

STATEMENT OF JUDD MILLER, JR.
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BEFORE THE SENATE SPECIAL COMMITTEE ON OIL AND GAS
ALASKA STATE LEGISLATURE
MARCH 10, 1989

My name is Judd Miller, Jr., Vice President of Exxon Company, U.S.A. I am responsible for Exxon's marketing and transportation of natural gas in the United States. Exxon appreciates the opportunity to testify at this hearing today on the prospects of commercializing North Slope gas.

Summary

Substantial gas reserves exist on the North Slope of Alaska. Exxon, like the state and its citizens, has a substantial interest in seeing these reserves commercialized. However, the reserves are far distant from any market. The transportation system required will be huge both in scope and magnitude of dollars required with a long lead time needed to bring the project into operation. Before such a project can move forward there must be evidence of markets and prices sufficient to provide reasonable assurance to the many participants that the investment will be sound. Today, neither an overland pipeline to the lower 48 states nor the export of liquified natural gas (LNG) to Far East markets is economic. Real growth in energy prices and in market demand will be necessary before any project to move North Slope gas reserves to market can be economic.

Since the discovery of the Prudhoe Bay field over 20 years ago, Exxon has considered and reconsidered many alternative methods of commercializing the gas reserves including a pipeline to the lower 48 states, liquefaction and shipment to domestic or foreign markets, and less conventional alternatives such as chemical conversion to methanol or petrochemical facilities at a south Alaska tidewater location. Based on these studies, Exxon believes that the best market for Alaska's North Slope gas will be the lower 48 states and that an overland pipeline will be the best mode of transportation to that market. We have serious concerns that LNG made from North Slope gas would not be competitive in Far East markets because of the large and unique pipeline investment required; an investment that competing LNG suppliers in the Far and Middle East would not incur.

Nevertheless, the Trans-Alaska Gas System (TAGS) sponsors are to be complimented for their efforts to develop an outlet for North Slope gas. Although we have serious reservations about the LNG export project, Exxon does not want to discourage anyone from proposing promising alternatives for commercializing Alaska's North Slope reserves.

Introduction

I would like nothing better than to tell you today that commercial development of Alaska's North Slope reserves is at hand. However, I cannot do that. In reality, neither an overland pipeline to the lower 48 states nor the export of LNG to Far East markets is economic at today's prices. An assured market and a substantial real growth in energy prices will be required before a project to commercialize North Slope gas reserves can be economic. Exxon believes that such a market will develop in the lower 48 states which will

ultimately be the best market for North Slope gas. We further believe that an overland pipeline is the best mode of transportation to that market.

Exxon, like the State and its citizens, has a substantial interest in seeing these reserves commercialized. Exxon has approximately a 37 percent working interest in the gas reserves in the Prudhoe Bay Field and significant interests in Point Thomson and other nearby fields. Commercialization of these reserves would provide new job opportunities, further economic development and additional revenue for Alaska, as well as substantial income for Exxon.

Project Scope and Fundamentals

The Prudhoe Bay Field alone is estimated to contain 26 Tcf of gas.¹ There is also an estimated 8 Tcf of gas in Point Thomson and other nearby fields.² Any project to commercialize reserves of that magnitude would be a major, world-scale endeavor by any standards. Whether it is an overland pipeline to the lower 48 states or the export of LNG to Far East markets, it will be one of the largest privately financed projects in the free world.

The magnitude of the financial and business undertakings are as significant as the physical scope of the facilities. Large investments will be required -- \$10 billion or more -- and the lead times will be long -- 5 or more years of substantial investment -- before a single dollar of revenue will be received and many more years before any return on the investment can be realized. Numerous interests must be brought together, including the owners of the gas on the North Slope, the buyers of the gas, the pipeline owners, governments and financial institutions. Financing will require complex arrangements involving numerous entities and will only be possible if the project's economic basis is fundamentally sound.

Investors in a project of that magnitude will require stable supplies, dependable markets and a product which can be priced at a competitive level. In addition to these market fundamentals, a stable government fiscal and regulatory environment will be essential.

