ALASKA LEGISLATURE SPECIAL COMMITTEE / SUBJECT FILES 8672
503 SCOMM15: HOUSE/SEN. SP. COMM. SALE ROYALTY GAS 1977-78 503

That might not be a realistic concern because the FPC wouldn't approve of such a contract anyway in their regulation of the transportation of such gas.

DR. TUSSING: Well, no. That's a -- that's one that depends on the -- it's conditional on deregulation. So, it wouldn't require an FPC approval. The FPC will continue to regulate the transportation and the transportation costs but if that's a feature of the wellhead price, conceivably the FPC could reject the whole contract on the grounds the pricing provisions are not in the public interest but I don't see that as a problem. I just -- let's say what you are giving up are the shortcomings identified by Mr. Swanson and Mr. Moody, as far as I can tell. That is, that there -- that you are giving up options or some possible options for getting a higher price by leaving the gas off the market until you see -- until all the circumstances are sorted out. You know -- for example, the amount the gas is worth to a particular gas distributor does depend on the transportation system. Now, the hierarchy -- the ranking and the order of preference of the different potential customers would change. For an Alcan system probably -- probably Northwest would be your preferred customer in a deregulated situation because the value of gas in its market is essentially the same as it is anywhere else in the country but it is

closer, so you have the lowest transportation costs. And, under the LNG system you would probably -- conceivably El Paso would be willing to bid the highest for two reasons. First, because it would be the point of off loading and be closest, and second, because they are quality problems. California probably has the highest premium but as you know, of course PG & E, which is one of El Paso's customers, is part of the Arctic group and would like to bring the stuff overland to California. Now I don't know how much PG & E would give.

REP. MEEKINS: Thank you.

SENATOR RADER: Mr. Chatterton?

REP. CHATTERTON: Mr. Chairman, Dr. Tussing, this is in effect the same question as Mr. Meekins -- Representative Meekins asked and I am going to ask it so I think that we can not be confused by rhetoric about pipeline routes and stay with just one subject, the contract, and I think you can answer it with a "yes" or "no". My question, do you believe that this legislature in approving these three gas sales contracts would be doing the people of Alaska a disservice?

DR. TUSSING: I can't answer that. That's a political question that really goes beyond my competence.

SENATOR RADER: Any further questions? We'll adjourn and subject to an adjournment by the House and Senate

tomorrow morning we will reconvene at 11:00 a.m.

We'll start with the Alcan people and go from Alcan to Arctic Gas and then probably through our consultants and then into the general public testimony.

We stand adjourned.

(Whereupon the hearing was adjourned at 5:15 p.m.)

Perspectives

Volume four, number four, 1976 Published by the Canadian Arctic Resources Committee

AN INKLING OF THE LONG JOURNEY

Arlon R. Tussing

There are, I believe, serious questions about the viability of the transportation systems proposed by both the Arctic Gas consortium and the El Paso Company for taking Alaska natural gas to U.S. markets. An investigation I conducted in 1975 on the economics of the two proposals for the State of Alaska raised the possibility that the cost of delivering the gas might actually exceed its value to consumers. At best, it appears that both projects, as proposed by their sponsors, are so risky that it may not be possible to finance them privately, even if their political and regulatory problems can be overcome — itself a questionable issue.

Both U.S. projects face the following risks:

Gas supplies: Production from the Alaska North Slope, and in the case of the Arctic Gas proposal, from the Mackenzie Delta, may be substantially less than the design capacity of either transportation system, meaning that each unit actually carried would have to bear a larger portion of the system's fixed costs than projected by its sponsors.

Delays and capital cost overruns: Actual construction costs may exceed estimated costs by substantially more than the effect of general inflation. The Arctic Gas project involves construction and operating technology untested in North America, while its route traverses hundreds of miles of difficult Arctic terrain where there has been no previous construction of either pipelines or roads. El Paso proposes a system of unprecedented pipeline pressures and a huge scale-up of existing liquified natural gas (LNG) technology. New technology, unfamiliar environments, and a large scale — relative to previous projects, are exactly the ingredients of the most spectacular cost overruns. Arctic Gas, for example, envisions a system from Alaska, across Canada, and into the Lower 48 States with an estimated cost in 1975 dollars of about 8½ billion. I would not be surprised to see the total cost of either project exceed $20 billion, including interest on funds used during construction.

Experience in North America with big, custom-engineered construction projects has been that they normally cost two or three times their original projections, even including an allowance for inflation. Cost estimators are like accountants in that they prefer a solid, empirically based figure to a realistic figure. They do attempt to project the increase in anticipated labour rates and in the prices of specific materials but they don't take into account the fact that huge projects, particularly if they involve new technology or a remote construction site, usually don't work the first time around, nor that both the purchaser and the licensing authorities change their minds several times in the course of planning and construction. The cost engineers don't appreciate that

"It's new, man—it's bound to have a few little bugs."

Copyright (c) 1976 Chicago Sun-Times, reproduced by courtesy of Wil-Jo Associates, Inc. and Bill Maudlin

AGO 799767

such projects are usually clumsily managed and subject to a number of re-organizations during their design and construction. They don't allow for the fact that materials and equipment are always late and often mis-specified or defective, or that enterprises of this sort suffer not normal, but abnormal labour cost increases. Because of their size and urgency, they are especially vulnerable to wage pressure, even more so to featherbedding, and often to racketeering.

The Alaska oil pipeline was initially estimated at something less than one billion dollars in 1969. It will finally come in at a cost between eight and ten billion. This particular project is an especially horrible example because it has suffered from each of the diseases I mentioned. But it isn't unique. Nuclear generating plants in the United States have been coming in at four to five times their projected cost per on-line kilowatt.

On this basis the cost of the Arctic Gas project *could* easily become twenty billion dollars. Let's assume it *will* cost twenty billion and also that the project is to be paid for in 20 years, that is, a five percent amortization. Let's also assume that the investors should receive a 15 percent pre-tax rate of return on total assets.* Under a conventional utility accounting scheme, the project would need a first year cash flow of four billion dollars just to cover its fixed costs. On a discounted cash flow basis the annual fixed charge would be about $3.2 billion.

With a throughput of something like a trillion cubic feet per year, we are talking of $3.20 to $4.00 per thousand cubic feet (mcf) for the capital plant just to get the gas into the existing distribution systems in the Lower 48 states and eastern Canada. If less gas can be delivered, as is likely, the cost would be even higher. This charge doesn't include the cost of developing the gas fields, any return to the producers, royalties, operating costs or costs of distribution.

Market: Both El Paso and Arctic Gas insist that the natural gas shortage in the United States is an absolute one, and that Lower 48 markets will accept North Slope natural gas at any price. Not everyone agrees; the Federal Energy Administration, for example, estimates that no market for Prudhoe Bay gas would exist in 1985 at a "city gate" price exceeding $2.40 per million BTU (in 1975 dollars). The Interior Department's study reaches a similar conclusion. This price could easily be exceeded even *without* implausibly large cost overruns or shortfalls in gas supplies to the system.

*Based, for example, on 75 percent debt at an average interest rate of 10 percent, a 15 percent after tax return on equity and a 50 percent average tax rate on profits.

Experience in North America with big, custom-engineered construction projects has been that they normally cost two or three times their original projections, even including an allowance for inflation. New technology, unfamiliar environments, and a large scale — relative to previous projects, are the ingredients of the most spectacular cost overruns.

One assumption of the studies mentioned here is that natural gas field prices are free of Federal Power Commission (FPC) controls, and that the Alaskan gas is priced incrementally. Even relaxing these assumptions, however, it is not at all clear how much customers would be willing to pay on a year-round basis for the quantity of gas that would be carried by this system. The gas delivered through such a pipeline would be a base load supply delivered into southern distribution systems which have typical load factors in their premium markets of less than 40 percent. The seasonal swing in residential and commercial demand is one reason why about half the natural gas produced in the United States is now being burned as a boiler fuel. Some of the gas from the Arctic would have to be "dumped" in the boiler fuel market in competition with heavy fuel oil at an equivalent of about $2.00 or coal at about $1.00. The cost of Arctic gas delivered into the distribution system for premium customers could therefore reach $5.00, $6.00 or even more, per million BTU. Six dollar gas is about equivalent to oil at $30.00 per barrel. It would seem on its surface that there ought to be some question about the economic wisdom of such a project.

Political, regulatory and other institutional issues: Each project would face serious political and legal obstacles, even *after* it received a certificate from the Federal Power Commission. Lack of co-ordination in U.S. and Canadian approvals, for example, could block or delay construction of the Arctic Gas system, while there is some chance that resistance in California to port and terminal facilities would jeopardize completion of the El Paso system. The Arctic Gas system is, significantly, opposed by the governments and the preponderance of public opinion in both Alaska and Alberta, and the El Paso system is widely opposed within the state of California, where the liquified natural gas would be landed. The major environmental organizations are hostile to both projects. Neither they nor various local interest groups are likely to abandon every attempt to obstruct or delay construction simply because the system has been sanctioned by the Federal Power Commission.

Financing problems: The financial consequences of the risks I have listed are magnified by the fact that neither project can be built in smaller self-sustaining stages. Either would be a large integrated system which could not carry any gas or produce any cash flow until it was completed. Most of the capital invested ($10 to $20 billion or more) would therefore be exposed to these risk factors for at least the entire planning and construction period.

Private leaders simply will not accept risks of this sort, and neither project's sponsors are financially large enough to carry them, even if they were willing to do so. They do not in fact seem to be willing, as they both propose tariff conditions which would protect their own profits as well as their debt service obligations against "all events". Only the federal governments and/or, perhaps, potential gas consumers are in a position to carry financial risks of the size associated with either of the systems.

Accordingly, El Paso proposes to use federal loan guarantees (under an existing programme) for its LNG tankers, and spokesmen for Arctic Gas have suggested that governments indemnify the sponsors against cost overruns exceeding 40 percent (nearly certain, in my judgement). But, more importantly, each applicant proposes to rely on "full cost of service all-events tariffs" to cover their debt service obligations and to ensure a return on their equity. These tariffs provide, in brief, that consumers are required to pay the debt service and operating costs of the transportation system (plus a profit to the owners) no matter how great these costs are and whether or not the customers receive any gas. Arctic Gas's tariff would begin to run as soon as gas was first delivered; El Paso's would begin 60 months after approval of its project, even if it were never completed.

The proposition that consumers should bear or share in the risks associated with a project which benefits them is not in itself unreasonable, provided that the economic expectations of the project are clearly favourable and the risks are of a reasonable magnitude. But with these projects there are good reasons for doubt on both scores. Moreover, even if the Federal Power Commission were to approve "all-events" tariffs, local gas distributors would not

AGO 799768

sign contracts containing such tariffs unless they were assured *in advance* by their state regulatory commissions (as well as by their own market analyses) that they would be able to pass these charges through to their own customers. Responses by the state commissions to Federal Power Commission enquiries suggest that there is almost no chance that they would give such advance approval.

These considerations lead inexorably to the conclusion that neither system can be built in the form proposed by their sponsors without either substantial federal financial backing, Federal Power Commission authority to preempt the jurisdiction of state utility commissions over the tariffs of local distributors, or both. No plausible proposals of either sort have yet been made, either by the applicants or by any of the responsible federal agencies.

Perhaps the most chilling prospect is that the Federal Power Commission (and the National Energy Board, in the case of the Arctic Gas project) would license one of the projects on the basis of conventionally estimated costs. The Commission would permit the transmission companies to begin collecting interest on construction debt before the project goes on line, and on that assurance the capital market would provide the sponsors with three or four billion dollars for engineering studies, site preparation and materials acquisition.

At the completion of this first phase, the sponsors will try to borrow the money for actual construction. At this time the cost estimators will have brought the figure up to $13 or $14 billion or more. After some point even all-events tariffs would not assure debt repayment, so that the money just won't be there to finish the system.

But a commitment would have been made. The transmission companies and their customers will come to Congress (and the Canadian government) with figures that show the present benefits will still exceed the present costs, because sunk costs don't matter (except to the investors). They'll talk about the pressing need of consumers who don't have any alternative in sight (because they have been counting on Arctic gas), they'll talk about energy self-sufficiency, and they'll talk employment and the balance of payments. If Congress and the Canadian Parliament have any inkling now about the long journey on which they are about to embark, they may hesitate.

In summary, there seem to be two problems that work together to make questionable the completion of either project as proposed: each of them requires too large an initial capital, and that capital would be exposed to too many large risks. Once these are recognized as the critical problems to be overcome, it is obviously worthwhile to investigate whether there might not be some alternative system (or modification of one of the applicant's systems) which could begin with a smaller investment and perhaps be expanded in stages after gas and income begin to flow, a system with a smaller potential for cost overruns, and one which would raise less opposition on environmental, development or economic nationalist grounds.

The proposition that consumers should bear or share in the risks associated with a project which benefits them is not in itself unreasonable, provided that the economic expectations of the project are clearly favourable and the risks are of a reasonable magnitude. But with these projects there are good reasons for doubt on both scores.

The Fairbanks-Alcan route: One system which seems to have the possibility of meeting some of the criteria mentioned here would be an overland natural gas pipeline along the general route of the Trans-Alaska oil pipeline to a point about 100 miles south of Fairbanks, and along the general route of the Alaska Highway into northern British Columbia or Alberta. Such a route has been suggested as an alternative for the Arctic Gas system by various parties, including the FPC environmental staff.* Simply as an optional way of completing the Arctic Gas proposal, however, the Alaska Highway route would result in higher costs, because an additional separate pipeline leg would be required to bring the Mackenzie Delta gas reserves to market.

Use of the Alaska Highway routing would at first seem to have only two advantages over the system proposed by Arctic Gas: a reduction of the likelihood of major cost overruns because the new system would follow existing transportation corridors, where construction conditions are less extreme and better known, and less intense environmental opposition because this route has far fewer river crossings, would not invade the Arctic Wildlife Range, and follows a corridor already affected by development.

Coupled with two other changes relative to the Arctic Gas proposal, however, an Alaska Highway system would appear to be considerably cheaper in initial capital outlay, and still competitive or even superior in terms of expected transportation tariffs for Prudhoe Bay gas. The first of these two variations is to use, as much as is practical, conventional technology and existing transportation facilities in the United States and Canada. The second is to postpone construction of a transportation system to serve the Mackenzie reserves.

Northwest Pipeline Company, a U.S. company, together with three Canadian companies, Westcoast Transmission, Alberta Gas Trunk (AGTL), and Foothills Pipeline Co. (a joint venture of the other two) has formally proposed to build a system from Prudhoe Bay along the oil pipeline route to Fairbanks, then following the Alaska Highway to Fort Nelson, British Columbia and Zama Lake, Alberta, where the gas would enter existing Canadian transmission facilities. These facilities would be expanded where necessary to accommodate the increased volumes.

The pipeline concept proposed by Northwest and its Canadian partners would have several technical and financial advantages over the other two systems. It uses a 42-inch pipe, conventional technology, a corridor where there has already been highway and/or pipeline construction, and maximum employment of existing facilities. By virtue of these changes, the initial capital cost outlay before any gas or cash could begin to flow might be held considerably lower than the cost officially anticipated for the Arctic Gas system. The likelihood of large cost overruns, as well, would be much reduced by these features. Whereas ultimately, higher volumes would be required to cover the investment, the system could begin to operate with a flow of as little as a billion cubic feet per day. And, in my judgement, the political and regulatory barriers to an Alaska Highway system would be far less formidable than for either of the other two systems.

The system proposed by Northwest, Foothills, *et al*, may not yet be the cheapest way of moving Alaska gas to the United States Midwest and East. The Alcan proposal presented to the FPC and NEB still includes the 1117 mile Northern Border pipeline, which is part of the Arctic Gas system. The sys-

*In September 1976 the FPC staff issued an Alcan system supplement to the Final Environmental Impact Statement on Alaska natural gas transportation systems. This supplement urges that none of the proposals be approved as proposed. It concludes that the Arctic gas proposal would be environmentally superior to other alternatives if the leg to the Western United States were dropped (and that area were served with Alaska gas by displacement) and the "Fairbanks Corridor" (Alcan Highway) route were adopted. The FPC staff did not endorse the Alcan proposal of Northwest and Foothills "because it lacks the necessary expansion flexibility."

