UA Policy Brief: The Alaska Natural Gas Pipeline—What's It All About?

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Alaska has collected nearly $100 billion in oil revenues (adjusted to today's dollars) since it became a state. Almost all those revenues have been from oil produced on the North Slope, where the largest known oil field in the U.S. was discovered in 1968. Construction of the trans-Alaska oil pipeline in the 1970s made development of that oil possible.

The North Slope also has one of the largest accumulations of natural gas in the country—and for 30 years Alaskans have been hoping for construction of a second pipeline, to carry that gas to market. Gas pipelines have been proposed at times over the years. But none has been built, because investors did not think it was economic.

Now, with higher natural gas prices and changes in the North American market, many people think a gas project may be possible. Alaska stands to gain a lot if a gas pipeline is built—a new long-term source of state revenues; more jobs and increased business activity; an increased local property tax base; and a potential new in-state source of natural gas for home heating, electricity, and industrial uses.

Still, despite the improved market conditions, a pipeline from the North Slope remains a big, risky investment. The state government faces a dilemma, given its responsibility for protecting the public interest and making sure Alaska gets a fair return on its resources. Should it try to advance the project by taking on some of the risk, for the sake of the potential benefits?

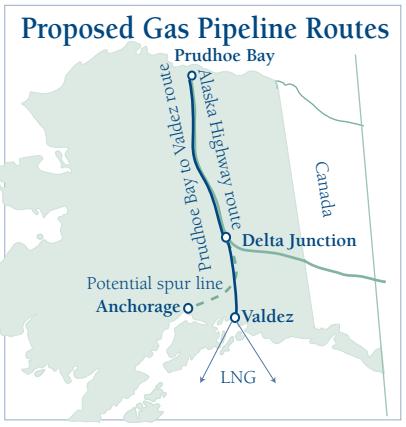
The known resources lie under land the state owns, but it has leased the oil and gas rights to BP, ConocoPhillips, and ExxonMobil.[1] No pipeline will be built until the leaseholders are ready to take the financial risks—the biggest one being the unpredictability of future gas prices—and investors decide that market forces warrant putting money into the project.

But the state government owns a royalty share of the gas—about 12.5%—and it also has authority to collect production, corporate income, and property taxes. While the state can't control pipeline timing, it can try to advance the project through policy choices. Key questions for the state include whether it should invest public money in the pipeline; what it should do with its royalty gas; and whether it should change its tax system.

Alaskans need to talk about the implications of various policies. This paper is an overview, to help Alaskans think about the possible benefits, risks, and legal issues associated with some of the state's choices. It doesn't advocate any policy, and it isn't a comprehensive discussion. The issues surrounding the pipeline are complex, interwoven, and not simple to summarize. And much about a gas pipeline remains unsettled; the paper is based on what we know today.

Background

What route the pipeline will follow, how it will be financed, and who will own it have not yet been decided. The two routes most talked about today are either from Prudhoe Bay into the Interior and then along the Alaska Highway into Canada and the Lower 48, or from Prudhoe Bay to Valdez—paralleling the existing oil pipeline.



A pipeline along the highway route would connect with existing pipelines across Canada and the United States. A pipeline to Valdez would require construction of a gas liquefaction plant there; the liquefied natural gas (LNG) would be loaded onto tankers bound for terminals on the Canadian or U.S. west coasts or the Far East. Spur gas lines to supply Alaskans could be built from either route.

Pipelines along either route would involve complex permitting, environmental protection, international law, and other regulatory issues.

According to recent estimates, building a gas pipeline would cost at least $20 billion—for perspective, that's 10 times more than the North Slope producers spent for oil and gas exploration in Alaska in 2005; it's two-thirds the balance of the state Permanent Fund. Delays and construction cost overruns could make the pipeline even more expensive. The trans-Alaska oil pipeline, for example, cost about $9 billion to build in the 1970s—10 times the early cost estimates.

