

The Alaska Highway Gas Pipeline

Alaska Natural Gas In-State Use

The long awaited gas pipeline moving Alaska North Slope natural gas to North American markets raises the possibility of providing a steady source of clean, reliable energy to various Southcentral, Interior and rural Alaska communities. The need to make natural gas available in-state was recognized early in gas pipeline negotiations. Access to gas for in-state use is one of the six principles the governor established as guidelines for negotiating a contract under the Stranded Gas Development Act (SGDA).



The contract addresses in-state access to the gas pipeline through the following requirements:

- Mandating up to four designated off-take points along the Alaska portion of the pipeline to be paid for by the project sponsors.
- Requiring that tariffs for shipping on the pipeline be mileage sensitive rather than there being a single tariff regardless of distance shipped.
- Requiring a study of in-state gas consumption needs.
- Requiring a feasibility study of Natural Gas Liquids (NGL) processing opportunities in Alaska.

What is Required by Federal Law and the Stranded Gas Development Act?

The Alaska Natural Gas Pipeline Act of 2004 mandated that the Federal Energy Regulatory Commission (FERC) in considering the application for a Certificate of Public Convenience and Necessity for the construction and operation of an Alaska natural gas pipeline consider, among other things, a study of in-state needs. “The holder of the Certificate of Public Convenience and Necessity issued, modified or amended by the FERC for an Alaska natural gas transportation project shall demonstrate that the holder has conducted a study of Alaska in-state needs, including tie-in points along the Alaska natural gas transportation project for in-state access.”¹

¹ Military Construction Appropriations Act HR 4837, PL 108-324, Chapter 12, Division C—Alaska Natural Gas Pipeline, Sec. 103, (f).

Consistent with this requirement, the SGDA requires that at least 30 days prior to the open season, a study of gas consumption needs and prospective off-take points consistent with the FERC requirement will be completed. The project sponsors must consult with the state to agree upon the locations of the off-take points. Project sponsors would be required at the state's request to support funding of the off-take points identified in the study. The provision of the off-take points will provide the opportunity for entities like local distribution companies or the sponsor of an Liquefied Natural Gas (LNG) project to obtain access to the project during an open season.



The contract itself calls for the project sponsors to offer a mileage sensitive service to the off-take points during the initial open season. This provision effectively requires lower tariffs for in-state deliveries as opposed to deliveries to locations in Canada or the Lower 48.

The contract specifies that any party may make changes or new arrangements for deliveries in Alaska provided that those changes or new arrangements do not result in unused capacity or the shifting of cost responsibility to the holders of pre-existing shipping commitments unless mutually agreed with any affected entities. An existing shipper transporting gas out of Alaska may choose to make gas deliveries in Alaska so long as that shipper continues to satisfy its shipping commitments outside of Alaska.

Finally, the contract calls for the project sponsors to conduct a feasibility study for NGL processing opportunities before the commencement of the initial open season and summarize it in the Project Summary required in the Qualified Project Plan. The Project Summary includes the project overview, a description of work accomplished, an estimated project schedule and proposed development activities, and a description of expenditures and programs implemented.

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The Role of the State in Providing for In-State Use

Under the Stranded Gas Contract the state will market its share of gas production and own a portion of the pipeline. This means that the state will have gas to sell and the means to ship it. Since revenues from shipping the gas will pay off the cost of the pipeline investment, the state has three choices:

1. Have an agreement to sell its gas to third parties who would then sign up for firm transportation commitments in the open season with the state, or
2. Bid for its own capacity to ship its gas in the open season, or
3. Require a producer to acquire capacity on the state's behalf.

For in-state users this requires that there be sound economics and financial capability to support their proposals to buy the state's gas. As the result of the initial open season, the nominations for firm transportation commitments for in-state use can be accommodated without jeopardizing the total project economics as contemplated by the sponsors. If not, adjustments among the parties will need to occur to move the project forward. This is how a fair and non-discriminatory FERC open season process is supposed to work.

The studies required by the Alaska Natural Gas Pipeline Act of 2004, as well as projects proposed by in-state users, will assist in determining the state's role in providing gas for in-state use.