Alternatives Considered to Market North Slope Gas

Since the discovery of the Prudhoe Bay Field, Exxon has considered and reconsidered many alternative methods of commercializing Alaska North Slope gas reserves. These considerations have included overland pipelines to the lower 48 states and transportation of the gas to a tidewater port for liquefaction and shipment to domestic or foreign markets. Less conventional

¹ Alaska Department of Natural Resources, Historical And Projected Oil And Gas Consumption January 1989.

² Id.

alternatives, such as chemical conversion to methanol and locating petrochemical facilities at tidewater have also been studied. Based on our consideration of many alternatives, we have consistently concluded that the best market for North Slope gas will develop in the lower 48 states and that an overland pipeline will be the most economical and efficient method for delivering the most energy to that market.

At the time the present project for an overland pipeline was selected by the President and Congress, a competing project was also considered under which North Slope gas would be transported by pipeline to a tidewater port on the southern coast of Alaska and there liquified and shipped as LNG to California. That project was ultimately rejected because an overland pipeline could transport gas more efficiently and could be expanded at lower cost than an LNG project. Following selection of the Alaska Natural Gas Transportation System (ANGTS), Exxon participated as a member of the pipeline/producer consortium performing the design and engineering of the system. We remain active in that consortium to this day.

Overland Pipeline to Lower 48 States

Studies by the American Gas Association³ and Gas Research Institute⁴ have concluded that North Slope gas can be accommodated in the lower 48 states after the year 2000 and that energy prices will increase to a level which will make North Slope gas economic. These studies indicate that the Lower 48 demand will be sufficient to accommodate all domestic gas production, imports from other countries, as well as gas from the North Slope of Alaska. Our conclusions are generally consistent with those studies. We are optimistic that an overland pipeline to deliver the gas to the lower 48 states can be constructed in the time frame indicated by the studies.

In 1988, the pipeline sponsors of the ANGTS announced a 45 percent reduction in their prior cost estimate for the ANGTS. Given the improvements in pipeline design and construction techniques since their prior estimate, Exxon agrees that the cost of building the ANGTS can be significantly reduced as suggested by the ANGTS pipeline sponsors. Further reductions in cost that would enhance the economics of transporting the gas to the lower 48 states may also be possible.

An overland pipeline is a safe and efficient means of transporting energy over long distances. In addition, an overland pipeline can be expanded at relatively low cost if needed to accommodate new discoveries. Such expansion capability would encourage exploration for new gas reserves.

³ American Gas Association, The Gas Energy Supply Outlook, October 1987.

⁴ Gas Research Institute, 1987 GRI Baseline Projection Of U.S. Energy Supply And Demand To 2010, December 1987; 1988 GRI Baseline Projection Of U.S. Energy Supply And Demand (Preliminary) August 1988.

The use of North Slope gas in the lower 48 states will enhance U.S. energy security and ensure a stable long term supply of environmentally desirable fuel. Utilization of North Slope gas to meet U.S. energy needs can back out 400,000 to 600,000 barrels per day of imported oil.

Trans-Alaska Gas System

Lately, much attention has been focused on exports of North Slope gas as LNG to markets in the Far East. Governor Hickel and the team at Yukon Pacific are to be complimented for their efforts to develop the TAGS project. The TAGS project is a complex project consisting of integrated pipeline, liquefaction, shipping and regasification facilities. The 800-mile pipeline through Alaska would, in itself, be a project rivaling the Trans-Alaska oil pipeline. The LNG facility would be one of the world's largest and would require a substantial LNG ship fleet as well.

Exxon has considered the export of North Slope gas to the Far East and I must tell you that we have serious reservations that such a project would be competitive with other supplies in that market. Because of the substantial investment required to transport North Slope gas across Alaska, the LNG from such a project would be at a severe competitive disadvantage relative to other Far East and Middle East sources of LNG that would not be burdened by such a large pipeline investment. The supplies of LNG potentially available from these other sources vastly exceed any forecasts of demand for LNG in the Far East.