The profitability of North Slope gas development depends on a combination of (1) market prices for gas and (2) costs of getting the gas to market. Low prices combined with high shipping costs could wipe out much of the return for the leaseholders and the state. On the other hand, high prices and lower shipping costs could increase returns by many billions of dollars.

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What is the Potential Resource?

Filling a large-diameter pipe (48- or 52-inch) for 30 years would require about 50 trillion cubic feet of gas, at 4.5 billion cubic feet per day. That's 40% more than the current known resources of about 35 trillion cubic feet, but the North Slope producers say there is enough to start the project. The U.S. Geological Survey estimates the North Slope may hold 100 trillion cubic feet of gas. The current known resources are mostly what the producers have found incidentally, while searching for oil.

What Are State Revenue Sources?

Under existing law, state gas revenues would be from four sources: (1) royalties from the state's ownership share of the gas—12.5% on most leases; (2) taxes on gas production, often called severance taxes, which could range up to 10%; (3) corporate income taxes; and (4) property taxes. Royalties and taxes from North Slope oil have paid for much of state government since the 1970s. It's impossible to say how gas revenues would compare, but they could be a major income source for decades to come.

Why Hasn't the Gas Been Marketed So Far?

Anticipated gas prices in the North American market weren't high enough to justify construction of an Alaska gas pipeline. The U.S. and Canadian governments did approve a pipeline plan in the 1970s, but it depended on an assumption that the federal government would continue to control natural gas prices in the Lower 48—and regulate those prices in such a manner as to subsidize the sale of gas carried by the Alaska pipeline.

But beginning in the 1980s, Congress and the Federal Energy Regulatory Commission (FERC) gradually allowed gas prices to rise to their market levels. Producers then sharply increased the supply of gas—driving prices down well below what was needed to support the huge Alaska project.

Now, declining North American supplies from mature fields and growing demand appear to have driven prices up enough to make the Alaska gasline more attractive.

What Are The Risks?

The challenges in building a gas pipeline continue to be the huge upfront costs, possible cost overruns, and uncertain future gas prices. Since 1985, there have been sharp spikes up and down and long periods of low prices (see adjacent figure).

Higher prices and increasing demand seem to have made a pipeline more feasible. But higher prices may also bring other new sources of supply into the market (such as those in Canada's Mackenzie Delta and imported LNG)—which could reduce prices.

If prices stay high, and there are no major cost overruns during construction, sales of North Slope gas have the potential to generate big profits. But if prices fall and stay low, or if construction costs are a lot higher than expected, the profits would dwindle. The box below shows how sensitive profits and potential state revenues are to higher or lower prices and costs.

How Do Gas Prices and Shipping Costs Affect Potential State Revenues?

How much revenue might the state government expect from North Slope gas development? That's impossible to say right now, because (1) we don't know how much it will cost to build the pipeline, and construction costs will largely determine shipping costs; (2) we can't predict what gas prices will be when North Slope gas reaches the market; and (3) we don't know how the state's fiscal system might change.

But we do know that higher or lower gas prices and shipping costs would add to or subtract from state revenues—possibly tens of billions of dollars over the 30-year life of a gas pipeline. The best scenario for the state is higher prices and lower shipping costs.

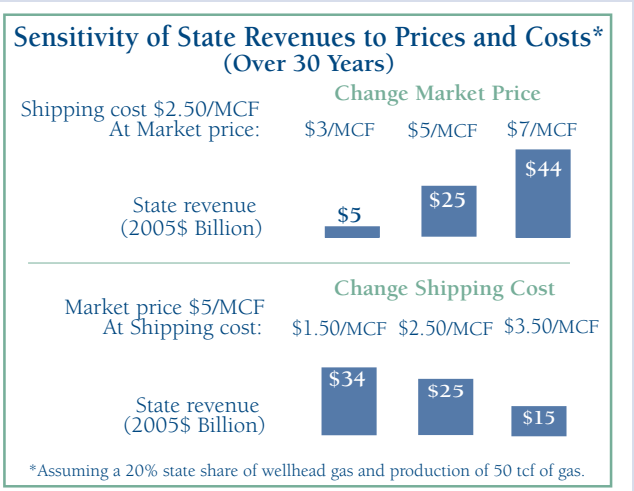
The figure illustrates how sensitive state revenues are to different gas prices and shipping costs. Keep in mind that we're not predicting anything; we're just illustrating how much difference higher or lower prices and shipping costs make.

