

COMMONWEALTH NORTH

BRINGING ALASKA'S NORTH SLOPE GAS TO MARKET:

September 2001

FRAMING THE ISSUES

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BACKGROUND

For over twenty years Alaska has known of the potential to develop significant reserves of natural gas on the North Slope. However, markets, divergent ownership interests, and project economics have not justified developing these reserves.

Recently, there have been three changes in the situation: the alignment of ownership of North Slope oil and gas interests among the major producers, the development of new technologies that create greater efficiencies, and the price of natural gas have combined to increase the prospective marketability of the gas.

Developing this potential, from concept to construction, from construction to delivery, and from delivery to sales, would create significant value for Alaska. The goal of this study is to inform our members, policymakers, and other interested parties and engage them in an examination of the issues and how Alaska's interests can be optimized and protected.

The report analyzes the issues, identifies a process for addressing them, and recommends policy principles that can guide the State in answering the question: How can the best interests of the people of Alaska be realized in the commercialization of the North Slope natural gas resources?

INTRODUCTION

- Since its inception in 1979, Commonwealth North has studied and published reports on North Slope resource issues. Summaries of the following reports are available on its web site www.commonwealthnorth.org

1. "Solutions to the National Energy Crisis: Why Not Alaska?" November 1979
2. "North Slope Natural Gas: Transportation Alternatives and the Promise of a World Scale Petrochemical Industry" March 1980
3. "Moving North Slope Natural Gas to Market: A Positive Alternative" November 1981
4. "An Alaskan View of ANWR" October 1989

- In this report the Study Group focused on significant public policy issues that are within the power of the State of Alaska to address. The Group avoided making specific "how to" recommendations that are the purview of those who will have to make design decisions and from recommending a specific project or route(s).

- The report organizes its findings in six categories followed by recommendations:

1. Alaska North Slope (ANS) Natural Gas Supply
2. Markets for ANS Natural Gas

4. ANS Gas Delivery Options
5. The Decision Making Process
6. Stakeholders in the Commercialization of ANS Gas
7. Alaska's Interests in Commercialization of ANS Gas

Recommendations

• Commercialization of ANS gas is dependent upon a viable system that delivers the gas to its market(s). A number of projects are under discussion that would construct a pipeline to satisfy some of these transportation needs. The State of Alaska has a vested interest in how these projects may be developed and implemented. Most notably the projects being discussed are described as:

1. The “Highway,” or “Alcan” route. This pipeline would run south to the Fairbanks or Delta Junction area, then approximately follow the Alaska Highway until it connects with other Canadian gas transportation systems.
2. Variations of the Highway route include a “spur” or “Y” line that would run south from Fairbanks or Delta Junction into the South Central Alaska area. Depending on size and location, this could provide gas for local or export uses. The “hub” concept is based on a “Y” line with physical characteristics and business arrangements allowing for access to multiple users and multiple markets.
3. An “over-the-top” pipeline would run underwater eastward from Prudhoe Bay north of the Arctic National Wildlife Refuge coast and turn south overland into Canada until it connects with other Canadian gas transportation systems.
4. Liquefied Natural Gas (LNG). A pipeline to Alaska tidewater for liquefaction of natural gas in Alaska and shipping it to East Asia and American markets.
5. The North Slope Borough, the Fairbanks North Star Borough and the City of Valdez formed the Alaska Gasline Port Authority to utilize tax-exempt pipeline financing. Other project sponsors are also considering tax-exempt financing.

