

ACTION PAPER

MOVING
NORTH SLOPE NATURAL GAS
TO MARKET



**A
POSITIVE
ALTERNATIVE
FOR THE NATION**

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A Report by
Commonwealth North

Prepared by the Board of Directors
November 1981

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A POSITIVE ALTERNATIVE FOR THE NATION

A Commonwealth North Report

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FOREWORD

In August of 1979, the Board of Directors of Commonwealth North launched a study of the proposed natural gas pipeline from Prudhoe Bay across Canada to the South 48 and the prospects for in-state development of petrochemicals.¹

By the end of 1980, the pipeline was still delayed and beset by a wide spectrum of difficulties. The Board decided to undertake another study. By June of 1981, a second report had been prepared.

Participants in the pipeline project, however, urged that Commonwealth North not finalize its second report until the new Reagan Administration had reviewed the situation and prepared a set of waivers to the Natural Gas Policy Act that could help make the project financible.

The Board honored the request.

On September 9, the Dow-Shell Group published a year-long study of the potential for petrochemical development within the state. The authors of this report concluded that petrochemical development was at least ten years away.

When questioned, Dow-Shell spokesmen readily agreed that if the natural gas pipeline project were to prove to be unfinancible and a high-pressure pipeline were built from Prudhoe Bay to tidewater, the viability of an in-state petrochemical industry would be immediate.

Meanwhile, in the debate over the proposed waivers in Congress, the rights and the wrongs of the cross-Canada pipeline project appeared to be lost in the debate of US-Canadian relations and other issues not germane to the economic viability of the project and the best interests of the American consumer.

It is in this context that the Board of Directors of Commonwealth North publishes the following findings:

1. The Commonwealth North Gas Pipeline Study Committee, North Slope Natural Gas: Transportation Alternatives and the Promise of a World Scale Petrochemical Industry, Anchorage, Ak, March, 1980.

CONCLUSIONS:

1. The Prudhoe Bay reservoir on the North Slope of Alaska contains a vast, as yet untapped, energy supply of 26 trillion cubic feet of natural gas, including a potential 210,000 barrels per day of premium quality gas liquids (petrochemical feedstocks).
2. National policy makers, including the Reagan Administration and the US Congress, must determine if the Alaska natural gas transportation system (ANGTS) is in the best interest of the nation, the economy and the consumer.
3. The waiver package being debated in Congress will not guarantee that the line will be financed. Many observers believe that the pipeline sponsors will require the participation of the State of Alaska in financing the line as well as federal loan guarantees or direct federal subsidies.
4. It is in the nation's best interest for Alaska to add value to its raw resources (both dry gas and gas liquids) through in-state processing of at least a portion of these resources.
5. While some officials discuss obscure alternatives to the cross-Canada plan, such as submarines and dirigibles, a well-known alternative, which was endorsed by the Federal Power Commission in 1977, is ignored. This alternative, known as the all-American system, would build the gas pipeline parallel to the TAPS oil line from Prudhoe Bay to tidewater, where the gas would be liquified and tankered to both domestic and world markets.
6. The all-American pipeline approach is a viable alternative and should be reconsidered.
7. If the all-American gas pipeline were re-designed as a high-pressure line, both the dry gas and the gas liquids could move through the same line to an ice-free Alaska port eliminating the need for the expensive conditioning plant at the North Slope and virtually insuring that an in-state petrochemical industry is established.

RECOMMENDATIONS:

1. If Congress does not approve the proposed waivers to the Natural Gas Policy Act, or if, even with the waivers, the cross-Canada project fails to find financing or becomes entangled in protracted litigation, the State of Alaska should take the leadership in fostering the building of a high pressure gas line from Prudhoe Bay to tidewater.
2. In the best interest of the nation and the state, Alaska should provide equity investment or loan guarantees to the pipeline project if it is built through Alaska to an ice-free port.

CONCLUSION 1:

The Prudhoe Bay reservoir on the North Slope of Alaska contains a vast, as yet untapped, energy supply of 26 trillion cubic feet of natural gas, including a potential 210,000 barrels per day of recoverable premium quality gas liquids (petrochemical feedstocks).

There is very little debate over the extent of the natural gas in the Prudhoe Bay reservoir. The estimate of recoverable gas is 26 trillion cubic feet, roughly the equivalent of 3.5 billion barrels of oil.

