From: Larry Persily
Sent: Thursday, January 28, 2010 5:13 PM
Subject: RCA and gas storage regulation

I prepared the following report from today's order issued by the Regulatory Commission of Alaska. The commission responded to a request for declaratory judgment from Cook Inlet Natural Gas Storage, which is looking for certainty on the question whether gas storage is or is not regulated by the RCA under state statute.

Larry, 465-6959

RCA says legislative answer would be best decision on gas storage regulation

The Regulatory Commission of Alaska Jan. 28 denied the request from Cook Inlet Natural Gas Storage (CINGS) for a declaratory judgment that gas storage is outside the regulatory jurisdiction of the commission. The RCA essentially said the Legislature is the best place for this decision.

There was no consensus among parties to the docket, with some arguing that state statute requires or at least allows the RCA to regulate a gas storage operation and others contending that state statute does not allow the RCA to regulate a storage operation.

"The most expeditious way to clarify our jurisdiction is through amendment to our statutes, explicitly authorizing us to regulate natural gas storage or exempting natural gas storage from our regulation," the commission stated in its order. "The Alaska Legislature is the only entity that has the power and the process necessary to provide CINGS the immediate certainty it seeks."

CINGS, a newly created subsidiary of TransCanada, is looking at developing a gas storage operation in a nearly depleted reservoir at the Cannery Loop Unit near Kenai. It would like to know before it commits to the project whether it would be directly regulated by the state or indirectly regulated when each utility that contracts for storage requests RCA approval of its costs before passing them on to their customers. State statute does not include "gas storage" in its definition of a utility subject to direct RCA regulation, though some have argued the commission could interpret its laws to assume such authority.

"We find that our statutes do not provide explicit authority to regulate natural gas storage, nor do they definitely set natural gas storage outside of our jurisdictional boundaries," the commission stated in its order. "With no consensus among interested persons on statutory interpretation and the question being a matter of legal interpretation, our own opinion on jurisdiction would hardly be the final word," the commission said.

A legislative decision would avoid the risk that a party could challenge an RCA interpretation of statute, possibly sending the issue to court and delaying development of gas storage for Southcentral gas customers.

“Despite their conflicting conclusions about our jurisdiction, all interested persons agreed that storage in the Cook Inlet area is a serious or even critical need,” the commission said.

“Whether it is good public policy or bad public policy to regulate CINGS is not a valid factor in deciding whether we have jurisdiction to regulate CINGS,” the commission added.

Rep. Hawker is reviewing the RCA order and will bring forward a proposal to deal with the issue when the Cook Inlet Recovery Act (HB280), co-prime sponsored by Speaker Chenault, comes before House Labor and Commerce Committee.

AlaskaDispatch
News and voices from the Last Frontier

Energy

Gassing up

Rena Delbridge

Dec 27, 2009

Southcentral's 350,000 residents are snug this winter in homes with plenty of heat and Christmas lights twinkling.

But the sense of security fed by light and warmth is a false one in the state's major population area, where utilities are a step or two away from rolling power outages if the weather turns bitter cold -- cold enough to put out of order the complex metal machinery that pushes natural gas through lines and into homes; cold enough to push demand off the charts.

And by the winter of 2011-12, deliverability could be an issue beyond peak demand in the coldest spells.

Natural gas, used to heat buildings and to generate 90 percent of the region's electricity, is probably not going to be available in quantities enough to meet peak demand on cold winter days -- this winter, or next -- under certain scenarios.

Along with deliverability challenges, a recent state geological report shows there's about 10 years worth of gas left in Cook Inlet, should companies choose to invest their global dollars in production for a limited, small market.

One company, a TransCanada subsidiary, wants to build a storage facility to warehouse gas produced in summer months, when demand is one-fourteenth of peak winter loads. The resource could be drawn out in winter.

The company's proposal is a dream come true for some -- a private-sector solution that isn't seeking a dime from the government. All that Cook Inlet Natural Gas Storage, LLC, needs is assurance that the Regulatory Commission of Alaska will allow utilities -- its customers -- to recover storage fees in rates charged to consumers.

But lawmakers, state officials and even utility chiefs could tangle over whether gas storage facilities -- new to the 49th state -- should fall under the Regulatory Commission of Alaska's jurisdiction. If they take too long sorting that out, TransCanada's plans will be delayed -- possibly enough to leave Southcentral facing a nightmare by winter 2012 or 2013.

"On the coldest day of the year, what will we pay to stay warm?" Sen. Hollis French asked. "You'll probably pay anything, which is a bad place to be as a consumer. You don't have an alternate source for your natural gas supply. You want to have some oversight so there's not price gouging at a time when you are most vulnerable."

The problem

To be clear, Cook Inlet isn't near running out of gas next year, or in the next five years. On the contrary, the state estimates there are hundreds of trillions of cubic feet remaining, although that gas is more difficult to access -- and thus, more expensive to produce and purchase.

The real problem is deliverability. Utility and municipal managers, lawmakers and others are seriously concerned that when Southcentral soaks up huge amounts of gas to ward off Alaska's bitter winter temperatures, the supply may not hold.

Municipality of Anchorage Mayor Dan Sullivan drafted an energy task force that's studying the potential for emergencies and running tabletop exercises to test procedures in case of extreme shortages or -- more likely -- breakdowns in the machinery that pushes gas to pilot lights.

"If we had to go to that extent, to call upon people to conserve ... and go to rolling blackouts, at least we have a procedure in place," Municipal Manager George Vakalis said. "We know how to do it."

Since 1969, the liquefied natural gas export plant at Nikiski has provided a buffer for the supply and demand swings -- in essence, offering companies an outlet for gas that the Southcentral market couldn't absorb. However, a shortfall is annual production supply is anticipated in 2012 or 2013. The federal LNG export permit runs out in March 2011, and ConocoPhillips hasn't announced whether it will apply for an extension.

"We're faced with a unique environment in Cook Inlet with the demand swings," said John Sims, Enstar's spokesman. "The LNG facility is very important. It creates incentive for (companies) by having that large, industrial export customer."

ConocoPhillips, financially strapped after the past year's global economic downturn, hasn't said yet whether it will close or sell the facility, turn it into storage, or seek continued exports.

Solution on the table

Cook Inlet Natural Gas Storage, the newly formed TransCanada subsidiary, wants to build a 19 billion cubic foot gas storage facility near Kenai. A member of TransCanada's projec team, Bob Gibb said the company is working on land purchases and, if regulatory issues can be sorted out, is ready to start construction next summer

The timeline is tight, and critical work must be done in summer, Gibb said. He figured the schedule has enough to flexibility to still meet an in-service date for winter 2012-13, if politics delay immediate approval.

Gibb confirmed the company is talking with prospective clients Enstar, an anchor tenant; Municipal Light & Power; and Chugach Electric Association, which is representing two smaller electric utilities, Homer Electric Association and Matanuska Electric Association.

He isn't releasing cost estimates at this point.

CINGS wants to build 20-year contracts with its clients, with warehousing fees to be paid out equally over the full term -- also called levelized rates. The big question is whether the

RCA will allow some certainty that the long-term rates are acceptable, and that the utilities will be allowed to recoup their gas-warehousing costs from customers.

To regulate or not to regulate?

Attorneys, policymakers and company reps packed an RCA meeting room in Anchorage in early December for a daylong workshop on storage. The participation was significant, with nearly all parties involved discussing solutions, potential hangups and how rate payers could fare under different gas storage scenarios.

"We were very encouraged by the workshop," Sims said. "That not only shows the urgency that everyone realizes, but also how willing everyone is to work together and try to resolve the issues."

