building if the value of Alaska gas to consumers in the Lower 48 states were

greater than the real economic cost of delivering it. Real economic cost --- sometimes called resource cost --- means the value of the labour, materials, and capital that would be needed for field development, gas conditioning, and the pipeline system proper. We concluded that Alaska gas would be a bargain for the U.S. economy even with substantial cost overruns on the pipeline, and even if the price of imported oil remained stable at early 1978 prices.

10.Q. Did you conclude, therefore, that marketability of Alaska gas would not be a problem?

A. Marketability is a different issue. Marketability has to do with the price consumers pay, not the real economic cost of the gas. We found that the economic cost of the gas would be less than \$2.00 per million btu (in 1978 dollars) over the life of the pipeline. But the price paid by consumers includes not only the cost of labour, materials, and capital, but also oil company profits, state and Native royalties, and state and provincial taxes. We reckoned that the average price of Alaska gas in 1978 dollars could be as high as \$4.00.

Pipeline tariffs have their highest charges in the early years, and we saw a possibility --- however

remote --- that the gas might be overpriced at some time during the life of the Alaska Highway system. Northwest and the Federal Energy Department tended to dismiss this possibility, but potential investors in the system --- the insurance companies, for example --- were quite concerned about marketability.

11.Q. What did you conclude, therefore, about the fin-  
cibility of the pipeline?

A. We concluded that the Alaska Highway Gas Pipeline could not be financed and built unless the United States government guaranteed at least part of the project debt.

12.Q. This conclusion is quite at odds with the views of Mr. McMillian and the U.S. Government. Did anyone else share your position?

A. Our judgment at that time was shared almost unani-  
mously by the natural gas transmission industry  
(other than Northwest), Alaska gas producers,  
investment bankers, lending institutions, state and  
federal energy officials and regulators (except for  
the highest officials of the Energy Department),  
and concerned members of Congress.

13.Q. You seem to be clinging very carefully to the past tense in reporting your conclusions. Has anything happened since your last report to change your mind?

A. Yes, conditions have changed considerably. If we were writing the report today, we could not be nearly so categorical about the impossibility of private financing. We wrote in a couple of places that nothing short of Divine Intervention could make a wholly private financing possible. Well, the "Imam" Khomeini claims to speak with the voice of Allah, and he may in fact be the Saviour of the private financing plan. World oil prices have risen by almost 75 percent in the last year, and have practically banished any serious concern about the marketability of Alaska gas. At the same time, North Slope oil and gas producers and the state of Alaska are stuffed full of so much cash they hardly know what to do with it. They are certainly in a much better position than they were a year ago to give the pipeline financial support. Obstacles to private financing are still immense, however.

13.Q. What obstacles remain?

A. The Alaska Highway gas transportation system is a huge and complicated undertaking, with serious construction and operating risks. Its operating

risks include interruption or reductions in gas shipments caused by problems in the field, at the gas conditioning plant, or anywhere along the thousands of kilometres of pipeline, as well as a slight remaining possibility that the delivered gas will be priced so high that it cannot be marketed. More serious than these operating risks, however, are the risks of unforeseen engineering, regulatory, political, or legal problems that might prevent or indefinitely delay completion of one or more parts of the system.

Some of these risks are quite remote, but others are very serious, at least in the judgment of parties who will ultimately have to decide whether the pipeline can be privately financed. Big insurance companies, pension funds, and other large lending institutions, for example, will not take the risk of noncompletion or extended delay upon themselves.

- 15.Q. The Trans-Alaska oil pipeline (TAPS) was also an extremely risky project. It was delayed for many years and had stupendous cost overruns. Yet its sponsors were able to arrange debt financing for more than 90 percent of the pipeline's capital costs. Why do you consider the gas line to be different?

A. The oil companies that built TAPS used conventional "balance-sheet" financing. In other words, ARCO, Exxon, British Petroleum, and the Standard Oil Company (Sohio) put their entire world-wide assets behind the project debt. Even then, it is worth noting, one of the biggest insurance companies of North America declined to participate in Sohio's pipeline debt because it concluded that the risks were too great.