AGO 799769

tem with the lowest initial capital cost, however, seems to be one which would expand the Trans-Canada pipeline and the Great Lakes pipeline, instead of building an entirely new line across the Prairies. Both the U.S. and Canadian partners in the Alcan project understand the advantages of maximizing the use of existing facilities, and I can only speculate on the reason for retaining Northern Border. The Trans-Canada Pipeline Company, which is part of the Canadian Arctic Gas group, may be unwilling to co-operate with a rival proposal at this time, although there is no reason to suppose that Trans-Canada's facilities would not be available to move Alaska gas if the Arctic Gas proposal were to be rejected by the National Energy Board.

There is good reason to believe that the announcement by Northwest makes the State of Alaska's commitment to support El Paso obsolete, and that this support may deteriorate rapidly. The Northwest project would avoid most of the state's environmental objections to the Arctic Gas system, it also makes gas available in the Fairbanks area and involves almost as much pipeline construction within the state as would the El Paso system. Because it does not involve an LNG terminal, however, the boom resulting from building a pipeline along the Alaska Highway would be substantially smaller than the boom that would be generated by the El Paso project.

Alaska and the Alcan proposal: According to preliminary estimates from the University of Alaska's Man in the Arctic Program, construction of the Arctic Gas system would add $19 million to the state's gross product and three thousand persons to the state's population in the peak year of construction. The El Paso system would increase gross product by $235 million and population by 24 thousand, while the Alaska Highway pipeline routing would increase Alaska's gross product by $111 million and population by 15 thousand. These calculations do not take account of the fact that Haines and Skagway would undoubtedly be major ports of entry for materials and equipment destined for construction activities in Yukon Territory.

For these reasons, the Northwest proposal seems at the very worst to be a workable compromise that would be acceptable to almost every important Alaskan interest group. The newly proposed system may, however, be more attractive to Alaskans than as just a fallback position or a workable compromise. Northwest Pipeline's approach to the state contrasts sharply with the "take it or leave it" stance of both of the original applicants. Northwest has at least informally suggested that the state take an equity share in the pipeline system and take part in its planning and operation. The company also has approached, or plans to approach, Alaska-based corporations for participation, including the Inuit-owned Arctic Slope Regional Corporation and the Athabascan-owned Doyon, Ltd., and has suggested that a block of shares in the enterprise be offered to the general public in Alaska. The effect of these innovations would be to ensure that the system within Alaska would be closely identified with local interests and be responsive to them.

Regional interests outside of Alaska: The Alaska Highway pipeline proposal offers significant advantages over the two other proposed systems to a wide variety of regional and sectoral interests outside of Alaska.

British Columbia

For British Columbia, introduction of Prudhoe Bay gas will more fully utilize the existing facilities of Westcoast Transmission, and thereby reduce the cost of British Columbia gas delivered to consumers in the province. Construction of the pipeline would provide a stimulus to the development of northern British Columbia and Yukon Territory and strengthen the territory's links with market and financial centres in British Columbia. The proposal is now being discussed in the province as a possible justification for extending the British Columbia Railway to Whitehorse and eventually to Fairbanks. For these reasons, the provincial government has endorsed, and is reportedly considering joining in the pipeline project, perhaps as an equity participant.

Alberta

The project could be supported by the crucially important Province of Alberta (which now opposes the Arctic Gas application) because it would contribute to the optimum use of Alberta's own gas transmission system, rather than establishing a competing trunkline through the province. Unlike Arctic Gas, moreover, the new system would not in the immediate future compete with, and require the shutting in of, Alberta gas now dedicated to markets in eastern Canada.

Canada

For Canada as a whole, the Alaska Highway proposal would postpone the necessity of deciding when, how and by whom the Mackenzie Delta — Beaufort Sea region was to be developed, and whether that region or the Arctic Islands should take first priority for development among Canadian frontier regions. By reducing the total amount of new construction and shifting a substantial part of the construction out of Canada and into Alaska, the Alaska Highway system would reduce the stress on Canadian capital and labour markets and on the nation's foreign exchange position.

Pacific Northwest

The system proposed by Northwest Pipeline is by far the most economical method of moving North Slope gas into the Pacific Northwest, and it is for that reason supported by the gas distributors of the region. In contrast to the Arctic Gas proposal (which is a second-best gas supply alternative for the Northwestern states), construction of an Alaska Highway system would rely mainly on Seattle-Tacoma and other ports in the region as supply and transportation bases for the northern half. The Alaska Highway route would not make as large a contribution to Port of Seattle activity and revenues as would El Paso's LNG project but the latter is not in my judgement likely to prevail, and the Alaska Highway system therefore offers maritime interests and construction in the Northwest the greatest volume of business they are actually likely to obtain from any Alaska gas transportation system.

California

For California, the Alaska Highway system offers a comparatively economic and (because it utilizes conventional technology) reliable source of incremental gas supply. Unlike the El Paso project it would not raise novel safety issues nor would it threaten to displace California's present low price gas from the Permian Basin in favour of high price LNG imports from Alaska.

Midwest & East

For the United States' Midwest and East, the Alaska Highway project (like the Arctic Gas project) would provide an assured supply of natural gas directly into the market areas where the shortages are most acute. Because of its smaller risk of construction delays and cost overruns, however, the Alaska Highway system should, on balance, be preferable. By preserving Canada's option to develop the Arctic Islands and the Polar Gas pipeline earlier than the Mackenzie Delta and Beaufort Sea, the Alaska Highway proposal may offer a better possibility (however remote) of increasing producible and transportable Canadian reserves to such a quantity that the Canadian government would be willing to consider new export commitments.

There cannot help but be some losers. First, of course, are those gas transmission companies whose projects would be turned down and the construction and service firms who hoped to build a bigger system or a different system from the one which is finally approved. There is Exxon, whose affiliate Imperial Oil is part of the Canadian Arctic Gas group, and other producers with interests in the Mackenzie, who would be deprived of an early hookup to their Arctic reserves, however superfluous that hookup may be at the present time from the standpoint of Canada's energy economy. Finally, there are those who would expect to build and operate the LNG tankers if the El Paso project prevailed, together with those (in the Port of Seattle, for example) who hope for a larger demand for their transportation and other services than an Alaska Highway project can generate.

For Canada as a whole, the Alaska Highway proposal would postpone the necessity of deciding when, how and by whom the Mackenzie Delta-Beaufort Sea region was to be developed, and whether that region or the Arctic Islands should take first priority for development among Canadian frontier regions.

On balance, however, if we take into account the lower front-end cost, the smaller vulnerability to cost overruns, and the widely agreed-upon environmental advantages of the Alaska Highway route, a system similar to that proposed for the Alcan may be the best practical alternative for almost every region in both Canada and the United States. Together with its broad acceptability to Alaskans these considerations make a system like that proposed by Northwest and Foothills a possible winner despite its late entry into the competition.

Arlon R. Tussing
■

Arlon R. Tussing is a professor of economics at the University of Alaska. He has done extensive research and writing on northern oil and gas development and has served as chief economist for the U.S. Senate's National Fuels and Energy Policy Study, headed by Senator Jackson. He is currently completing a term on Alaska's Royalty Oil and Gas Development Board.

What's in it for Canada?

The probable reception of any Alcan proposal by Canadian authorities has been a most difficult issue to forecast. A major appeal of the Arctic Gas project is purportedly its early (if not necessarily more economical) attachment to the Mackenzie reserves. Without this feature, it may be asked, what is the advantage to Canada of accommodating the United States in moving Alaska gas?

The attachment of the Mackenzie reserves may, on the other hand, be seen as a major *disadvantage* of the Arctic Gas system, from at least one Canadian standpoint. There is no particular reason why Canada should *not* accommodate the United States with a transit line across Canadian territory, after all, a substantial portion of Canada's oil and gas supplies transits the United States. There would seem to be little objection in Canada on nationalistic grounds to American gas moving in either an American or a Canadian-owned pipeline across Canada. The Mackenzie project, in contrast, raises the issue of an American-dominated consortium developing an important frontier area of Canada. The fact that an early Mackenzie connection is being justified in the United States by the (doubtful) proposition that it would lead to greater Canadian exports to the United States aggravates its potential difficulties in Canada. Both its timetable and logistics would be dictated by the convenience of the American interests. The native claims and environmental complications of this route are also well known.

If Congress and the Canadian Parliament have any inkling now about the long journey on which they are about to embark, they may hesitate.

The 60 trillion cubic feet of proved reserves in the western provinces are enough to sustain the expected growth of Canadian demand plus present export contracts for about ten years. This would be the case even if there were no further discoveries, but recent exploratory results in Alberta have been rather encouraging, more so in fact than in the delta area. For this reason a decision on an Arctic pipeline carries much less urgency for Canada than it does for the United States.

More importantly, however, a decision today in favour of immediate development of the Mackenzie Delta- Beaufort Sea region can be seen to prejudice whether that region or the Arctic Islands (where recent exploration seems to have been more successful) shall be developed first. Either project could strain the capacity of domestic capital markets so that simultaneous construction of two major pipeline systems under Canadian majority ownership is almost out of the question.

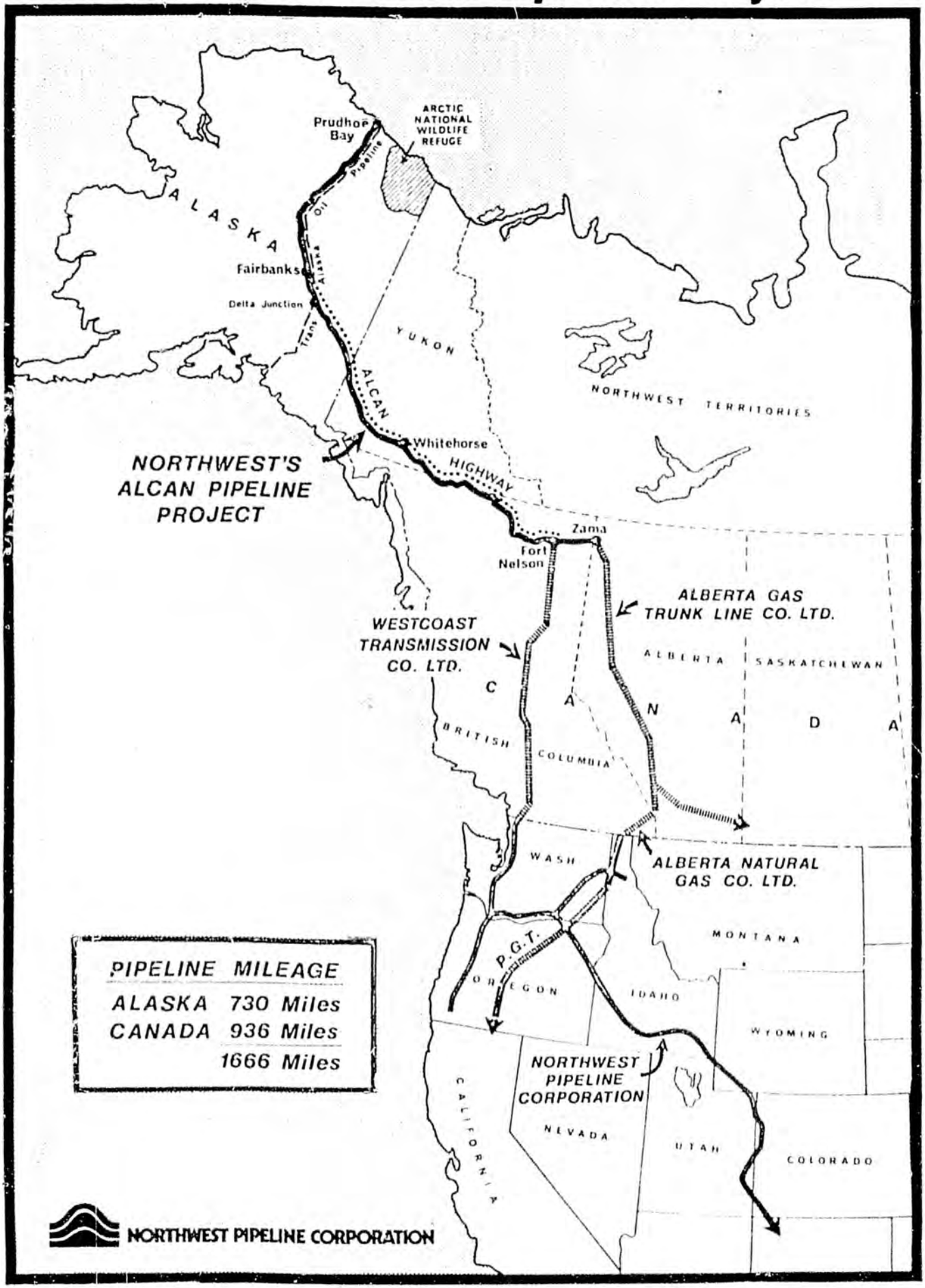
It is not obvious which of several competing considerations is likely to be dominant in the eventual decision by the National Energy Board and the Cabinet, but on balance there now appears to be a favourable climate for a co-operative project with the United States concerning Alaskan gas. If the Alcan project were not a serious contender, this means that the Arctic Gas proposal would be approved. The Maple Leaf project is not timely either in terms of known reserves or in terms of Canadian demand, and it is not a serious contender at this time.

A decision in favour of Arctic Gas would, however, be a reluctant one and would be opposed from many quarters within the Canadian federal government, by several provinces and by a large body of Canadian opinion. These objections rest on a broad range of environmental, economic, nationalistic and native claims considerations, and most decisively perhaps on the fact that the approval of Arctic Gas might effectively preclude or postpone for many years the Polar Gas alternative. For these reasons, my own tentative judgement is that the Canadian government will — once it has had an opportunity to consider the alternative — welcome the opportunity to avoid an early decision one way or another regarding the Mackenzie. This is likely the biggest benefit to Canada from the Alcan proposal.