At the heart of the discussion was whether or not gas storage should fall under the RCA's jurisdiction, which would involve time-consuming hearings but, in return, offer consumers some protection in rates charged.

But the RCA statutes don't allow for regulation of storage facilities that supply to utilities. Instead, the commission's authority rests in regulating utilities that supply consumers, and approving the contracts those utilities make with suppliers to ensure customers are getting a reasonable deal.

TransCanada reps at the meeting said they don't mind being regulated, and in fact, storage operations in the Midwest are regulated. But they need to know, and soon, whether they'll face regulation and the filings, hearings and challenges that come with it and could soak up so much of the construction timeline that the company may have to forfeit next summer.

"There are pros and cons with both," Sims said. "The nice thing about it being regulated is there would be some sort of surety from Enstar's standpoint for rate recovery."

The utility needs to know whether it will be able to recover storage costs in rates -- and if so, to what extent. CINGS needs that assurance, as well.

"We need to have surety ... before we can close on some of the properties and move forward with some of the construction," Gibb said. "It is critical."

Lawmakers step in

Some lawmakers are heading out in front with bills they'll file when the session starts Jan. 19 enabling a storage facility and, ideally, additional drilling.

In December, Sen. Hollis French, an Anchorage Democrat, released a draft of a bill he plans to introduce during the session allowing a substantial tax credit of 20 percent of capital costs for companies who invest in storage to serve Southcentral gas needs. He expects to tack on a caveat once the session starts, enabling the credit only if the storage facility owner agrees to come under the RCA's jurisdiction.

The RCA issue is the biggest one for Southcentral's gas problems, French said.

"At least one avenue is to get away from the gas storage operation, and focus more on the contracts that CINGS strikes with the utilities, which is a function the RCA is far more experienced with," he said.

A farther-reaching bill, the Cook Inlet Recovery Act, was proposed last week by House Speaker Mike Chenault of Nikiski and Rep. Mike Hawker of Anchorage, both Republicans. Their working draft offers incentives for storage, but also smoothes state bureaucratic processes to spur private investment in finding new reserves.

"This bill is narrowly focused on Cook Inlet production," Hawker said. "It's all about the urgency of the issue. We need to address these challenges and address them now ... Every penny of cost relief or credit we can provide here ultimately flows through as savings to consumers. Adding storage, which is critical, is going to add money. It's not going to be cheap."

The bill also included direction for the RCA to consider the consequences of saying no to a matter -- something the commissioners haven't had the authority to do. Beyond that, changes to the commission's authority aren't addressed in the draft, in part because of the potential for prolonged conflict in the Capitol.

"If the extent of the RCA's authority becomes an uncertainty because the legislature has thrown it into the ping pong match, no one is going to move one step forward on any project until that issue is totally resolved," Hawker said.

Chenault said he couldn't say yet whether storage should be regulated.

"But if you have people out there interested in doing it, and you have a need, then the decision needs to be made," he said. "We can't wait around for years. The longer you wait, the less opportunities you have and, probably, the more it's going to cost."

Enstar and CINGS haven't formed opinions on the legislation yet.

"We are moving forward with our contracts as if there were no additional input from the Legislature," Gibb said. "If it comes into being, we'll consider it as it does."

Contact Rena Delbridge at rena_alaskadispatch.com

CORRECTION: This story was updated Jan. 7, 2009, to correct the spelling of Bob Gibb, a member of TransCanada's project team, and to clarify TransCanada's anticipated timeline

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Web posted Friday, June 12, 2009

Lawmakers get another wake-up call on Inlet gas supply

By Tim Bradner
Alaska Journal of Commerce

It's a tough thing to say, but the days will start getting shorter soon and January is only six months away. The usual midwinter cold snap is almost surely in the cards, and the gas distribution system serving consumers and local electric utilities is likely to be strained once again. No one wants their supply of natural gas to be cut when it's minus 20 degrees.

There's nothing very secure, or simple, about the supply of natural gas in Southcentral Alaska, however. Aging gas fields in the region are being depleted and gas wells, many 30 years old, can't produce enough now to guarantee meeting midwinter demand.

Cook Inlet oil and gas platforms supply natural gas to local utilities as well as crude oil for the Tesoro Alaska refinery near Kenai. The platforms are more than 30 years old, and are approaching their economic limits. *Photo/Rob Stapleton/AJOC*

What keeps disaster at bay is the liquefied natural gas, or LNG, plant near Kenai, which stops making LNG in very cold weather so gas can be diverted to the local utilities. The LNG plant may close in 2011, however, when its federal license to export LNG expires.

So far the utilities have no plan B for that possibility, although they are working on one.

There are large reserves of gas on the North Slope, but without a pipeline there's no way to get the gas to the state's largest communities. Studies are now underway by the state for a 24-inch bullet pipeline to bring gas to Southcentral from the Slope but no one knows how much this will cost. It couldn't be finished until 2016 to 2018 in any event.

There's also more gas to be found in Cook Inlet but there's little new drilling, for a complex set of reasons.

State legislators got an earful about all this on June 5, when the Senate Resources Committee, meeting in Anchorage, listened to managers of gas producing companies, utilities, and state and federal officials, as well as private landowners.

State Sen. Bill Wielechowski set a sober tone for the meeting.

"Cook Inlet gas production has declined considerably," he said. "In the last three years it has declined by more than 50 billion cubic feet annually. Current demand is about 140 billion cubic feet per year, so this is significant."

By 2012, annual in-state demand will exceed supply from existing wells. This assumes no export of Cook Inlet gas, Wielechowski said.

"We have three years before we have a supply problem if we look at production from existing wells," he said.

State oil and gas director Kevin Banks said it's almost certain that oil and gas companies will add reserves in the producing fields if they drill more wells.

But petroleum companies told legislators too few new wells are being drilled, and that consumers and local utilities aren't doing enough to promote energy conservation, which is the cheapest was to ease the tight supply situation. Companies also said the Regulatory Commission of Alaska is too focused on price and should weigh energy security for consumers in its decisions as well.

John Zager, Chevron Corp.'s Alaska manager, said Cook Inlet is not attracting sufficient investment capital to offset the reserve declines, and that remaining resources are likely to be in smaller gas deposits that will be more expensive to drill.

Zager said he believes government estimates of remaining reserves in the Inlet are too optimistic. Estimates are that 1.3 trillion cubic feet to 1.7 trillion cubic feet of proven gas reserves remain in producing gas fields.

The State Division of Oil and Gas plans to have an updated estimate of gas reserves by early fall, said Kevin Banks, the division director.

For now, the economics just aren't right for drilling a lot of new production wells. "People have to accept the concept that the (gas) price must be high enough to encourage investment, and there are recent indications that this is not the case. The recent state lease sale in the Inlet was a no-show," in terms of bidding, Zager said.

Zager and Marathon Oil manager Carri Lockhart criticized regulatory agencies for inconsistencies and creating an environment of uncertainty as to whether gas sales contracts with utilities will be approved. The uncertainty that creates is almost as important as the price of gas.

A contract negotiated several years ago with Enstar Natural Gas Co., but rejected by the regulatory commission would have met all of Enstar's needs until 2016, Lockhart said. The utility now has short-term gas supply contracts and after 2011 it will have only two-thirds of the gas it needs under contract, Mark Slaughter, Enstar's gas supply manager, told legislators.

"It's a situation we don't like to be in," Slaughter said.

Lockhart also said regional electric utilities should focus more on power plant efficiency. "There should be dual-fuel capability when new generation capacity is built," she said, an indirect criticism of Chugach Electric Association for its plan to build a new gas-fired power plant in south Anchorage without also adding standby capability to use oil as a standby fuel. Anchorage's city-owned Municipal Light and Power has dual-fuel capability in one of its power plants.

