



## Inside: Petroleum News Bakken



Vol. 1, No. 2 • www.PetroleumNewsBakken.com A semi-monthly newspaper for industry and government Week of May 6, 2012

### Reger, NOG's profitable tactics



Northern Oil and Gas President Ryan Gilbraton (bottom) and CEO Michael Reger (top) led to a profit in 2009, their second year in business; in 2011 Northern's profits exceeded \$40 million. See story on page 14.

### Gas-to-oil conversion underlies Sunoco takeover by pipeline

Pipeline operator Energy Transfer Partners' bid to takeover refiner Sunoco for \$5.3 billion signals the latest move to seize a chunk of the more lucrative action in liquid shale formations in the United States rather than wait out the depressed market for dry gas.

### Bakken oil price up on Tesoro's increase in rail loads to WA

Bakken oil prices strengthened to a premium against West Texas Intermediate crude May 3, following Tesoro Corp.'s announcement it was ahead of schedule on the construction of rail facilities for its Anacortes, Wash. refinery. Crude shipments from its North Dakota crude oil gathering system to the refinery would begin in September, instead of the end of the year, Tesoro officials said, and the amount of crude shipped might eventually be 40,000 barrels a day as opposed to 40,000 bpd under the current plan.

### Exxon wins round for market based tariff: Seaway implications?

The Federal Energy Regulatory Commission has been ordered by the U.S. Court of Appeals to reconsider its refusal to allow ExxonMobil to charge a market-based tariff on its Pegasus pipeline from Illinois to the Texas Gulf Coast.

## No additional rigs

Continental hikes capex from \$1.75B to \$2.3B to fund drilling of new acreage

By KAT CASHMAN  
Petroleum News Bakken

Initial one-day test production rates for Continental-operated wells in North Dakota averaged approximately 947 boe per day.

Accelerated drilling because of faster cycle times, the company said.

So, instead of participating in drilling and completing 759 gross wells (249 net) and operating 325 gross wells (240 net) in 2012, the acquisition of 46,000 net acres in targeted areas of North Dakota's Bakken since mid-2011 resulted in a 2012 capital budget that called for completing 842 gross (300 net) wells this year, with Continental-averaged recently acquired acreage and to fund

## Conoco production up 50%

Plans \$500M, 16-rig, 120-well drilling program in North Dakota this year

By ERIC LIDD  
Petroleum News Bakken

ConocoPhillips produced 24,000 barrels of oil equivalent per day from the Bakken play in the first quarter of the year, company executives said in an earnings call on April 23.

That's up 50 percent from 16,000 barrels of oil equivalent per day in the fourth quarter.

ConocoPhillips — now an exclusively upstream outfit — lists the Bakken among its "near-term growth opportunities on high-margin projects" in North America, alongside the Eagle Ford shale and Permian basin of Texas, and the

## TC extends turf battle

Looks at converting gas line to take Bakken oil to refineries paying top prices

By GARY PARK  
Petroleum News Bakken

TransCanada has opened a new front in its turf war with Canadian rival Enbridge: which is moving ahead with its plans for the Flanagan South and Seaway pipeline projects to compete with TransCanada's US\$2.3 billion Gulf Coast connection from Cushing, Okla., to the Texas refineries.

Chief Executive Officer Russ Girling told analysts, shareholders and reporters on April 27 that his company will submit revised plans "very shortly" to United States regulators for its stalled Keystone XL system linking the Alberta oil sands and Bakken play to Texas Gulf Coast refineries and is "actively" exploring

## NATURAL GAS

# Room for only one

TransCanada boss says not sufficient gas for Alaska LNG and L48 line

By GARY PARK  
For Petroleum News



RUSS GIRLING

TransCanada Chief Executive Officer Russ Girling doubts there is enough natural gas available from northern Alaska to support both an LNG export scheme and an overland pipeline to the Lower 48.

Given that a Lower 48 system requires 4 billion cubic feet per day to make the project economic, "there isn't sufficient gas to go in two different directions," he told analysts April 27.

Girling said the next step in the development of Alaska gas is to complete a feasibility study.

"At the same time the state and producers need to negotiate a fiscal framework that will make it

economic for producers to move forward," he said.

While he expects the original state funding under the Alaska Gasline Inducement Act to remain in place, he said the first round of the LNG export alternative requires more market feasibility work than technical work.

"So we expect, from a total perspective ... TransCanada's portion of the costs and the state's portion of the costs would be less," he said.

### Some work useful for LNG

Girling also said some of the work already done

see **ONE LINE** page 18

## PIPELINES & DOWNSTREAM

# Alaska oil boomerangs

Due to refinery crunch, tankers return to Valdez with some crude still aboard

By WESLEY LOY

For Petroleum News

Normally Alaska North Slope crude oil flows one way — south, toward refineries on the West Coast.

In recent weeks, however, something odd has happened. Tankers have returned to the terminal at Valdez still partially laden with Alaska oil. Usually, the tankers come back empty.

So what's behind this curious trend? It appears to be a mix of oil inventory management decisions, cost considerations and reduced capacity at some West Coast refineries.

"It's an unusual situation," Steve Rinehart, spokesman for BP Alaska, told Petroleum News.

At the Valdez Marine Terminal, the crude working inventory since March has ranged from 41 percent to 90 percent of storage capacity, said Michelle Egan, spokeswoman for Alyeska Pipeline Service Co., which runs the terminal.

### Five back-haul events

A number of tankers carrying oil for BP, which operates Prudhoe Bay and other North Slope fields, have returned to the Valdez Marine Terminal with some oil still aboard.

see **REFINERY CRUNCH** page 18

## EXPLORATION & PRODUCTION

# Shell fleet on the move

Company executive confirms assets for Arctic Alaska drilling are being mobilized

By ALAN BAILEY

Petroleum News

Shell's two drilling vessels and 35 support vessels earmarked for drilling in the Beaufort and Chukchi seas this year are either in Alaska or are on their way to the state, Shell Chief Financial Officer Simon Henry told financial analysts on April 27 during a question and answer session following the company's presentation on its first quarter 2012 results.

"It's a huge logistical exercise," Henry said. Henry declined to say what size of oil and gas resource the company hopes to find in the Alaska offshore, but he commented that the scale of the company's Alaska operations provides some indi-

Assuming that Shell can produce its own natural gas at relatively low cost, with no requirement to purchase gas from external sources, gas-to-liquids is a play on long-term oil prices, becoming increasingly viable at higher oil price levels.

cation of Shell's confidence in the scale of what it might discover.

"We have actually invested around \$4 billion to date in Alaska, so you can be fairly sure that we're looking for something big enough to justify that level of investment and the persistence that we've

see **SHELL FLEET** page 19

The second issue of Petroleum News Bakken is enclosed.

## Senate bails, followed by House; oil tax, in-state line left hanging

There were a variety of reactions in Juneau following Gov. Sean Parnell's April 25 withdrawal of oil taxes from the call for the special session of the Alaska Legislature which began April 18.

The adjournment of the Alaska Senate April 26 generated debate as well.

The Senate Bipartisan Working Group — 10 Democrats and six Republicans — challenged Parnell's right to withdraw an item from the special session call and said the administration had not adequately defended the governor's oil tax proposal.