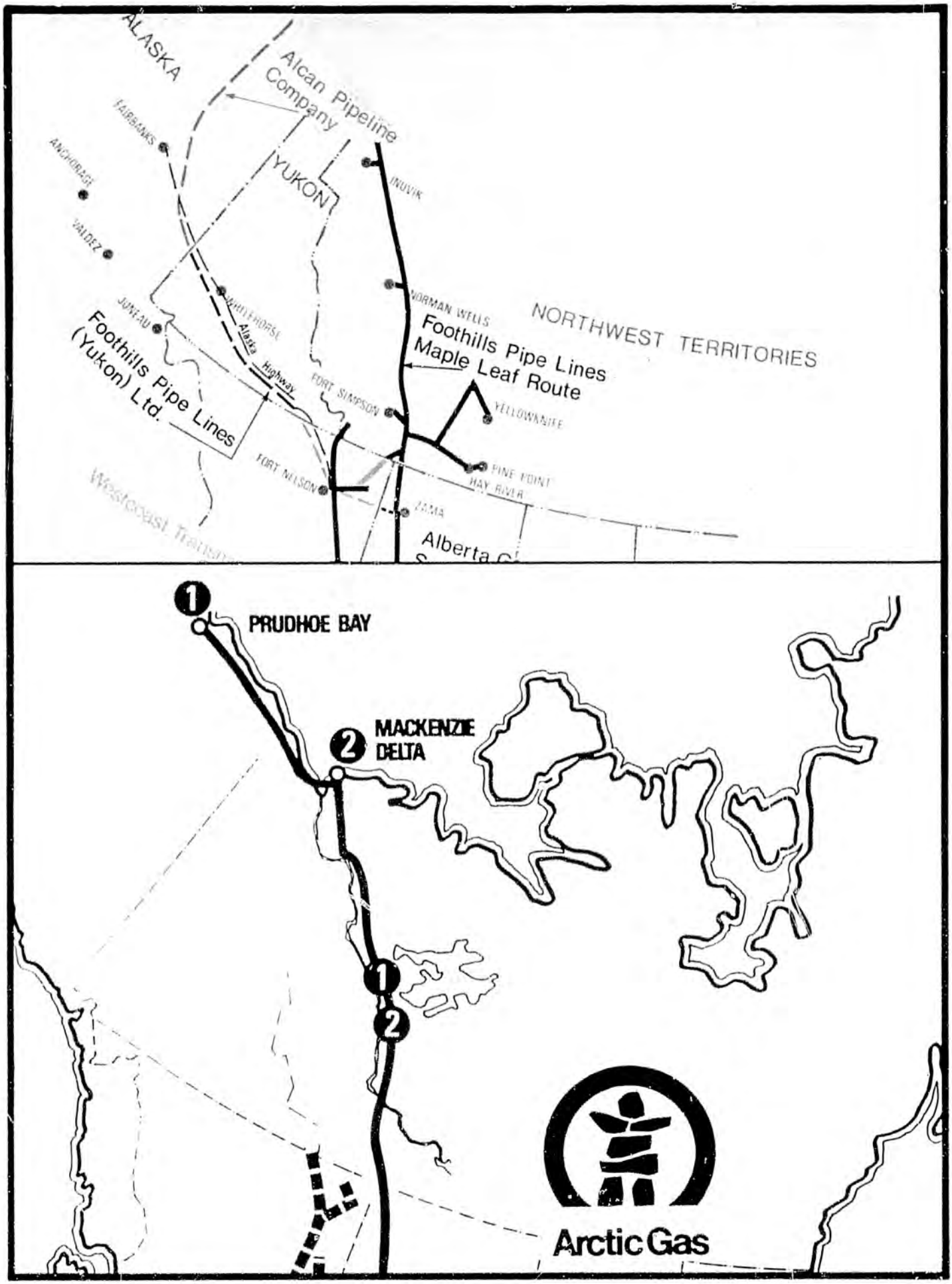
Arlon R. Tussing
■

AGO 799771

Northwest's Alcan Pipeline Project



AGO 799772


ALASKA
Alcan Pipeline Company
YUKON
FAIRBANKS
ANCHORAGE
VALDEZ
JUNEAU
WHITEHORSE
Alaska Highway
INUVIK
NORMAN WELLS
NORTHWEST TERRITORIES
Foothills Pipe Lines
Maple Leaf Route
Foothills Pipe Lines (Yukon) Ltd.
FORT SIMPSON
YELLOWKNIFE
FORT NELSON
PINE POINT
HAY RIVER
ZAMA
Alberta
1
PRUDHOE BAY
2
MACKENZIE DELTA
Arctic Gas

AGO 799773

"Little haul road, don't you cry, you'll be a highway by and by."

"In the early stages of the Berger Inquiry, CARC looked at the problem of transportation needs. This study included an examination of corridors as a possible means of rationalizing various methods of transportation and minimizing social and environmental impacts. We got into difficulties right from the beginning. There was a lack of scientific data. Instead of a broad transportation policy within which trade-offs could be made, we found ourselves forced to deal with a "first-come, first-served" application for a gas pipeline. Our studies immediately became too detailed. We found ourselves focusing on the minutia of a pipeline; consequently, the evaluation of reasonable alternatives became impossible.

"We found much evidence that the Mackenzie River Valley route is not the best choice. More importantly, we concluded that before one can plan a northern route, one needs comprehensive resource inventory data, and that was lacking. The applicant and the federal government had given only a cursory look at alternatives.

"Although the Mackenzie River is a historical transportation system, it seemed very questionable whether any further demands should be imposed on its capabilities, especially for an oil pipeline and all its attending complications."

excerpt from CARC's appearance before the Standing Committee on National Resources and Public Works, 3 February 1976

• • •

Volume III-IV of 'Northern Perspectives' outlined the engineering and construction plans for the Mackenzie Valley gas pipeline and discussed the method of route selection which governed the choice of the Prime Route. The following article deals with the comparative impacts of the Prime and alternative routes on the land and living environment.

Those who follow the debate over the Mackenzie Valley gas pipeline are aware that Canadian Arctic Gas and Foothills Pipelines are locked in fierce competition for the right to build the line. This should not suggest that their plans are entirely different; in fact, they have many similarities. Both intend to run the pipeline south from the Mackenzie Delta, along the east side of the Mackenzie River and into Alberta. They offer similar arguments for this choice, and accordingly encounter similar objections.

Both companies argue that the Mackenzie Valley provides the shortest distance between the supply and delivery points and hence is the cheapest route. They also argue that the valley provides a natural transportation corridor. Its relatively level topography eliminates the need for major re-routing during construction, and the established barge and wharf system on the river would ease material supply and logistics. Plans for the Mackenzie Highway along the east side of the river also affected their choice, although it is now doubtful that the highway will be completed beyond Fort Wrigley in the southern Mackenzie region.

• • •

"The proposed Alaskan Arctic Gas Company pipeline system would establish a new pipeline corridor in the North.

Associated with this proposal is the establishment of new air and possibly, or probably, road transportation in Alaska where none now exists. Development of a gas pipeline, road and air transportation not associated with the gas pipeline will promote the future establishment of related facilities . . . possibly including new oil and gas pipelines.

R.D. Worton
to Berger Inquiry
14 August 1975

The environmental case put forward by industry is that the shorter the line, the less the disturbance. Their engineers maintain that the Mackenzie is a natural seam facilitating pipeline construction with minimal disruption. Their testimony stated that enough research has been carried out to identify the essential problems and to avoid or minimize them, and what minor route amendment could not avoid, winter construction and careful monitoring could protect.

These arguments sound convincing, but the Mackenzie Valley will present complex engineering problems. Although the valley provides a relatively level topography and is lower than the surrounding terrain, it is poorly drained. The high proportion of ice-rich permafrost soils and bogs — often juxtaposed

• • •

— would require remedial and preventative measures for much of the route; otherwise the pipe would heave and break, or alternatively, be washed out. Considering that the remedial and preventative techniques have been poorly tested and that there is little on-site soil information (*Northern Perspectives, Technology & Optimism*', III-I), it is also clear that there would be many on-site revisions. The construction and maintenance efforts could therefore be much greater and more expensive than anticipated. This has been the experience of the Mackenzie Highway, now halted at 1/3 of its proposed distance.

Because the route lies in a major river valley, it would cross every stream and river that flows in on the east side. Terrain difficulties abound at these crossings and great possibilities exist for fuel and testing-fluid pollution, siltation or blockage of water flow, and erosion and slumping of banks adjacent to the pipeline and the winter construction roads. These problems could drastically affect fish, waterfowl and aquatic fur bearers such as beaver and muskrat. These species could also be vulnerable to disturbance from aircraft harassment, compressor station noise, and to other forms of habitat alteration. Many of these difficulties are avoidable, but only if the builder is willing to pay the additional costs of careful implementation and monitoring.

Nor have Arctic Gas and Foothills witnesses been able to dismiss the potential social problems. When their route was plotted on the map, it was drawn

through or near the many Indian and Inuit communities along the river or in the delta. The Arctic Gas approach was that the project would be a boon to those communities by providing jobs and reviving what the company viewed as a sagging economy. Yet Justice Berger heard from every community that the traditional lifestyle and economy is still viable and that their land is neither the property of the government nor of industry to parcel out for development. Rather, they insist on aboriginal rights to their traditional hunting and trapping areas. After a land settlement they expect to be in a position to negotiate with regard to a Mackenzie Valley gas pipeline.

Vern Horte, President of Arctic Gas, was straightforward about the way these concerns fitted the master route plan. As he saw it, socio-economic concerns were "subjective and subject to flux." Claiming that it was impossible to avoid traplines and traditional hunting and trapping areas completely, he concluded that "efficient construction of a pipeline with a minimum of environmental disruption is a most practical way of minimizing interference with these traditional pursuits." The route choice, he said, involved a tradeoff between locating the line further away to minimize impacts or to placing it closer to the communities to give the local people a chance for the "beneficial effects in the form of employment, infrastructure improvements, etc." But the Indians and Inuit living in those communities would have no say in any such tradeoff about their future.

It is not only the Mackenzie Valley that is threatened by Arctic Gas's choice of the Prime Route. The Arctic Gas line involves the lateral from the Alaskan Prudhoe Bay fields across the Yukon to the Mackenzie Delta. Foothills has admitted that it is investigating a similar plan, but at present is content to rest its case on a rather sanctimonious comparison to Arctic Gas, promoting its all-Canadian image and its willingness to want to take delta gas in the 1980s. For the moment, it is the Arctic Gas proposal which will determine much of the future of the northern Yukon, an area rich not only in terms of its abundant wildlife but in the fact that it is a key link in the evolutionary chain of life in North America.

The preferred or Prime Route of Arctic Gas traverses the coastal region of the Yukon, a route opposed by the company's own ornithological consultants. Along the coast of the Beaufort Sea are found migrating Arctic terns, sabine gulls, and jaegers from the Antarctic and other southern areas; Pacific brant from coastal Mexico and California;

Since Fort Simpson and cross delta route changes involve half the length of the entire project and were not introduced until late in the Inquiry, they should not be considered as part of the application. In the opinion of the Environment Protection Board, these new proposals require the intensive assessment that the first application received.

and murres, eiders and glaucous gulls from the north Pacific and Bering Sea. Whistling swans move westward in the spring from the Mackenzie Delta and travel along the Yukon and Alaska coast. The populations of some of these bird species number into the thousands, with some — such as the eider duck — approximating over one million. The calving grounds for the Porcupine caribou herd are also on the Yukon coast. Scientists agree that these animals are most susceptible to disturbance during this stage of their life cycle. Although Arctic Gas gives assurances that winter construction work will have ceased before the vast herd migrates to the coast, experience with the Alyeska oil pipeline has shown that tight schedules are impossible to maintain. Work stoppages would be inevitable along the Arctic coast where fog, harsh temperatures, and winds would limit the productivity of the construction spreads and the progress of snow roads essential to protect the terrain.

Arctic Gas has introduced two fundamental route changes as part of its Prime Route. The first, known as the Fort Simpson amendment, avoids an unstable crossing of the Liard River but passes through the Ebbutt Hills, which have been recommended as a site to be preserved under the International Biological Program. The Foothills route skirts the Ebbutt Hills.

The second major route change is a more contentious one. This new Cross-Delta Route had first been discounted by the company since it did not appear feasible from an economic or engineering standpoint. However, studies continued and the company's skeptics were soon converted. The fact that it is one hundred million dollars cheaper than the original route helped to weigh the scales in its favour. The environmental repercussions of this choice are much more serious than the impacts of the initial route. Thousands of snow geese and other waterfowl use the Mackenzie Delta as a nesting and staging area, grazing on the grasses and sedges of the low flatlands. Like the caribou, the snow geese are a traditional food source for the native people and are an integral part of their economy. According to COPE witness, Tom Barry, an ornithologist with the Canadian Wildlife Service, the Arctic Gas proponents have chosen some of the best waterfowl habitat for their revised Prime Route.

Furthermore, when this route crosses Shallow Bay, extreme precautions would be required to protect the beluga whale population. Knowledge of the annual travel routes of the beluga is limited, as is the research base for predicting the impacts of noise and other disturbances on calving. Whales arrive in the mouths of the main delta channels in late June or early July and stay until mid-August. They tend to seek out the warmer, shallow waters which are

Nanisivik

The Department of Indian Affairs and Northern Development (DIAND) has pointed out some inaccuracies in our article "Nanisivik" in *Northern Perspectives* volume IV-II-1976. We are happy to print the following corrections:

The first is a minor point. We stated that "the federal government purchased an 18% equity interest in Nanisivik." In fact, the government interest was obtained in exchange for the federal and territorial governments providing an airport, a dock, roads, and townsite facilities. It is expected that over half the cost of these facilities will be recovered from the company.

More significantly, we stated that "projects which are proposed independently by private corporations will not be subject to EARP (the federal government's Environmental Assessment Review Process) unless federal infrastructural assistance is contemplated." In fact, any project on Crown land may be subject to EARP, provided the environmental impact is judged to be significant by the department controlling the land — in this case DIAND.

Further, we were incorrect in asserting that the requirements of the Fisheries Act could be completely circumvented by DIAND in issuing a surface lease for the mine whose conditions would allow offshore dumping of tailings. Because the lease for the mine is for more than 640 acres, the Territorial Lands Act requires that the lease be approved by Cabinet where the requirements of the Fisheries Act may be argued by the Minister of the Environment.

Bill MacLeod
Bob Gibson

AGO 799775

more beneficial to the newborn calves. Since Arctic Gas will be dredging Shallow Bay during the summer months, the company will be challenged to schedule their activities to avoid disturbing the whales during this sensitive period.

Dr. Sergeant, of the Arctic Biological Station, St. Anne de Bellevue, discussed studies at Churchill River which indicated that although whales can generally tolerate human noise and activity, the calving population cannot. Most whales have abandoned their traditional calving waters at the Churchill River since development was initiated. As the estimated number of whales using the Mackenzie system is approximately 5000 — virtually the entire population of the Beaufort Sea — there is not a wide range of suitable waters in which these mammals can calve if their traditional areas are closed to them. Again, the success of the reproduction and rearing of these whales is vital to the subsistence and culture of the native people of the delta.

The hunters and trappers are equally concerned about the effects of the Cross-Delta Route on the habitat of the muskrat, beaver, and marten, which provide food and livelihood throughout the year. The delta is teeming with life during the summer months when Arctic Gas has scheduled construction. Various species of fish enter and leave these areas during their migrations and would be threatened by the siltation caused by dredging. When the timing is correct to mitigate the effects on fish, the timing will not be right for whales and birds, and costly environmental tradeoffs would have to take place.

Tom Barry has proposed that the Cross-Delta Route would have less overall impact of it were moved slightly south, but this would be more expensive and therefore less appealing to industry. Carson Templeton, Chairman of the Environment Protection Board (EPB), told Justice Berger that since Fort Simpson and cross-delta route changes involve half the length of the entire project and were not introduced until late in the Inquiry, they should not be considered as part of the application. In the opinion of the EPB, these new proposals require the intensive assessment that the first application received.

The Interior Route proposed by Arctic Gas is the company's second choice for a lateral line across the Yukon. It traverses the central Yukon in the vicinity of Old Crow. This alignment would affect two areas which are notably sensitive to birds: the Old Crow Flats, an important staging and breeding area of waterfowl; and the steep valley slopes of the Canning River, which are used as nest sites for gyrfalcon, the rare peregrine falcons, and other raptors. In spite of the expected impacts on these birds, ornithological witnesses testifying for Arctic Gas maintain that there would be even greater disruption to birds along the Prime Route.

The State of Alaska has formally taken the position that no new lands, particularly those within the Arctic Wildlife Range, should be made available, as such access would pre-empt land use options for the future.

One option along the Canning River is for the pipeline to cross at Marsh Fork. However, in order to protect its abundant wildlife, and its potential as a scientific study area, land officials in Alaska recommend that the Marsh Fork area "be closed to all development uses, including mining, oil and gas production, and other uses which would alter the existing ecology."

The other Canning River crossing directly affects areas which are extremely valuable as grizzly bear and moose habitat. In both sites, valleys tend to be quite narrow, there would be little hope that resident wildlife populations could avoid construction and maintenance activities. While the noise emitted by compressor stations along the coast could be disturbing to caribou and waterfowl, these stations would be especially damaging in the mountainous areas of the Interior Route, especially if they require ancillary facilities such as airfields and communication towers. There would likely be a station in the sensitive Marsh Fork Valley. Dall sheep, which besides caribou are the only surviving herding herbivores from the preglacial period, would be seriously affected by the Interior Route in terms of both increased access and construction activity. In addition, fish biologists feel that the Interior Route would pose a greater threat to fish populations than the Coastal Route.