Zager and others said there must be investment in gas storage, facilities that can store gas produced in the summer, when demand is low, for use during peak demand periods in

winter. Chevron and Marathon both maintain some storage capabilities of gas in depleted gas reservoirs for their customers, but this isn't enough to meet the total need.

The LNG plant near Kenai could play a long-term role in storage, or even imports of LNG if the export license ends in 2011.

Dan Clark, ConocoPhillips' asset manager for south Alaska, whose responsibilities include the LNG plant, said it is possible that facilities at the plant could be available for gas storage or even regasification of LNG that would be imported if LNG exports end in 2011.

"It's possible," Clark told the legislators. "There are marine terminal facilities and storage tanks, although added investment would be needed."

Zager said has producers have invested in some storage but in other U.S. states utilities invest in and operate gas storage. Suzanne Gibson, Chugach Electric's gas supply manager, said Chugach, ML&P and Enstar are working jointly to determine how much storage might be needed, but there are concerns as to whether enough suitable underground reservoirs are available, because not all depleted gas reservoirs can be efficiently to store gas.

Above-ground storage could supplement underground storage but that will be costly, she said. The utilities may need state assistance.

Also, gas stored underground in depleted reservoirs is usually withdrawn gradually as used to supplement gas wells through the winter. It's difficult to get large volumes of gas at short notice needed to meet unexpected needs during a cold snap.

Stored LNG is very efficient at meeting this "peaking need," however, because the LNG can be regasified fairly quickly. LNG regasification facilities have been built in many parts of the U.S. to handle mid-winter peaks.

Facilities at the existing ConocoPhillips-Marathon LNG plant could help support a long-term storage role, but some utility managers think the plant's facilities are too big, too aged, to be efficiently used to support a small regional market.

New, smaller LNG regasification units, like those commonly used in the Lower 48, might be more appropriate, said Jim Posey, manager of Anchorage's ML&P.

Storage will help resolve the issue of meeting mid-winter peaks but it's not a solution when overall annual production from the gas fields dips below annual demand. At that point new gas is needed from somewhere, wither from new discoveries, by pipeline from the North Slope, or through imports of LNG.

Summary of the 2006 Southcentral Energy Forum

Sponsored by Alaska Oil and Gas Conservation Commission

Anchorage • Sept. 20-21, 2006

Prepared by Peter Larsen, Pamela Cravez, and Scott Goldsmith
Institute of Social and Economic Research, University of Alaska Anchorage

Why Was There an Energy Forum?

Nearly 70% of Alaskans rely on relatively inexpensive natural gas from Cook Inlet. That gas heats homes and businesses, generates electricity, and fuels industrial processes.

Cook Inlet gas benefits the state economy not only because it provides inexpensive energy for homes and businesses but also because industrial uses of the gas create jobs and add to the local tax base. More than half the gas currently being produced is either processed and exported as liquefied natural gas (LNG) or used to create fertilizer for export.

But growing demand has depleted 80% of the known Cook Inlet gas reserves. Many Alaskans are concerned about where Southcentral Alaska will get affordable energy in the future.

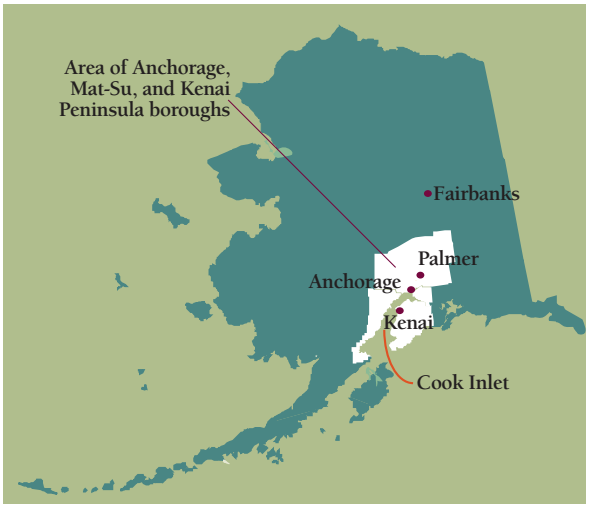
There are big unknowns. Will the Cook Inlet producers look for more gas? When will a natural gas pipeline from the North Slope be built, and will there be a spur line to bring gas to Southcentral? What will future industrial demand be? Will alternative energy sources help offset demand for gas?

In September 2006, the Alaska Oil and Gas Conservation Commission brought community leaders, gas producers, large consumers, geologists, engineers, economists, and the general public together at a two-day forum in Anchorage to talk about the problem and propose solutions for meeting the region's future energy needs.

The commission asked the Institute of Social and Economic Research (ISER) at the University of Alaska Anchorage to summarize forum proceedings. The information presented here is not a product of ISER research. It is a summary of statements, opinions, and projections of those attending the forum.

Why is This Gas "Inexpensive"?

"Inexpensive" natural gas from Cook Inlet means relative to prices of gas in the rest of the country and to prices of other energy sources in Alaska. The price residential customers pay for Cook Inlet gas has more than doubled since 1996—but it remains 30% to 50% below prices in other states, according to ENSTAR Natural Gas Company. It's also far cheaper than the diesel Alaskans without access to natural gas rely on.



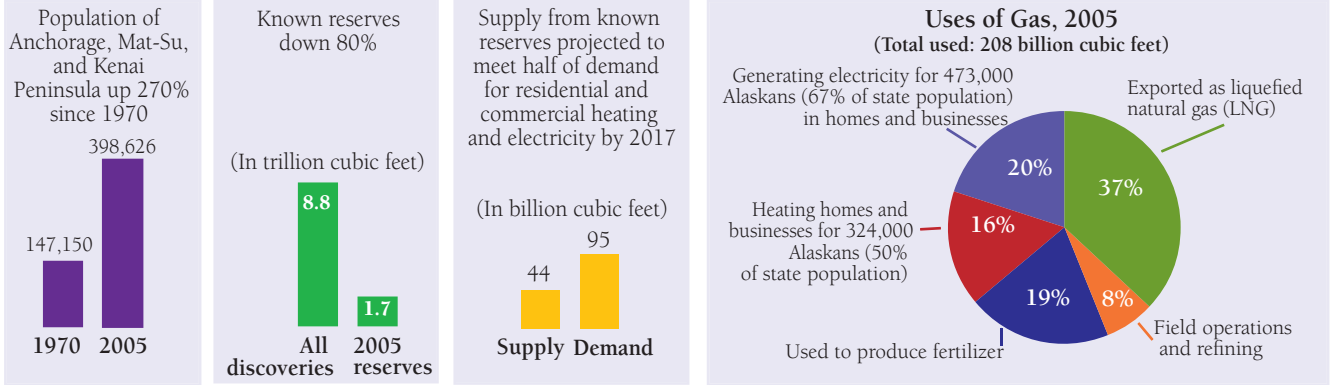
The price of Cook Inlet gas has historically been low because oil companies incidentally found trillions of cubic feet in the 1950s and 1960s, while they were looking for oil. The absence of a ready market for that gas provided Alaskans with a much less expensive energy source, compared with oil, and it made some industrial development possible.

Who are Consumers and How Do They Use Gas?

Most of the consumers are in Anchorage and the Kenai Peninsula and Mat-Su boroughs—where more than 60% of all Alaskans live (see map). That regional population has almost tripled since 1970. Communities along the railbelt north to Fairbanks also use electricity generated by Cook Inlet gas, and some gas is super-chilled to a liquid form so it can be trucked to Fairbanks .