On April 26 the Senate voted 14-2 to adjourn sine die, after voting 14-2 to adopt a "sense of the Senate" that by withdrawing one of the items on the special session call, the governor had, in

see **SPECIAL SESSION** page 20

## Furie prepares to drill, jack-up back on location in Cook Inlet

Sporting a new paint job, the Spartan 151 jack-up rig is back on location in Cook Inlet for the re-entry of an oil and gas well it began drilling last year in Furie Operating Alaska LLC's Kitchen Lights unit, after being dry-docked for the winter at Port Graham on the Kenai Peninsula.

Prior to suspending drilling operations on Oct. 28, the KLU 1 well reached a depth of 8,805 feet, and Furie

Prior to suspending drilling operations on Oct. 28, the KLU 1 well reached a depth of 8,805 feet, and Furie announced a gas discovery.

see **FURIE JACK-UP** page 18

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Petroleum News

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Pioneer using a variety of drilling techniques to deal with geologic issues in its successful Beaufort Sea oil field

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Alaska North Slope averages 587,162 bpd, with largest month-over-month percentage drop at Kuparuk, largest volume drop at Prudhoe

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No spill reported from double-hull ship, which carries Alaska North Slope crude for BP; precise cause of breach remains unclear

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# Alaska - Mackenzie Rig Report

Rig Owner/Rig Type      Rig No.      Rig Location/Activity      Operator or Status

## Alaska Rig Status

### North Slope - Onshore

<b>Doyon Drilling</b>			
Dreco 1250 UE	14 (SCR/TD)	Prudhoe Bay Z-06	BP
Dreco 1000 UE	16 (SCR/TD)	Prudhoe Bay MPL-06	BP
Dreco D2000 UEED	19 (SCR/TD)	Alpine CD4-213	ConocoPhillips
AC Mobile	25	Prudhoe Bay V-229i	BP
OIME 2000	141 (SCR/TD)	Kuparuk 2K-14	ConocoPhillips
TSM 7000	Arctic Fox #1	Demobilizing, moving to Beluga	ConocoPhillips

<b>Kuukpik</b>	5	Stacked in Barrow awaiting Barges	North Slope Borough
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<b>Nabors Alaska Drilling</b>			
Trans-ocean rig	CDR-1 (CT)	Stacked, Prudhoe Bay	Available
AC Coil Hybrid	CDR-2	Kuparuk 1E-05	ConocoPhillips
Dreco 1000 UE	2-ES	Prudhoe Bay Stacked out	Available
Mid-Continental U36A	3-S	Prudhoe Bay Stacked out	Available
Oilwell 700 E	4-ES (SCR)	Prudhoe Bay X-22A	BP
Emsco Electro-hoist	7-E (SCR-TD)	Prudhoe Bay DS12-27A	BP
Dreco 1000 UE	7-ES (SCR/TD)	Stacked out	Available
Dreco 1000 UE	9-ES (SCR/TD)	Stacked out	Available
Oilwell 2000 Hercules	14-E (SCR)	Prudhoe Bay Stacked out	Available
Oilwell 2000 Hercules	16-E (SCR/TD)	Prudhoe Bay Stacked out	Available
Oilwell 2000	17-E (SCR/TD)	Prudhoe Bay Stacked out	Available
Emsco Electro-hoist -2	18-E (SCR)	Stacked, Deadhorse	Available
Emsco Electro-hoist Varco TDS3	22-E (SCR/TD)	Stacked, Milne Point	Available
Emsco Electro-hoist	28-E (SCR)	Stacked, Deadhorse	Available
Emsco Electro-hoist Canrig 1050E	27-E (SCR-TD)	Stacked	Available
Academy AC electric Heli-Rig	105AC	Presently in Deadhorse	Great Bear Petroleum
Academy AC electric Heli-Rig	106-E (SCR/TD)	Stacked at Deadhorse	Available

\*Nabors 27-E will be under contract at Oooguruk/Nuna for Pioneer this winter

<b>Nordic Calista Services</b>			
Superior 700 UE	1 (SCR/CTD)	Prudhoe Bay Drill Site C-02A	BP
Superior 700 UE	2 (SCR/CTD)	Prudhoe Bay Well Drill Site 15-09A	BP
Ideco 900	3 (SCR/TD)	Kuparuk Well 1D-129	ConocoPhillips

<b>Parker Drilling Arctic Operating Inc.</b>			
NOV ADS-105D	272	Prudhoe Bay final construction and commission	BP
NOV ADS-105D	273	Prudhoe Bay final construction and commissioning	BP

### North Slope - Offshore

<b>BP (rig built &amp; being assembled by Parker)</b>			
Top drive, supersized	Liberty rig	Endicott SDI for Liberty oil field	BP

<b>Nabors Alaska Drilling</b>			
OIME 1000	19-E (SCR)	Oooguruk ODSN-25	Pioneer Natural Resources
OIME 2000	245-E	Oliktok Point OP16-03	ENI
Oilwell 2000	33-E	Prudhoe Bay Stacked out	Available

<b>Doyon Drilling</b>			
Sky Top Brewster NE-12	15 (SCR/TD)	Spy Island S120-N4	ENI

### Cook Inlet Basin – Onshore

<b>Aurora Well Service</b>			
Franks 300 Srs. Explorer III	AWS 1	At Swanson River assorted workovers	Hilcorp

<b>Cook Inlet Energy</b>			
Atlas Copco RD20 34		Undergoing winterization at W. McArthur River Unit	Cook Inlet Energy

<b>Marathon Oil Co. (Inlet Drilling Alaska labor contractor)</b>			
Taylor	Glacier 1	Stacked Marathon Yard	Available

<b>Nabors Alaska Drilling</b>			
Continental Emsco E3000	273	Stacked, Kenai	Available
Franks	26	Stacked	Available
IDECO 2100 E	429E (SCR)	Stacked	Available
Academy AC electric Canrig	105-E (SCR-TD)	Heading to the North Slope	CINGSAs
Rigmaster 850	129	Kenai Stacked out	Available

### Cook Inlet Basin – Offshore

<b>Chevron (Nabors Alaska Drilling labor contract)</b>			
	428	M-11 Steelhead Platform	Chevron

<b>XTO Energy</b>			
National 1320	A	Coil tubing cleanout planned off Platform A in the near future	XTO
National 110	C (TD)	Idle	XTO

<b>Spartan Drilling</b>			
Baker Marine ILC-Skidoff, jack-up		Spartan 151 Upper Cook Inlet KLU#1	Escopeta

## Mackenzie Rig Status

### Canadian Beaufort Sea

<b>SDC Drilling Inc.</b>			
SSDC CANMAR Island Rig #2	SDC	Set down at Roland Bay	Available