Both the Interior and Coastal routes affect the area of the Yukon which archaeologists and ecologists value for its unique character. The northern Yukon was the only area not glaciated during the Ice Age, and as a result, vegetative species extinct in other parts of North America flourish there today. The region can unlock several archaeological mysteries if researchers have the opportunity to delve into the many sites. Already they have proved that giant beaver, camels, elephants and horses were once indigenous, as well as other large animals now extinct.

At the same time as these species were being uncovered, scientists found proof that man had been hunting them as far back as 30,000 years ago. These records provide the earliest evidence of man in North America. The lifestyle of the ancestors of the Loucheux — or Kutchin — people of Old Crow can be traced in the remains of caribou fences or corrals which show a consistency of land use over the ages as well as a uniformity in the migration patterns of the caribou. Furthermore, the high mountains, rivers, wetlands and slowly melting permafrost lakes, barrier beaches and lagoons along the coast are wordless arguments for the protection of the area.

For these reasons, the establishment of the Canadian section of the Arctic National Wildlife Range in Alaska is being promoted as a means of ensuring the preservation of this ecologically rich and sensitive area. This proposal would not ban all resource extraction, but would closely control all such activities, and if necessary ban those inconsistent with the wilderness character of the range. The proposal also recognizes the primary use of the land by the native people, particularly those in Old Crow who still rely heavily on trapping in the nearby Old Crow Flats and hunting the caribou. Officials of Arctic Gas maintain that a pipeline is compatible with the concept of the Alaska Wildlife Range but admit that if the U.S. government forbids their intrusion into that area, they would build either along the Interior Route or would even consider a more southerly routing.

Environmentalists fear that year-round access along either route would inevitably open up the area. Development of either route would initiate a new corridor along the alignment and the likelihood of a permanent haul road makes this prospect more alarming. Exploration would increase and the wilderness character of the range would eventually disappear. Any development such as a pipeline would prevent the Alaskan range from being classified as a wilderness area under the Wilderness Act in the United States, the only legislation tough enough to ensure its preservation. Summing up the case for the International Wildlife Range, Andrew Thompson, Chairman of CARC, argued that, "Since there are values that are intangible, that can't be expressed in dollar terms but which have a strong response from people here in the Yukon, from people in Canada and the United States and even around the world, somehow or other these have to be weighed against the cost savings that are principal reasons for the selection of this route."

It is CARC's position that neither the government nor the pipeline companies credibly examined alternative routes.

AGC 799776

The Committee called Dr. Murray Roed to discuss possible alternatives. He recommended examination of a route roughly 50 miles west of the existing Mackenzie Valley corridor, east of the Franklin Mountains. This route would follow the crest of well-drained ridges for 60 per cent of the distance and would, in his opinion, minimize the erosion and heaving problems of the pipeline. He pointed out that compared to the Mackenzie Valley, the abundant deposits of much needed gravel for construction and the prospect of fewer water crossings (the route parallels drainage) would make this alignment preferable, not only for the gas pipeline, but for any other form of transportation, such as oil pipelines or highways. The main strength of the proposal is that if the hot oil pipeline is built it would be much safer away from the Mackenzie River Valley. This longer range perspective, Dr. Roed argued, should be the basis for choosing the location for the first major project for the region.

On the negative side, sufficient soil data are lacking to be able to verify the advantages of the route in detail. Logistics would be more difficult and expensive than in the Mackenzie Valley as no access to this route exists at present. Also, the route may be no more acceptable to native groups since it involves areas which are part of their land claim. Despite its problems, the fact that this route may be a plausable alternative to the Mackenzie Valley route illustrates the lack of serious or comprehensive study of alternatives by the industry or government.

An option avoiding both the wildlife ranges and the Mackenzie Valley is the Alcan Route. This route, rejected by Arctic Gas, has nevertheless received great attention from the other participants. Under this scheme, Prudhoe Bay gas would be brought south along the alignment of the Alyeska oil pipeline to Fairbanks, Alaska. South of Fairbanks, the pipeline would follow the route of the Alaska Highway into Canada. Delta gas would follow the Dempster Highway to meet the Prudhoe line at Whitehorse, and the line would then proceed southeast to Alberta.

Generally, Arctic Gas objects to this option on the grounds of additional length and extra expense. Its spokesmen also say that the route would be too far away from areas of probable hydrocarbon deposits (mainly in and near the wildlife ranges) and that its length would dictate a construction schedule too tight for completion within the three year period dictated by the economics of repaying money borrowed for construction.

On other grounds, Arctic Gas objected because the mountainous terrain in Alaska would require more blasting during construction, more surveillance for rock slides during operation, and the narrow passes would reduce the flexibility to route around problem areas. This could particularly affect dall sheep lambing areas, bear denning sites, and raptor nests. Although the Porcupine caribou calving and summer range would be avoided, the route would still pass through some critical wildfowl nesting and staging areas on the coastal plain south of Prudhoe Bay. The route would parallel drainage which Arctic Gas claims is a disadvantage for erosion control and hence for the protection of fish. Finally, the route would pass through an area near Fairbanks of higher earthquake risk. In Canada, the main route would skirt the new Kluane National Park and further south, traverse extensive moose habitat. The delta lateral would intersect the Porcupine caribou herd on its winter range and would be built along very difficult ice-rich permafrost terrain.

"The applicant (Gas Arctic) is proposing a temporary road of 375 miles from the Circle almost to Old Crow, and then across to the Dempster Highway at Fort McPherson. If you have a 375 mile gravel road of two to maybe six feet of gravel to protect the permafrost, it's going to be almost politically impossible ... to prevent the connection of the Fairbanks network of roads with the Dempster Highway through to that area. Then you've ruined hundreds of square miles of land on all sides, the wilderness and the lifestyle of the Old Crow Indians. Long ago, Bob Marshall that great Alaskan Arctic explorer, wrote about temporary haul roads.

'Little haul road,
don't you cry,
You'll be a highway by and by.'

And all over the United States that has proven true, that when you make a temporary road it just gets better and better until it's finally been known ..."

(Counsel to Berger Inquiry, 12 August 1975)

A stronger indication of the attractiveness of the Alcan Route along the Alaska-Canadian highway has arisen. The Federal Power Commission (FPC) of the United States recently accepted the application of a consortium known as the Northwest Group to build a line from Prudhoe Bay along the Alcan Route to connect with the existing facilities of Westcoast Transmission, Alberta Gas Trunk Line and then to U.S. facilities.

The Northwest Group has also filed to have its application accepted by the National Energy Board (NEB) in Canada. In light of the FPC decision to accept it as a contender in the American project, it would seem unlikely that the NEB could refuse to weigh it in its deliberations. There are four general advantages to such a route:

- it would not disturb any new territory. The State of Alaska has formally taken the position that no new lands, particularly those within the Arctic Wildlife Range, should be made available, as such access would pre-empt land use options for the future. An oil pipeline and a highway have far greater impacts than a gas pipeline, and the route south from Prudhoe Bay would run through territory already opened by the Alyeska oil line and the Alaska Highway. The Alaskan oil pipeline has had a major impact on the areas it has crossed and technical and environmental experts have urged that the gas line follow this alignment where damage has already been done.
- by following the oil pipeline and highway alignments, duplication of facilities (and therefore greater impact) can be avoided through the use of existing airports, work areas, and supply roads.
- the existing on-site information from construction of the Alyeska pipeline and the Alaska Highway would virtually eliminate the likelihood of surprises in the field. As these are highly probable in the undisturbed Mackenzie Valley and northern Yukon, it would be easier for the Alcan project to live up to the protective measures required of it and to stay within its budget. As implementation of the protective measures is essential to environmental protection, such protection would be greatly enhanced along this route;
- unless there is a policy change under its new leadership, the Council of Yukon Indians views this route with least opposition pending a land settlement, while it rejects outright both the Prime and Interior routes.

Two other routes were mentioned during the Mackenzie Valley Pipeline Inquiry — neither of which have been favourable to either the gas industry or the intervenors because of the hurdles involved. It is futile to discuss the possible routes for a gas pipeline without looking at the implications of a total development plan. Even when the Berger Inquiry was first created, the Pipeline Guidelines stipulated that it look at the impact of an oil pipeline as well. The Inquiry was not to ignore the possibilities of a railway, hydro development or communication systems that could possibly follow a gas line. Although the latter are still hypothetical, a group known as the Beaufort Delta Project is currently preparing an application to build the

AGO 799777

oil line. It is likely that cost savings will be the criterion in building the oil line close to the alignment of the gas pipeline in order to take advantage of facilities such as access roads and air strips. Add the strong possibility of a second gas pipeline or a "looped" line if reserves prove sufficient and the impact projections intensify.

A case in point is the Dempster Highway from Whitehorse to Inuvik, which is in the final stages of construction. Arctic Gas environmental consultants were told to present the company and the Inquiry with only the potential impacts of a gas line, despite the fact that the highway will cause considerable disturbance. If the Interior Route were built, caribou enroute to their calving grounds on the coast might be faced with the crossing of two buried gas lines, an above ground oil pipeline and a highway travelled by curious tourists. When some of these consultants did try to get government reports related to the technical and environmental matters along the Dempster, they were refused because these were not public documents.

It must be clear that the evidence before Justice Berger on these and other less attractive routes has still not produced any easy answer. What the experts have told us, however, is that further developments of far greater potential impact would follow a gas pipeline and that these would be far more difficult to control. From this it follows that without control and without planning, this particular transportation system — a gas pipeline — would set in motion events affecting all the land in the region and the use made of that land.

Currently, land use planning is rudimentary in the North. The land use regulations in force are designed to control exploratory operations only, and they are ill-designed even for those, let alone for major projects or for regional control. The philosophy has been the felicitous "multiple-use" concept of land use that sees no conflict between development and the environment or the use of land by the native people, just as it sees no conflict between underwater seismic explosions and harvesting of seals and fish in the Beaufort Sea. According to this view, there need be no conflict between an open pit mine and a bathing resort.

A major study of existing land use legislation and practices and of mineral and environmental resources, is required as a base before planning can proceed. The only work to date has been extremely narrow in scope, compiled in response to project proposals such as the Mackenzie Valley pipeline. The gaps in elementary knowledge are stupefying, yet little is being done to remedy them.

Currently, land use planning is rudimentary in the North. The land use regulations in force are designed to control exploratory operations only, and they are ill-designed even for those, let alone for major projects or for regional control.

The first major element before planning can progress is a land settlement for the native people of the North. Planning that ignored the need for such a settlement or its results would be unworkable as well as unjust.

But if impact assessment is subjective, so is planning, and for that reason wide access to the planning process and participation is essential. Current government practices whereby information is difficult to obtain must cease, in order for planning to be conducted effectively.

The Berger Inquiry cannot be a planning process because the preliminaries are not settled. Despite the popular journalism that sees Justice Berger as setting the course of future northern development, his jurisdiction is actually quite narrow. His mandate is to examine the regional impact of a gas pipeline and ensuing related developments, there is a limit to how far that mandate can be stretched. Furthermore, he is under great pressure to report by the end of 1976, and would have little time to examine planning possibilities widely even if he wished.

What Justice Berger can do, however, is recommend conditions for the gas pipeline that would allow long-range planning to proceed without being preempted by a barrage of facilities to supply southern demand for oil and gas. He has already set a precedent for openness in the decision-making process in the North.

Assuming the goals are to maximize planning flexibility and protection along the pipeline route, it seems that two options exist: to institute a land freeze pending results from the planning process, or to allow Arctic Gas or the new consortium to proceed using the Alcan Route.

In fact, these two options are not mutually exclusive. It is unlikely, however, that a freeze alone would be acceptable because the Canadian government is under great pressure to honour its commitments to the U.S. to allow passage of U.S. gas through Canada (*Northern Perspectives*, Volume IV-1). Permitting construction of the line along the Alyeska oil pipeline and Alaska Highway routes would honour this commitment without disturbing new areas. As the urgency to bring delta gas south seems less pressing than previously thought, there is still time for reasonable planning.

Delay would allow time for land claims settlements, further consideration of the Foothills proposal, of the Arctic Gas delta lateral proposal, and of the recent proposals to integrate gas transmission from the delta with the gas from the Arctic Islands. This extension would allow planning to proceed for northern land use and national energy policy. Precisely because modern development is only now arriving in the North, a tremendous range of choice exists in how that development shall or should take place. This has made it too easy for the general public to expect so much of Justice Berger.

John Jahn
Pat Anderson

■

Canadian Arctic Resources Committee

Chairman — **A. R. Thompson**
Executive Secretary — **M. K. Vincent**
Editing & Production — **E. Van Alstine**

Northern Perspectives is available free of charge from the Canadian Arctic Resources Committee.

The Canadian Arctic Resources Committee is a non-profit organization with offices at 46 Elgin St., Room 11, Ottawa, Ontario K1P 5K6, Canada (telephone 613-236-7379). The views expressed in *Northern Perspectives* are not necessarily those of the Committee.

DONATIONS to CARC are tax-deductible. They contribute to the production of this newsletter and to other CARC research.
Enclosed is a cheque for [$]
I would like to receive *Northern Perspectives* regularly [ ]

AGO 799778

NATURAL GAS SUPPLY OUTLOOK FOR THE WEST

SUMMARY OF COMMENTS

BY

ARLON R. TUSSING

AT

NATIONAL ECONOMIC RESEARCH ASSOCIATES, INC.

WORKSHOP ON ECONOMIC GROWTH IN THE WEST

AND RELATED ENERGY PROBLEMS

Los Angeles Marriott
August 26-27, 1976

AGO 799779

1. It no longer means much to speak of a gas supply outlook for the Pacific states as distinct from the outlook for the contiguous 48 states as a whole. With a nearly complete nationwide gas transmission network and transmission loads that are stagnant or declining, an abundance or shortage of gas in one region can be shifted to any other region or spread evenly across the country, without major investments in new transportation capacity.

2. The emergence of a single national market for natural gas is of course inhibited by FPC wellhead price controls, which discourage both interstate sales generally and reallocation of gas among interstate purchasers. And existing long term sales contracts together with the need for certification and abandonment procedings before the FPC and state commissions make even the most economically logical exchange and displacement arrangements difficult to put into effect.

3. Nevertheless, if institutional obstacles effectively prevent the smoothing out of gross regional disparities in gas supply, we can expect Congress to give the FPC authority to reach into intrastate markets, to allocate new natural and synthetic gas among regions, and perhaps even to reallocate flowing gas among interstate pipelines.

4. Congress would surely direct the FPC to allocate gas nationally if it were to approve any LNG system for the delivery of North Slope natural gas, which would require large areas of the United States to receive new gas supplies by displacement rather than directly. Approval of a MacKenzie or Alcan system without a western leg would also strengthen the demand that the FPC have direct allocation authority. Such an outcome would be unfortunate because any non-market allocation system would blunt the incentives of transmission companies and gas utilities to solve their own supply problems.

5. It is possible to make some broad generalizations about both the commodity value and the cost of gas on a national scale. The demand for gas can be separated into three main components: (a) a premium market in which only electricity is a competitive energy source, (b) an intermediate market in which refined petroleum products (distillate fuel oil, naphtha, propane, etc.) are effective substitutes, and (c) the "black fuels" market in which natural gas can displace coal and residual fuel oil only when it is cheaper.

6. The intermediate market, which is composed of household and small commercial space heating, and use for crop drying, in combustion turbines and for chemical feedstocks

(plus utility boiler fuel in times and places with severe air quality problems), is by far the major part of total consumption, so that all plausible projections of United States natural gas supplies through 1990 fall into this intermediate segment of the demand function. For this reason the long-term commodity value of gas will be equivalent, more or less, to the cost of refined petroleum products. Assuming that the real price of imported crude oil remains about the same as it is today, we can anticipate a long-term demand price for gas of $2.50 to $3.00 in 1976 dollars.