SUMMARY

From Alaska's point of view, an ideal ANS gas commercialization project might result in:

- High income to the State treasury
- Economic benefits from construction activity
- Many long-term project maintenance jobs

- In-state access to ANS gas for homes, business, electric utilities and industrial plants
- In-state ownership and control of a project

However, the Study Group has found that detailed analysis of the variables reveals a real-world set of constraints that are unavoidable:

- Market economics. This is the most critical element. Any ANS gas commercialization project must be economically viable. Any of the pipeline alternatives being discussed would be one of the largest industrial projects in the history of the world. Without a compelling economic rationale, management focus and massive financing simply will not be available.
- Any trade-off that reduces the highest financial rate of return must be weighed against its potential to make the project uneconomic. Such consideration applies as much to potential revenues to the Alaska treasury as it does to project proponents.
- World market forces, U.S. market forces, and international and domestic politics are all factors. No decision can be made in a vacuum solely from one point of view.
- The real challenge to Alaska's leaders is, and will continue to be, maintaining clarity of vision and purpose to realistically optimize the combination of financial and beneficial returns from any project without burdening it to the point where it is uneconomic.
- Alaska will need to design and develop a fiscal regime that maximizes the full economic benefits of gas development and minimizes the costs associated with a project of this magnitude.

FINDINGS

ALASKA NORTH SLOPE (ANS) NATURAL GAS SUPPLY

1. The ANS gas potential may be substantially greater than the 35 trillion cubic feet (tcf) of known existing reserves. If it is as large as some believe, in excess of 100 tcf, more than one major commercialization project may be feasible. To put these quantities in perspective, known existing gas reserves are sufficient to provide 10% of all U.S. gas needs for about fifteen years. 100 tcf could supply 10% of all U.S. needs for about forty years, based on American Gas Foundation forecasts.
2. Absent a commercially viable system to deliver ANS gas, the exploration and discovery of gas will be incidental to the exploration and development of oil. The current high level of activity and interest in exploration is in anticipation of a gas pipeline.
3. As oil reserves are depleted, ANS gas reserves will diminish in value as a means of enhancing oil recovery. ANS gas will become "stranded" unless a commercially viable delivery system is developed.

Markets for Alaska North Slope Gas

1. It appears that the potential for commercializing ANS gas has improved as a result of a generalized increase in the long-term price of gas, new demand from gas-fired generation plants across the country and prospects for increased demand in the future. However, the price volatility of the past year strongly demonstrates the commodity nature of the Lower-48 market.
2. Increases in gas prices, if sustained, not only make delivery of ANS gas more feasible, they also induce new, competitive gas supplies into the market e.g. the Mackenzie Delta, Nova Scotia, coal bed methane, an increased rate of drilling and imported LNG.
3. Export of Alaska LNG remains a potential option for commercial development of ANS gas. Since 1967 Cook Inlet LNG has been shipped to Japan. Current Asian LNG prices are strong, with demand growing. Projections for potential new demand around 2010 may create an opportunity to market Alaska LNG under long-term contracts.
4. The cost of supply to gas markets in the Lower-48 will largely determine which, if any, of the competing Alaska projects or routes can deliver gas at the most competitive price. While cost is important to serve the Asia LNG markets, political stability, diversification of supply and politics between the U.S. and market countries also have influence.
5. Long-term commitments will need to be in place to finance any commercialization alternative.

Alaska North Slope Gas Delivery Options

1. The various gas commercialization options, ranging from about \$8 billion up to \$20 billion, are among the largest and most costly industrial projects in history.
2. There are multiple gas processes (dry gas, liquefied gas, and gas to liquids) as well as multiple gas products and markets and delivery routes, each subject to market price competition.
3. Alaska (Phillips and Marathon) has been exporting Cook Inlet LNG to Asia for over 30 years through an existing delivery system.
4. Economy of scale is a major factor in the relative competitiveness of a particular process, project or route, particularly given the distance of ANS gas from a market. Different projects have different threshold numbers that need to be compared on a consistent basis for the State to see a clear picture of available options.
5. Depending on estimates of the total supply of ANS gas, construction of any one alternative has the potential to delay competing projects, possibly for a long time. If some 100-tcf estimates of ANS gas can be realized, more than one project might ultimately be financed and built. However, conflicting demands for labor and materials must be resolved. If very large ANS gas reserves cannot be proven prior to construction, there must be exploration success to justify a second project.
6. As compared to most pipelines, the ability to expand an Alaska pipeline is important. It should be capable of substantially expanding its initial throughput capacity to accommodate future discoveries and production of ANS gas.