The biggest current uses of Cook Inlet gas are industrial–37% is liquefied and exported and another 19% is used to produce fertilizer for export. Heating homes and businesses in Southcentral Alaska takes about 16% of production, and another 20% is used to generate electricity throughout Southcentral and into the Interior. The remaining 8% is used for oil and gas field operations and refining oil.

Figure 1. Snapshot of Cook Inlet Natural Gas



Sources: Alaska Department of Labor; Alaska Division of Oil and Gas; Science Applications International Corporation

How Does Cook Inlet Gas Get to Consumers?

Current gas producers in Cook Inlet include Chevron, Marathon Oil, Conoco Phillips, and others. Most, but not all, the gas for heating goes through ENSTAR Natural Gas Company, a major public utility in Alaska and a subsidiary of Semco Energy, headquartered in Michigan. The producers themselves also market a small amount of gas directly to consumers.

ENSTAR is regulated by the Regulatory Commission of Alaska (RCA). ENSTAR and the producers negotiate, with RCA oversight, future prices and conditions for gas delivery from the producing fields to the consumer. The RCA must approve rates ENSTAR proposes to charge consumers.

ENSTAR supplies gas to about 325,000 commercial and residential users and also delivers gas to electric utilities. It has about 3,000 miles of distribution and transmission mains.

Municipal Light and Power and Chugach Electric Association are electric utilities also regulated by the RCA. They generate electricity almost entirely with gas. Together they serve about 473,000 residential and commercial customers from Southcentral into the Interior, either directly or through sales to other electric utilities.

Why Worry?

With the reserves declining, it's become harder to deliver gas to consumers as they need it, on a daily basis. Assuming no new investments in exploration or development, that problem is expected to worsen, especially in the winter. Consultants to the U.S. Department of Energy and others have projected the future demand for and supply of Cook Inlet gas.

The assumptions used in individual studies vary somewhat, but they all show the same general result: that the demand for Cook Inlet gas will soon exceed the current supply, even if industrial uses drop sharply.

Projections by Science Applications International Corporation (Figure 2), a consultant to the U.S. Department of Energy, are based on specific assumptions that other analysts may disagree with. Those include:

• Assumption: that the Agrium fertilizer plant will cease operating in the near future. Agrium hasn't run at full capacity since 2001, and it recently announced it will shut down during peak use winter months. Agrium has identified high gas prices as the main reason for the cutbacks—but high prices are related to short supply. (Agrium is, however, investigating alternatives to gas; see page 7.)

• Assumption: that the federal Office of Fossil Energy in the U.S. Department of Energy will not renew the export license for the LNG facility, which expires in 2009. To have the license renewed, the operator has to show that exporting LNG will not jeopardize local gas supplies.

• Assumptions: that a spur pipeline to carry North Slope natural gas to the Southcentral region will be built by 2015 and that most of the future demand will be residential and commercial, including the proposed Pebble mine in southwest Alaska.

• Assumption: that some industrial uses might be feasible, but that the cost of North Slope natural gas will make the current methane-intensive industrial uses (like producing fertilizer) uneconomic.

The projected decline in gas supply is essentially based on known reserves. Economists would argue that as supply shrinks, prices rise—and that rising prices would ultimately cause the producers to look for more gas. (But in the largely regulated Cook Inlet market, that might not happen).

Is There More Undiscovered Gas?

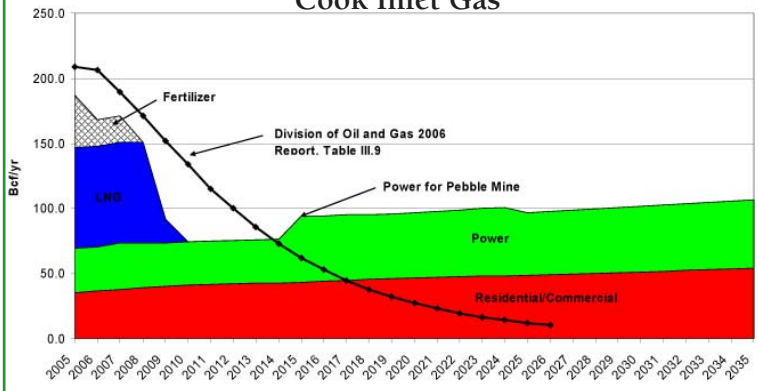
In the 1950s and 1960s, oil companies drilled as many as 30 wells a year in Cook Inlet (Figure 3). They were looking for oil—and found oil as well as trillions of cubic feet of natural gas. Those gas reserves, large enough to last for many years, left no need to look for more.

Then, in the late 1960s, world-class oil reserves were discovered at Prudhoe Bay, on the North Slope, and the petroleum industry's focus shifted away from Cook Inlet. The last commercial gas discovery in Cook Inlet was in 1979 and the last major oil discovery in 1991.

Net gas production—that is, production beyond what the producers re-injected to increase oil recovery—peaked in 1996 at 223 billion cubic feet. By 2005, net production had dropped to 208 billion cubic feet.

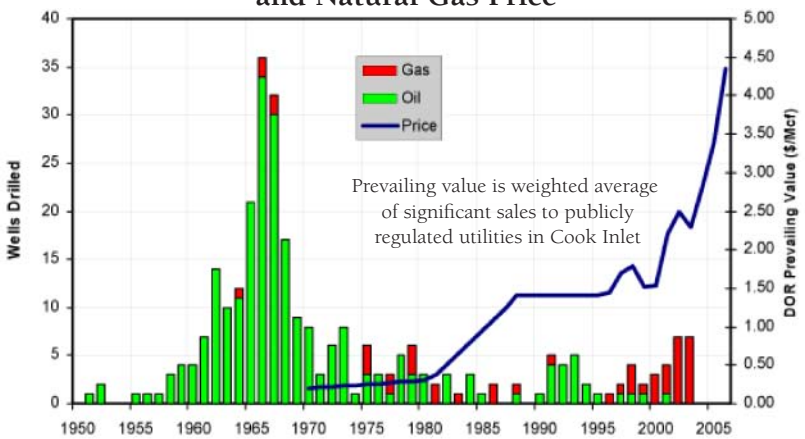
Many geologists think Cook Inlet basin is under-explored, compared with other gas exploration regions. Speakers at the forum said analysis of the distribution of field sizes in the basin suggests there may be large undiscovered fields remaining.

Figure 2 . Projected Supply of and Demand for Cook Inlet Gas



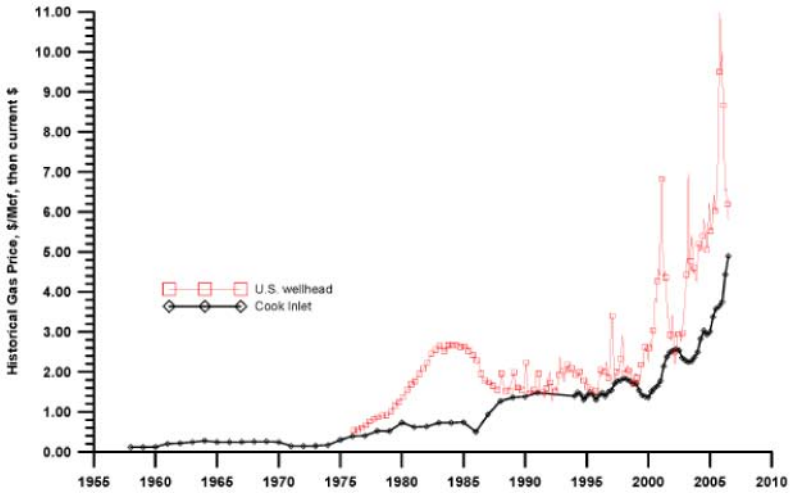
Source: NETL/DOE Study (2006) and Division of Oil and Gas (2006)