The financing plan for the Alaska Highway gas pipeline is quite different. The U.S. and Canadian sponsors of the gas line intend to use a technique called "non-recourse project financing". In contrast to the case of TAPS, the pipeline companies that are sponsoring the project would not be responsible for debt service if construction were delayed or abandoned, if the gas turned out to be unmarketable, or if gas shipments were reduced or interrupted. The only source of funds to pay interest or repay principal would be the ultimate consumers of Alaska gas in the United States.

Under present law, however, there is no way that Northwest Alaskan and the Foothills companies, or the American gas pipeline companies that would

ship their gas over the Alaska Highway system, can compel final consumers or even the local gas distributors to pay for gas they do not get.

16.Q. What are the legal obstacles to "tracking" all legitimate charges through to final consumers, and are these obstacles insurmountable?

A. The tracking problem applies to both operating risks and construction risks. The operating risks are a bit easier to deal with, so let's consider them first.

Suppose the entire transportation system has been completed and is in operation, but that an explosion and fire destroys the conditioning plant at Prudhoe Bay. The Northwest and Foothills tariffs provide that the gas shippers --- U.S. gas transmission companies --- must continue to pay a "minimum bill" to each of them that covers all debt service. The shippers are expected to sign service agreements --- contracts with Northwest and Foothills --- that oblige them to pay all charges authorized under the tariff. Yet there is nothing in the existing service agreements between the shipper pipelines and their own customers, the local gas distribution companies,

that oblige the latter to pay for transportation services on gas that is not delivered.

17.Q. Can't the service agreements be amended in order to cover the kind of contingency we have been discussing?

A. Yes, the contracts might conceivably be amended in this way. But at least some of the distribution companies and at least some of the state regulatory commissions are sure to resist such amendments.

18.Q. Doesn't the U.S. federal government have the right to override the states on matters that affect the interstate shipment of gas?

A. I'm not a lawyer, and I don't want to be too dogmatic about a sticky issue of constitutional law. But it is a sticky legal issue, and many experts doubt that the Federal Energy Regulatory Commission (FERC) currently has authority to enforce the perfect tracking of transportation changes on the Alaska Highway system in the face of opposition from a state utility commission.

It doesn't really matter how the Supreme Court would finally decide the question, however. Until the issue has in fact been decided --- and

litigation could take many years --- the big institutional lenders are not going to commit their money to a project whose only security consists of service agreements signed by Lower 48 pipeline companies which may --- or may not --- be able to collect from their own customers for all the charges imposed on them by the Northwest Alaskan or Foothills tariffs.

19.Q. So far you have discussed the tracking problem only with respect to operating risks. Is it any different in the case of delay or non-completion of pipeline construction?

A. The same principles that govern operating risks also apply to the risk of delay or non-completion, but the latter risk is a far bigger one. Moreover, the terms of the Presidential Decision selecting the Alcan route seem to preclude any contractual or regulatory resolution of the problem.

Suppose this time that the Northwest and Foothills pipeline segments are all complete and ready to operate, but that unforeseen engineering or legal problems prevent completion of the gas conditioning plant. Or assume that the conditioning plant gets completed, but that an explosion and

fire seriously damages it during the testing and shakedown period. How long would lenders to Northwest and Foothills be content with postponement of debt service, or with the risk --- however remote --- that the plant would never go into operation?

The tariff for each of the pipeline segments authorizes it to start billing its shippers as soon as that segment is completed, but the tariff will not be security enough for project lenders unless the lenders are confident that the minimum bill will be tracked "come hell or high water" to the ultimate consumers of gas. No such assurance exists today, and no such assurance is possible under present U.S. laws.