7. The demand price for gas will be somewhat higher than that of distillate fuel oil if total gas supplies continue to decline over the period, because the alternative to gas for many consumers will not be simply the substitution of a petroleum product but will also include the cost of converting or replacing existing gas-burning equipment.

8. The average (rolled in) cost of gas will be just about equivalent to this commodity value or demand price. Pipelines and distributors will continue to get some quantity of gas purchased on long term contracts or controlled at less than its commodity value. They will therefore be able to augment these low price conventional supplies with just enough high cost gas "supplements" at $4, $5, $6 or more per Mcf, to bring their average price up to the demand price.

9. For this reason deregulation (or the level of regulated gas prices) can not be expected to have a great effect on the average price consumers pay for gas. It might, however, have a powerful influence on how much gas is available at that price (although the direction of this influence is not obvious -- see footnote), and upon the economic cost to the nation as a whole of its gas supply. (The national economic cost would be lowest under deregulation, but the larger part of the net benefit would be captured by gas producers rather than by consumers.).

10. The most certain and economical source of additional gas for premium and intermediate markets are the volumes now being burned under industrial and electric utility boilers and as refinery fuel. End use controls

---

The question hinges on the responsiveness of conventional gas supplies to price. If supply is relatively price-inelastic, the main impact of deregulation or higher wellhead prices would be to transfer revenue to gas producers and royalty owners at the expense of the pipelines and distributors. Since the latter would otherwise have used this revenue to finance the purchase or production of high-cost gas supplements, total gas supply would be less than it would be at the old regulated prices. On the other hand, if the supply of new reserves of conventional gas is highly responsive to price (as I believe is more likely), an additional dollar paid to the gas producers will elicit a greater volume of gas than the same dollar spent on such projects importing LNG or manufacturing SNG from coal or oil.

by the FPC and state authorities are already encouraging such a shift. But in order to employ existing reserves most efficiently around the year, elimination of interruptible sales for low-priority use must go together with investments in storage facilities and in increased peak deliverability in the field. Incentives for the latter adaptation are now blunted by price controls, but added storage is probably a worthwhile investment for almost every gas transmission company or utility.

11. The main supplemental sources of gas appear to be Canadian pipeline imports, LNG imports, Alaskan natural gas and SNG from coal and petroleum.

12. The price of future Canadian imports is reasonably predictable, but their volume is not. The Canadian federal government and Alberta have adopted an explicit commodity value standard for gas pricing in both domestic and export markets (though it is being implemented more slowly for Canadian consumers), and there is little reason to believe that this policy will be changed.

13. The approximately 60 TCF of presently proved reserves in the Western Provinces are sufficient to serve projected Canadian demand plus existing export commitments for about 10 years without creating deliverability problems. A continuation of recent Alberta discovery

trends may be sufficient to assure that existing export contracts will in fact be honored. But there is no development, short of huge discoveries (perhaps another 60 TCF) in the Arctic that would be likely to induce the Canadian government to approve new export commitments.

13. The sufficiency of present supplies to Canada for about ten years, means that any Mackenzie or Polar pipeline will be superfluous to Canada's needs for at least that period, unless reserve volumes justifying exports are developed. This implies that there is no urgency for Canada in an early determination regarding the desirability, scale or timing of a Mackenzie Valley pipeline.

14. Large LNG import projects, coal gasification, and facilities to deliver gas from the Alaskan (and/or Canadian) Arctic to Lower 48 markets share several features which raise serious questions about their economic viability or practical feasibility. Each of them requires large, "lumpy" investments -- in the billions or tens of billions of dollars -- and involves unproved technology or a substantial scale-up of proved technology. Some proposals involve a unique physical or institutional environment (e.g., the Arctic Gas proposal and Indonesian LNG) in which no engineering projects of their magnitude has ever been attempted. Each of them involves numerous regulatory jurisdictions, including more than one sovereignty or quasi-

sovereignty (states and provinces). Each of them involves major environmental and safety issues, real or imagined, usually in more than one regulatory jurisdiction.

15. The construction and operating cost projections offered by the proponents of each of these gigantic capital-intensive projects are already near the margin of economic feasibility, even assuming the absence of major delays, technological or engineering false starts, or cost overruns.

16. Recent experience with military procurement, nuclear power plants, the Trans-Alaska pipeline and other large custom-engineered construction projects indicates that all the large supplemental gas projects are exceptionally vulnerable to delay and cost-overruns, if not to non-completion.

17. The scale of these projects typically exceeds the net worth of their sponsors, precluding conventional secured financing. Uncertainty about construction costs and completion dates, aggravated by political and licensing uncertainty make no-recourse debt financing equally improbable. Each project therefore probably requires government loan guarantees (increasing their vulnerability to political opposition) and/or all-events tariffs, which state commissions are unlikely to approve.

18. In short, I believe that the odds are against any supplemental gas supply facility with a total projected capital cost of greater than $1 billion. The chances that all the supplemental gas projects considered necessary to provide an adequate gas supply to any region (e.g., California) will be actually completed, is nil.

19. Of the three proposals for transporting North Slope gas, the Alcan project is in my judgment the most credible, even though the comparison of pro-forma cash flow projections would seem to favor Arctic Gas. By using conventional pressures, pipeline size and construction technology, already developed transportation corridors, and existing pipeline routes and systems in Western Canada, Northwest Pipeline's Alcan proposal avoids or mitigates the major sources of cost overruns. Moreover, Alcan is the only proposal of the three which does not depend for its feasibility on larger volumes of gas than can be assured from presently proved reserves.

20. The Alcan proposal is probably the least vulnerable of the three to political opposition on regional or sectoral grounds. It does not involve the siting and safety issues of the LNG system, but unlike Arctic Gas, it is favored or at least is not vehemently opposed by any of the states or provinces (including Alaska and Alberta) which it must transit. The Alcan concept is the one favored by the major U.S. environmental organizations. Native claims issues, moreover, seem to be closer to resolution in the Yukon than in

the Northwest Territories.

21. The synthesis of pipeline quality gas from petroleum does not suffer from most of the handicaps of coal gasification or of the other capital-intensive sources of natural gas supplements. Here again, as in the case of the alternatives for transportation of Alaska gas, a priori cost comparisons may be deceptive. SNG from oil appears to be more costly than SNG from coal, but this comparison ignores the fact that it is a proved technology on a commercial scale, that its optimum economic scale of plant is an order of magnitude smaller, and that the feedstock is (barring a new embargo) available in unlimited quantities.

22. The smaller scale and general abundance of feedstocks for SNG plants using petroleum fractions (naphtha or LPG) means that each plant can be located within the consuming state, (freeing it from FPC jurisdiction), within the service area of the pipeline or utility which distributes it (reducing local opposition), and in a site chosen for environmental acceptability (rather than one dictated by location of the resource or by proximity of a deep water harbor). For all of these reasons, I suspect that the West Coast gas industry's ultimate recourse when almost everything fails (as it probably will) is the construction of decentralized SNG plants using naphtha feedstocks from overseas (or even Alaskan) topping plants which ship their residual crude oil fractions to Japanese or Atlantic customers.

23. The best bets for new pipeline gas supplies, I believe, come from state-of-the-art technologies and scales of effort, not from ten year leaps into the future and tenfold leaps in size. The source of gas that best meets this standard is conventional natural gas conventionally extracted. Exploration for gas (and for oil, which is found in similar environments by the same techniques) is an entirely different kind of business from producing synthetic fuels or building major gas transmission projects or the maximum scale electrical generating plants. The minimum unit of physical capital, a single wildcat well for instance, ranges in cost from tens of thousands of dollars to several millions -- a scale on the order of one thousand times less than the investment thresholds for coal gasification, oil shale, nuclear power or Arctic gas transmission.

24. There are literally thousands of enterprises in the oil and gas producing industry, with perhaps hundreds that are large enough and progressive enough to stand on the cutting edge of new technology. The journey to new frontiers of gas exploration and recovery, whether they are technological frontiers, deeper or stormier water, permafrost or deep rocks, can be taken in small steps, with part of the industry consolidating information and techniques from the last step while other firms take the pioneering risk.

Onshore, the payoff to exploration investment can be a matter of weeks, and is seldom more than two years. Offshore and in the Arctic, it may be three, five or seven years, but seven years is probably the minimum lead time for the big-ticket gas supply projects.

25. Regarding the potential price-responsiveness of natural gas supply, there are an incredible number of different opinions. It is obvious, however, that FPC price controls are not a major obstacle to exploration and development in any state large enough to have a significant intrastate gas market: these include present net exporters of gas like Texas and Louisiana as well as net importers like California. It has now been three years since the Arab embargo and the energy price revolution, so that some evidence one way or another on the price responsiveness of conventional onshore gas supply ought to be available before long.

26. Price controls on gas may or may not be an effective deterrent to development of new gas resources on the Outer Continental Shelf, but they are not the major deterrent. It is unfortunate that environmentalist opposition to energy development has been most effective here, because OCS oil and gas will be in my judgment/the least environmentally harmful source of large new supplies of primary energy for the United States, as well as the least costly in terms of real economic resources.

27. In summary, small seems indeed to be beautiful in energy supply alternatives. Or, at least, small is practical given today's political and financial realities. At the same time, I would urge along with the ecologists that diversity is stable, and so is decentralization. Diversified and decentralized systems are also more predictable in the aggregate. For this reason, a strategy for gas supply which depends mainly on a few large coal gasification and Eastern Hemisphere LNG projects and on the Arctic Gas pipeline stands a large risk of total failure. A strategy which puts even half of the capital projected for these projects into storage and increased peak deliverability, into conventional and modestly innovative onshore and offshore gas exploration, into LNG from naphtha facilities, into small LNG projects (as in Cook Inlet), and into a minimum scale transportation system for North Slope gas (like the Alcan system) may not yield the grandiosely optimistic projections for 1985 or 1990 gas supply which industry and government agencies like to put on their charts. Such a strategy will, however, surely and predictably produce enough gas at acceptable prices to serve the premium markets, and will continue to make some contribution to satisfy the intermediate market.

Scott

AGO 799792

after a ten minute recess and we will be prompt on ten minutes.

(Whereupon the hearing was recessed at 2:50 p.m. and reconvened at 3:00 p.m.)

SENATOR RADER: The committee will come back to order. We have asked Dr. Tussing and his associate to appear out of order or they rather asked that they might appear out of order, Mr. Scott, because of commitments that they have tomorrow.

Dr. Tussing, we will follow whatever order of presentation you and Mr. Scott think would be most appropriate. Do you wish to make a presentation first and then questions? Would that be the way of proceeding?

DR. TUSSING: Well, I think the way to proceed would be to let Dr. Scott go first and then to ask questions of him and I might have some comments on his answers. Dr. Scott has done an analysis of the Task Force Report and the documentation by the Department of Revenue for the Task Force Report. It is a technical analysis.

I intend to range more broadly on national and international political aspects of the contract. I am willing to take responsibility for everything that Dr. Scott is going to say because I have read his analysis. He can't take responsibility for what I am going to say because I don't have a prepared statement and I was not

quite sure what topics I was going to handle before I got here. So don't blame him for anything nasty or unpopular that comes from this side of the table.

SENATOR RADER: I'd like to have both you and Dr. Scott, you are appearing here as expert witnesses and, therefore, a statement of your background and your qualifications would be appropriate in the record.

DR. SCOTT: My name is Dr. Michael J. Scott. I am an assistant professor of Economics at the Institute of Social and Economic Research, University of Alaska. I am a professional economist with a Ph.D. in Economics from the University of Washington. I am associated with the Institute's Man-in-the-Arctic-Program, which is an econometric modelling effort of Alaskan economy, and I have specialties in natural resources, public expenditure modelling and Alaskan cost of living.

I was requested by the committee to evaluate the report, "A Comparative Evaluation, Prudhoe Bay Natural Gas Pipeline Systems", prepared by the Gas Pipeline Task Force, November 1976, to check its technical accuracy as a supporting document to the sale of natural gas to El Paso, Tenneco, and Southern for the expressed purpose of securing an all-Alaska gas pipeline.

I was asked to do this since I had previously, in late November, evaluated for the Legislative Affairs

Special Subcommittee on Oil and Gas Taxation, a study by Dr. David Knudson of the Department of Revenue, which was titled "A Comparative Economic Study of Three Competing Alaskan Prudhoe Bay Natural Gas Transmission Systems", and possibly also since I was involved in the ISER studies on the subject of three gas transporation systems beginning in November 1975.

My comments, accordingly, will be directed to the internal logic of the section of the Gas Pipeline Task Force report entitled Economic Factors. I regret that I am unable to discuss the options for in-state use of gas. At the time ISER was doing its studies (that is April 1975 through June 1976), we were asked to look at only export options. We did this for the Department of Interior and the Federal Power Commission staff. Then, too, our analysis mainly took place before Alcan's proposal was before us, and there may have been delays in construction which we could not anticipate. We had thought, at the time we were doing our studies, that any of the gas transportation systems could have been started in 1977. This, of course, has proved not to be the case so far. There have been some changes in the state fiscal structure, so any studies we have done since the time we did them, have been overtaken by events related to the permanent fund. And so our analysis, while generally

valid, has been overtaken to some degree so I don't want to be held to specific numbers that we have generated.

The economic factors mentioned in the state report are the cost of service, net benefits to the United States as a whole, fiscal impacts, impacts on the private economy and cost of living. The report makes several points with respect to cost of service, based mainly on a study which I mentioned previously I had evaluated earlier, the Department of Revenue study by Dr. Knudson. A large number of variables affect any cost-of-service calculation. Mentioned in the study are throughput, that is the amount of gas that would be forthcoming per day; total capital cost, I might add -- including overruns, if any; the rate of return to equity required by the company; inflation which could be generally categorized as the general decline in the purchasing power of money and then real price increases during construction; interest rates available. And I might also add the duration of the project, which affects the financing risk, and which I expect Dr. Tussing will mention.

The Department of Revenue technical report mainly shows that the cost of service considerations which they mentioned are favorable to the Arctic Gas line are extremely sensitive to changes in many of the variables which determine it, particularly volume of throughput and

the capital cost. While Dr. Knudson does not treat the three proposals symmetrically, he does show that with Arctic Gas at eight-eighths of his proposed volume, that is the total throughput of, I believe, it was 2.5 billion cubic feet per day and with twenty percent cost overruns he is able to move the cost of service from One Dollar Eighty-One Cents per thousand cubic feet to around Two Dollars per thousand, while at seven-eighths of the volume or if the state gas were not available or if the throughput from the pipeline was not as expected, 2.5 billion, that moves the cost of service from -- I'm sorry. With seven-eighths proposed volume and ten percent cost overrun moves it to Two Dollars and Seven Cents, seven cents more; seven-eighths volume and twenty percent cost overrun yields Two Dollars and Seventeen Cents per thousand cubic feet. So that with only nominal cost overrun or changes in the volume of production which are within the realm of possibility, you can move cost of service all the way from One Dollar Eighty-One Cents per thousand up to Two Dollars and Seventeen Cents per thousand. That is holding everything else constant.

The Department of Revenue seems to imply by this -- from this to mean that Arctic is somehow less preferable; I think a more correct conclusion is that the cost of service is an extremely slippery entity. While the

calculations are worth doing as illustrations, we can't know how the cost of service will be influenced by the various parameters at this time, so I don't feel that the argument that for any of the lines ought to heavily lean on the cost of service. The relative costs of service mentioned in the Task Force report may well hold, that is that Arctic would have the least cost of service, I believe it is El Paso next and Alcan the highest. Whatever the relative costs are there are large differences between the two studies they mentioned in the Knudson report and the Pipeline Coordinator's office.

The net national economic benefit, however, they do not have depending on the cost of service. They have it depending more -- they have it depending on the amount that is paid for the gas which is Two Dollars and Eighty Cents, less the cost of construction, allowances for interest on funds committed during construction, working capital, operations and maintenance expenses, taxes paid to foreign governments. I presume only that allocable to the American earnings on Arctic.