Figure 3. Exploration Wells Drilled in Cook Inlet and Natural Gas Price



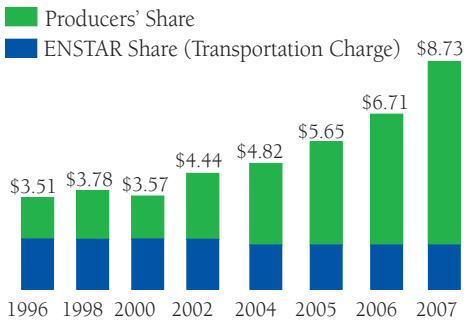
Sources: Alaska Departments of Revenue and Natural Resources; AOGCC

Figure 4. U.S. and Cook Inlet Natural Gas Price
(Wellhead Price per Thousand Cubic Feet, In Current Dollars)



Source: Alaska Department of Revenue and EIA

Figure 5. Residential Natural Gas Price
(Per Thousand Cubic Feet)



Source: ENSTAR Natural Gas Company

But no one is certain how much gas may be left in the basin, because few exploratory gas wells have been drilled there since the 1970s. Data from the Alaska Department of Revenue show that the bulk of the 240 exploration wells drilled in Cook Inlet since 1955 have been for oil. Only in the last five years has there been any focus on locating more natural gas—and that increased exploration coincides with rising gas prices (Figure 3).

The Alaska Department of Natural Resources estimates that 8.8 trillion cubic feet of gas have been found in Cook Inlet basin to date, with 7.1 already produced and 1.7 remaining. The U.S. Department of Energy estimates potential undiscovered natural gas reserves at between 13 and 17 trillion cubic feet. Other estimates are lower, with no analysis conclusively showing where new fields may be located. Whatever the remaining reserves, the level of future exploration will depend on gas prices.

How Have Prices Changed?

As the supply dwindles, the price of Cook Inlet gas has increased rapidly —although not as rapidly as elsewhere in the nation (Figure 4).

The price residential customers pay for Cook Inlet gas roughly doubled between 1996 and 2006, and it will increase another 30% in 2007 (Figure 5).

But that price includes both what the oil companies get for producing the gas and what ENSTAR charges for transporting it to customers.

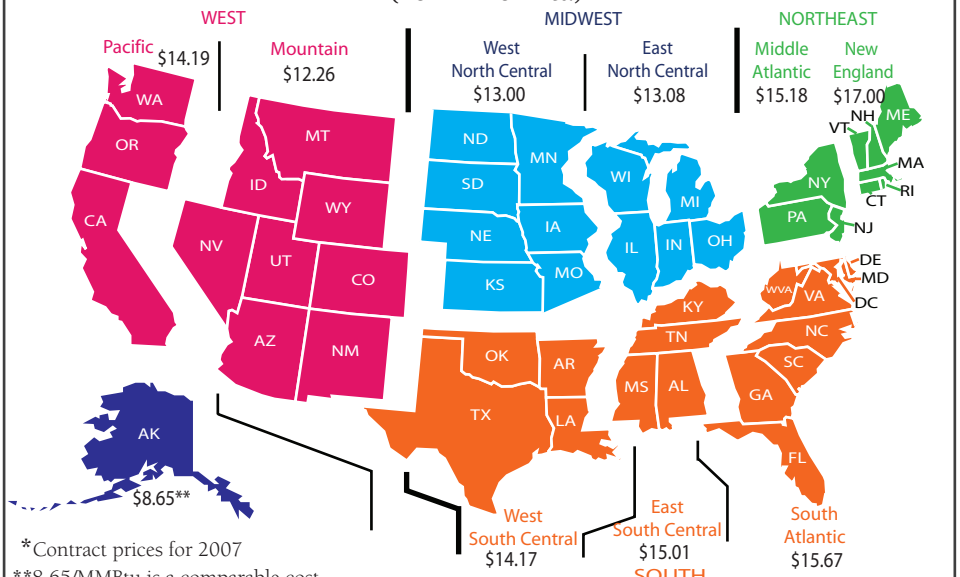
ENSTAR is a regulated utility, and it reports charging about the same (per thousand cubic feet) to transport gas today as in 1996. Virtually all the recent increase in the price to residential customers has gone to the producers.

ENSTAR also reports that despite sharp increases in what Alaskans pay for natural gas, they still pay about 30% to 50% less than other Americans.

Figure 6 compares 2007 contract prices for residential customers nationwide. In 2007 Alaskans will pay $8.65 per million Btus (British thermal unit, a standard energy measurement). Customers in the mountain states and the north-central states will pay $12 to $13. The highest natural gas prices will be in the mid-Atlantic, south-Atlantic, and New England states, where prices are expected to be nearly double the Alaska price.

Natural gas is also much less expensive than alternative ways of heating homes and businesses in Alaska. Figure 7, provided by ENSTAR, shows that natural gas for heating is about one-quarter to one-half the price of diesel, propane, or electricity, as measured by energy content.

Figure 6. Prices of Natural Gas for Residential Customers, 2007*
(Per Million Btu)

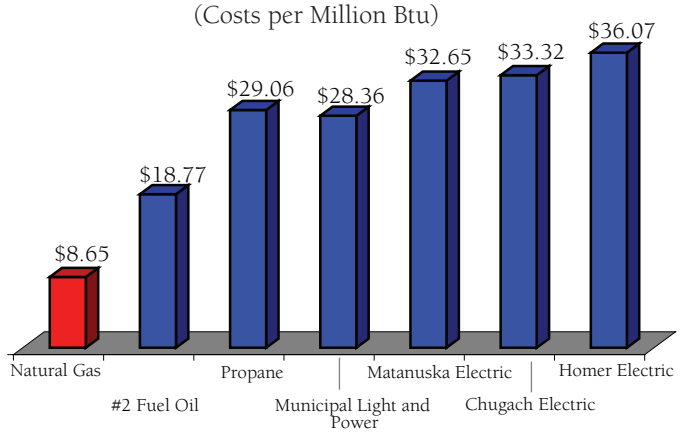


*Contract prices for 2007
**8.65/MMBtu is a comparable cost to the $8.73/Mcf value reported in Figure 5

Source: ENSTAR Natural Gas Company

Figure 7. Comparing Current Costs of Home Heating Sources for Southcentral Alaska

(Costs per Million Btu)



Source: ENSTAR Natural Gas Company

As for the electric utilities using Cook Inlet gas, Municipal Light and Power is not actively seeking new gas contracts now—because it owns part of a Cook Inlet gas field estimated to meet its demand for the next 10 to 15 years. Chugach Electric Association has sufficient gas under contract to meet demand only until 2011.

Where is the Price Headed?

As Figure 8 shows, the Alaska Division of Oil and Gas forecasts that the price of Cook Inlet gas will increase until 2008 and then drop, staying in the range of $6 per thousand cubic feet through 2016. (This forecast takes into account the recent ruling by the RCA.)

Figure 9 shows the division's estimates of the potential range of future demand from residential and commercial consumers, at higher or lower gas prices. The higher the price, the less consumption increases.

What Determines Price?

The price residential customers pay for Cook Inlet gas is actually the average of various prices in several contracts ENSTAR currently has with the producers. The contracts were all negotiated separately, and each has its own terms that can influence price.

In some contracts, for instance, the gas price is linked to oil prices. In two of the most recent contracts, Cook Inlet gas prices are linked to gas prices at what is known as the Henry Hub. That hub is in Louisiana, near where gas supplies from the Gulf of Mexico arrive. It is the pricing point for natural gas futures contracts traded on the New York Mercantile Exchange.