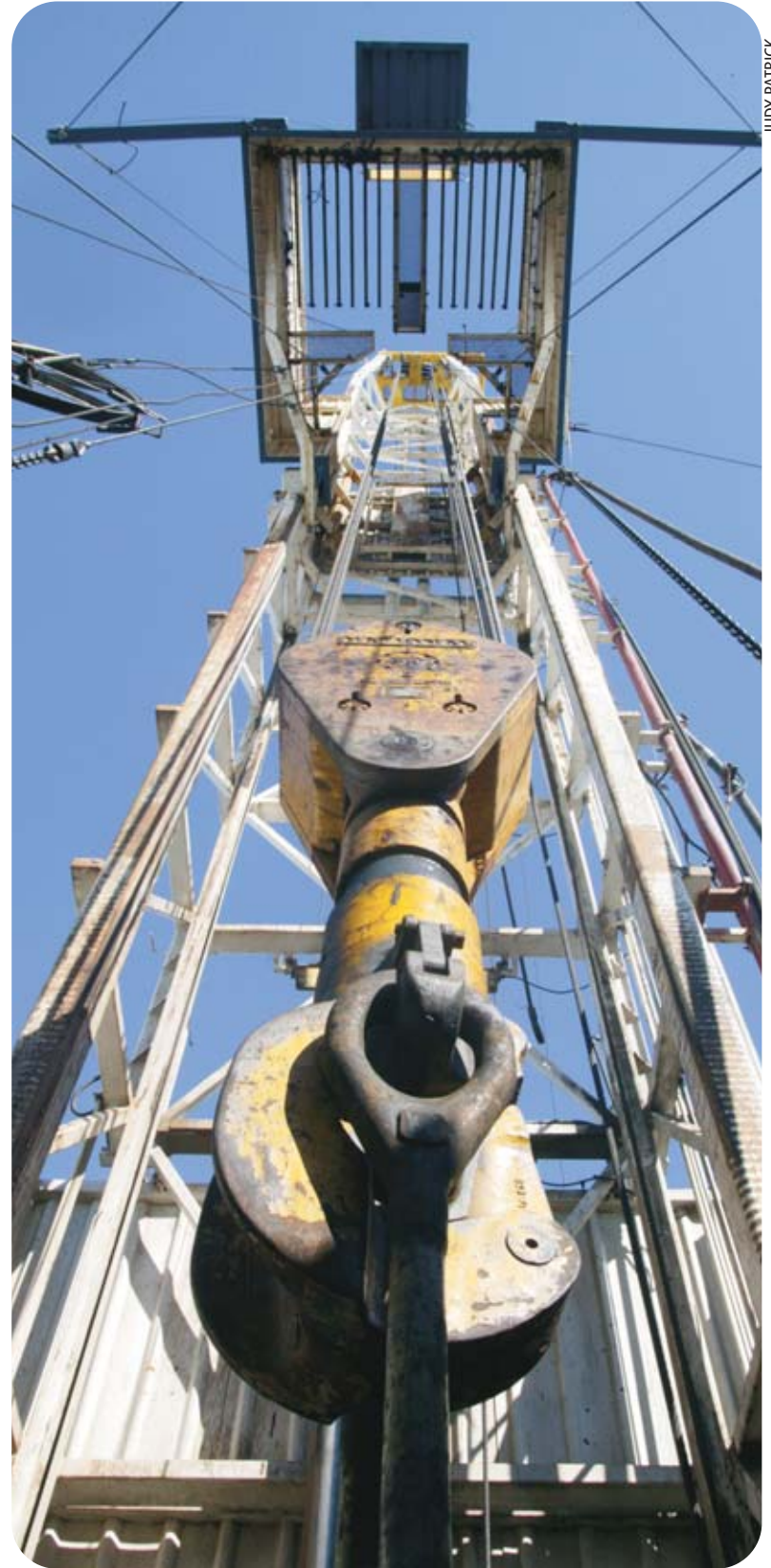
### Central Mackenzie Valley

<b>Akita/SAHTU</b>			
Oilwell 500	51	Has left the NWT	Available

The Alaska - Mackenzie Rig Report as of May 3, 2012.  
Active drilling companies only listed.

TD = rigs equipped with top drive units WO = workover operations  
CT = coiled tubing operation SCR = electric rig

This rig report was prepared by Marti Reeve



JUDY PATRICK

### Baker Hughes North America rotary rig counts\*

	April 27	April 20	Year Ago
US	1,945	1,972	1,818
Canada	134	146	133
Gulf	45	45	28

### Highest/Lowest

US/Highest	4530	December 1981
US/Lowest	488	April 1999
Canada/Highest	558	January 2000
Canada/Lowest	29	April 1992

\*Issued by Baker Hughes since 1944

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## ● LAND &amp; LEASING

# Critics pan Point Thomson settlement

They say deal seeking to compel development of rich Alaska North Slope field is seriously lacking; state officials argue otherwise

By WESLEY LOY

For Petroleum News

Alaska's settlement of the Point Thomson dispute, which Gov. Sean Parnell announced on March 30, has begun to draw some flak.

Among the critics are Bill Walker, an Anchorage attorney and a 2010 candidate for Parnell's job.

Walker, represented by another attorney in his law firm, appeared April 27 at a Senate Judiciary Committee hearing on the settlement. Anchorage Democratic Sen. Hollis French, also a former Parnell challenger, chairs the committee.

The hearing featured invited witness Mark Myers, who gave the settlement a thoroughly negative review. It was Myers who, as state oil and gas director in 2005, launched a get-tough policy against ExxonMobil, operator of the Point Thomson oil and gas field.

Myers said the state made a poor deal to settle the legal conflict over Point

*The hearing featured invited witness Mark Myers, who gave the settlement a thoroughly negative review. It was Myers who, as state oil and gas director in 2005, launched a get-tough policy against ExxonMobil, operator of the Point Thomson oil and gas field.*

Thomson and bring the field into production.

At the conclusion of his testimony, French asked him whether he would have signed the settlement had he been the state's natural resources commissioner.

"If I had been commissioner, I would not have signed this deal," Myers said.

## Good deal for ExxonMobil

Myers, a geologist with extensive knowledge of Point Thomson, gave an interesting overview of the field's com-

plexity. Despite its technical challenges, the field is a "crown jewel" that could hold 1 billion barrels of technically recoverable oil and condensate and 7 trillion cubic feet of gas, he said.

State officials have long pined for ExxonMobil to begin producing from the field, which is on state leases, and they have accused the company and its partners of "warehousing" Point Thomson while pursuing opportunities elsewhere in the world.

Myers, in 2005, held the Point Thomson unit in default for lack of development. That ultimately escalated into a huge legal fight between the state and the companies, who went to court to defend the unit.

The March 30 settlement cut off the litigation and laid out a new schedule for developing the field.

But the deal does not guarantee any production from Point Thomson.

Myers raised numerous concerns about the lengthy and densely written settlement, saying it appears to offer plenty of ways for ExxonMobil and its partners to avoid development and still hang onto most or all of the unit acreage.

"I've spent months across the table negotiating with Exxon, and they are world-class," Myers said. "I bear them no malice for a wonderful job of negotiating here. The fact is they negotiated a very, very strong agreement, and they're very good at it and very knowledgeable."

Among his concerns: The state Department of Natural Resources relinquishes its normal unit management authority for several years under the settlement, and the development options in the deal "are at the sole discretion" of the field's working interest owners.

Myers, went on to become director of the U.S. Geological Survey after he ended his role as state oil and gas director in late 2005, also said he fears the deal might give ExxonMobil the option to develop Point Thomson mainly as a gas field, leaving petroleum liquids stranded underground. This would be very costly to the state, Myers said.

## Officials defend settlement

State Natural Resources Commissioner Dan Sullivan, who led the state's negotiations on the Point Thomson settlement, did not appear at the hearing.