Engineers continue to disagree, however, on the impact of continued re-injection of the natural gas if no gas pipeline is constructed. There is concern that the re-injection process could damage the field, reducing the total production of both oil and gas.

Most engineers working for the major producers believe that there will be no serious damage. They estimate that if the gas is continuously re-injected until all of the oil has been extracted, the total loss of natural gas will be two trillion cubic feet, leaving a total of 24 trillion. A main contributor to the loss will be the enormous amount of energy required to operate the world's largest re-injection plant (362,000 horsepower).

Before the Dow-Shell study, the producers estimated that the gas stream would contain approximately 120,000 barrels of gas liquids per day (including ethane, propane, butane and pentane). The Dow-Shell Group, however, published the much higher figure of 210,000 barrels per day.¹

These liquids are extremely valuable, especially when utilized as petrochemical feedstocks.

1. The Dow-Shell Group, Report to the State of Alaska - Feasibility of a Petrochemical Industry, Vol. I, page 12

CONCLUSION 2:

National policy makers, including the Reagan Administration and the US Congress, must determine if the Alaska Natural Gas Transportation System (ANGTS) is in the best interest of the nation, the economy and the consumer.

In 1977, President Jimmy Carter made the decision to favor the cross-Canada pipeline plan (ANGTS) over two competing proposals. The reasoning behind that decision was partially based on the assurances by the lead project sponsor (Northwest Alaskan Pipeline Company) that the cost of the pipeline would be \$6.8 billion and that it would be privately financed.

Now, over four years later, the project has yet to find financing, and the cost estimate has escalated to \$23 billion in 1980 dollars (\$43 billion in "as spent" dollars, which allows for inflation through 1987).

Can financing be found for a pipeline system that will produce very high priced gas for the consumer? The Wall Street Journal pegged that price to be in the area of \$15 per mcf.¹ Testimony during the congressional hearings on the waivers to the Natural Gas Policy Act have included estimates ranging as high as \$22 per mcf.²

Does the United States need natural gas at that price, especially if the government decontrols natural gas? Deeper drilling techniques, gas discoveries in the Overthrust Belt in the Rocky Mountains and the identification of underwater geopressured reserves in the Gulf of Mexico all show promise as gas suppliers at rates lower than the predictions for Alaska gas if transported through the proposed 4,796 mile cross-Canada pipeline.

1. Wall Street Journal, March 16, 1981, editorial entitled "Angst over ANGTS".
2. Note: Current US gas prices are \$2.50 - \$3 per mcf for new gas, 25¢ - \$3 per mcf for old gas and \$3 - \$9 per mcf for decontrolled gas. Canadian and Mexican gas imports are at \$5 per mcf (Oil and Gas Journal, October 26, 1981, p.65).

CONCLUSION 3:

The waiver package being debated in Congress will not guarantee that the line will be financed.

Testimony before Congress regarding the waivers has indicated that the waiver package is a do or die situation for the pipeline. The pipeline sponsors and the financial industry testified that unless the waivers are passed, the project is doomed to failure.¹

And yet, neither the sponsors nor the financiers will promise that even with the waivers that the project can be completed without government subsidy.²

H. Anton Tucher, vice president of the Bank of America, stated that the combined aggregate legal lending limit of the one hundred largest US banks last year amounted to approximately \$4.7 billion.³ Presumably, a large portion of the financing (roughly 60%) will have to be borrowed from foreign sources.⁴

Both President Carter and President Reagan have taken firm positions that the pipeline must be privately financed. At the time when reduction of federal spending is a top administration priority, it is difficult to envision strong support from President Reagan for billions of dollars of loan guarantees to the oil and pipeline companies.

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1. John McMillian, speaking before a joint session of two House subcommittees, Anchorage Times, October 21, 1981.
 2. Anchorage Daily News, Friday, October 23, 1981, p. A4.
 3. Anchorage Daily News, Saturday, October 24, 1981, p. A16.
 4. Anchorage Daily News, Thursday, October 22, 1981, p. A16.

CONCLUSION 4:

It is in the nation's best interest for Alaska to add value to its raw resources (both dry gas and gas liquids) through in-state processing of at least a portion of these resources.

The economic history of Alaska has witnessed, generation after generation, the exploitation and exportation of the state's natural resources, leaving very little behind in terms of jobs and a strengthened economy.

This pattern, not unfamiliar to colonial economies worldwide, repeated itself in Alaska with the canned salmon industry, gold, timber and oil. It is not in Alaska's nor in the nation's best interest to let the pattern continue with natural gas which, according to some representatives of the petroleum industry, may have greater benefits even than Prudhoe Bay oil.