At any rate, the analysis, again, is sensitive to the assumption used, particularly to the price of gas and the timing and staging of the projects. It is interesting to note that to get net national benefits

to come our superior for El Paso to the Arctic and Alcan proposals they require the following three assumptions, full production of gas, that is eight-eighths of the 2.5 billion cubic feet for the Trans-Alaska with 1983 production. Full production for Alcan, but later than El Paso, a year later in fact and Arctic Gas assumed to have a ten percent cost overrun and seven-eighths production.

Therefore, I'm not sure that the game was played exactly fairly with the proposals. However, I think it might be fairer to use the real schedules, whatever those happen to be at the moment, they seem to change from time to time, and the same throughput and the same cost overrun considerations.

In any case, I think that since Alaska could influence the benefits by its actions vis-a-vis any of the lines, and since the calculation is sensitive to the assumptions, we ought to be extremely cautious how it is used.

With respect to fiscal impacts, the results of this section depend on an earlier study by the State Department of Labor, Research and Analysis Section. Labor shows that the level of employment rises sharply in each case through about 1981, then levels off. This is supposed to include direct employment on the project,

induced employment in the state economy brought about by the increase in the direct workforce. I did not have access to the report at the time I was preparing my comments here, so I can't compare their model to ours, the Man-in-the-Arctic Program, the econometric model. Their usual procedure, however, has been to use the HRPI, that is Human Resources Planning Institute labor market model, which does not take into account the impact on employment of state spending of additional revenues received by the state as a result of the gas projects.

Our work in this area, which does take this into account through the state government sector, shows that employment impacts are somewhat larger for El Paso than they show, I believe they show around nine thousand and we show around twelve thousand in the year 1990, a little more than for Arctic, and for what it's worth, about the same as the Alcan project.

So we have minor differences about the construction period, but in the main we agree about the ranking and approximate relative impacts on employment and on population, I might add.

I have no real arguments with what the Department did with revenues and expenditures. I would note, however, three things. Spending on local services and state services probably influences migration and population,

especially in the El Paso case, where you have much larger expenditures possible. And in any case, El Paso proposes to use local communities more heavily than the other two lines so that you would probably have higher spending on local services.

All three routes show substantial front-end state deficits which will have to be financed by reduced services, higher taxes on someone, or both.

All three routes show substantial construction employment effects between probably 1978 and 1984. This may coincide with the timing of other major oil and gas developments, for example, the Gulf of Alaska off-shore, and I can foresee that some of these routes may well be competing for transportation links and dock space, particularly in the Gulf of Alaska.

I think that we can safely agree that if the LNG plant proves taxable by the state under its property tax that the rankings that are shown in the report are, in fact, correct.

With respect to impacts on the private economy, we have no fundamental disagreements with this section. The section is based on work done by ISER and by state experts.

With respect to employment, there is an importance of acknowledging there that the fact that the jobs are

available does not say "to whom". In order to really tell what the likely impact will be on state resident employment we would need to know the type of jobs available, including the requisite skills, the number and type of skills available in Alaska to fill those jobs and the type and effectiveness of "Alaska Hire" policies.

With respect to real income, no matter -- with respect to our work in this area, which is mentioned in the report, it seems like no matter what we do with respect to the relative throughputs of the lines, if the revenues of the state are spent in ways that induce migration, we found that it is impossible over the long run to increase the real per capita personal income of "Alaskans" and I say Alaskans advisably because that would include migrants as well as those people who are already in the state. It may well be that you could have a decline in real personal income even though everyone were made better off, in the sense that people who already live in the state could have increased incomes from building the pipelines, and those people who migrate to the state may enjoy increases in real income in spite of the fact that the average dropped. But we don't know what the answer is there yet. We should know in a couple of years. We are doing some work in the

area right now about distribution of income and economic modelling in Alaska.

Results from our community survey in Fairbanks show that economic benefits, however, were much more widely spread than anyone had expected prior to the Alyeska pipeline being built. So that might be something you want to take into consideration.

With respect to cost of living, the analysis in the report seems reasonable and straightforward and I don't think we have any quarrels with that.

I would be happy to entertain any questions at this time.

SENATOR RADER: Let me advise the committee that Commissioner Martin, as you recall when he terminated his testimony Monday, asked for permission to come back after the conclusion of all the testimony and to supply us with any information that he felt was pertinent and I understand that he has an observer here. So I assume that those parts of your report, Doctor, which take issue with the Task Force and the other information will be presented somewhat to the committee at least for some rebuttal and I wanted to advise the committee members of that prior to their going on with Dr. Scott's questioning. But this would be an appropriate time I take it, Dr. Tussing and Dr. Scott for questioning on Dr. Scott's presentation?

SCOMM

#15:2b

DOCUMENTS 1 TO 1 PAGE = 1 OF 2
llib.7700670 DOCUMENT= 1 OF 1

LIBRARY LLIB
CARD # 7700670
CATEGORY 1977
TITLE JOINT PUBLIC HEARINGS OF THE ALASKA STATE LEGISLATURE ON SCR 3, 4, 5 AND HCR 11, 12, 13, THE PROPOSED SALE OF ROYALTY GAS, JANUARY 31, 1977 - FEBRUARY 7, 1977, JUNEAU, ALASKA
PUBLISHER Legislature
PUB DATE 1977
SUBJECT oil; gas; SCR 3, 1977; SCR 4, 1977; SCR 5, 1977; HCR 11, 1977; HCR 12, 1977; HCR 13, 1977; contracts, contractors; pipeline; revenue
COMMENTS 6vol.
CONTENTS:

SCOMM15 FILE 2B

v.1. Consultant presentations: Arlon Tussing, Institute of Social and Economic Research, University of Alaska; Carl Swanson, Jensen Associates, inc.; Richard Kilgore, W. J. Levy Consultants; Rush Moody, Vinson, Elkins, et al, Attorneys at Law.
Vol.1 appendix: Michael J. Scott, Institute of Social and Economic Research.
vol.2. Introduction and administration presentation: Introduction by co-chairmen(Senator John Rader and Representative Clark Gruening); Administration presentation by Guy Martin, Avrum Gross, Fred Boness, Jack Byrd.

SCOMM15 FILE3

vol.3. Presentations by prospective gas purchasers: Tenneco, by Robert S. Thomaswith Jared Carter, Bob Hartig, Bill Thornhill; Southern, by Peter Smith with John Van Dyke, Henry Pratt, and David Hendrickson; El Paso by Michel C. Holland with Joseph Henri.
vol.4. Presentations by the three competing routes: Alcan, by Morris Thompson with Cliff Groh, Joe Becraft; Arctic by Robert W. Ward; El Paso, by Mike Holland.
vol.5. Presentations by individuals, organizations, and other interested parties: Michigan Wisonsin Pipeline Co., by John F. Cota with Tejindra Bindra; H.A. Red Boucher; Doil D. Dallas with Robert Dempsey; Alaska Conservation Society, by Virginia dal Piaz; Wilderness Society, by Peter Scholes; Friends of the Earth, by Alison Horton.
vol.6. Exhibits.
Joint hearings held by the Senate Special Committee to Consider the Sale of Royalty Gas and House Special Committee on the Sale of Royalty Gas.

R0601 * END OF DOCUMENTS IN LIST - ENTER RETURN OR ANOTHER COMMAND.

ADMIN.

AGO 799804

JOINT PUBLIC HEARINGS

of the

ALASKA STATE LEGISLATURE

on

SCR 3, 4, 5 and HCR 11, 12, 13

"THE PROPOSED SALE OF ROYALTY GAS"

January 31, 1977 - February 7, 1977

Juneau, Alaska

VOLUME II

INTRODUCTION AND ADMINISTRATION PRESENTATION

AGO 799805

Alaska State Legislature

POUCH Y, STATE CAPITOL
JUNEAU, ALASKA 99811
907 465-3800

SENATE SPECIAL COMMITTEE TO CONSIDER THE SALE OF ROYALTY GAS

John Rader, Chairman
Mike Colletta
Chancy Croft
John Huber
Clem Tillion

HOUSE SPECIAL COMMITTEE ON THE SALE OF ROYALTY GAS

Clark Gruening, Chairman
Chat Chatterton
Joe Hayes
Joe McKinnon
Charlie Parr

SCR 3, 4, 5 Second Referral - Senate Resources
Third Referral - Senate Finance

HCR 11,12,13 Second Referral - House Finance

AGO 799806

JANUARY 31, 1977

SENATOR RADER: This is the time set for the joint hearings held by the Senate and the House relative to the Governor's proposals to the sale of royalty gas and the resolutions that have been introduced in both the House and Senate concerning those matters.

First of all, I want to introduce myself. I am Senator John Rader and to my left is Representative Clark Gruening. We are each chairmen of independent committees. This is not a joint committee, it is a joint hearing of two committees.

I'm going to introduce the Senators on this side and Representative Gruening will introduce his House members. I'll start with Senator Meland of Sitka, Senator Orsini of Anchorage, Senator Hohman of Bethel, Senator Butrovich of Fairbanks, Senator Poland of Kodiak, Senator Huber of Fairbanks, Senator Croft of Anchorage, Senator Tillion of Halibut Cove, and Senator Colletta of Anchorage. Mr. Gruening.

REP. GRUENING: Thank you. I'd like to represent -- introduce Leo Rhode from Homer at the end of the table, Merle Snider from Kodiak, Red Swanson from Nenana, Larry Carpenter from Fairbanks, and Bob Bradley from Anchorage, Russ Meekins from Anchorage, Chat Chatterton from Anchorage, and Joe Hayes from Anchorage, and Joe McKinnon

from Anchorage, and Charlie Parr from Fairbanks, and I'm Clark Gruening, the chairman of the House Special Committee to consider this gas sale.

SENATOR RADER: We had hoped that we would have a place at the table for every legislator who was interested and I -- in the Senate I asked for persons to let me know and only Senator Kerttula let me know. I do see some legislators in the audience that I would like to recognize. I see Representative Haugen, I see Senator Sumner, Representative Haugen stand up perhaps, Sumner, Representative Bill Miles, Senator Willis, Senator Bradley, and if there is anyone else here, and Representative Miller, Senator Hackney.

We will not take questions from the floor except for legislators. Any legislator who has a question though, whether he is seated at the table or not, will be permitted to ask questions of the witness if he desires. But, because we do want a full transcript of this, I'd ask the legislator to perhaps come forward and if there is an empty seat here, take it for such period of time as he is asking questions. I do want to extend that privilege to all of you who are here if you have any questions. We will not permit questions though from non-legislators. If you have a question, you are going to have to get some legislator to ask it for you or else it probably won't be

asked.

The -- we would like to have everyone sign in that is here. We want to keep a record of attendance, if we can, and who you represent. If you wish to testify, please leave your name with the person at the desk or with any of our staff members here. Elke Kallab, Elke would you stand up. Elke -- if you do wish to testify and are not the list, leave your name with Elke or search her out. If you give it to me, it may get lost. If you give it to Elke, why I'm sure it won't be.

We found out -- our original schedule was for two days here and one day at the Baranof. We have found out that this is available for three days so all of our meetings here are scheduled for today, tomorrow and Wednesday. I'm hopeful that both the House and the Senate will conclude their sessions so that we will be able to have an eleven o'clock session here starting tomorrow, going to twelve with an hour for lunch, coming back at one and going until four thirty or five or exhaustion wipes us out, whichever first occurs. But, of course, our meetings in the mornings and during the days will be subject to the House and Senate meetings on the hill and these committee meetings will of course be subject -- it has a lower priority than do those meetings. I expect, however, that we will be able to convene though tomorrow at eleven o'clock. Those

of you who are wishing -- yes. Those of you who want transcripts, would you leave your name with the court reporter. Prior to building you a transcript, we'll try to give you a price on it so you'll have a chance to back out. If you'll leave your name with her and an address, we will try to work out some sort of a situation here so that we can give you an estimate of the price on the transcript and then she'll contact you at the address you indicate and if you want to buy one, you can. I don't think we are going to be able to print up enough to handle everything at public expense, we'll have to look into that. But, if you want a transcript leave your name with the court reporter.

This room is over capacity, I'm sure. I'm going to ask that you refrain from smoking. We'll try to take a break at least every hour. I don't like to interrupt the witness in the middle of his testimony or a question -- a line of questioning that is being pursued, but subject generally to the convenience of the proceedings at the time, we'll try to take a break every hour to give you a chance to take a smoke and stretch your legs.

We have a tentative agenda that we have developed. It is only tentative. We'll take any witness out of order. We're here to accommodate you for your travel plans and your other commitments. We know that a lot of

you have things to do other than to be here. If you wish to be taken out of order, let me know and I'll try to accommodate you as soon as I understand what your problem is.

It's a public meeting, of course, and everyone is welcome to attend and everyone will be welcome to testify. I suppose that if it went on for three weeks there probably wouldn't be very many people here to listen to you, but there will be someone here to listen.

I can't think of -- Representative Gruening, can you think of any other remarks or ground rules we need to establish?

REP. GRUENING: I'd like to introduce Representative Al Osterback who is sitting on the Senate side but is representing us in the House.

SENATOR RADER: Incidentally, from the Senate's point of the side, we have both the Resources and Finance people on our side. They have referrals of the resolutions after the select committees and there may be some public testimony taken by those committees at a later date. That will be up to the chairmen of those committees to determine whether or not they need it.

I have been contacted by a congressional delegation and told them that I would read their testimony verbally into the record and therefore I am going to do that,

although I think that in some instances we will receive written testimony which will not be read unless it is absolutely -- unless someone insists on it, some committee member.

But, we have a wire from United States Senator Mike Gravel.

(Whereupon Exhibit 1 was duly read into the record.)

That exhibit will be exhibit number one. The reporter will not retype exhibits which are read into the minutes. We will make them exhibits and they will be xeroxed when we make our copies to try to save on the expense.

Exhibit number two, which the reporter need not copy but which will be appended to the transcript is a wire from United States Senator Ted Stevens.

(Whereupon Exhibit 2 was duly read into the record.)

And that will be exhibit two. Representative Don Young called me less than twenty minutes ago from Washington, informed me that he had directed that his testimony be hand carried from Washington and that it left Washington Friday evening. I have been informed since then that it was sent to Washington because of a telecopying process -- sent to Anchorage and that the airplane cannot

leave Anchorage and that the reason that that testimony is here is because of the Anchorage airport and not the Juneau airport. I'm sure we will receive that testimony in the course of the hearings and when we do, it will likewise be read into the record.

REP. GRUENING: Senator?

SENATOR RADER: Representative Gruening.

REP. GRUENING: If I might be permitted a brief remark, it seems to me that this -- these three contracts that are before us now represent the single largest sale of our natural resources since the Prudhoe Bay lease sale and I hope -- I urge the legislators to hold sacred no sacred cows in approaching the assumptions upon which this -- these three contracts are based. And, as the Senators have pointed out, the principal reason that we are considering these contracts today is to effect a political decision in Washington, not to raise revenue for the State. So, I would urge everyone to focus on at least what I believe to be the principal question, what are we giving up by entering this contract, if anything, and what are we getting in return for the State -- for the people of this state.

SENATOR RADER: Unless there are any further remarks, we'll go back to our schedule here. I'll ask Commissioner Martin if he would present his testimony and those of his

associates in whatever order he approves. Commissioner, how would you like to handle questioning?

COMMISSIONER MARTIN: I'd like to ask Attorney General Gross and Commissioner Gallagher to join me here and I'll introduce the other individuals, Mr. Chairman.

SENATOR RADER: Would you want us to defer until the end of your presentation for questions or ask questions as we go along?

COMMISSIONER MARTIN: I think it would be most useful because, as I'll explain, we have a fairly brief presentation, to defer questions until the end, and then just have a continuous question period after that.

SENATOR RADER: Does anyone on the committee object to that procedure, any legislators object? That will be the way we'll proceed then.