In a letter to French, he explained he

was in Washington, D.C., in part to impress upon federal officials the need for timely permitting for the first phase of Point Thomson development.

That development is a gas cycling project to collect gas condensate for shipment down the trans-Alaska oil pipeline. ExxonMobil already has drilled two wells for the project, which needs a wetlands permit from the U.S. Army Corps of Engineers to move forward.

Sullivan, in his letter, said the Point Thomson deal is like all settlements, entailing compromise and risk.

"It is important to note that in this case, there was significant risk to the state in staying the course on litigation that literally had no end in sight," he wrote.

Other state officials, including Attorney General Michael Geraghty, defended the settlement at the hearing.

"In my opinion, the Point Thomson litigation was a major impediment to the commercialization of Alaska's natural gas," Geraghty said.

Point Thomson is believed to hold about a quarter of the 35 tcf of known natural gas on the North Slope.

Like several governors before him, Parnell is trying to bring about construction of a multibillion-dollar pipeline project to market the stranded gas.

## Reconsideration rejected

Walker, in a 16-page letter dated April 17, asked Sullivan to reconsider the Point Thomson settlement.

He argued the settlement was illegal and not in the state's best interest — a huge deal done with "no public process."

The letter further said the Point Thomson leaseholders could maintain most if not all of the unit acreage "with little or no additional work commitments."

Parnell administration officials, however, have insisted the deal has real teeth, that the companies are "on the clock" to keep development promises or progressively lose acreage.

On April 26, Geraghty responded to Walker's appeal to Sullivan.

"Settlements entered into by the State of Alaska are not subject to administrative challenge, by reconsideration or otherwise," Geraghty wrote. ●

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● ENVIRONMENT & SAFETY

# Carbon capture plan canceled

Push to showcase Alberta's bid to curb greenhouse gas emissions through carbon capture and storage delayed by lack of buyers

By GARY PARK

For Petroleum News

The Alberta government's grand dream of cleaning up its global image by capturing greenhouse gas emissions for enhanced oil recovery and selling its technology internationally has been dealt a major blow.

Calgary-based utility company TransAlta, along with partners Enbridge and Capital Power Corp., have dumped their planned carbon capture and storage CCS project, saying they were unable to secure enough buyers for the carbon dioxide to justify proceeding with the C\$1.4 billion venture.

As a result, TransAlta has decided it is better off paying Alberta's penalties of C\$15 per metric ton for excess emissions from its Keephills 3 coal-fired plant near Edmonton rather than curbing them.

Project Pioneer was to have received C\$779 million in Alberta and Canadian government funding over 15 years and become the showcase of Alberta's offer of C\$2 billion in funding for its attempt to overcome widespread doubts that CCS could be profitable.

## Alberta still committed to targets

Alberta Environment and Water Minister Diana McQueen said her government will try to figure out why Pioneer failed, including the role carbon pricing had in the decision to shelve a venture that has cost C\$30 million so far, with two-thirds coming from the governments.

She said Alberta remains determined to meet its carbon emissions targets, insisting Project Pioneer was only one of four efforts to make the economics work.

Project Pioneer was designed to capture and store 1 million metric tons a year of CO2 from Keephills 3 to rebuild reservoir pressures in enhanced oil recovery schemes in central Alberta.

But TransAlta said in a statement that it had been unable to secure firm buyers for the CO2, while Canadian and Alberta governments had made no moves towards a cap-and-trade system that would allow the partnership to sell emission-reduction credits.

TransAlta said the partners "determined that although the technology works and capital costs are in line with expectations, the revenue from carbon sales and the price of emissions reductions are insufficient to allow the project to proceed at this time."

## Regulatory uncertainty

Don Wharton, TransAlta's vice president, policy and sustainability, said there was too much uncertainty over regulatory frameworks that have yet to be developed, although his company believes there is still a future for CCS.

He said about C\$30 million had been spent on initial engineering and design, two-thirds of that from governments.

Enhance Energy, which had Alberta financial support to build a CO2 pipeline from Project Pioneer, reported agreement with only one oil producer, Fairborne Energy, to buy CO2 for a small oil field.

Bruce Peachey, an Edmonton-based consulting engineer and EOR advocate, told a Calgary conference that the estimated rate of return is not economic for CCS projects.

"It has to be more economic than anything else that shareholders' money can be invested in," he said.

## Higher penalties required

Industry observers have estimated that penalties of US\$30-US\$80 per metric ton would have to be imposed on CO2 emitters to make CCS economical.

Peachey said CO2 EOR reserve estimates "must be based on economic reality, not wishful thinking" and not the Alberta government's primary goal of CO2 disposal.

He also said the CO2 supply outlook in Alberta is dramatically lower than was expected two years ago.

EOR operators want high-purity CO2, while emissions from coal-fired power plants contain more nitrogen than CO2, making the cost of separating out the CO2 prohibitively expensive.

The only large-scale CO2 EOR venture in Canada is a Cenovus Energy project at Weyburn, Saskatchewan, which has been operating for 11 years.

Chris Severson-Baker, a spokesman for Alberta-based Pembina Institute, said the cancellation is a "big setback," reflecting the Canadian government's failure to implement a climate change policy that would serve as an incentive for Project Pioneer.

Canada's Natural Resources Minister Joe Oliver was "disappointed" with the partners' decision.

"Our government continues to invest in a number of (CCS) projects that are advancing across Canada and we will continue research and development with governments, industry and academia."

However, Alberta Premier Alison Redford, who inherited the CCS committed from her predecessor Ed Stelmach, indicated a loss of hope last November when she suggested Project Pioneer might not go ahead and C\$400 million in Alberta taxpayers' money might be better used on other "initiatives and opportunities."

Danielle Smith, leader of the Wildrose party in the Alberta election, had pledged to stop all Alberta financing for the experiment. She is now positioned to wage that fight from the opposition seats in the Alberta legislature. ●

Contact Gary Park through publisher@petroleumnews.com

## Canadian biofuels plant scrapped

Royal Dutch Shell and Ottawa-based technology company Iogen have delivered a blow to Canada's hopes of advancing renewable fuels by scuttling plans for a biofuels plant in Manitoba and laying off 150 people in the process.

The partners said that while pulling back from their larger-scale venture they will continue with a smaller-scale research project to develop cellulosic ethanol from agricultural waste.

Iogen said Shell will "explore multiple pathways to find a commercial solution for the production of advanced biofuels on an industrial scale."

Iogen has been unable to solve engineering problems that stand in the way of a commercially viable plant.

But it was singled for mention in Canadian Finance Minister Jim Flaherty's 2007 budget, when the government allocated C\$500 million to Sustainable Development Technology Canada to develop next-generation biofuels from agricultural, forestry and municipal waste, rather than corn and wheat to make ethanol and biodiesel.

Shell first invested in Iogen 10 years ago and the partnership has operated a demonstration plant since 2004.

Iogen will still employ 110 people at its Ottawa headquarters to work on expanding new technology for production of biofuels made from cellulose.

The Canadian and provincial governments spend about C\$250 million a year to subsidize production of biofuels by major petroleum companies such as Suncor Energy and Husky Energy, estimates think-tank George Morris Center.