The President's 1977 Decision approving the Alaska Highway system makes it even more difficult to track pre-operational charges through to U.S. consumers: The Decision categorically forbids any "surcharges" on consumers prior to "commissioning" of the transportation system. Granted, the language of the Decision is ambiguous, and the parties are presently quibbling over the exact date on which the operators of each segment

of the transportation system will be allowed to start billing shippers. Nevertheless, the main thrust of the President's Decision is beyond dispute: American consumers as such will not be permitted to bear the risk that the pipeline will not be completed.

20.Q. Would you summarize your analysis with respect to the risk of non-completion or extended delay?

A. First, the institutional lenders absolutely will not assume the non-completion risk. Until that risk is securely and unambiguously assumed by --- or imposed upon --- some other creditworthy party or group of parties, no section of the transportation system can be financed.

Second, under the Northwest and Foothills financing plans, the equity owners do not plan to assume this risk themselves. They are probably unable to do so in any case, at least with respect to the pipeline's debt capital.

Third, the existing service agreements between the U.S. pipeline companies and most of their local distribution companies do not oblige the latter to pay transportation charges on Alaska gas they do not get, or authorize them to pass such charges on to their customers. At least some of the some

state utility commissions will surely resist imposing such charges on the consumers whose interests they are legally and politically bound to defend.

To cap it off, the President and Congress have forbidden any tariff or financing scheme for the Alaska Highway system that imposes the risk of non-completion on gas consumers.

21.Q. What about the oil companies and Alaska? They have a tremendous stake in this project. Won't they ultimately be willing to assume most of the risks in order to get construction underway?

A. The three major North Slope gas producers and the State of Alaska are all on record as willing to participate somehow in financing the gas transportation system. Exxon has made a specific proposal with regard to producer investment in the system. The producers and the state are, in addition, now in an excellent cash position to participate. But the kind of support they can or will give is still very much in question.

22.Q. Your reports to the Alaska legislature implied that the state and at least one of the producers were not even capable of providing effective

financial backing. Have you changed your mind about this question?

- A. About their ability to backstop the project, yes. The recent increases in world oil prices over the last year have dramatically improved the cash position of both the state and the oil companies, and there is now no question of their ability to give substantial support to pipeline financing.

23.Q. What is the problem then?

- A. There are several problems. For one thing, the Presidential Decision prohibits the gas producers from having an equity interest or management voice in the transportation system.

24.Q. But can't the oil companies simply lend money to the Partnership, or guarantee pipeline debt?

- A. Conceivably they can. But I am confident that they will not in fact lend money or guarantee debt --- at least without a voice in management. The sums are too large, the risks are too large, and the producers have serious doubts about the competence of the project's U.S. leadership.

Before any gas can be shipped on the Alaska Highway system, the gas producers must invest

another \$1 to \$2 billion in field development. FERC has, moreover, required the producers to absorb all gas conditioning costs, and by implication, the financial burden of building a \$2 billion dollar gas conditioning plant. And finally, Alaska's Oil and Gas Conservation Commission is likely to direct the companies to institute waterflooding in the Prudhoe Bay reservoir at an additional cost of about \$2 billion several years earlier than the companies would themselves have regarded it to be financial justified. So the producers' outlays other than for the pipeline will already cost on the order of \$5 billion dollars, which will all be in vain if the entire pipeline system is not completed and put into operation.

Under these circumstances, the producers are not going to rush in with additional billions of dollars in unsecured credit, or with loan guarantees in behalf of other parties. Distinctions among equity, debt, and debt guarantees are almost meaningless so long as the main risk is non-completion or indefinite delay. Investors and guarantors will face the same absolute exposure: if the project is not completed in its entirety,

neither interest receives either a return of or a return to the funds placed at risk.

Exxon has proposed that the producers contribute 40 percent of the equity and 40 percent of the debt. Before the oil companies make any final commitment to the pipeline project, moreover, I am confident they will demand to see a final engineering design; like the institutional lenders, they will demand a clear legal resolution of the tracking problem; they will demand a reorganization of the Northwest Alaskan partnership with a major management voice for themselves, and they will demand something like equity rates of return to debt or debt guarantees until the whole system is assured of completion.