COMMISSIONER MARTIN: Is Mr. Gallagher here? I thought I saw him earlier. Do you want to come up, Sterling?

Mr. Chairman, I have spoken, as you know, previously to a joint meeting of the two special committees at least, and to both of the Chairmen of the two special committees and, as I understand it, we have some options for procedure, and I want to explain that before I begin. We discussed either having a prolonged briefing by the Administration in which as many as eight or ten individuals could participate and give really very detailed information

with regard to every phase of this as opposed to a more summarized presentation followed by questions. And my understanding of the consensus of those -- the choice between those two and which I checked with you earlier this morning, was that a more summarized statement of the administration's position, in view of the fact that we have already submitted a tremendous amount of written material to the committees, would be preferred. So, if that's all right, I'll proceed in that vein.

Now, my attention today is to first read a statement sent down by Governor Hammond, followed by a statement by Attorney General Gross, who is a chairman of the State's Gas Line Task Force, and then to -- then allow the committee to simply ask questions of all the individuals that are here. And, let me very quickly indicate who is here and how I think we can be of assistance to the committee's informational needs today. Governor Hammond has asked me to be a principal spokeman on this issue and to attempt to see that you get the answers that you need, both here and otherwise, and I'll be pleased to serve in that capacity. With me here today, in addition to Attorney General Gross, who is the chairman of the Task Force and who was also responsible for putting together our FPC case, is Commissioner Gallagher, who done a -- Commissioner of Revenue, who has done a great

deal of work on the economics associated with the various line proposals and with the royalty gas contracts. Also here, and I'll just ask these individuals to raise their hands so you can identify them, is Mr. Bob LeResche, -- Dr. Bob LeResche, who is the coordinator -- the Director of Division of Policy & Planning in the Governor's office and was basically the substantive coordinator of the comparative route study done on the gas line issue. Also here is E.Z. Gilbreth, who is the Director of the Division of Mineral & Energy Management, the Department of Natural Resources, who is responsible at least for representing here today, the work that the State has done on royalty gas demand and is also in charge of our effort on the unitization of the Prudhoe Bay field. In summary, he is in charge of our management function with regard to the Prudhoe Bay field.

Also here is Mr. Hoyle Hamilton, who is Director of the Division of Oil and Gas Conservation. Mr. Hamilton is in charge of the field operation for the State, pursuant to the State's conservation statute, and is the individual who is coordinating our work on the reservoir simulation study and other aspects of the performance of the reservoir.

Also here is Assistant Attorney General Fred Boness, who is the individual at the Department of Law

who coordinates legal oil and gas work, assisted me staunchly throughout the negotiation of this contract and is also the coordinator from Juneau of the State's work in the FPC case. He's really our man on this issue.

And finally, Jack Byrd, who is sitting on the end there. Jack is a -- I think safe to say a nationally known consultant. He is an attorney, a nationally known legal consultant in the area of natural gas. He is an FPB attorney and has served as our gas contracting consultant, particularly on matters of price and FPC regulations throughout the negotiations.

There are other individuals involved who -- to a lesser extent who can also be here to assist from time to time but this is basically the team. I might say, Mr. Chairman, that we really want to thank the committee for making an effort to consolidate its hearings. We have a number of individuals here who are going to be difficult to get in one room on very many occasions and we appreciate the fact that you allowed us the privilege of making at least our factual presentation on this in one -- in one instance. Mr. Byrd and Mr. Boness, particularly, will have demands on their time in the next couple weeks will make it very difficult to get our entire group together very often, but we'll try to cooperate with the committee as far as we can to see

that we can get the people you need to be available. With that, I would like to read a statement that was sent down by Governor Hammond to the committee and then ask Av Gross to give a statement of his own.

"Members of the Committee, members of my Administration are here today to discuss a proposal of great importance to the future of the State. Because your review of this proposal should be as thorough as possible, I would like to preface the more detailed comments of others with my own statement. My objective is to lend perspective regarding the issues involved, and to define elements important to your ultimate decision.

Like the Native Claims Settlement Act, the Trans-Alaska Oil Pipeline and 17 D(2) Lands, the issue of North Slope natural gas transportation and use is a critical decision for Alaska. Present national emergy emergencies and last year's passage of the Natural Gas Transportation Act of 1976 leave little room to doubt that a national decision on the gas transportation system is imminent. The question is: what, if any, will, can and should -- what role, if any, will, can and should we play in that decision to best protect our own interests within the constraints imposed by overriding national interests?

After first analyzing various alternatives, my Administration concluded that the best, most expeditious

transportation system from both the state and national viewpoint was that which would take gas from Prudhoe Bay to tidewater in Prince William Sound. This legislature reflected a similar conclusion in a resolution adopted two years ago. Polls indicate that almost -- indicated that almost eighty-five percent of the people of Alaska stood solidly behind that choice. The congressional delegation concurred. Such support was not given lightly. Unlike the oil pipeline, the gas pipeline route had been widely discussed through the state, both in the media and through public meetings, before a decision was made. That decision is one which can be supported on principle as well as politics.

Having made the decision on which route to support, we actively participated in Federal Power Commission hearings; successfully advanced the unprecedented amendment to protect later state uses of royalty gas, and took our case to the people in the Lower 48 in an effort to offset the considerable opposition. After all, nearly all major distribution companies favored the Arctic Gas consortium. Mid-western states, which had sought a Trans-Canada oil pipeline, argued that the gas pipeline should go directly to them. After participating in this process for some time, and in light of legislative expression and congressional consultation, I felt it necessary to do more to gain support

for our position from outside the state. That conclusion led to the royalty gas contract you see before you now.

The major purpose of these contracts is to build a national constituency in support of the Trans-Alaska line while protecting and enhancing the in-state utilization of Alaskan royalty gas wherever possible so long as consistent with national needs. We believe the proposed contracts protect the state's interests as fully as possible under the circumstances. We are not, as some suggest, simply trying to buy lobbyists in Washington. That could have been done simply through hiring qualified personnel. The royalty contract does far more. It gives people throughout most other states an interest in seeing that the Trans-Alaska route is approved. A decision on this matter will ultimately be made by the President and the Congress. Their overriding concern will be in the national interst. Overriding national interest can be deomonstrated best if the largest number of people possible directly benefit from approval of the Trans-Alaska line.

Our actions in bringing forth these contracts are what I believe the people of Alaska, the legislature and the congressional delegation believed we should do. I suspect that if my administration had not negotiated the best contracts possible and advanced them under these

circumstances and then given them to you, we would surely be asked by many of you where the royalty gas sale proposals were rather than being questioned about proceeding. As your legislative resolution indicated to use "all resources at my command" to further a Trans-Alaska gas pipeline route. Certainly, there are politics involved in any such contractual agreements. However, there is nothing at all wrong with political forces being countered by political forces when the politics one uses coincide with principle. So long as we believe the Trans-Alaska route truly is in the state's and the nation's best interests, we would be remiss should we not garner what support we can so long as we do not do violence to propriety or principle in the process.

My instructions for our negotiators were to seek the best contract possible for the state to carry out the policies articulated and to do so on a time schedule which would allow the legislature the eariliest possible opportunity to review this alternative. After reviewing the results of the negotiations, I concluded it to be in the best interests of the state that this alternative be advanced. That decision won the endoresement of a broad spectrum of the Alaska public and the congressional delegation and was, as well, accorded approval of the Royalty Board as mandated by statute.

In negotiating the contracts, the State recovered a good price; it protected the future in-state use of gas; it gave the State the best opportunity to utilize and protect its royalty gas pursuant to the amendment we drafted and proposed to Congress for protection of our royalty gas; and at the same time we've gained support for the state's position on the gas pipeline debates. Moreover, the contracts are consistent with the direction the legislature gave to the administration when it not only indicated its support for the Trans-Alaska route but later appropriated money to aid in the negotiation of contracts.

Some concerns have been raised concerning the so-called "flexibility provision" in the contract. That clause would permit the state through the governor to change its position on the route issue at some subsequent time. Some assert that no flexibility at all should be possible and that the state should lock itself into an all or none position in support of the Trans-Alaska route. I think this is self-destructive, for I am sure that nearly every person in the state would agree that if we cannot have the El Paso route, the Alcan route is far more desirable than the Arctic Gas route. And they would want the State to be able to do what it can to gain the next best choice should our first choice be impossible or unwise.

Other persons suggest that while flexibility is desirable, any change of position should only be made with the concurrence of the legislature. Normally I have great sympathy with legislative participation in policy decisions of the nature -- of this nature and my record bears it out, but in this case you must recognize the realities of the situation. Our support for the Trans-Alaska route is strong and will not waiver unless and until it becomes clear that that route cannot succeed. That point, if it comes at all, will probably come at some time later in the pipeline decision--perhaps in the closing debate in Congress. Decisions will have to be made quickly if they are to have any impact at all. I can assure you that if I have to make a decision to shift our support from the El Paso route to the Alcan route it will be only after a clear consensus has emerged from our Congressional Delegation that such a shift was necessary and after a similar consensus had emerged through consultation with the State legislative leadership. We would all recognize it to be in the best interest, I think, if that -- in our best interest, I think, if that moment arose. But, reconvening the legislature and seeking a new full-scale debate on the question would simply be unrealistic considering that we might be dealing with decisions which would have to be made in literally hours or days. If there were time, I

would honor a request by the legislative leadership to call a special session, but I cannot support a requirement for a mandatory session under any circumstaces, for it would tie our hands unnecessarily and perhaps jeopardize the best interests of the state. I hope you will consider these contracts very carefully. I have tried to have them available for you at the onset of the session so that you might move quickly on them, but I do not want in any way to pressure you into a decision before you are satisfied that the contracts are in the state's best interests. At the same time, you know and I know the timetable of the federal decision, and waiting an unreasonable period of time before giving your endorsement to what we have done may indicate on a national level that our support is vacillating or, for that matter, that our support will not be translated into meaningful action in enough time to have an impact. I am sure you are aware of these factors just as I am, and thus will deal with the contracts reasonably and expeditiously.

I hope this brief review clears the air on certain aspects of the decision before you. Members of my administration will be available to you today and later to answer questions which led up to the contracts. I have instructed them to stay here as long as they are needed by the committee and to answer the questions you

have. Some of them will have additional statements to make concerning the contracts. And, the Governor expresses his thanks, Senator Rader.

At this time I would like to ask Attorney General Gross to make a statement, the only other prepared statement we'll be making today, which indicates the work that was done by the Gas Line Task Force.

ATTORNEY GENERAL GROSS: Thank you, Commissioner Martin. As the Governor has just indicated in his statement, one of the major purposes for the contracts before you is to build national support in favor of the Trans-Alaska pipeline route. I think it is fair to say that approval or disapproval of this contract by the legislature will be interpreted in large part as approval or disapproval of the Governor's decision to support the Trans-Alaska line. Since that is the case, it seems to me incumbent upon the administration to outline for you why we have come to the conclusion that support for the all-Alaska line is in the state's best interest. You have an enormous amount of material before you that has already been furnished by the administration to justify its decision, but it is perhaps fitting as we begin these hearings that I briefly outline how we have reached this point in the decision-making process.

As one of the first acts of his administration,

Governor Hammond appointed me as chairman of the Gas Pipeline Task Force. The purpose of that group was to gather and analyze the available data on alternative pipeline routes and then to recommend to the Governor which route was in the state's best interest. The Task Force was composed of commissioners from the departments which would have involvement in the construction of a gas pipeline, such as Community and Regional Affairs, Revenue, Natural Resources, Highways and Commerce. Mr. Champion, the Pipeline Coordinator, served on the committee, as did Lowell Thomas, the Lieutenant Governor.

In candor, there were enormous pressures on the task force. A review of the files indicated that little, if any, prior substantive analysis had been done of the alternate route proposals. Accordingly, we had to develop the information on which our decisions were based from scratch. The members of the task force had little prior expertise in gas pipeline regulation matters or the kinds of decisions which were relevant to choosing a particular route. We had to gain that knowledge before we could make any kind of an intelligent decision. Finally, we were put under a lot of pressure by the schedule of events having to do with the pipeline route decision. The FPC hearings were about to begin and if the state was to take any meaningful position, it was necessary that we

make a prompt decision on what position we would take in those hearings.

We tried to arrive at a position fairly and honestly. By that I mean we tried to evaluate the data made available to us in an unbiased fashion. We did not try to reach a politically popular result just for the sake of that popularity. The Governor instructed us to reach a position that we could rationally support, and we knew we had to do that since if we were to promote our case before the FPC and in the national forum, a decision based purely on political considerations would be quickly and obviously exposed for exactly what it was. We may have made mistakes, Mr. Chairman, in our deliberations, but I can assure you that they have not been through lack of commitment or effort to do what was best for the state.

Initially we had but two alternative route proposals--the Arctic Gas route and the El Paso route. In analyzing those choices, we used information provided by the companies both to us and in their filings before the Federal Power Commission. That information was subjected to the scrutiny of various departments which evaluated the information with a view toward testing its authenticity. We commissioned an economic study on the alternative routes. Evaluating all the evidence, the

task force concluded unanimously that from both economic and environmental viewpoints, the El Paso route was clearly the best for the state. We recommended it to the Governor and he accepted our recommendation, committing the state to supporting that choice.

The reasons for the choice are, I think, now obvious, at least in retrospect. From an economic standpoint, the El Paso route generated a great deal of in-state employment during construction and created a number of long-term job opportunities within the state. The El Paso project meant a greater amount of capital investment in the state. It also provided opportunity for in-state use of gas, a matter of critical importance. The Arctic Gas route provided little lasting economic base for the state. Environmentally the Arctic Gas route intruded on the Arctic Wildlife Range, one of the last undisturbed wilderness areas in Alaska, while the El Paso route for the most part utilized an existing pipeline corridor developed for the Alyeska route. Every single major environmental group involved in this matter joined us in our support of the El Paso route as opposed to the Arctic Gas route. It was one of the few issues on which those who promote rapid development in our state and those who are strict conservationists agreed.

Finally, very real questions have been raised as

to whether the Arctic Gas route can even be built, at least in the forseeable future. Native land claims problems in Canada are very real right now. And, as we all know, from our personal experience, those claims can have very real impact.

Now, approximately a year after our initial decision and a good part of the way through the presentation of the case before the Federal Power Commission, a new route alternative developed. That was the route from Prudhoe Bay to Fairbanks, and then down the Alcan Highway. That is the route that is now known as the Alcan proposal, and it has some real benefits for Alaska. For instance, it permits in-state use of royalty gas (though it does not bring the gas to tidewater), and it provides a greater long-term economic base in the state than is provided by the Arctic Gas route. Environmentally the Alcan route uses existing pipeline corridors to Fairbanks and then follows the highway to the Canadian border, with minimal environmental impact. Environmental groups started to split with the surfacing of this proposal. Some of them now advocate the Alcan route.

The Governor asked at that time that the task force re-evaluate our position in light of the Alcan proposal, and we did so, using basically the same process as we used to reach our original decision. The task

force concluded after substantial study, including two additional comprehensive economic analyses, that while the Alcan route was far better than the Arctic Gas route, it still was not as beneficial to the state as the El Paso route. In long-term employment, for instance, the El Paso proposal will create nearly one thousand more jobs in the state than the Alcan proposal. On a net basis, the El Paso route will produce approximately Five Hundred and Twenty-five Million Dollars in income for the state treasury during the effective life of the line, as opposed to approximately Three Hundred and Fifty-seven Million Dollars for the Alcan route. Only the El Paso route will take gas to tidewater where prospective use of our royalty gas will probably be greatest. Moreover, from a national viewpoint, our analyses indicate that the El Paso route can give as much as One Billion Dollars more net benefit to the nation, primarily through the fact that more of the project is built with American labor and materials, and is subject to only United States taxation.