The Decision-Making Process

1. Delivery of ANS natural gas to market is economically challenging but technically doable.
2. A challenging aspect of any project is crafting a solution acceptable to the major stakeholders.
3. Some ANS producers are using “Seven Lenses” of evaluation for the alternatives they are analyzing to categorize the various stakeholder interests:
 - a. Economics
 - b. Environment
 - c. Gas access
 - d. Jobs
 - e. Revenues to Alaska and Canada
 - f. Safety
 - g. Timing
4. “Open season,” the Federal Energy Regulatory Commission (FERC) process in which shippers make binding offers of long-term commitments, will provide the flow volume information needed for actual pipeline capacity design. Some modification of traditional contract terms may be needed to accommodate in-state use of gas.
5. The State of Alaska has standing to intervene in FERC hearings if it chooses to do so.
6. FERC has no pipeline or rate jurisdiction over an LNG export project. Instead, the in-state Regulatory Commission of Alaska (RCA) has jurisdiction.
7. Competing project sponsors dispute which governmental agencies have jurisdiction over permitting and also dispute the current status of permit applications.
8. The State of Alaska is not yet unified in its management of this opportunity. In particular, the Administration and Legislature are not yet working harmoniously to identify and maximize the State’s interests.
9. The State’s 12.5 percent royalty share by itself is an insufficient quantity to support a stand-alone project.
10. All proposed projects are subject to potential delays from environmental, permitting and legal problems and indigenous peoples’ opposition. The “over-the-top” route has the following additional burdens:
 - a. Legislative, Gubernatorial and Congressional opposition
 - b. Alaska’s Interior and Cook Inlet regions have long-term needs for gas that many believe an in-state route could supply. An over-the-top route would require a separate line to meet in-state needs.
11. Both the Canadian and United States federal governments control economic incentives that could significantly affect project economics. Rules on tax-exempt financing, depletion, tax credits, depreciation and tax rates could be modified to support the project. To a lesser extent the State of Alaska has available deferred taxation and other incentives.

Stakeholders in the Commercialization of Alaska North Slope Gas

1. Stakeholders include:
 - a. ANS producers and project sponsors
 - b. Alaska citizens and affected Canadian citizens
 - c. Alaska Natives and Canadian First Nations
 - d. State of Alaska and affected Canadian provinces
 - e. U.S. and Canadian federal regulators
 - f. Environmental organizations
 - g. Potential workers, both construction and permanent operators
 - h. Potential Alaska and Canadian industrial and utility users
 - i. North American and Asian consumers
 - j. Alaska and Canadian businesses
2. Alignment of the proportional ownership interests of ANS gas similar to that of oil may have eliminated a major barrier to commercialization.
3. Many ANS gas stakeholders have diverse and, in significant instances, competing interests with one another and non-Alaska projects that compete with Alaska projects.
4. Most stakeholders can “break but not make” the commercialization of ANS gas. Technical and financial hurdles can probably be overcome—but politics can make any alternative undoable.
5. Sound environmental controls must be integral to any gas delivery system.
6. Addressing Canadian interests must be part of any project that goes through Canada. An all-Alaska LNG route avoids dealing with Canadian interests, as does gas-to-liquids because it is based on using the existing Alaska pipeline system.