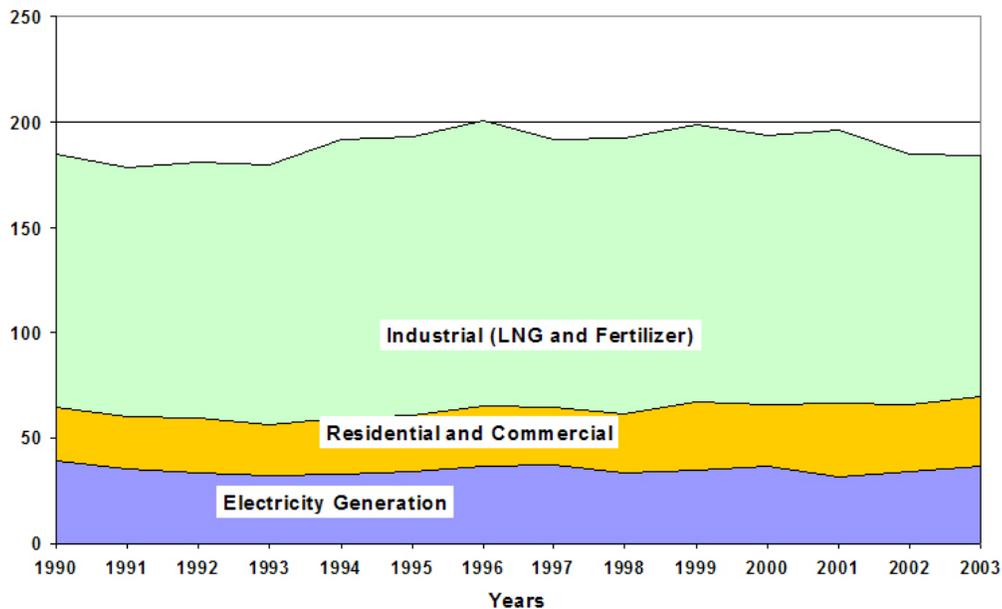
Current Gas Use in Alaska and Potential for In-State Use

As a general principle, the Stranded Gas Development Act (SGDA) contract envisions providing the opportunity to local residential, commercial and industrial users to acquire gas at pre-determined off-take points. It is envisioned that economically and financially feasible in-state users will be successful in acquiring the gas.

Current Cook Inlet and North Slope Use

Although some of the gas produced on the North Slope is sold to the North Slope Borough and to the Trans-Alaska Pipeline System (TAPS), most gas produced in the state and sold to consumers comes from Cook Inlet. As shown in the following chart, Southcentral Alaska consumers use close to 200 billion cubic feet (0.5 billion cubic feet per day) of Cook Inlet natural gas annually. Industrial customers are the largest users of Cook Inlet natural gas, consuming an average of just over 100 bcf per year over the last 13 years. About half of this usage is the gas converted to LNG for export to Japan and the other half is used to make ammonia and urea fertilizer for export. Electricity generation averaged 34.7 bcf and residential and commercial use in Southcentral averaged just over 32.2 bcf per year.

**Historical Cook Inlet Gas Consumption By End Use
(Billion Cubic Feet Per Year)**



: Alaska Department of Natural Resources, Division of Oil and Gas, Annual Report 2004

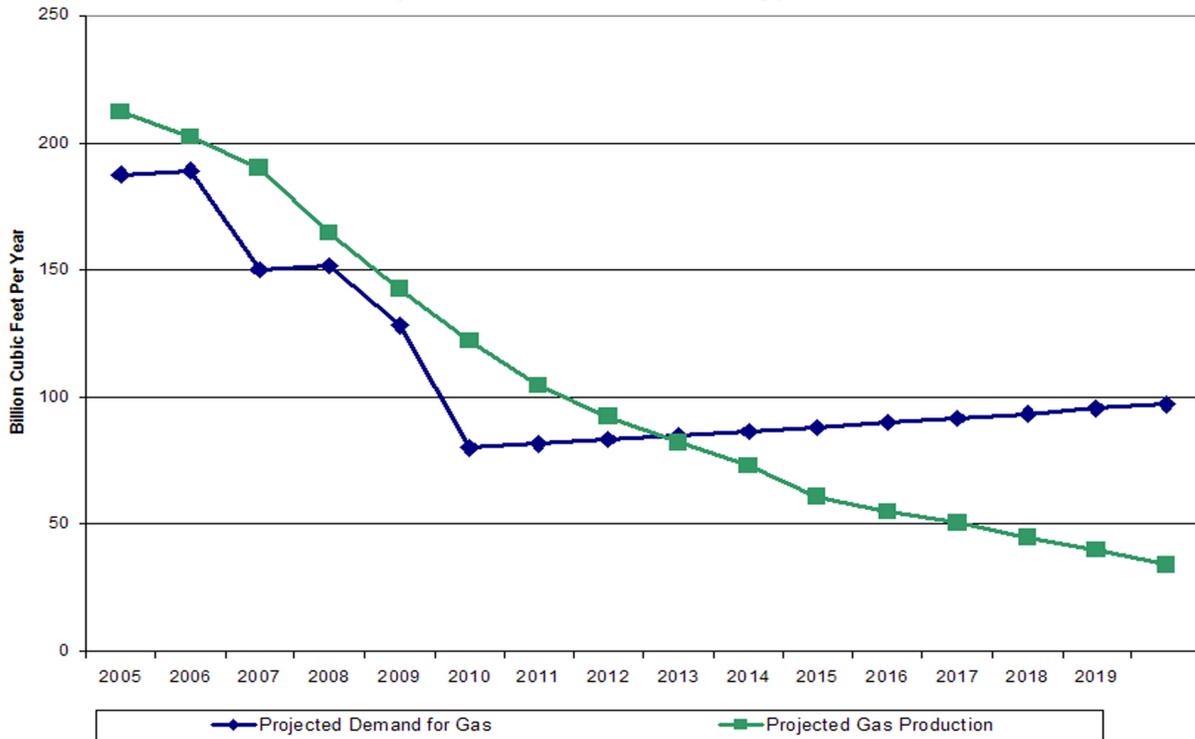
Projected Supply and Demand for Gas in Southcentral