Environmentally the case between Alcan and El Paso is very close. The task force favored El Paso since it used existing corridor technology. Now, that is important, since it means that we can use the wealth of material that we have developed on rivers, tundra, and wildlife

as the Trans-Alaska pipeline was built. Moreover, we would, in effect, channelize our pipeline development in the state. But there are real benefits to Alcan as well. It is a purely subjective judgment and I would not seriously quarrel with any of you who felt that Alcan was the better environmental choice, but, in my view, it is not so much better as to countervail the substantial economic benefits which flow to the state if the Trans-Alaska pipeline route is selected.

As chairman of the task force, it was my basic function to coordinate the efforts of the various departments involved. I do not pretend to be an expert on the various studies which have been done, technical aspects of construction or difficult questions involving environmental matters. We have here today, however, people who can answer those questions, and Commissioner Martin and I can direct your questions to the people who can best respond to them. We are available to help you in any way we can in explaining what we have done and why. I think we have made the right decision and I hope we can convince you that we have made the right decision. Thank you.

COMMISSIONER MARTIN: Mr. Chairman, I'm -- having said a great deal on these contracts in prepared statements and the other night before Senator Gruening's committee, I'm not going to make a prepared statement in addition to

that made by the Governor and Attorney General Gross, but I'm prepared to answer what questions I can and direct your others to any other individuals we have here who can help. Thank you very much.

SENATOR RADER: Thank you, Commissioner, Attorney General. Have we any questions from any members?

REP. GRUENING: Somebody has got to start here.

SENATOR RADER: Mr. Gruening?

REP. GRUENING: I think this goes to Mr. Gross. In the comparative evaluation it stated -- November of '76, there is a letter, December 2nd, 1976, to the Governor in which on page three of that letter, on the bottom of the third paragraph, Chairman Gross makes these remarks: "I think Alaska would agree that if we reached a point where support of the El Paso route was no longer feasible, the state should throw its support behind the Alcan route. The only real question is at what point." And then in the next paragraph you suggest a number of points at which that support might be switched, and one of them was the decision of the Federal Power Commission Hearing Judge. And that decision, as I understand it, will be made tomorrow, and I don't know what the decision will be, but let's assume that it is not favorable to the all-Alaska Route. Is it your position now that that is not an important stage at which we should consider the -- our

first choice or is it important as you see it?

ATTORNEY GENERAL GROSS: Well, it is certainly important, Representative Gruening. I think that since I wrote this letter we have had an opportunity to discuss with both the Congressional Delegation and the people involved in the effort in Washington, what the impact will be of an adverse decision before the Federal Power Commission. It is my impression, from discussing that with those people, that the fight will still be very much an open one at that stage, that the basic decision is going to be made by the President and the Congress, and that the issue will not be foretold by a Federal Power Commission decision even if it were adverse. So I would say at this point that an adverse decision would not cause me, at least, to recommend to the Governor a re-evaluation of our position.

Commissioner Martin has been more in charge of the Washington aspects of this and I think he would be more appropriate to answer that; but that would be my own reflection on what I consider.

COMMISSIONER MARTIN: I'd only add, Mr. Chairman, that I think the circumstances that exist now, after the passage of the Alaska Natural Gas Transportation Act, should be noted to be substantially different than that which would exist under ordinary certification processes. As that bill is

structured the FPC administrative law judge's opinion ultimately leading to an FPC decision becomes only a part on an overall structure which will involve a number of other federal agencies, the President and Congress prior to the decision. Whereas, under the ordinary circumstances the finding of the judge followed by the Commission would be determinative. So, I think that the circumstances change but I would want to add that we intend to look at that decision and we anticipate, quite frankly, that it will be lengthy, several hundred pages, and we anticipate that it will have a number of subtle and sophisticated points in it. So that I think that it would be very difficult now to say before seeing it what the position would be. But, standing alone I don't think that it represents a -- necessarily a single factor to change the state's position.

REP. GRUENING: In this new legislation, what role or what importance would you play on the presidential -- the President's decision?

COMMISSIONER MARTIN: Well, all of these are somewhat subjective judgments. My own feeling would be that the way the decision will be made, and I guess I say this from the perspective of my experience somewhat from the oil line as well as this present dispute, Mr. Chairman, is this, that my guess is that the President will take advantage

of the fact finding period set up in the bill utilizing the federal agencies as well as the FPC. He will then move toward a position on it without probably taking a final position and then work with members of Congress to see if the issue can somehow be brokered or somehow resolved between the two branches prior to the time that it goes.

So my guess is that the President is going to be very important but that he will not send a recommendation to Congress without having a fairly good idea of how it will be returned. His role is unquestionably crucial.

REP. GRUENING: What I'm trying to determine, Commissioner, is at what point, interpreting the Governor's remarks today that you read, at what point would he make a re-consideration? If I understood it correctly, he said in Congress. In other words, the President's decision wasn't as important to him -- or I'm trying to understand at just what point you think these considerations that Chairman Gross pointed out earlier are important.

COMMISSIONER MARTIN: I don't think that you can identify a single instance but I can give you some examples that would be the sort of thing that would be important. For instance, if we get an early indication that the -- if the President simply does what I suggest, he may not, and that is, takes a position simply within the next sixty or

ninety days, stakes out a position and says "I'm going to support the Arctic route" or "I'm going to support the El Paso route", we will know something then that will be definitive. We don't know whether he will do that.

Similarly there could be an action taken in Canada, a definitive action which would give us an idea whether Canada has any capability at all to approve any pipeline through its country or whether it will act so as to facilitate it. And I really think that you're not going to get an answer as to a definitive point in time and this is what we think is one of the strengths of the contracts, that it puts us in a position where we can be somewhat flexible in response to that but at the same time have our basic position well established and well supported.

SENATOR RADER: Senator Croft?

SENATOR CROFT: Could I ask -- I'd like to get back to Attorney General Gross' letter of December 2nd. You said in the last sentence -- the last paragraph of that, "I feel there is every possibility that the Trans-Alaska project will eventually be selected for the transportation of North Slope gas." Do you expect Judge Litt tomorrow to in effect recommend the El Paso route?

ATTORNEY GENERAL GROSS: No.

SENATOR CROFT: What has happened to date to make you think there is every possibility that that route will be

selected?

ATTORNEY GENERAL GROSS: I think the indications I have, Senator Croft, primarily revolve about the Canadian situation. I think that the Canadian situation is going to be a great deal more formidable than the administrative law judge contemplates and that the land claims issue -- the national situation in Canada at the present time are going to create a climate in which a Trans-Canadian route of any kind is going to be difficult. And I think that will be a highly determinative force on a national level.

SENATOR CROFT: Mr. --

SENATOR RADER: Senator?

SENATOR CROFT: Unless somebody else has another question. I was going to ask in that regard that the Anchorage Times of Saturday had reference to a treaty that had been recently concluded with Canada and somebody had said that that treaty had no material effect on the pipeline debate. Do you believe that's correct and exactly what does that treaty do?

ATTORNEY GENERAL GROSS: I do believe that is correct but I think Commissioner Martin can better explain it if that is all right.

COMMISSIONER MARTIN: Well, I think that it has some effect. I don't think that it is going to be determinative in any way. That's -- the treaty that was signed and now

subsequently has to be ratified in each country, is basically a formalization of the ad referendum agreement that was made earlier and that agreement really doesn't resolve any of the difficult questions that confront Canada on this issue. It tends to be more of an agreement to agree than anything else. I can have Assistant Attorney General Boness describe the terms of that treaty, I'm sure you are already familiar with them, but I don't think that treaty in any way is an agreement for a Trans-Canadian pipeline, either Alcan or Arctic.

SENATOR CROFT: The reason I ask is because I had heard that there was going to be a move on the part of our congressional delegation to fight this because it did have implications. You would expect then no fight out of our congressional delegation as a result of it?

COMMISSIONER MARTIN: I would think that they might oppose it but my own indication is that they share the view that I just expressed regarding the treaty, that it essentially establishes more normalized working relations between the United States and Canada on sort of a broad range of issues, but it does virtually nothing to materially advance either an Alcan or Arctic route.

SENATOR CROFT: Mr. Chairman, would you expect that the administration in conjunction with the Congressional Delegation and the purchasers of the North Slope gas would

then oppose that treaty in Congress?

COMMISSIONER MARTIN: I really wouldn't take a position on that. Our position throughout has been not to obstruct relationships with Canada nor to highlight differences between Alaska or the U.S. and Canada on this issue. I think the bigger issue really is simply the Canadian self-interest and the internal Canadian problems in terms of approving it. But, without examining in detail, my preliminary guess would be no, that we would not make major efforts to oppose it, if any.

SENATOR RADER: Any other questions? Mr. Parr?

REP. PARR: Yes. I believe my question would be for Commissioner Martin. In reading the Governor's statement, Mr. Martin, the purpose of this is to build a constituency in the Lower 48. Now, the Governor in dealing with the reason for not getting legislative concurrence in his switch said that a decision to shift, and these are almost his exact words, would have to be reached quickly and perhaps in hours or days and therefore it wouldn't be possible to get the legislature back into it. I would like to know what credibility you think we would have if on July 3rd we are supporting the El Paso route and July 4th we are supporting the Alcan, not only what credibility we'd have but what credibility our presumed allies would have?

COMMISSIONER MARTIN: Mr. Parr, as I see it there are really two situations that might exist to change the state's position on this issue. One could occur any time and one could occur, as I see it, only relatively early in the debate. The one that could occur relatively early would involve the substantive merits of the routes themselves and that is the emergence of facts, whether those facts are deregulation of gas or other factors, which would just simply change the substantive judgment of Alaskans on which routes are in its best interest.

The second factor which I think could occur at any point, would be the development of facts which indicate that our first choice, El Paso, simply cannot succeed and that we would lose to Arctic, a third choice, unless we changed our support to a second.

Now, in terms of your question about credibility, I think that most of the early development with regard to new substantive aspects will happen probably during the time -- or a good part of it will happen during the time that the legislature is considering this issue and should be very much a part of our debate.

With regard to the second factor, I think that anytime we switch, based on the fact that El Paso can no longer prevail, we are simply -- we are not impairing credibility because we are not changing our mind about

which is the best route. We are simply saying that the best route can't succeed and we're changing our allegience of support to the one that is the next best in our interest. So, I think that either the State or the companies could make that argument.

REP. PARR: Then you would say that the people down in Tennessee or wherever who were supposedly writing their Congressman in support of the El Paso route would understand that they were being asked to switch the next day as to writing their Congressman to support the Alcan route?

COMMISSIONER MARTIN: I don't think that they would know, Mr. Parr. I think that it is a very difficult situation. I mean, there is no question in my mind that you have -- that your point is valid to some extent. The logical extension of it, however, is that we lock ourselves into a single avenue of support at this time and give ourselves no avenue to get out of it if circumstances do change.

REP. PARR: Thank you.

ATTORNEY GENERAL GROSS: Representative Parr, I think -- is it any more -- is it any different than in any political process where a position is reached where a compromise must be made which some person may not wish independently but, forced to it is, nonetheless, required to make a compromise? It happens in the Legislature, it happens in

the Congress, it happens all the time and I don't think it is a question of credibility. It is a question of you seeking the best thing you can get for your constituents. View it to the extent you can and I don't think it is a question that will be not credible, it's simply dealing with reality.

COMMISSIONER MARTIN: Representative Parr, I'd like to add one other thing when you asked about your constituency in Tennessee. Under those circumstances they are not going to lose the gas if the position changes. I mean those same people who have been writing the letters are going to be getting the gas but getting it through a system which can succeed rather than through one that may be a hopeless -- you know, a loser and can't succeed at some later time. So those individuals will still have the gas supply.

REP. PARR: May I reply?

SENATOR RADER: You still have the floor.

REP. PARR: Well, in reply to Mr. Gross, I see his point and after all we all know that politics is the art of compromise, right? But, that is a little bit different from what I was talking about, I think. We were talking about persuading a bunch or ordinary people who are just -- who are not politicians but to support our cause by persuading their politicians, right? And I think that is

quite a bit different from the fact that we in the legislature and in the Governor's office and everywhere else all have to accept compromise as a political fact of life. I think there is quite a little difference there.

ATTORNEY GENERAL GROSS: I think Commissioner Martin's point is well taken. If the compromise will still protect the interests of those individuals, I think they would support it.

REP. PARR: Mr. Chairman, well, of course and if that's the case, what we ought to do is make it pretty clear, "look, we want you to support whatever the State of Alaska wants supported, so you can get the gas. not that we want you to support El Paso so you can get the gas." Right? We were telling them that El Paso is the best route, okay?

ATTORNEY GENERAL GROSS: Right.

REP. PARR: And they are supposed to honestly believe that and try and persuade their congressmen, not just because they are going to get the gas because that is purely a selfish motive and if that is the way we are going to play it, we ought to know it. But I felt we were going to persuade them that El Paso was the best route and then we come along and say, "well, no soap, boys, now it's Alcan we have to go for." That's all I have Mr. Chairman.

SENATOR RADER: Mr. Chatterton?

REP. CHATTERTON: Mr. Chairman, Mr. Commissioner, on November 22, 1976, why the Alaska Royalty Oil and Gas Development Advisory Board met and did indeed approve your determination to waive the competitive bid process and subsequent to that why you as required by statute set forth some findings and conclusions. And I realize fully, Commissioner, that you were operating within a time frame, that you had to come up with something prior to the early portion of the first session of the Tenth Legislature. But, you in effect say that one of the rationales for not having any competitive bidding as far as intrastate use of gas is that no specific proposals for such purchases were forthcoming. Now, and in your judgment, how far on down through the future calendar time do you think that situation would remain in effect?

COMMISSIONER MARTIN: My experience thus far with the royalty oil and gas, Representative Chatterton, would indicate that rather than a highly competitive situation arising, what will happen is that a series of possible users of royalty oil or gas will develop. Now these may be small utilities, Golden Valley or some other electric cooperative, they may be municipal -- municipalities that go toward some gas system or a system that uses oil as a fuel for electrical generation or other purposes, or there may be large users that develop from major petrochemical or other

projects, and it may be that as those uses develop or we define uses that are beneficial to the state, that we can structure competitive sales to reach particular objectives but that they will be largely predicated on individual development or uses that may be competitive. For instance, in the case of Golden Valley Electric, it is very unlikely that we would expose Golden Valley Electric to a highly competitive sale which might be at the expense of consumers along with somebody else who had come in to compete with Golden Valley Electric. Now, we have not made any final determination on this but I think we'll see that situation confronted. So, I don't foreclose the possibility of competitive sales but I think it will arise in the context of a lot of individual proposed uses that will have to face a competitive sale on one of those proposals.

REP. CHATTERTON: My follow-up question, Mr. Chairman. Is it further and under your finding speaking to interstate sale of gas -- you say, "under present legal and regulatory circumstances a competitive sale based on price competition is not feasible because the price at which natural gas may be sold in interstate commerce is controlled by the Federal Power Commission." And, I ask you, Commissioner, how far into the future can you guarantee the citizens of Alaska that "present legal and regulatory circumstances"

will make it -- will keep the situation so that you cannot ask for competitive bids for interstate sale?

COMMISSIONER MARTIN: Well, I don't think I can give you a figure of guarantee and I doubt that you would force me to come up with it in a short period of time. Under the new administration I'm sure you are aware that the President has indicated his desire to move toward de-regulation. Exactly how reliable that makes an absolute promise for deregulation is anyone's guess and I think it is something that might well be granted with our congressional delegation. I do think that the situation is unpredictable. The odds are now substantially higher in favor of deregulation occurring than they were before President Carter made that statement.

In terms of this contract, we would be again benefiting by prices realized from the Prudhoe Bay field if we went to a deregulated situation. I know that later in this week there is going to be additional testimony on the price provision that deals with de-regulation and I'm hopeful that perhaps at sometime we can come back and have a discussion which I think will be complex and an interesting discussion on what that means. And, I think that there will be -- that we are largely protected under a deregulated or regulated situation to get the highest price from that field. I