If the ANGTS project goes ahead, the 7/8ths of the gas liquids which are controlled by the producing companies (EXXON, SOHIO AND ARCO) will most likely be committed to the line, eliminating the possibility of establishing an in-state petrochemical industry.

Ironically, the gas liquids can readily be extracted in Alberta and replaced with Canadian dry gas further downstream.¹ Existing companies have the ability to make this switch with their gas producing facilities and refineries located in Alberta. They also have the ability to market the recovered gas liquids through the Interprovincial Pipeline.

Other companies, joint ventures between Canadian and Japanese firms, plan to construct gas and gas liquids pipelines west from Alberta to the Vancouver and Prince Rupert areas to feed petrochemical facilities and liquification plants.

In other words, if North Slope gas liquids move through the ANGTS to Canada, they may very well be exported, not to the US, but to Japan and the Pacific Rim, Alaska's own natural market area.

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1. This swap of Canadian dry gas for Alaskan gas liquids is specifically permitted in the US-Canada Northern Gas Pipeline Treaty of 1977 and will be re-enforced in US law if Waiver #6 is passed.

CONCLUSION 5:

While some officials discuss obscure alternatives to the cross-Canada pipeline plan, such as submarines and dirigibles, a well-known alternative is being ignored.

Since President Carter issued his official decision in favor of the Northwest Alaskan pipeline project in September of 1977, the cross-Canada concept has been considered to be "the only game in town."

Politically, that has been true. But economically, there is another viable alternative, known as the all-American system. This alternative is to build the gas pipeline parallel to the TAPS oil line from Prudhoe Bay to tidewater, where the dry gas can be liquified and tankered to both domestic and world markets.

When the chairman of the Federal Power Commission, Judge Litt, made his recommendations to President Carter in 1977, the all-American line was not chosen, but it was found to be feasible.

Indeed, liquifying Alaska natural gas and shipping it by tanker is nothing new. For the past fourteen years, a tanker has departed every ten days from the Kenai Peninsula with LNG from Cook Inlet.

CONCLUSION 6:

The all-American pipeline approach is a viable alternative and should be reconsidered.

- Q. Who would build the all-American line?
- A. If the State of Alaska takes a leadership role, two of America's top five gas transmission companies have expressed strong interest. El Paso Alaska, however, the original sponsor of the all-American proposal, is not interested in resurrecting the concept.¹
- Q. Will this alternative mean further delays?
- A. Naturally there will be some delays, but they can be minimized. It will take a maximum of two years for additional design and engineering of the all-American system. As to permit acquisition, the years of effort will not be lost.²
- Q. How will the all-American line find private financing, when the ANGTS has not?
- A. Although the costs of the two alternatives are estimated by the producers to be roughly the same, the all-American approach has a major advantage. The latter system will be made up of four distinct parts, all of which can be financed separately - the pipeline, a liquification facility at tidewater, tankers and a revaporization plant. Most financial experts agree that spreading one large \$23 billion financing package into four parts can help make financing more attainable.
- Q. Will Alaska gas still reach Midwest consumers?
- A. Yes. A \$50 billion, one million mile gas pipeline grid is already in place in the US, and it is operating at less than capacity. This grid reaches nearly every state in the South 48.

- Q. Where on the West Coast will Alaska LNG land?
- A. Both the California Public Utility Commission (CPUC) and the Federal Energy Regulatory Commission have approved (depending the outcome of seismic studies) a proposed LNG terminal at Little Cojo Bay near Pt. Conception on the California Coast.³ Opposition to the ANGTS waivers by the CPUC may indicate a growing awareness in California that Alaska LNG could be an important component of their energy future. If the Pt. Conception terminal is not approved, or cannot be expanded to accommodate North Slope gas, there are other possible terminal sites in Washington,⁴ Oregon and Baja California.⁴
- Q. What are the national security advantages to the all-American system?
- A. First of all, the entire system will be on US soil or under US control. Secondly, the US has agreements to provide oil and gas to its allies in time of world crisis. If North Slope gas is available as LNG at tidewater, the nation will be much more secure.⁵

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1. George Carameros, former project manager for El Paso Alaska, at Commonwealth North meeting, December 20, 1980.
 2. Bill Leake, Atlantic Richfield Vice President, at Commonwealth North meeting, January 13, 1981.
 3. Pacific LNG's Gas Supply Status Report, September 4, 1981.
 4. Former Washington Governor Dixie Lee Ray at Commonwealth North meeting, March 26, 1981.
 5. Charles Ebengir, Director of Energy and National Security, the Center for Strategic and International Studies, Washington, D.C., March 18, 1981.

