HCR

2

Senate Resources March 7, 2005

HCR 2 Packet – materials

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Representative Ralph Samuels

House District 29

HCR 2

Sponsor Statement

This resolution is a request to Governor Murkowski to take quick action to carry out a study of in-state needs for natural gas within Alaska. As the FERC regulations that were issued in Order No. 2005 specify that this study must be completed before an open season and pipeline design can occur, time may be a critical factor. The sponsor intends the Legislature to offer support and encouragement to the governor in this endeavor.

Session: Alaska Capitol Building, Juneau, AK 99801, (907) 465-2095
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HCR 2
Background Memo regarding In-State Alaska Natural Gas Demand
Division of Oil and Gas
February 23, 2005

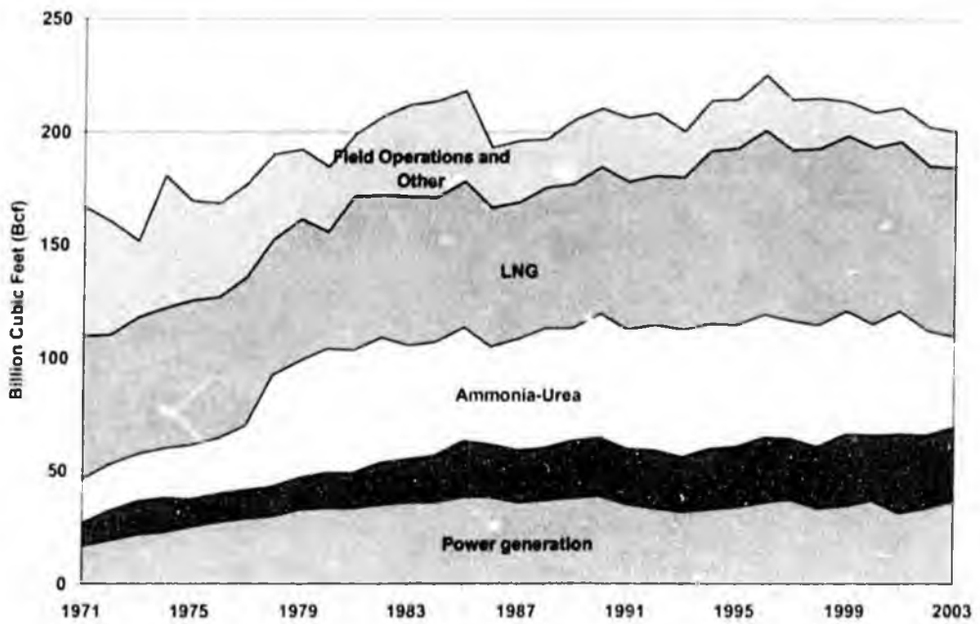
This memo summaries potential in-state gas demand in the Southcentral Energy Belt and the greater Fairbanks area based on a review of three recent studies:

- *Alaska Natural Gas In-State Demand Study* for DNR by Econ One, January 2002.
- *ANGDA Revenue and Cost Model Instruction Manual* (and model) for ANGDA by Northern Economics, June 2004.
- *Fairbanks to Anchorage Spur Report – Updated Analysis* for DNR by Lukens Energy Group, June 2004.
- *South-Central Alaska Natural Gas Study* – Prepared for the U.S. DOE by Charles Thomas et al., Science Applications International Corporation, August, 2004.

Sourth-Central Alaska

Current gas usage in Southcentral Alaska for all sectors is approximately 200 billion cubic feet per year (Exhibit 1.) Industrial usage from fertilizer manufacture and LNG exports accounts for about 60 percent of total gas consumption in the Cook Inlet Basin (CIB).

Exhibit 1. Cook Inlet Basin Natural Gas Consumption by Major Group, 1971-2003.



The future of industrial gas demand in the CIB, which relies on inexpensive, baseload gas supply, is uncertain due to tightening supply and the rising cost of gas in the Cook Inlet Basin. For example, the Agrium has been operating at reduced levels during 2003-04 and has indicated that plant closure is a possibility before the end of 2005 if adequate gas supply is not secured. Also, the Kenai LNG Plant export license expires in April 2009. So far, ConocoPhillips and Marathon have taken no steps publically to renew this license. The Department of Revenue (DOR) Prevailing Value for Cook Inlet gas is currently $3.00 per mcf and has risen steadily over the past few years, in part due to high oil prices.