25.Q. Northwest and The U.S. Energy Department are both optimistic they can find some way to involve the oil companies without violating the Anti-Trust laws. Won't the Justice Department agree to anything the President really supports?

A. There is a general misconception about this issue. The Anti-Trust Division of the Justice Department categorically opposes producer ownership of oil and gas pipelines. The Justice Department has been publicly committed to this position for more than

forty years, but it has never tested it in the federal courts. The outcome of such a test is uncertain at best.

The problem is not the anti-trust laws or even the Justice Department's reading of the anti-trust laws. The problem is that President Carter accommodated the Anti-Trust Division's obsession on this issue in his Decision on the Alaska gas pipeline, by forbidding the gas producers any ownership role. When Congress ratified the President's Decision, the Decision became federal law, and this law cannot be repealed or amended without Congressional action.

The lawyers for the oil companies, Northwest, the Department of Energy, or even the Justice Department may be able to concoct a plausible legal theory permitting some kind of equity or management participation by the producers. One approach would be for the pipeline partnership to grant a contract for construction management to an entity controlled by the producers. But such a device may not be good enough; the oil companies are not the most popular people in America today. All it might take to block such a move would be for some Congressman, or some private citizen, to insist that the President's Decision is indeed the law, and that the

President meant what he wrote in 1977. I am not convinced that the oil companies can sneak into pipeline management simply by means of a legal ruse.

26.Q. What about Alaska?

A. Both the governor and the legislature have already committed themselves in principle to state financial participation. But it would be a mistake to assume that Alaska's interest in construction of the pipeline is so compelling that the state will do whatever may be necessary or, more accurately, whatever it is asked to do, in order to assure the project's success.

While elected officials and Alaskans generally tend to be in favor of the pipeline, it does not have the widespread and passionate backing that the TAPS oil pipeline and the unsuccessful "All-Alaska" gas transportation system received in earlier years.

Some Alaskans fear undesirable industrial development and population growth, while others hope that Prudhoe Bay gas can be kept in Alaska to fuel in-state industrialization. Another concern of is that cashing out of the state's gas reserves now will only intensify the hard landing expected

in the 1990's after Prudhoe Bay oil income has begun its sharp decline. And both the "right" and "left" ends of Alaska's political spectrum tend to be suspicious of government involvement in private industry. Finally, Northwest's public and political relations have been clumsy at best; the company's management is widely distrusted and disliked in Alaska. All in all, state financial support to the pipeline is not a terribly popular cause.

27.Q. What is required for Alaska to participate?

A. The Alaska government has essentially the same concerns as the oil companies --- completion of a final engineering design, resolution of the tracking issue, and existence of a credible financing plan and competent management. While Alaska can --- and in my judgment ought to --- make a large contribution to financing the project, the state is not likely to commit itself in advance of all the other parties, particularly the oil companies. Right now, Alaskans seem to be even more preoccupied with making natural gas liquids available for local petrochemicals manufacturing than they are with assuring that the pipeline can be built. State officials have made access to the liquids an absolute prerequisite to cooperation with the

project, but I am not sure what "access" really means and I am not sure that they do.

28.Q. What has to be done, therefore, before the pipeline can be financed?

A. Both the completion and operating risks have to be firmly and unambiguously allocated among parties that are both willing and able to bear them. We are very far from such an allocation of risks today. I see no way, moreover, that any workable allocation of risks can be arranged without some action by Congress.

29.Q. Do you still believe the U.S. government is the only party realistically capable of assuming those risks? Is there any way that federal loan guarantees could be avoided?

A. Under last year's circumstances, a purely private financing was almost inconceivable; as a practical matter, the outlook is still not terribly favorable. If the President and Congress had truly wanted to avoid government guarantees, the restrictions they put on private financing have been woefully shortsighted.

30.Q. You keep alluding to mistakes that the President and Congress made. Could you summarize these mistakes?