CONCLUSION 7:

If the all-American gas pipeline were re-designed as a high-pressure line, both the dry gas and the gas liquids could move through the same line to an ice-free Alaska port.

One of the most expensive elements of the ANGTS is the plant at the North Slope which would remove moisture and CO₂ before the gas stream enters the pipeline. ²This plant is estimated to cost \$6.75 billion in "as spent" dollars.

If the all-American pipeline were redesigned as a high pressure (2100 psi) line, the CO₂ could be removed at tidewater at a cost ² expected to be much less.

In addition, a separate gas liquids line (as proposed in the Dow-Shell study) would not be necessary. The price tag in 1981 dollars for the Dow-Shell line is \$2.3 billion, not including the cost of engineering, interest or debt retirement.

Infrastructure expenses would also be shared between the liquification and petrochemical industries at tidewater, further reducing costs.

RECOMMENDATION 1:

If Congress does not approve the proposed waivers, or if, even with the waivers, the cross-Canada project fails to find financing, the State of Alaska should take the leadership in fostering the building of a high-pressure line to tidewater.

If the cross-Canada pipeline fails to find financing, a positive alternative will be needed.

That positive alternative is the all-American pipeline. The indication is that several large firms are interested in the project but are silenced by the politics of the current situation.

The State of Alaska should encourage the private sector to build an all-American line.

If, however, the private sector is unable to tackle the assignment, the state, as owner of $3\frac{1}{4}$ trillion cubic feet of Prudhoe Bay gas, and an equal percentage of gas liquids, should consider contracting with a major transmission company to build the line to tidewater. As a common carrier, the pipeline would be available to all gas producers, large and small, to carry their products to market.

The benefits to the nation will include:

1. Prudhoe Bay's natural gas will be available to consumers in the south 48.
2. A portion of the LNG can be sold to Pacific Rim nations to help offset the nation's serious imbalance of trade.
3. The US energy supply will be more secure and flexible, a much better solution than having 26 trillion cubic feet of natural gas locked into a pipeline system across Canada.

The benefits to the state will include the following:

1. The state's natural resources will be increased in value many times through the establishment of a world-scale petrochemical industry.
2. Alaskans will be provided with a strong source of non-seasonal employment.
3. The tax base will be increased, helping to insure a long-term future to Alaska's current revenue picture.

RECOMMENDATION 2:

In the best interest of the nation and the state, Alaska should provide equity investment or loan guarantees to the pipeline project if it is built through Alaska to an ice-free port.

In 1976, the Alaska State Legislature passed a resolution endorsing the all-America pipeline alternative.¹ There is still wide public support in Alaska for this approach.

Financial participation by the state will be a strong indication to the financial markets in the U.S. and abroad that the people of Alaska endorse the project.

It will be a signal to the nation that Alaska is dedicated to help the country as a whole meet its serious long-term energy needs.

1. Senate Concurrent Resolution #85 (1976).

OTHER "ACTION PAPERS" BY COMMONWEALTH NORTH

SOLUTIONS TO THE NATIONAL ENERGY CRISIS: WHY NOT ALASKA? Written by the Energy Committee, Bob Hartig, Chairman. Published, November 1979.

NORTH SLOPE NATURAL GAS: TRANSPORTATION ALTERNATIVES AND THE PROMISE OF A WORLD SCALE PETROCHEMICAL INDUSTRY. Written by the Gas Pipeline Study Committee, Millett Keller, Chairman. Published, March 1980.

ALASKA'S GOLDEN OPPORTUNITY: RESOURCE REVENUES AND STATE SPENDING. Written by the Resource Income Committee, Bill Sheffield, Chairman. Published, December 1980.

THE PROMISE AND THE PITFALLS OF ALASKA'S STATE LOAN PROGRAMS. Written by the Banking and Loan Committee, Dave Chatfield, Chairman. Published, May 1981.

INVESTING IN ALASKA'S FUTURE: THE CAPITAL INVESTMENT FUND. Written by the Capital Investment Fund Committee, Loren Lounsbury, Chairman. Published, August, 1981.

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COMMONWEALTH NORTH

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