Scott Thurlow, president of the Canadian Renewable Fuels Association, said the Shell-Iogen decision does not threaten the future of biofuels production.

"Just like any other fuel, it takes time to build up the necessary capital," he said.

—GARY PARK

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• ALTERNATIVE ENERGY

# ORPC progresses demo in-current power

Plans tidal and river systems in Cook Inlet and at Igiugig but seeks funding support to test technology in Alaska conditions

By ALAN BAILEY  
Petroleum News

With some of the world's strongest tidal currents and a wealth of fast-flowing rivers Alaska would seem an obvious venue for power generation using the new in-current, water-driven turbine technologies that are starting to emerge from the realms of research into the world of commercial operation.

Ocean Renewable Power Co., or ORPC, a company formed in 2004 to seek opportunities for harnessing tidal energy for electricity generation, established an Anchorage office in 2006 with a specific interest in the tidal resources of Alaska's Cook Inlet, Douglas Johnson, director of business development for ORPC in Alaska, told the Regulatory Commission of Alaska April 11. The company has since also pursued possibilities for using in-current turbines in Alaska rivers in rural Alaska to offset the high cost of diesel fuel for power generation, said Monty Worthington, ORPC's director of project development.

ORPC is in the process of implementing demonstration in-current generation

*The eventual deployment of systems at multiple sites along the inlet would present the possibility of a relatively constant power supply.*

systems using Cook Inlet tidal currents at East Foreland on the west side of the Kenai Peninsula, and in the Kvichak River, by the village of Igiugig, at the southwestern end of Lake Iliamna.

## System in Maine

The company has been running a test tidal current system in the waters of the Bay of Fundy, between Maine and Nova Scotia, and plans to upgrade that system this summer to become the first grid connected, commercial, tidal in-current project in the United States, Johnson said.

The ice-free waters off Maine provide a relatively benign environment for a first implementation of the technology, with the waters of Cook Inlet presenting the challenges of a high silt content in combination with fierce tidal currents, Johnson explained.

However, ORPC is progressing its

Alaska plans while using its Maine project as an avenue to learn more about the in-current technology.

## Cook Inlet options

In Cook Inlet the company had originally envisaged a pilot project at Cairn Point, at the entrance to Knik Arm at the extreme northeastern end of inlet. However, having been advised that this location presented problems associated with potential disturbance to Cook Inlet beluga whales, the company moved its attention to a site off Fire Island, offshore Anchorage, Worthington said.

For connection to the local power grid the Fire Island site required the use of an electrical intertie that Cook Inlet Region Inc. planned to construct to serve the wind farm now being built on the island. But, with the future of the Fire Island wind farm project subject to uncertainty at the time when ORPC was planning its tidal power project, ORPC opted instead for East Foreland as a project site.

ORPC sees the possibility of multiple tidal power systems at various sites along Cook Inlet and has retained its Federal Energy Regulatory Commission license for the Fire Island site, Worthington said.

The eventual deployment of systems at multiple sites along the inlet would present the possibility of a relatively constant power supply. That is because the phase of the tidal current — the timing with which the tide ebbs and flows — shifts as water moves along the length of the inlet, with the tidal peaks and troughs at Cairn Point, for example, being about 180 degrees out of phase with the peaks and troughs off the southern end of the Kenai Peninsula, Worthington explained.

"So you'd have a renewable energy source that also has some baseload capacity," he said.

## East Foreland

With access to suitable tidal currents and the possibility of connecting to the Kenai Peninsula electrical infrastructure without the need for a transmission line, East Foreland presents many advantages as an initial tidal power site, Worthington

said.

Work in earnest on the East Foreland project began last year. The University of Alaska Anchorage performed some water current velocity modeling to pin down specific locations for an initial turbine installation and ORPC subsequently placed acoustic current profilers on the seafloor, recording current velocities at different levels of the water column over a complete month.

"That allows us to extrapolate the energy potential of the site over the course of a year," Worthington said.

ORPC also identified potential interconnect points on the power grid, in readiness for an eventual decision on precisely which location at East Foreland to use for the project. And, using Department of Energy funding, the University of Alaska Anchorage has built a flume for testing the impact of flowing, sediment-laden Cook Inlet water on the key moving parts of ORPC's underwater turbine equipment.

## HEA agreement

In January power utility Homer Electric Association signed a joint development with ORPC for agreement for the East Foreland project, Worthington said.

The first phase of the project will consist of a four-device demonstration with a 600-kilowatt rated capacity, to flesh out the cost, performance and environmental compatibility of the tidal power technology in Cook Inlet. The plan is to expand that initial implementation into a pilot project that will eventually be built out to a five-megawatt power plant, Worthington said.

ORPC plans to install the initial 600-kilowatt system in 2014, by which time the company will have seen some run time from its system in Maine. The full five-megawatt system in Cook Inlet might be operational in 2016.

## River power

ORPC has also been pursuing its Alaska in-river power generation concept.

The company originally hoped to carry out a pilot project in the Tanana River by the village of Nenana in Alaska's Interior. However, having discovered significant issues with silt and river debris that could damage the generator turbines at this site, the company has opted instead to pursue a pilot project at the Igiugig site, where water in the Kvichak River is relatively clear, thus providing a better initial river site for a test.

"As we've learned more about the Tanana River ... we've realized it has a few too many challenges as a first step into a river," Worthington said, adding that ORPC is nevertheless working with the University of Alaska's Alaska Center for Energy Power to find a debris mitigation approach for the Tanana, with a view to eventually installing a system at Nenana.

Meantime, ORPC has tested the installation of its river generation system in water at Nikiski on the Kenai Peninsula and the company hopes to install a river system in 2013 for initial testing.

## Funding needed

ORPC anticipates its Cook Inlet project costing about \$13 million, with about

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see TIDAL POWER page 7

● EXPLORATION & PRODUCTION

# NMFS issues IHAs for Shell OCS drilling

Shell crosses another hurdle towards its Alaska drilling program; Greenpeace tries to prevent departure of icebreaker from Finland

By **ALAN BAILEY**  
Petroleum News

NOAA's National Marine Fisheries Service has issued incidental harassment authorizations, or IHAs, for the drilling program that Shell plans to carry out in Alaska's Chukchi and Beaufort seas this year. The authorizations allow the minor disturbance of small numbers of whales and seals by Shell's operations while also stipulating mitigation measures that Shell must take to reduce or eliminate impacts on these marine mammals and on subsistence hunting by Alaska natives.

"We're issuing these authorizations to Shell after conducting extensive scientific review and considering public comments," said Sam Rauch, acting assistant administrator of NOAA's Fisheries Service. "Shell will be required to put in place a number of mitigation measures that reduce or eliminate direct impacts to these animals and any negative effects on the ability of Alaskan Natives to conduct subsistence hunts for marine mammals."

Shell will also require similar authorizations from the U.S. Fish and Wildlife Service for the accidental disturbance of polar bears and walrus. And, although the Bureau of Ocean Energy Management has approved Shell's Alaska exploration plans, the company has yet to obtain drilling permits from the Bureau of Safety and Environment Enforcement.

The IHAs issued by the Fisheries Service require Shell to use trained marine mammal observers; to reduce ship speeds when animals are spotted; to communicate with Native communities about exploration activities and vessel routes; and to suspend

operations in certain areas at specific times to avoid disturbance to subsistence hunting.