A. First, the President and Congress prohibited any penalties on prospective shippers of gas for non-participation in the project, and created no positive incentive for the former Arctic Gas companies to join the Alcan group. In 1977, twelve to eighteen companies were expected to join the Northwest Partnership, but as a result of federal shortsightedness, today there are only six. On the one hand, Section 13(a) of the Alaska Natural Gas Transportation Act (ANGTA) forbids the Partnership from making pipeline ownership a condition for shipping gas. On the other hand, the former Arctic Gas companies lost their entire investment in the rival project. In my view, FERC should have given these companies credit for all or a major part of their earlier investment, on the condition they joined the Alcan group.

The narrow equity base in the project has compelled its sponsors to seek totally non-recourse project financing, because they themselves don't have sufficient resources to back the pipeline's debt. There has never yet been a successful non-recourse financing of a major energy project in North America, and it is probably a hopeless strategy for such a big and risky venture.

The narrow equity base also means a narrow political base, incidentally, making it more difficult than it otherwise would have been to amend the Presidential Decision if it is necessary to do so in order to finance the pipeline.

Second, the President prohibited consumer surcharges in advance of the whole project's completion, knocking out the most essential condition for a successful non-recourse project financing, namely, the assurance that charges for debt service will be tracked to the final gas consumer whatever may happen, through an unbroken chain of tariffs and service agreements.

Finally, the President barred the only section of the energy industry that has sufficient assets or cash flow to back a major portion of project debt from participating in equity or management. This restriction on the gas producers' equity role makes it unlikely that the producers will provide much debt or debt backing.

Having undermined the possibility of private financing, the President's Decision also rejected the only reasonable alternative --- federal loan guarantees. The Carter Administration, moreover,

prevailed on the pipeline sponsors to promise Congress that they would never come back for such guarantees.

31.Q. What are the essential principles for a successful financing plan for the Alaska Highway Gas Pipeline.

A. Conceivably, there may be some combination of tariff provisions and regulatory measures that can satisfy lenders that all operating risks have been provided for. If the pipeline sponsors could convince lenders that no plausible combination of events could ever interrupt the flow of debt repayment and interest, it is remotely possible that a completed system could be privately financed with non-recourse borrowing. This arrangement, of course, means that the system's operating risks --- large or small --- have to be assumed by the consumers.

The risk of non-completion, however, is not going to be shifted to consumers. The gas producers and the State of Alaska, or the federal government or all of them, are somehow going to have to share this risk. But decisions on the allocation of benefits, costs and risks cannot be made piecemeal in a series of adversary proceedings before FERC, the NEB, and state regulatory commissions.

There is no way one can reasonably separate the treatment of field prices and the responsibility for gas conditioning costs; the share that the pipeline owners, gas producers, the Canadian government, or Alaska take in backing pipeline debt; the rate of return to pipeline equity; tariff conditions, including the risks shifted to gas distributors or final consumers; and the responsibilities assumed by the United States government. A major shift in any one of these parameters will change what some of the parties regard as fair and reasonable with respect to all of the others.

Someone has to coordinate or "broker" an overall financing plan that all the parties regard as workable and fair; and the negotiated plan has to be submitted as a package to the regulatory bodies and probably to Congress. My collaborators and I suggested the President designate someone like Robert Strauss or Felix Rohatyn to mediate the negotiations. While nobody of this stature has been appointed to play this role, the Energy Department finally seems to realize that the federal government must play a leading role in negotiating a financing package.

32.Q. Do you mean that all of the decisions taken so far may have to be reconsidered?

A. Not necessarily all of them. The general pipeline route, and the choice of sponsors in Canada and their organizational relationships do not need to be changed. I believe that all the parties can live with the existing wellhead price formula. One can argue that some of the technical decisions --- pipeline diameter and pressure, for example --- are not optimal, but these decisions are not central to the financing problem, and probably should not be reopened except for the most compelling reasons.