The Alaska Department of Natural Resources is projecting continued decline in the production of Cook Inlet gas. Even though new gas fields have been brought on line in the Cook Inlet, new reserves are not being added fast enough to offset depletion. This raises serious concerns about energy sources for Southcentral Alaska. Even if the major industrial uses of gas are shut off, there could be a shortage of gas for electricity, commercial and residential use in Southcentral sometime around 2013². This would occur several years before we estimate the completion of the North Slope gas pipeline.



² This assumes that the fertilizer plant shuts down after 2006, and the LNG plant after 2009 with demand growth of 2.0% per year in all other uses.

**Projected Cook Inlet Gas Demand and Projected Gas Production
(Billion Cubic Feet Per Day)**



The chart above illustrates current end use demand of approximately 200 bcf per year. The difference between end use demand and production is mostly fuel used on the leases. The shortfall by 2020 just to fill local residential and commercial and electricity demand will be over 60 bcf per year.

The 2004 Southcentral Alaska Natural Gas Study released by the U.S Department of Energy, National Energy Technology Laboratory³ estimates that a spur line carrying 0.465 mcf per day (170 bcf per year) from Fairbanks to Southcentral would pay an average tariff of \$0.563 per mcf. This would result in a projected delivery of roughly 107 bcf in excess of Cook Inlet gas demand at that time. This could provide enough gas to reopen and expand the existing LNG plant, however, it is not clear if the delivered cost would make this economic.

The study estimates that a tariff from the North Slope to Fairbanks of \$0.70 per mcf would result in a delivered gas price to Southcentral equal to Henry Hub less \$1.00 per mmbtu. By contrast, Enstar under their latest contract with Marathon agreed to pay the 12-month average Henry Hub price for Cook Inlet gas⁴.

3 Thomas, Charles P., et.al. South-Central Alaska Natural Gas Study, Prepared for the U.S. Department of Energy National Energy Technology Laboratory, Arctic Energy Office, June 2004, pg. 181. 181.

4 “Regulators to examine pricing in Enstar/Marathon Deal”, Alaska Journal of Commerce, January 2006.

Potential for Natural Gas to Rural Alaska

The Alaska Natural Gas Development Authority (ANGDA) commissioned a feasibility study of manufacturing propane or butane in conjunction with a spur line to coastal Alaska and distributing it to coastal communities.⁵ The study concludes that propane would be a lower cost competitive alternative to diesel in many coastal communities.

The study did not examine the feasibility of the same project were it to occur at the Yukon River for distribution to Interior river communities.

Potential Gas Use in Fairbanks

Fairbanks already has the beginnings of a gas distribution network fed by LNG trucked to the area from the Cook Inlet. Fairbanks has a large enough and dense enough population base to make residential and commercial use of project gas a potentially feasible venture.

Gas generated electricity in Fairbanks for both local use as well as for distribution through the Railbelt electrical grid from Fairbanks to Homer would likely also be feasible.

Gas Liquids and Petrochemicals

We have already discussed the in-state use of butane and propane. Is it possible that other natural gas liquid products could be used to manufacture petrochemicals for export? This possibility was discussed in a 2001 Williams presentation at the Arctic Gas Symposium in Houston, Texas. Around the same time, Williams made a presentation to state officials discussing the possibility of building a plant in Fairbanks to manufacture ethylene pellets for shipment by rail to Seward for export to world markets.



Generally speaking, raw material cost is key to the financial viability of these kinds of value-added projects, and the delivered cost to tidewater of either natural gas liquids for processing or petrochemicals themselves for shipment to world markets will be significant.

5 [Feasibility Study of Propane Distribution throughout Coastal Alaska](#), PND Inc., Prepared for the Alaska Natural Gas Development Authority, August 2005.