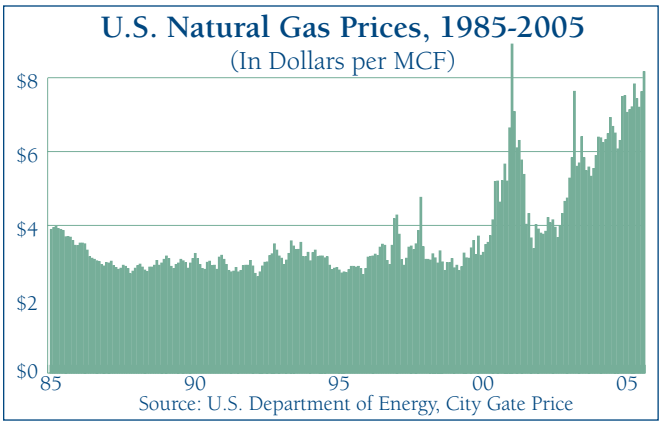
To do the illustration, we assumed the state gets royalties and taxes equal to a 20% share of the wellhead value of the gas—the market price minus shipping costs. (The rest of the wellhead value is divided among production costs, other taxes, and profits.)

The top half of the graph shows the effects of changing gas prices, with shipping costs at $2.50 per mcf. A lot of the analysis of pipeline feasibility has assumed a market price in the range of $5 per thousand cubic feet of gas (mcf) and shipping costs of $2.50 per mcf.

At an average price of $5 and shipping costs of $2.50, the state could collect about $25 billion (in 2005 $) in revenues over a 30-year span. If the price instead averaged only $3 per mcf, state revenues could be as little as $5 billion. But if the market price averaged more, say $7 per mcf, revenues could be around $44 billion (in 2005 $) over 30 years.

The bottom half of the graph shows the effects of higher or lower shipping costs, at a market price of $5. If shipping costs were as low as $1.50 per mcf, state revenues could be around $34 billion (again, in 2005 $). But if shipping costs were much higher, at $3.50 per mcf, the state's revenues over 30 years could fall to $15 billion.





How Will A Decision Be Made?

FERC in the U.S. and the National Energy Board in Canada have authority to approve the pipeline project best serving the public interest. The process requires reviewing all aspects of proposed alternatives, including financing, engineering, and marketing.

So federal regulators and not the state government will approve a pipeline plan. What the state can do is advance policies that are in the best interests of Alaskans. Alaska's Constitution says the state is responsible for making its natural resources available for development "consistent with the public interest" and for the "maximum benefit of Alaskans."[2]

A law passed in 1998, the Stranded Gas Act, gives the state considerable flexibility to negotiate special fiscal terms on large gas projects if the gas is "stranded"—that is, if "prevailing costs or price conditions" make the project uneconomic.[3]

Alaskans disagree about whether North Slope gas was then or is now "stranded;" current energy prices are much higher than they were in 1998. Still, as of late 2005, three groups were pursuing pipeline proposals to the state under the act. Keep in mind, however, that even if state negotiators agree on terms of a contract with any group, that contract won't go into effect until it has had public review and the legislature approves it.