Increasingly, gas contracts in the U.S. are being set in relation to the Henry Hub benchmark price, with transportation and other charges added to that base to determine local prices.

Some analysts believe linking Cook Inlet prices to that hub will stimulate exploration, by raising those prices closer to the U.S. average.

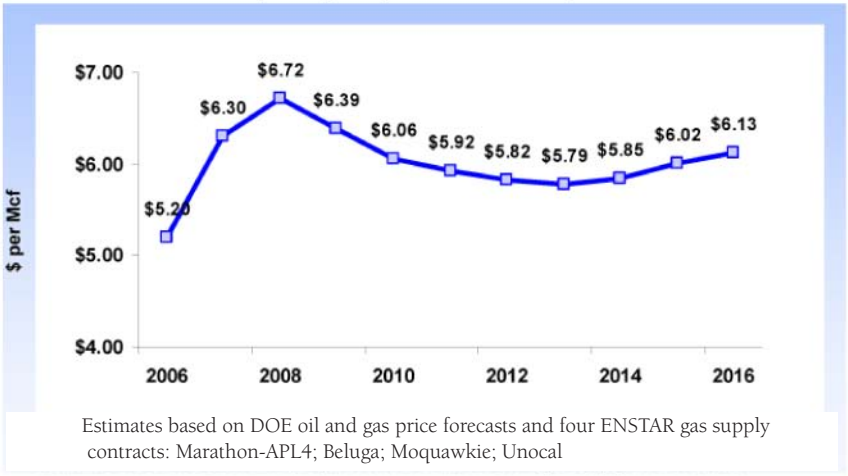
However, application of Henry Hub prices to Cook Inlet gas has been controversial, and the RCA recently rejected a proposed new contract between ENSTAR and Marathon Oil Company, benchmarking a portion of ENSTAR's future purchases of Cook Inlet gas to that hub.

The RCA found that "responsibility for paying gas prices that encourage new gas exploration and production should not rest exclusively with gas ratepayers."

ENSTAR is now in the process of renegotiating that contract with Marathon, which—if successful—would give it enough gas to meet its projected requirements through 2017. Today the utility has enough gas contracted only through 2008.

Figure 8. Projected Price of Natural Gas

(Price per Thousand Cubic Feet)

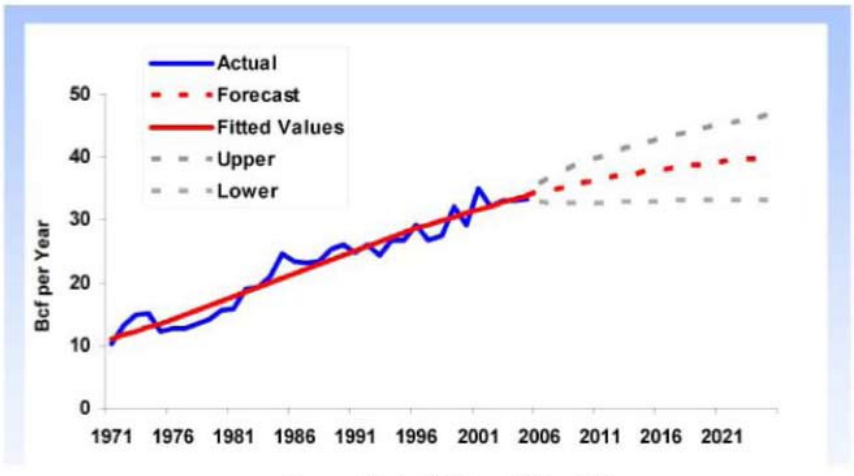


Estimates based on DOE oil and gas price forecasts and four ENSTAR gas supply contracts: Marathon-APL4; Beluga; Moquawkie; Unocal

Source: Alaska Division of Oil and Gas

Figure 9. Projected Residential And Commercial Demand for Cook Inlet Gas

(In Billions of Cubic Feet per Year)



Source: Alaska Division of Oil and Gas

These forecasts are based on the best current information—but it is difficult to predict future costs of natural gas, because all public gas and electric utility contracts are subject to approval by the RCA.

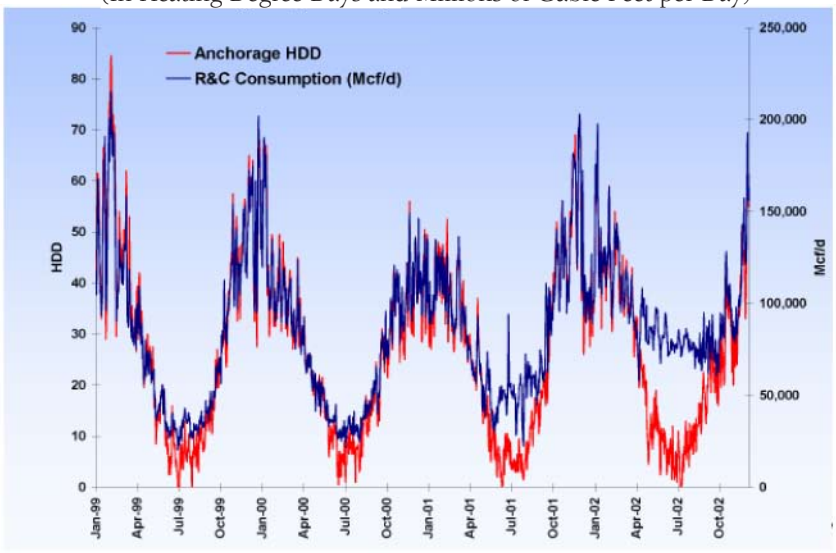
What is the Current Situation?

The Alaska Division of Oil and Gas reports that with gas reserves shrinking, increased residential and commercial consumption in the winter has occasionally outstripped the system's capacity to deliver. Figure 10 shows the sharp winter increases in demand for Cook Inlet gas. Spokesmen for the division say that if no new reserves are added, the number of days when peak demand exceeds the system's capacity will increase as time goes on.

Current industrial users—the Agrium and LNG plants and oil and gas field operations—consume almost two-thirds of the gas produced in Cook Inlet. (See Figure 1). Industry representatives at the forum said that industrial demand for gas is driven by export markets and depends on the availability of cheap gas to use in industrial processes.

Figure 10. Seasonal Residential and Commercial Demand for Cook Inlet Gas, 1999-2002

(In Heating Degree Days and Millions of Cubic Feet per Day)



Source: Alaska Division of Oil and Gas

The fertilizer plant has not run at full capacity since 2001. With the price of gas rising and supplies uncertain, Agrium reported at the forum that it is now making only year-to-year contracts for Cook Inlet natural gas. It is looking for long-term solutions—like coal gasification—to replace Cook Inlet gas.

The other big industrial user is the LNG plant at Nikiski, which currently uses more than a third of the gas produced. However, the plant needs approval from the federal Office of Fossil Energy to export LNG, and its current export license will expire in early 2009. (As of late 2006, no application to renew had been filed.)

To renew the license, the company needs to show that it is in the public interest to extend the contract and that exporting LNG would not jeopardize gas supplies for local consumers. Demonstrating that will become increasingly difficult as the supply of Cook Inlet gas declines.

However, representatives of the producers said at the forum that the loss of these big industrial users would reduce their incentive to explore and, consequently, hurt long-term stability of the supply of Cook Inlet gas

What are Short-Term Solutions?

One short-term way of meeting peak utility demand is temporarily storing gas. Since 2001, producers in Cook Inlet have stored their own gas underground in depleted reservoirs, to help meet utility demand.