Greater Fairbanks Area and Interior Alaska

Current gas usage in Fairbanks in 2004 is approximately 500 million cubic feet per year (0.5 Bcf per year). This usage arises from an incipient but rapidly expanding local gas distribution (LDC) system operated since 1998 by Fairbanks Natural Gas, LLC (FNG). The FNG residential and small commercial customer base increased from 130 to 631 between 2000 and 2004.[1] Despite the rapid growth, this total Fairbanks usage of 0.5 Bcfy is, by comparison, a small fraction of the 200 Bcfy produced and consumed in the Cook Inlet Basin (CIB), as shown in Exhibit 1 (below).

Steady LDC expansion of residential and commercial usage in the greater Fairbanks area could result in growth to about 3 Bcfy by 2009 but would probably require gas supplies from sources beyond those currently used by FNG (E.g., new North Slope and/or Nenana Basin supplies). Central station electric power usage could increase consumption by another 6.5 Bcfy (assuming 50% gas-by-wire penetration). These potential residential, commercial, and power usages in 2009 combine to about 10 Bcfy, or about 5% of the current gas usage in the CIB. It still would amount to a fractional 6/10th of one percent of expected throughput for a major sales gas pipeline from the North Slope (1,570 Bcfy based on 4.3 Bcf per day at outlet of GTP).

The outlook for gas use and offtake beyond 2009 is less certain but it is possible explore some contingent scenarios. If we assume higher gas-fired, central-station power penetration plus fuel-switching among interior-region utilities within range of a major gas pipeline, then power usage could increase to 27 Bcfy but this is a stretch.[2] Adding industrial load (including new industries) would increase the range of possible gas usage by another 30 to 300 Bcf per year depending on the particular industrial application. On top of this, a potential CIB gas supply shortfall could be served by a spur pipeline from Fairbanks to Anchorage. This highly uncertain shortfall could range from zero to 90 Bcfy by 2020, depending on assumptions about future CIB recoverable reserves growth, continued industrial usage, and spur pipeline economics. Plausible CIB shortfall estimates of between 18 and 91.5 Bcfy are considered in Exhibit 2, based on the analysis of Lukens Energy Group.[3]

Summary for Interior and South-Central

Exhibit 2 summarizes combined medium- and high-case outcomes for 2020, conditioned on assumptions about power and industrial usage, the potential future gas supply shortfall in the CIB, and Fairbanks-to-Anchorage spur line economics. When industrial usage and CIB gas shortfall are considered, the amount of total gas offtake in the greater Fairbanks area could rise to levels ranging from 4-to-27 percent of total gas pipeline throughput. Gas demand in the greater Fairbanks area rising to 400 Bcfy is very unlikely. It would occur only in conjunction with a major industrial usage, such as a large-scale NGL processing plant of the class found in the Alberta NOVA system. Future natural gas usage in the neighborhood of 10-to-70 Bcfy – not counting the potential CIB gas shortfall – is probable given the Interior region's high prevailing heating degree day load and energy costs, and its proximity to a major source of future natural gas transmission. Nenana Basin gas resources, which are estimated to range from 250 to 3,000 Bcf, could serve this potential future demand and/or provide a source of supplemental gas for replacement of offtake volumes for transmission to North American markets.[4]

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[1] FNG liquefies and transports LNG by truck and trailer from Point McKenzie to its storage facility in Fairbanks. The operation involves 2-to-4 truckloads per week of about 9,500 gallons of LNG (760 Mcf) per truckload.

[2] Interior region fuel-switching power plants include the communities: Chena, Chistochina, Dot Lake, Healy, Mentasta, North Pole, and Tok.

[3] Energy in the form of "gas-by-wire" could be generated in Fairbanks and delivered to Southcentral Alaska, as an alternative to a gas spur pipeline.