"Shell has executed responsible offshore programs in Alaska for several years with no known negative impacts to the environment, marine mammals or local communities," said Shell spokesman Curtis Smith on May 2 in response to the issuing of the IHAs. "We look forward to continued success on that front and to working with regulators to secure the remaining permits needed to work in the Alaska offshore."

Meantime, activist organization Greenpeace has made a new attempt to disrupt the deployment of Shell's Arctic Alaska drilling fleet. According to Finland's Yle News on May 1 Finnish police detained 39 Greenpeace protestors who were trying to prevent the icebreaker Nordica from leaving Helsinki to join the Shell fleet.

Initially 15 protestors locked themselves in various parts of the vessel and, after removal of these protestors by police, other

protestors surrounded the vessel using inflatable boats and canoes — the Nordica eventually left port at 10 p.m., Yle News said.

The federal District Court in Alaska has already issued a preliminary injunction banning Greenpeace from occupying any of a list of 19 vessels that Shell plans to use. The injunction applies when those vessels are in U.S. waters or ports and also bans Greenpeace from entering a safety zone

around each vessel when the vessel is in motion.

Greenpeace has appealed the injunction to the U.S. Court of Appeals for the 9th Circuit, with briefs in the appeal due on May 24 and answering briefs due on June 21.


Shell plans to start its Arctic operations, starting in the Chukchi Sea, in July. ●

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continued from page 6

## TIDAL POWER


\$7 million of that being spent in Alaska, Johnson said. The Alaska Energy Authority has contributed about \$2 million in funding. But, with ORPC putting about \$1.8 million into the project, the company has been approaching the Alaska Legislature, trying to see how to obtain the balance of the funding. This year the company was denied \$5 million in funding from the state renewable energy fund because of a glitch with the timing of the funding application, Johnson said.

Johnson said that financial incentives are essential in helping overcome the economic hurdles facing the implementation of embryonic technologies such as tidal power. Maine and Nova Scotia both have mechanisms that enable the high current cost of tidal power systems to be met with minimal impact on electricity ratepayers, he said. The tidal power in Maine, at 65 cents per kilowatt hour, costs three to five times the average renewable market rate and is heavily incentivized, he said.

"The first kilowatts from the new energy technology are the most expensive," Johnson said.

But Maine has also seen the benefit of \$14 million of investment from tidal power in the local economy and ORPC would like to see the same type of economic benefit in Alaska, Johnson said. ●


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Edward Chow, a senior fellow in the Energy and National Security Program at CSIS (Center for Strategic and International Studies), is an international energy expert with 30 years of oil industry experience. He has worked in Asia, the Middle East, Africa, South America, Europe, and the former Soviet Union. He has developed policy and business strategy and successfully negotiated complex, multibillion-dollar international business ventures. He specializes in investments in emerging economies and international oil and gas. He has advised U.S. and foreign governments, major international oil companies, and leading multinational corporations.

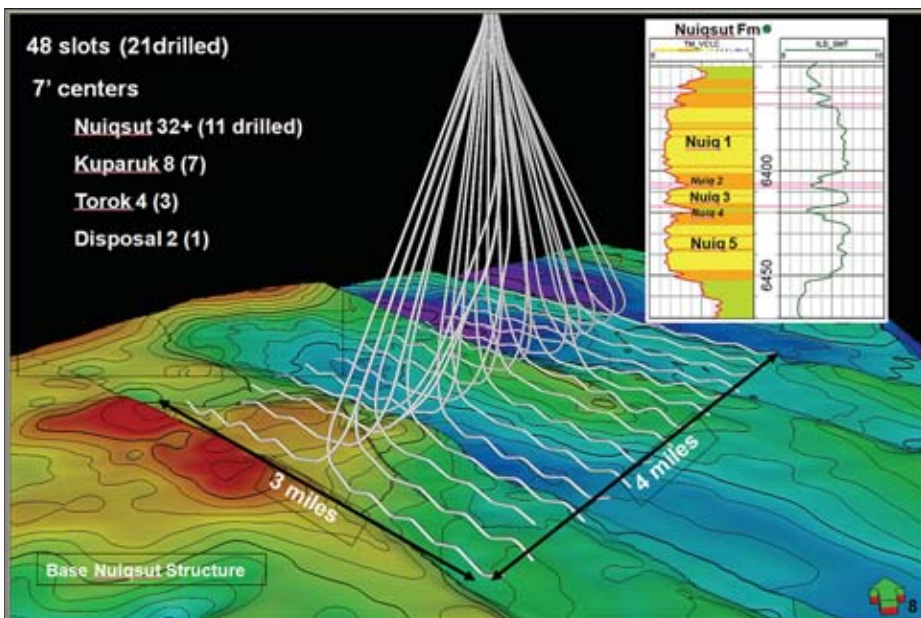
Chow spent 20 years with Chevron Corporation in U.S. and overseas assignments. He was head of international external affairs at headquarters in California. He played a leading role in negotiating the international commercial agreement to build a \$2.6-billion oil pipeline from Kazakhstan on the Caspian to the Russian Black Sea coast. While he was Chevron's principal international representative in Washington, he worked closely with the White House, Capitol Hill, federal departments and agencies, foreign governments, international financial institutions, and the foreign policy community on international economic policy affecting worldwide energy investments. Between 1989 and 1991, he was based in Beijing as Chevron's country manager for China. Chow is a graduate of Ohio University with a bachelor's degree in economics and a master's degree in international affairs. He has published articles in leading academic and foreign policy journals on global energy developments, spoken on energy at conferences in the United States, Europe, and Asia, and appeared in major international media.

● EXPLORATION & PRODUCTION

# Meeting the challenges at Oooguruk

Pioneer has been using a variety of drilling techniques to deal with geologic issues in its successful Beaufort Sea oil field

PIONEER NATURAL RESOURCES



Injection and production wells in the Nuiqsut, the main reservoir sand in the Oooguruk oil field, run horizontally through the sands but have to accommodate the manner in which clay layers inhibit the vertical flow of oil in the reservoir. The effect of subsurface stresses on rock fracturing favors a northwest-southeast orientation for the wells.

By ALAN BAILEY

Petroleum News

With oil resources exceeding initial expectations, the Oooguruk oil field in the shallow waters of the Beaufort Sea off Alaska's North Slope has proved successful for Pioneer Natural Resources, the field's operator. But developing the field has involved solving some tricky drilling problems associated with the field's geology, Craig Knutson, Pioneer geological advisor, told the Alaska Geological Society April 19.

### Three oil pools

Oooguruk, drilled and produced from an artificial island about six miles offshore, has three distinct oil pools. The main pool is in a reservoir sand called the Nuiqsut, upper Jurassic in age and broadly similar in age and geologic setting to the oil reservoir of the Alpine field in the Colville River delta a

few miles to the south. A younger and shallower reservoir, referred to as the Kuparuk C, is early Cretaceous in age and is equivalent to one of the producing horizons in the Kuparuk River field. The third and shallowest oil pool is in the Torok formation, also of Cretaceous age, a little younger than the reservoir of the Tarn field on the mainland and a little older than the reservoir of the Nanuq satellite field at Alpine, Knutson said.