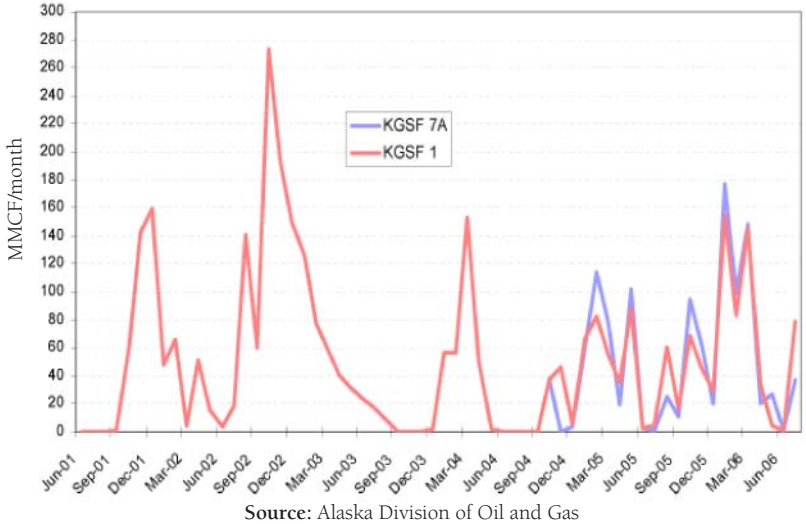
To date the federal Bureau of Land Management has approved three gas storage agreements with Chevron at the Swanson River field; two of those are currently storing and delivering gas. The Alaska Department of Natural Resources and the Alaska Oil and Gas Conservation Commission have approved two gas storage leases for active facilities at Chevron's Pretty Creek field and Marathon's Kenai field.

Figure 11 shows how draw-downs for utility demand from the storage facilities at the Swanson River field vary with the season, spiking in the winter.

Another way of easing short-term supply problems is interruptible contracts (allowing producers to curtail sales when demand is high). Agrium's fertilizer plant uses them to accommodate winter shutdowns. Also, as long as the LNG plant is operating, it can continue its historical role of providing "swing" gas that can be diverted to consumers when needed.

But industry speakers said at the forum that in the long run better solutions are needed—encouraging more exploration in Cook Inlet; bringing gas in from elsewhere (North Slope gas or imported LNG); or examining the feasibility of alternatives to natural gas—ranging from coal to tidal power.

Figure 11. Seasonal Draw-Downs for Utility Demand from Cook Inlet Storage, 2001-2006



Source: Alaska Division of Oil and Gas

Why Isn't There More Exploration?

There is some ongoing exploration in Cook Inlet basin. A number of both established and new companies are looking for oil and gas in the basin, according to petroleum industry presenters at the forum. Chevron, Marathon Oil, Aurora Gas, Forest Oil, and Conoco Phillips are among the Cook Inlet producers exploring for oil or gas.

Chevron reported in late 2006 that it has found about 150 billion cubic feet of gas since 2000, and that Chevron and its partner companies expect to spend $300 to $350 million for exploration and capital projects in Cook Inlet over the next several years.

Newer companies include Benchmark Oil and Gas, which is focusing on Upper Cook Inlet; Pioneer Natural Resources, which has one oil-producing project in Southcentral; and Rutter and Wilbanks, which is operating three projects: the Copper River project (gas), the Northern Lights project (oil), and the onshore Eagle/West Eagle project (oil and gas). Renaissance Resources and Stormcat Energy are also involved in exploration of undeveloped areas.

Many of the smaller companies are staying onshore, according to industry spokesmen, and all companies are affected by the higher costs of exploration in Alaska and the lower price of gas, compared with other areas of the country.

The number of exploratory wells in the past few years falls far short of the numbers in the 1960s, despite rising prices. At the forum, representatives of the gas producers said the price still hasn't offset the high costs of doing business in the inlet. The U.S. Department of Energy estimates the cost of identifying and developing just half the reserves it believes may remain in the inlet (13 to 17 trillion cubic feet) at more than $5 billion, in current dollars.

Figure 12 shows the U.S. Minerals Management Service's estimate of how much the supply of Cook Inlet gas would increase, at different wholesale prices for that gas. MMS estimates that at a price of $4.50 per thousand cubic feet, the additional supply might be 0.64 trillion cubic feet. But at double that price, the additional new supply would also nearly double—because the oil companies would have more incentive to explore.

The Cook Inlet producers also argue that they need more access to prospective fields. The producers estimate that between 30% and 50% of the prime exploration areas have restricted access or are entirely off limits, because they fall within protected areas of federal or state conservation units.

Industry spokesmen and representatives of the Minerals Management Service identified other things hindering large-scale exploration in Cook Inlet. Those include aging platforms, lack of a jack-up rig, regulatory matters—including gas well spacing and bonding requirements—and a general lack of 3-D seismic data of the basin. They say that these problems, as well as company reorganizations and the limited sale area in 1997, continue to hinder exploration.

The next Cook Inlet Special Interest lease sales are scheduled for 2009 and 2011.

Figure 12. Estimated Effects of Price on Additional Cook Inlet Gas Supply

Source: U.S. Department of the Interior, Minerals Management Service

What About Tax Incentives?

In 2006 the Alaska Legislature passed the Petroleum Production Tax (PPT), a major revision in the state's method of taxing oil and gas production. Among other things, the new PPT is intended to encourage more investment in oil and gas exploration.

The PPT operates differently on the North Slope and in Cook Inlet. It caps per-unit tax liability for Cook Inlet producers at the level of the old production tax system, during the year before the PPT was passed in April 2006. This means that even if the price of gas or production rises, Cook Inlet producers—current and future—will never pay more than the average per-unit tax rate in April 2006.

In essence, the PPT will not just limit or lower taxes in Cook Inlet—*it should also encourage new exploration and production*. Because the PPT is so new, it's too early to say what effect it might have on future gas supplies.

What are the Alternatives?

What about finding other energy sources or reducing consumption as a means of dealing with falling gas reserves? At the forum Dunmire Consulting discussed alternatives for increasing gas supplies from outside Cook Inlet, reducing consumption, and replacing gas with other sources.

The Dunmire analysis was funded by the Alaska Natural Gas Development Authority, which is a state corporation approved by Alaska voters in 2002 to promote construction of a natural gas pipeline from the North Slope. ANGDA has so far concentrated on plans for some sort of pipeline—either a spur from a main pipeline or a pipeline directly from the North Slope to Southcentral Alaska—to supply in-state consumers with North Slope gas.

Below we just report the alternatives Dunmire Consulting identified. Their order below doesn't indicate feasibility or the length of time they would take to develop, if they were feasible. Some could help ease potential gas shortages relatively soon, but many would have long lead times and uncertain capital costs.

• **Conservation.** If Alaskans conserved more natural gas and electricity, they could save anywhere from 3.0 to 7.5 billion cubic feet of gas a year, according to estimates of Dunmire Consulting. Conservation measures include things like upgrading residential and commercial appliances and improving weatherization of houses and businesses. Some analysts believe Alaskans won't conserve more unless the prices of residential and commercial heat and electricity increase more than they already have.

• **North Slope Gas.** A major uncertainty affecting the future of Cook Inlet gas development is when North Slope gas might be available to Southcentral consumers. That uncertainty makes it more complicated for Cook Inlet producers to decide how much to invest in exploration and development in Cook Inlet and for utilities and other consumers to decide about investing in gas-using equipment.

The North Slope has very large known reserves of natural gas. The North Slope oil producers have said they support construction of a pipeline to carry natural gas to world markets—although by the end of 2006 they hadn't actually committed to building a pipeline.

But at some future time, Southcentral consumers could get North Slope gas either through a spur line from a main pipeline or through a direct bullet line—that is, a pipeline direct from the North Slope to Southcentral. A pipeline bringing North Slope gas to Southcentral could also be enriched with hydrocarbons, to make certain kinds of industrial development feasible.