- ***The North Slope producers*** (BP, ConocoPhillips, and ExxonMobil) are negotiating with the state for a Stranded Gas Act contract for a pipeline along the Alaska Highway route. They would build and own a pipeline, along with the state, and ship their own gas.
- ***TransCanada Corporation***, the largest pipeline company in North America, has submitted a Stranded Gas Act application, also for a pipeline along the highway route. It proposes to build and own the pipeline, possibly with state participation. It would carry gas under contract for the state, the leaseholders, and other producers.
- ***The Alaska Gasline Port Authority*** (AGPA) is made up of three municipalities—the North Slope and Fairbanks North Star boroughs and the City of Valdez—backing a route to Valdez and construction of a gas liquefaction plant there.[4] The municipalities would own the pipeline. The state has determined that AGPA does not qualify under the Stranded Gas Act.[5] AGPA has not asked for any special fiscal terms, but does want to buy state royalty gas.

What Are the Choices for the State?

The state doesn't have the authority to decide which line gets built or to issue the required federal pipeline permit, but one thing it could do is try to advance the project by taking on some of the financial risk. That's why it's negotiating terms of a Stranded Gas Act contract with the North Slope leaseholders. It could also negotiate fiscal terms with other groups that want to build or own the pipeline. If the state does take on some of the risk, it has some basic policy choices. The major ones are:

- Whether it should invest in the pipeline
- What it should do with its royalty gas
- Whether it should change its tax system

Other issues include insuring gas for Alaska communities and pipeline access for future producers, as well as helping provide opportunities for Alaskans—like training for pipeline jobs.

Pipeline Ownership

The state is considering whether to own a share of the pipeline. Part-ownership would have potential benefits and risks. But it would not, as many Alaskans believe, carry with it guaranteed rights to ship gas through the pipeline. Under FERC regulations, any producers—including the pipeline owners—planning to ship gas have to bid, before construction starts, for a share of pipeline capacity. They sign contracts requiring them to pay for that capacity, even if for some reason they're not using it. These contracts would reduce the risk for the state as a pipeline owner, but they could increase the risk for the state as a shipper (see next page).

If the state did invest, it might, for example, buy 20% ownership of a $20 billion pipeline with a $1 billion cash investment and $3 billion in bonds. Revenues from pipeline tariffs (paid by those shipping gas through the pipeline) would repay the bonds and pay the state an investment return.

Supporters argue that the state stands to earn more on a pipeline investment than on other investments of comparable magnitude. Returns on pipelines are generally higher, because pipelines are considered a riskier investment, and FERC regulates those returns. But a high rate of return isn't guaranteed; during the gas-price implosion of the 1980s, few pipelines in the Lower 48 recovered all their FERC-approved costs and rates of return, and some went bankrupt.

The state also faces the risk that cost overruns or other problems could make the pipeline more expensive than expected. And if regulators disallowed major elements of cost when setting rates the pipeline owners can charge, the state's return might be reduced. To make the Alaska gas line more attractive to investors, Congress has authorized a federal loan guarantee on up to 80% of borrowed capital. That guarantee is intended to help investors get an advantagous rate on borrowed funds.

Supporters argue that the pipeline might be more attractive to other investors if the state also shared the risk, and that ownership might give the state more control over pipeline operations. But state ownership might raise legal questions— since, as a government entity, it also regulates the pipeline—as well as political issues.

Royalties and Taxes

The North Slope leaseholders have asked the state for some assurance that taxes on gas production won't be increased in the future if a gas pipeline is built—they are asking for "fiscal stability." They argue that the economics of gas development are volatile and couldn't stand future tax increases.

In response, the state is considering changing its fiscal system so that both its production taxes and royalties would be tied, by contract, to a share of gas production. The contract would set a percentage of gas as royalty and a percentage of gas in lieu of production taxes. Current proposals assume the state could, under such a contractual arrangement, take both its royalties as gas and its production taxes as gas in lieu of taxes. The state would then market the gas itself.

Royalties are based on the state's ownership share of gas. The state can already take royalties in gas rather than in cash, if the commissioner of the Department of Natural Resources approves. It has done so with some of its royalty oil.