Pioneer originally planned to produce oil just from the Nuiqsut and the Kuparuk C. But after drilling wells through the Torok and realizing that this formation also contains a substantial oil resource, the company is now conducting a Torok pilot project to test the oil production characteristics of this rock unit. That pilot has involved the drilling of three lateral wells from the Oooguruk island. In addition, this winter Pioneer drilled an onshore well, the Nuna 1, to appraise the southwest extension of the play.

### Drilling challenges

The drilling challenges at Oooguruk start in what is referred to as the intermediate section of a well, the section above the reservoir rocks. At Oooguruk this intermediate section consists primarily of shale. The upper shales contain zones with abundant fine-grained volcanic material which, tending to readily absorb water, can clog up the well, Knutson said. The deeper of the shale units, on the other hand, is under high stress in the subsurface: This shale wants to expand into the wellbore, thus disrupting the drilling operation.

Dealing with the shallower of these shale layers requires an oil-based drilling mud, to avoid hydration of the rock. Stabilizing the lower shale, on the other hand, requires a relatively high mud weight. And the more a well is deviated from the vertical, the more acute the problem becomes. In fact, the shale-related problems do not appear when drilling a vertical well, Knutson said.

### Drilling solutions

The drillers at Oooguruk have overcome the problems in the intermediate section by inserting a well casing string additional to the original well design, switching to oil-based mud, and using a technique called managed pressure drilling. Managed pressure drilling involves a surface choke and pump system that allows the instant adjustment of downhole pressures, enabling quick and accurate balancing of mud weight and pore pressure Knutson said.

Essentially, the drillers drive the well to below the hydrating shales using a light, oil-based mud. They then run a casing string down to below that shale. They then drill through the stressed shales using a heavy water-based mud, before installing the casing string to below that deeper shale. The additional casing seals off and stabilizes the walls of the well.

### The Torok

Once through the intermediate section, the drilling can proceed down through the first of the reservoir rocks, the Torok, where Pioneer has been conducting its recent production test program.

The Torok at Oooguruk consists of 200 to 250 feet of a type of rock called a turbidite, composed of interlayered sand and mud formed from the periodic flow of sand down the side of a marine basin. Individual

see **OOGURUK** page 9



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## OOGURUK

sand layers in the Oooguruk Torok are very thin — typically just one to six inches thick, Knutson said. The thinness of the sands makes it impossible to calculate porosity, permeability or oil saturation from the well logs, he said.

However, the sands are quite porous, with a porosity of 15 to 20 percent, and are also reasonably permeable. Core from the Kalubik 2 well suggests that the sands are at least locally filled with oil so that, with a Torok section around 200 feet thick, there appears to be quite a large amount of oil in place in the reservoir. Oil has not been produced on the North Slope from Torok as thinly bedded as this so it was important to try a pilot program to determine whether the formation can be produced economically.

The production from a three-well Torok pilot is appearing quite good so far and Pioneer now plans to convert one of the wells into a water injector, to test the effectiveness of waterflood as a technique to flush the Torok oil into production wells, Knutson said.

## Kuparuk C

The Kuparuk C reservoir, the middle of the currently producing reservoirs at Oooguruk, generally shows up distinctly in seismic data. The reservoir consists of a permeable marine sand with grains which grade from very coarse at the base to fine at the top. The sand contains minerals called glauconite and siderite which affect the results of the well logging and have an impact on oil production from the reservoir, Knutson said.

Typically using rotary steerable drilling technology but also sometimes using a drill bit driven by a mud motor, Pioneer has drilled lateral wells 2,000 to 5,000 feet in length through and along a Kuparuk C section that ranges anywhere from 10 to 40 feet in thickness. The geologists use downhole tools called azimuthal resistivity logging tools to monitor the location of the drill bit within the reservoir rock, and hence to steer the well through the reservoir, Knutson said.

Pioneer is using a waterflood technique for production from the Kuparuk C, and currently has three water injection wells and three production wells.

## Fractures

Although the reservoir rock has reasonable porosity and permeability, the overall performance of the reservoir in delivering oil to the wells indicates that fractures in the rock dominate the flow characteristics of fluids through the rock, Knutson said. And, as a result of the fracturing, at one point injected water prematurely flowed directly to one of the production wells, preventing oil production through that well and causing Pioneer to have to shut the well in, he said.

However, Pioneer generally sees initial production rates of around 2,500 barrels of oil per day from the Kuparuk C, with expected ultimate production of about 2 million barrels per well. With production to date of around 6 million barrels, the company estimates an ultimate recovery of 10 million to 15 million barrels of oil from the reservoir, Knutson said.

## The Nuiqsut

Pioneer anticipates an ultimate production of 60 million to 80 million barrels of oil from the Nuiqsut, the main oil reservoir for the Oooguruk field, Knutson said. And a re-interpretation of the seismic and well data for the Nuiqsut after the field went into production indicated that the reservoir was more extensive than Pioneer had originally thought, he said.

The Nuiqsut consists of relatively clean but fine-grained sand with quite low perme-

ability, he said. The rock is laminated, with wavy layers of clay, so that fluids tend to flow through the rock much less easily in a vertical direction than horizontally.

The fine grained nature of the reservoir rock bears similarities to the reservoir rock of similar age in the Alpine field. But unlike Alpine, which contains relatively light, low viscosity oil from the Kingak source rock, the Nuiqsut reservoir at Oooguruk is charged with a heavier, more viscous oil from a different source rock, the Shublik. And the Nuiqsut oil at Oooguruk becomes more viscous the deeper it lies in the reservoir.

Just to add to the challenges, the seismic data for the Nuiqsut is difficult to interpret because it is not a strong seismic event, while thinning of the subsurface permafrost in the offshore affects the velocity of the seismic sound waves, thus creating depth uncertainties, Knutson said.

Thin, hard layers of siderite, which were too thin to resolve in early vertical exploration wells, can cause havoc with horizontal drilling by deflecting the drill bit away from its intended direction. To avoid this problem Pioneer has adopted a rule that a well must approach the face of a siderite layer at an angle of at least four degrees, Knutson said.

And the orientation of subsurface stress-

es within the Nuiqsut reservoir tends to favor hydraulic fracturing in one particular direction, leading to a preference to orient wells in a northwest-southeast direction, a directional preference also seen in the Alpine field.

## Evolving techniques

With a plan to ultimately drill around 15 production wells and 15 water injection wells in the Nuiqsut, and with the wells having lateral lengths in the range of 6,000 to 8,000 feet, Pioneer has tried an evolving series of well completion techniques to overcome the low vertical permeability of the Nuiqsut reservoir.

The initial well design, used back in 2008, involved steering the drill bit to create a lateral well that undulated up and down, like a wave, through the reservoir. The wave-like geometry of the well enabled the well at various points along its length to access different layers within the horizontally layered rock.

This well configuration proved really difficult to drill and did not contain a liner to support the well bore after completion. Production from the well declined after a few months and the well appears to have collapsed.

The next well design involved some smoothing out of the undulations in the well

bore and then the use of hydraulic fracturing to stimulate vertical communication and production. One well of this type proved very successful, but two subsequent wells of the same design were less effective. And because of the undulations in the well bore, well remediation of the troublesome wells proved impossible, Knutson said.