I have two charts that demonstrate this graphically. The first is a map which shows the potential supplies of LNG for Far East markets. The numbers shown under each country represent that country's gas reserves expressed in trillions of cubic feet. As shown, there is a lot of gas in the Far East and Middle East. The arrows from Alaska reflect the distances that North Slope LNG would be transported using tankers that are estimated to cost 2.4 billion dollars. The dashed line across Alaska represents the 5.4 billion dollar pipeline to Valdez, which, on an investment basis, is equivalent to adding 7,600 miles to the LNG shipping distance. Thus, North Slope gas is effectively 11,000 miles from Japan. 11,000 miles is roughly equal to one-half the circumference of the earth, therefore, all else being equal, LNG from almost anywhere in the world could be delivered more economically to the Far East than North Slope gas.

The table on my next chart puts shipping distances and potential supplies for the Far East into perspective. Shown are various countries arranged by their distance to Japan. Shown for each country are its estimated total proven reserves, the reserve which may be needed to meet current contracts assuming they are extended to the year 2020, and the remaining uncommitted reserves. As you can see, there are 1,127 trillion cubic feet of uncommitted reserves that are effectively closer to Japan than Prudhoe Bay. That volume is roughly 33 times the total known reserves on the North Slope. Assuming an export volume of 14 million tons of LNG per year, the suppliers closer to Far East markets than the North Slope could deliver that volume for over 1,400 years.

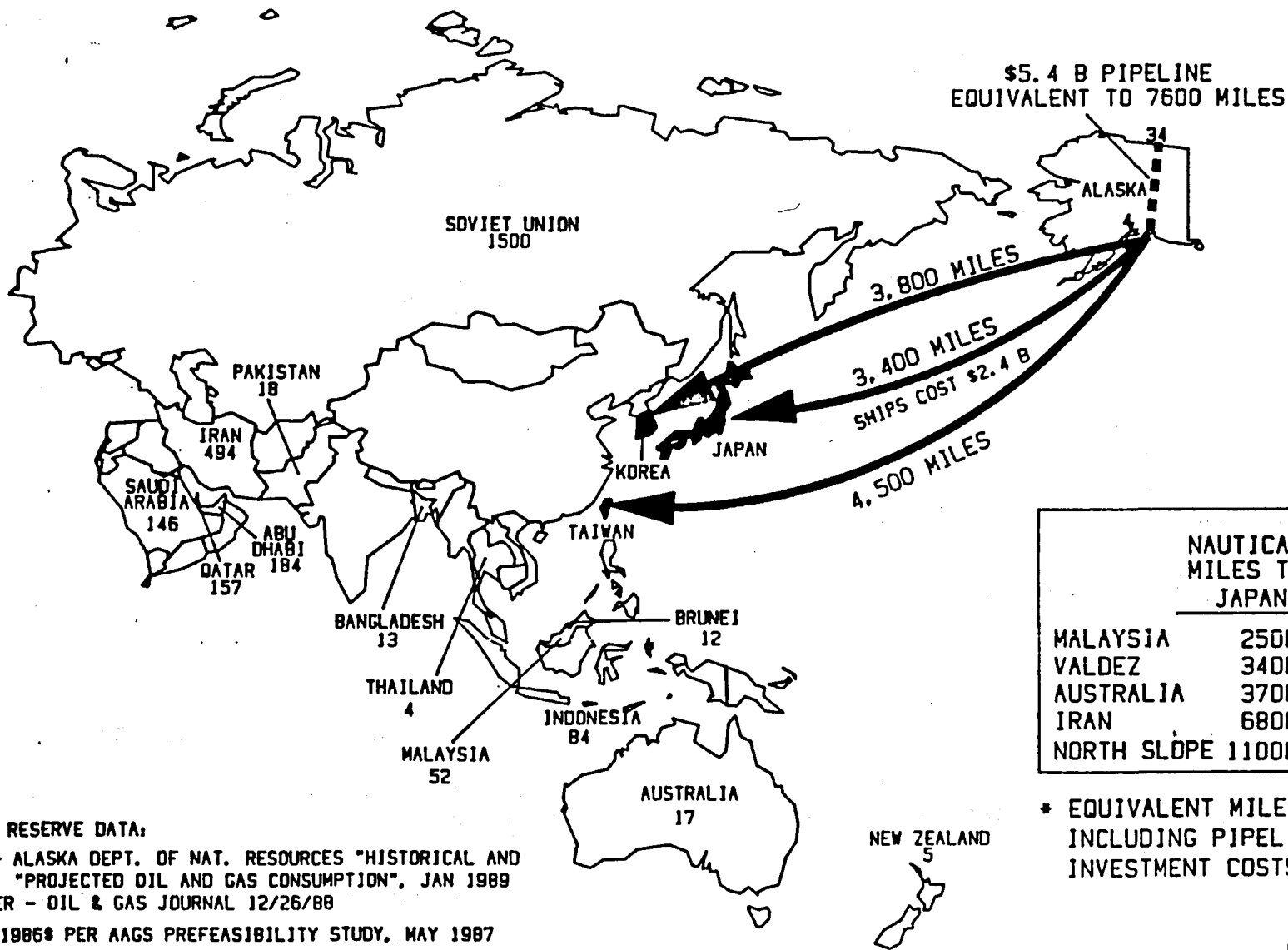
I would not want to be interpreted as suggesting that all of these reserves will be made available to Far East markets soon or even ever. However, it is clear that should Far East demand grow so that the full TAGS volume of 14 million tons of LNG per year could be accommodated, North Slope LNG would be the high cost supply in a potentially oversupplied market and thus, would not be competitive with other LNG supplies. (It should be noted that in Exxon's view, a smaller 7-8 million tons of LNG per year project would be grossly uneconomic.) It is also clear that there are ample supplies of gas in other countries that could be competitive in Far East markets.