But the prohibitions on oil company equity participation and consumer surcharges; the "equal access" requirement, and the total writeoff of all pipeline company investments in the Arctic Gas project; the organization and leadership of the Northwest Alaskan partnership; the responsibility for conditioning costs; and the Alaska segment Incentive Rate of Return (IROR) have to be subject to reconsideration. And the possibility of federal financial aid must at least be open to consideration and negotiation.

Actually, except for federal financing, all of these issues are in fact being reconsidered right now in negotiations between the gas pipeline companies, the Department of Energy, and the producers.

33.Q. You mentioned the Incentive Rate of Return.

FERC has supposedly made a final decision on the IROR for the Alaska segment. Could you explain why FERC's decision might have to be undone?

A. FERC's decision on the incentive rate rests on two legal fictions.

First, the commission ignored the difference between balance-sheet financing and non-recourse project-financing. Because the pipeline sponsors do not propose to guarantee project debt, their own financial exposure will be much less than it would be in a conventionally-financed venture. FERC awarded them a centre-point rate of return of 17.5 percent, on the basis of the return on equity in supposedly allowed "comparable" investments. But this is in fact a rate that would be appropriate to such investments only if they were financed on the sponsors' own balance sheets.

The upshot is that FERC has given the Northwest partnership a risk premium on its rate of return

that would normally be considered a reward for assuming the risk of guaranteeing project debt; this premium will now have to be paid twice --- once to the equity investors and once again to the parties that do actually guarantee the debt.

Second, the Commission believes that the Internal Revenue Code compels it to ignore the Investment Tax Credit (ITC) as a source of project equity, and indeed, to pretend that the ITC does not exist at all. What FERC now styles as a centre-point rate of return of 17.5 percent is in fact a return of about 30 percent.

There will be no pipeline unless some party or group of parties --- consumers, Alaska, the oil companies, or the federal government --- does assume the debt guarantee burden. Once someone other than the equity owners guarantees the debt, however, the risk to the latter fall dramatically; a 17.5 percent centre-point rate of return (and even more certainly, one of 30 percent) neither will be necessary to attract equity investment nor will it be politically tolerable.

Thus, the ultimate financing plan --- whether it is wholly private or involves government support ---

will create pressure on FERC to reconsider its ruling on the rate of return.

34.Q. To what extent does your financial analysis apply to Foothills? Are the risks the pipeline faces equally concentrated in Canada and the United States?

A. No, they are not. Foothills faces fewer hurdles in financing and constructing its sections of the pipeline. However, the Canadian sections of the Alaska Highway Pipeline cannot be financed and built unless the completion of the American portion is guaranteed, and unless lenders and equity investors in Canada are assured that no plausible combination of events in the United States could ever interrupt their revenues.

Thus, the most important financial risks arise in the United States, but their impact on the project's financing falls equally on the U.S. and Canadian segments. Completion guarantees or a resolution of the tracking problem for the American sections of the pipeline also serve to protect Canadian investors, but no part of the system can be built unless some party or combination of parties agrees to guarantee completion and debt service on all its components.

It is not clear at this time whether the Canadian segment of the pipeline will require separate and explicit guarantees from the U.S. or Canadian government, or from the gas producers. The answer will depend on the kind and amount of risk all other parties --- U.S. sponsors, gas producers, the state of Alaska and Canadian owners, and U.S. consumers --- are willing to accept, as well as the extent of backing the American government gives to the system's American portions.

35.Q. In your judgment, therefore, is it possible for you or I, or the National Energy Board, to assess the riskiness of equity investment in Foothills unless we know what the actual financing scheme will be for the U.S. portions of the pipeline?

A. No, It is not possible.

36.Q. And do we know today what that financing scheme will be?

A. No, we do not. I can say with reasonable confidence, however, that the actual financing will be different from any strategy Northwest, the U.S. Government or the gas producers have thus far publically proposed.

37.Q. Thank you, Dr. Tussing. Those are all of my questions at this time.