[4] Nenana Basin gas resource estimates are: 250-to-1,000 Bcf (Doyon); 3,000 Bcf (Andex); and 867 Bcf (USGS).

Exhibit 2.
Potential In-State Demand for Natural Gas in the Greater Fairbanks Area

	Actual		Projected		
	2000	2004	2009	2020	
				(medium)	(high)
	(Billion Cubic Feet per year)				
Res & Comm[1]	0.1	0.5	3.1	6.5	
Power[2]			6.5	12.0	27.0
Industrial[3]			-na-	30.0	300
SubTotal	0.1	0.5	9.6	48.5	333.5
Expected Southcentral Shortfall[4]				18.0	91.5
TOTAL	0.1	0.5	9.6	66.5	425.0
Proportion of Cook Inlet Basin		0.3%	4.8%	33.2%	212.5%
Proportion of Gasline Throughput		0.035%	0.6%	4.2%	27.1%

[1] Equal to 2000 and 2004 actual gas usage in the Fairbanks local gas distribution system operated by Fairbanks Natural Gas, LLC
Projection in 2009 based on Econ One (2002) study for DNR assuming 50% penetration for both residential and commercial space heating
Projection in 2020 based on extrapolation of actual usage growth during 1998-2004 using 2nd order polynomial time-trend model

[2] Based on central station (gas-by-wire) civilian and military power generation in Greater Fairbanks region assuming 50% penetration in 2009 and 83% penetration in 2020 (Econ One)

High-case power consumption (27 Bcfy) based on combination of central station (gas-by-wire) and fuel-switching in interior region utilities that could be served by gas pipelines

[3] Examples of Industrial usage are
Internet Server Farm - 4.3 Bcfy (Econ One)
Petchem Plant - 30-to-300 Bcfy (Econ One and ANGDA)
Fairbanks Separator Plant - 73 Bcfy (ANGDA)
Fertilizer Plant - 50 Bcfy (Agrium)

[4] Medium-case based on 50 Mmcfd assuming 1.5 Tcf reserves expansion in Cook Inlet Basin (CIB), LNG closure in 2009 and Fertilizer at 50%
High-case based on 250 Mmcfd assuming zero reservers growth in CIB, Fertilizer plant closure in 2006, LNG plant closure in 2009 (Lukens)

Areas for Further Research

- Feasibility for Petchem in Fairbanks
- Spur pipeline costs
- Gas-by-wire feasibility (reverse the Railbelt Intertie)
- Engineering/ cost study for installation of gasline offtake and step-down equipment in Fairbanks and other Interior Alaska locations.

FISCAL NOTE

STATE OF ALASKA
2005 LEGISLATIVE SESSION

Fiscal Note Number: 1
Bill Version: HCR 2
(H) Publish Date 2/24/2005

Revision Date/Time (Note if correction):
Dept. Affected: Natural Resources
Title: In-State Natural Gas Needs
RDU
Component
Sponsor: Rep. Samuels
Requester: House Rules
Component No.

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

OPERATING EXPENDITURES	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Personal Services						
Travel						
Contractual						
Supplies						
Equipment						
Land & Structures						
Grants & Claims						
Miscellaneous						
TOTAL OPERATING	0.0	0.0	0.0	0.0	0.0	0.0
CAPITAL EXPENDITURES						
CHANGE IN REVENUES ( )						

FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF						
1005 GF/Program Receipts						
1037 GF/Mental Health						
Other (Specify Type--Do not abbreviate)						
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0

Estimate of any current year (FY2005) cost: 0.0

Mark this box (X) if funding for this bill is included in the Governor's FY 2006 budget proposal:

POSITIONS

Full-time						
Part-time						
Temporary						

ANALYSIS: *(Attach a separate page if necessary)*

Passage of this resolution will have no fiscal impacts.

Prepared by: Janet Seitz, Staff — Phone 465-3764
Division: House Rules Committee — Date/Time 2/24/05 3:18 PM
Approved by: Representative Norman Rokeberg — Date 2/24/2005
Agency: Chairman, House Rules Committee

(Revised 9/23/2004 OMB)