Conclusion

Alaska's North Slope gas reserves are an important component of the energy future of both Exxon and the state of Alaska. On balance, Exxon continues to believe that an overland pipeline to the lower 48 states will be the best alternative for commercializing North Slope gas. In reaching this conclusion, numerous alternatives to bring these reserves to market have been studied. While Exxon has serious reservations about an LNG export project, we would not want to discourage anyone from proposing promising alternatives for commercializing the reserves. We will continue to examine options to market North Slope gas considering the market fundamentals against which any project must be tested.

POTENTIAL SUPPLIERS OF LNG TO FAR EAST MARKETS

XX = TCF OF RESERVES



SOURCE OF RESERVE DATA:

ALASKA - ALASKA DEPT. OF NAT. RESOURCES "HISTORICAL AND
"PROJECTED OIL AND GAS CONSUMPTION", JAN 1989

ALL OTHER - OIL & GAS JOURNAL 12/26/88

COSTS IN 1986* PER AAGS PREFEASIBILITY STUDY, MAY 1987
DISTANCES PER "WORLD-WIDE MARINE DISTANCE TABLES", 1976

POTENTIAL SUPPLIERS OF LNG TO FAR EAST MARKETS

COUNTRY	APPROXIMATE NAUTICAL MILES TO JAPAN	ESTIMATED PROVED RESERVES (TCF)		
		TOTAL	REQUIRED TO MEET EXISTING CONTRACTS IF EXTEND TO 2020	UNCOMMITTED
Brunei	2400	12	9	3
Malaysia	2500	52	11	41
Indonesia	2900	84	26	58
Thailand	3000	4	-	4
U.S.-South Alaska	3400	4	2	2
Australia	3700	17	11	6
Bangladesh	4500	13	-	13
New Zealand	4800	5	-	5
Pakistan	5800	18	-	18
Abu Dhabi	6300	184	4	180
Qatar	6500	157	-	157
Saudi Arabia	6600	146	-	146
Iran	6800	494	-	494
Reserves effectively closer than North Slope:		1190	63	1127

33 TIMES THE KNOWN NORTH SLOPE
GAS RESERVES. EQUIVALENT TO
14 MT OF LNG (.8 Tcf) PER YEAR
FOR OVER 1,400 YEARS.

SOURCE OF TOTAL RESERVES DATA:

- South Alaska & North Slope - Alaska Department of Natural Resources publication entitled "Historical and Projected Oil and Gas Consumption" published January 1989.
- All others - Oil & Gas Journal 12/26/88

DISTANCES PER "WORLD-WIDE MARINE DISTANCE TABLES", 1976