• **Coal Gasification**. Agrium is investigating a proposal to substitute synthetic gas from coal for natural gas from Cook Inlet. The proposed Project Blue Sky would take coal from Healy in the Interior south by rail, transfer it to barge, and ship it to a coal gasification plant on the Kenai Peninsula. The synthetic gas would be used to produce fertilizer and could also add electricity to the Southcentral power grid.

Proponents say coal gasification allows for efficient capture of concentrated streams of carbon dioxide (CO_2), virtually eliminating emissions of this greenhouse gas. The captured CO_2 could then be used for advanced oil recovery. It's estimated that 13 Cook Inlet oil fields might produce an additional 300 million barrels, through enhanced oil recovery using CO_2.

• **Other Potential Sources of Gas in Southcentral.** The Bristol Bay area and Alaska Peninsula have been estimated to hold anywhere from 7 to 23 trillion cubic feet of gas and the Nenana Basin 3 to 10. It's beyond the scope of this paper to describe how this gas could be brought to market.

• **Import LNG**. Southcentral Alaska could import LNG via the Kenai LNG plant, if the plant were modified to import rather than export LNG. This option would not have as long a lead time as some other alternatives and it would ensure ample supply—but Alaskans would be exposed to world market prices (which are significantly higher than current local prices). A big consideration in the feasibility of this option would be the capital costs of modifying the LNG plant.

• **Coal-Bed Methane**. Coal-bed methane is a form of natural gas that has been identified in the Susitna Basin north of Anchorage. However, the economic potential of coal-bed natural gas has not been established, and its development in Alaska has been controversial.

• **Coal**. Alaska has abundant sources of coal. An objection to coal is that it has higher CO_2 emissions than other energy sources. But the state government sponsored construction of a clean-coal plant at Healy, to help generate electricity. That plant has yet to be operated, because the utility originally planning to use the coal decided not to—but there are now plans to start it up, possibly within the next 18 months. It could offset some demand for gas to generate electricity. Additional coal supplies could further reduce natural gas use for electricity but at a high capital cost.

• **Wind Power**. With support from Chugach Electric, Municipal Light and Power, and others, the Fire Island Wind project is underway, with preliminary permitting and feasibility to be completed by 2011. This project would involve construction of wind turbines on Fire Island, just offshore from Anchorage. The turbines would be able to supply electricity to the Southcentral power grid and help offset demand for natural gas. However, there is uncertainty about how the wind turbines might affect air traffic at Anchorage's nearby international airport.

• **Hydropower**. Chugach Electric already uses hydropower to a small extent. Proponents say use of this renewable resource has relatively few effects on land and water systems. But further development of hydropower in this region would require a long lead time for licensing and a significant amount of capital for plant development.

• **Nuclear Power**. A small-scale nuclear "demonstration project" is being proposed for the community of Galena along the Yukon River. It would start up in 2012. Power from this facility, if it were built, would not be available for Southcentral. However, if it were successful it could promote more local interest in this abundant but controversial source of energy. Problems with nuclear power include long-term land use, the risk of accidents, and nuclear waste storage.

• **Tidal Power**. A demonstration project of tidal power in Knik Arm is scheduled to be under construction by 2015. Tidal power is a renewable resource—but it might affect aquatic life and boat traffic.

• **Geothermal Power.** A geothermal unit began operating at Chena Hot Springs Resort in the Interior in August 2006. Other potential geothermal sites, including Mt. Spurr in Southcentral, are under consideration. Geothermal power is a renewable resource, but the costs of connecting to the local electrical grid may make many sites uneconomic to develop.

• **Distributed Generation.** Distributed generation is the practice of replacing central gas-fired generation with on-site co-generation, or fuel cells. If those systems were fueled by sources other than gas, they could reduce gas consumption. Distributed generation may eventually become a realistic option in Southcentral, as the costs of the technology continue to fall.

What About Economic Contributions of Cook Inlet Gas?

So far in this summary we've talked about the importance of Cook Inlet gas to residential, commercial, and industrial consumers. The gas also broadly contributes to the state economy, because it is an inexpensive source of energy. ENSTAR estimates, for example, that it makes an annual economic contribution of $230 million to the economy.

People attending the forum pointed out that petroleum operations in Cook Inlet also create jobs for Alaskans and add to local tax bases. The economic effects of Cook Inlet gas are most concentrated in the Kenai Peninsula Borough.

In 2006, the oil and gas industry paid property taxes of over $10 million in that borough. The Cook Inlet producers and Agrium made up nine of the top ten taxpayers, with the highest assessed property valuations in the borough. In 2005, the industry supported 1,340 jobs, or 7.4% of borough employment, and 18.7% of total borough payroll.

Petroleum industry jobs also pay well—the average annual wage for oil and gas workers in 2005 was $88,764, compared with the average of $35,148 among all workers in the Kenai Peninsula Borough.

Statistics on the economic contribution of Cook Inlet gas for the other two boroughs were not provided at the forum. But it is clear that the petroleum industry also provides a significant wage and tax base for both Anchorage and the Mat-Su Borough.

What Did We Learn from the Forum?

In the past few decades, residents of Southcentral Alaska have enjoyed abundant gas supplies at low prices. Unfortunately for consumers, demand is now starting to run ahead of supply. Opinions differ on how much more gas is yet to be found in Cook Inlet and on the best way to stimulate exploration for new supplies.

Whether the two biggest current users of Cook Inlet gas—the LNG and fertilizer plants on the Kenai Peninsula—will keep operating in the face of shrinking supplies and rising prices makes the future market for gas uncertain. However, residential and commercial demand for both heating and gas-generated electricity are expected to keep growing.

Uncertainty also surrounds the future sources of gas supply (including gas from the North Slope) and the feasibility of developing alternative fuels that may be able to help offset some of the demand for natural gas. Many of the proposed alternatives come with long lead times and unpredictable costs.

But one thing is clear. Southcentral Alaska needs to find additional supplies of gas, or ways to offset demand. Otherwise, the region may soon see large-scale shortages.

A list of forum participants and transcripts of presentations are on AOGCC's Web site: www.aogcc.alaska.gov

Comments on this summary or the forum can be mailed or sent by e-mail to:

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Alaska Natural Gas Development Authority: www.angda.state.ak.us
Alaska Oil and Gas Association: www.aoga.org
Alaska Oil and Gas Conservation Commission: www.aogcc.alaska.gov
Anchorage Chamber of Commerce: www.anchoragechamber.org
Anchorage, Municipality of: www.ci.anchorage.ak.us/homepage/index.cfm
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Chugach Electric Association: www.chugachelectric.com
Conoco Phillips: www.conocophillips.com/index.htm
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Kenai Peninsula Borough: www.borough.kenai.ak.us
Matanuska-Susitna Borough: www.matsugov.us
Municipal Light and Power: www.mlandp.com
National Energy Technology Laboratory:
www.netl.doe.gov/technologies/oil-gas/index.html
Pioneer Natural Resources: www.pioneernrc.com
Regulatory Commission of Alaska: www.state.ak.us/rca
Science Applications International Corporation: www.saic.com
Stormcat Energy: www.stormcatenergy.com
U.S. Department of the Interior, Minerals Management Service:
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Usibelli Coal Mine: www.usibelli.com/index.html
Information on Coal to Liquids and Fischer-Tropsch refining processes:
www.aidea.org
Cook Inlet Energy Supply Alternatives Study available at:
www.angda.state.ak.us
Kenai Peninsula Borough information on Cook Inlet oil and gas:
www.cookinletoilandgas.org

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