Production taxes, by contrast, are set by the legislature and are cash payments. Any contract that limited the taxing authority of future legislatures, by taking a set share of gas in lieu of taxes, would almost certainly face legal challenges.[6]

But if such a contract agreement did pass legal tests, and the state took all its share in gas, it would be responsible for shipping and marketing a large volume of gas. The state would have to reserve a specific amount of pipeline capacity—and pay for shipping—even if for some reason it didn't use all that capacity. On the other hand, if the state took its share in cash rather than in gas, the producers would be responsible for shipping the state's gas. The producers instead of the state would then face the risk of having to pay for unused capacity.

Supporters of the state's taking gas rather than cash argue that the state could potentially make more money by marketing its own gas. But the inevitable volatility of gas prices means that the state faces market risk, whether it sells its own gas or takes cash payments from the producers—because those payments would also be based on market prices. The long-term outlook for prices appears more favorable than it did a few years ago, but there will almost certainly be periods of lower prices.

An extra risk to the state in selling its own gas, beyond the normal market risk, is this: can the state efficiently manage gas sales and earn bigger profits than if it sold its gas to the producers, which have large and experienced marketing organizations?

A different potential benefit of the state's taking possession of gas would be in-state uses. New supplies could potentially be available for home heating and electricity, and state gas could help stimulate development of a petrochemical industry.

With future supplies of natural gas from Cook Inlet uncertain, many Alaskans want one or more "spur" pipelines to be built from the main pipeline, to make natural gas available to Alaska communities.[7] But access to the gas will come at a price, and not all Alaskans will benefit equally.

State sales of some of its royalty oil have helped foster an in-state refining industry producing local jobs, taxable property, and refined products for Alaskans. But having more gas available might also put the state under political pressure to sell its gas to in-state users at below market rates.

Other Issues

Under FERC requirements, new producers must have access to the gas pipeline. Otherwise there would be no incentive for exploration in other North Slope areas. But who pays for that access, when it will be available, and how much it costs will be hotly contested.

Finally, in late 2005, state officials said they might include ***oil*** taxes as part of negotiations with the producers over "fiscal stability" for a gas pipeline. We know little about this proposal, but it is certain that any move affecting the existing stream of income from oil would generate controversy and could raise legal issues.

What Happens Next?

Agreement on a gas pipeline won't happen tomorrow, and any contract state negotiators reach with the producers or other groups won't take effect until the public comments on it and the legislature approves it. Construction will start only when FERC approves a plan; gas production won't start in this decade. But Alaskans need to be thinking now about the complex issues surrounding the gas pipeline—and about what public policies will best serve the interests of current and future Alaskans.

Contributors: Matthew Berman, Tim Bradner, Steve Colt, Vic Fischer, Mark Foster, Scott Goldsmith, Peter Larsen, Lee Gorsuch, Larry Persily, and Arlon Tussing

Endnotes

1. "Known resources" are those that have been identified by drilling.
2. Alaska Constitution, Article VIII, Sections 1 and 2.
3. Alaska Statute 43.82. Initially, only liquefied natural gas projects could qualify for special fiscal (including tax and royalty) terms, but the law was later changed so that any large project, including a pipeline, could qualify.
4. A long-time backer of this route, Yukon Pacific Corporation, holds conditional right-of-way permits for a route paralleling the oil pipeline and for an LNG plant near Valdez. It was acquired by CSX Corporation in 2003. The Alaska Gasline Port Authority holds an exclusive option to purchase Yukon Pacific right-of-way permits.
5. In a May 2005 letter, the state Department of Revenue told AGPA that it had to meet several requirements to qualify under the Stranded Gas Act, including holding either a firm contract to purchase natural gas or a line of credit equal to 15% of the estimated construction cost. AGPA had not met either test by late 2005.
6. See Alaska Constitution, Article IX, Section 1.
7. The Alaska Natural Gas Development Authority, an independent state corporation approved in a 2002 ballot proposition, is working on plans for spur pipelines.

This paper and additional discussions of topics related to the natural gas pipeline will be available over time on the Understanding Alaska Web site: www.alaskaneconomy.uaa.alaska.edu

Editor: Linda Leask • Graphics: Clemencia Merrill