Alaska's Interests in Commercialization of Alaska North Slope Gas

1. ANS gas commercialization can create a significant long-term industry in Alaska.
2. Alternative projects or routes to deliver ANS gas to market vary significantly in their prospective economic, social, and environmental benefits and costs to Alaskans.
3. Gas commercialization could broaden the State's technological and revenue base, as well as generate direct employment and income opportunities for residents.
4. Alaska should analyze the feasibility of capitalizing on the synergies of any project to assist in providing power, transportation and communications services to rural Alaska, as could the Canadians.
5. In-state access to ANS gas from southern routes through Alaska has the potential to significantly benefit Alaska. In-state use can add to some project economics by enhancing economies of scale with a predictable need for in-state domestic and industrial uses.

6. From Alaska’s point of view, no project should be excluded from consideration if it has the potential for producing an acceptable combination of financial and beneficial returns to the State.
7. The State could potentially reduce the cost of financing a gas delivery system by using its tax-exempt status to handle project financing. It may be possible that a structure that will allow for tax-exempt financing could provide the additional benefit of providing fiscal certainty to the shippers.
8. State investment in, or ownership of, a gas delivery system involves unstudied risks and benefits. As mandated by legislation, the State is contracting for a third party analysis of these issues. Such ownership may tie into the “hub” or “Y line” idea to allow access to multiple markets and provide for in-state use.
9. Cook Inlet gas supplies for local consumption are projected to be depleted unless new gas is discovered or industrial uses are diverted to local utility use.

RECOMMENDATIONS

1. The State should work to optimize its interests in the commercialization of ANS gas without undermining the commercial viability of less preferred routes or projects.
2. The State should ensure it is a full participant in the decision-making processes associated with the commercialization of ANS gas.
3. The State of Alaska should structure a public resource management corporation that can proactively manage the development of, promote, account for and explain to the people the State’s natural resources.
4. The State and project sponsors need to negotiate a structure that allows for open and understandable pricing as well as a stable tax and royalty environment.
5. A unified State delegation could work with affected Canadian jurisdictions to jointly structure and promote any Canadian and United States federal incentives needed to support project economic viability. The federal governments may have many more financial and regulatory incentives to offer than do state or regional Canadian jurisdictions. Similarly, U.S. incentives should be extended to all alternatives that benefit U.S. interests.
6. The United States Congress and the federal government should be encouraged to oversee and facilitate development of ANS gas as an integral part of the nation’s energy policy.
7. The State should study the risks and benefits associated with participation in the financing of a gas pipeline, including tax-exempt financing and what type of organizational structure would be required to implement it.
8. The State Legislature should provide adequate resources to ensure the State could fully support the consideration of information requests and permit applications associated with ANS gas development needs.
9. The State should take all appropriate means to identify, protect and provide for in-state gas needs in the Railbelt, Cook Inlet and other areas in Alaska.
10. The State should preserve the right to take its gas royalty in-kind at some future date under terms and conditions that are timely, fair and reasonable.

11. The State should determine how the wellhead price of gas would be determined as a condition of approving a route or project, including the possible use of a “hub” or “Y line” concept.
12. If and when a project is authorized, the State should work closely with industry and labor to ensure Alaskans are trained and employed to hold long-term jobs associated with gas commercialization.
13. The decision-making process should be as open as possible for public review and input.

MAJOR UNRESOLVED ISSUES PENDING ADDITIONAL INFORMATION

- 1. Any route recommendation.** The Study Group feels all options should be kept open pending more refined cost and engineering estimates on the highway and over-the-top routes. Absent such information, and thorough analysis thereof, a route recommendation would be premature.
- 2. State of Alaska equity participation in a project.** Certain broad advantages and disadvantages of State equity participation have been identified. However, information in point 1 above, plus the results of a State-contracted third party study analyzing risks and rewards of State equity participation, are needed to adequately address this subject.
- 3. State and Federal regulatory streamlining**
- 4. Specifics of a “hub” or “Y line” arrangement**

CONFLICTS OF INTEREST

Persons with interests in the outcome of the study were members of the study group and participated in its deliberations. Affiliations were generally well known or identified relative to specific points advocated. The study group endeavored to seek information and viewpoints from all major proponents of Alaska gas commercialization projects.

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