In 2010 Pioneer tried using dual lateral wells in the Nuiqsut. The first of these laterals worked very well, but the second proved less encouraging, Knutson said.

## Massive frac

Pioneer is now trying another approach, using a smoother horizontal well and a 12-stage, 2 million pound hydraulic fracture. The company has recently conducted the three largest hydraulic fractures ever executed in Alaska, two in the Torok and one in the Nuiqsut, Knutson said. The company has yet to flow back the Nuiqsut well but the two fracs that were conducted as part of the Torok test program were very encouraging, he said.

The Nuiqsut development has space for about 17 more wells, with Pioneer anticipating the use of a variety of completion strategies, Knutson said. ●

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## EXPLORATION & PRODUCTION

### Upper Foothills off-road travel closed

On April 30 the Alaska Department of Natural Resources closed the state's Upper Foothills Area for off-road tundra travel.

"Temperatures in the Upper Foothills Area have been above freezing during the day," the agency said. "Varying levels of snow deterioration have already been observed in this area and the Division of Mining, Land and Water, Northern Region Office, finds that conditions are no longer adequate for general off-road travel."

Summer off-road travel may commence on July 15 for appropriately certified and permitted vehicles. Meantime DNR will consider applications for winter travel extensions on a case-by-case basis if snow conditions are adequate in some areas.

Other areas of state land north of the Brooks Range remain open for tundra travel, although vegetation is starting to emerge in some localities. In the Eastern and Western Coastal Areas, below freezing temperatures, recent snowfall and overcast skies have slowed the snow melt, DNR says.

When areas are closed, DNR will give people 72 hours' notice to move equipment off the tundra and onto the road system, the agency says.

—ALAN BAILEY

## NATURAL GAS

# Team completes North Slope hydrate test

Successfully used carbon dioxide to extract natural gas from methane hydrate deposit above Prudhoe Bay field; ran test for 30 days

By ALAN BAILEY

Petroleum News

A team involving the U.S. Department of Energy, ConocoPhillips and the Japan Oil, Gas and Metals National Corp. has successfully completed a test involving the production of natural gas from a methane hydrate deposit above the Prudhoe Bay field on Alaska's North Slope, Energy Secretary Steven Chu announced May 2. The test succeeded in teasing a flow of natural gas from the hydrates by replacing methane in the hydrate by carbon dioxide injected down a test well. Methane is the main component of natural gas.

### Possible gas source

Methane hydrate consists of a white crystalline substance that concentrates natural gas by trapping methane molecules inside a lattice of water molecules. There are extensive deposits of the material straddling the base of the permafrost under the North Slope. The hydrates could prove to be a prolific future source of natural gas although the technical and economic feasibility of commercial gas production from the hydrates has yet to be demonstrated.

"The Energy Department's long term investments in shale gas research during the '70s and '80s helped pave the way for

today's boom in domestic natural gas production that is projected to cut the cost of natural gas by 30 percent by 2025 while creating thousands of American jobs," Chu said. "While this is just the beginning, this (methane hydrate) research could potentially yield significant new supplies of natural gas."

The use of carbon dioxide to displace methane from hydrates could, in addition to driving natural gas production, bring the added benefit of sequestering carbon dioxide, the *bête noire* of global warming. The technique has been demonstrated in laboratory experiments but has never before been tried in a field setting.

The team conducted the proof-of-concept field test on the North Slope using the Ignik Sikumi No. 1 well, a well drilled last winter specifically for the test to a depth of 2,597 feet from an ice pad adjacent to the Prudhoe Bay unit L-pad. The well's name is Inupiaq for "fire in the ice," a phrase sometimes used to characterize the unusual properties of methane hydrate.

The test was conducted between Feb. 12 and April 10 this year, with the team injecting a mixture of carbon dioxide and nitrogen into the underground formation containing the hydrates and demonstrating that this cocktail of gases would stimulate the release of methane from the hydrate. Data collected during the test will be used to determine the efficiency with which carbon dioxide was simultaneously sequestered in the reservoir.

### 30 days

And a test involving the reduction of the pressure in the underground reservoir rock demonstrated the continuous production of natural gas over a period of 30 days, the Department of Energy says. The longest previous demonstration of sustained gas production from methane hydrate by depressurization, in 2008 in the Mallik well in the Mackenzie River Delta of northern Canada, lasted six days.

In 2007 the Department of Energy was involved with BP, ASRC Energy Services, Ryder Scott Co., the U.S. Geological Survey and university researchers in the drilling and testing of the Mount Elbert methane hydrate stratigraphic test well in the Milne Point unit on the North Slope. That well enabled the collection and analysis of subsurface methane hydrate samples, and the testing of the production characteristic of the methane hydrate in the well.

However, despite success in methane hydrate tests, researchers are still a long way from demonstrating the continuous production of gas from the hydrates on a commercial scale, and from showing that this production can be commercially viable. And then, of course, there is the thorny question of how to ship North Slope gas to market.

### Next steps

The Department of Energy says that the next steps in its research efforts will be to evaluate gas hydrate production over longer durations, probably through depressurization, with the eventual goal of achieving sustained and commercially



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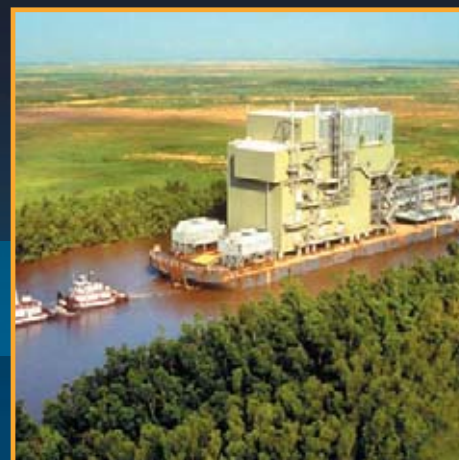
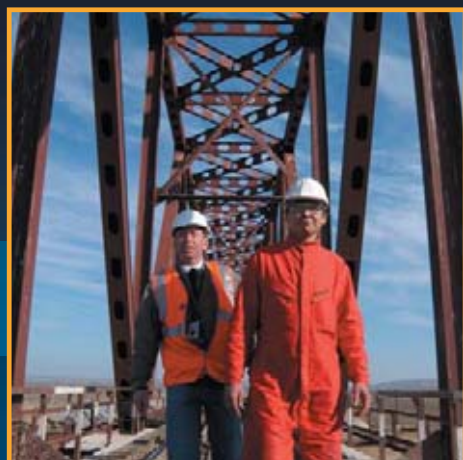
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see **HYDRATE TEST** page 15

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• NATURAL GAS

# Distributing North Slope gas challenging

Enough gas exists to meet Alaska's needs for decades, but at a cost; and getting gas to rural areas more difficult and costly yet

By **BILL WHITE**

Researcher/writer for the Office of the Federal Coordinator

Prudhoe to Valdez – big pipeline	
Tariff per million Btu	\$2.96 to \$3.85*
Kind of gas	Wet gas**
Pipeline volume	2.7 billion cubic feet/day
Notes: Includes initial treatment at Prudhoe Bay	
Source: TransCanada/ExxonMobil, 2010	
Prudhoe to Big Lake – small pipeline	
Tariff per million Btu	\$7.75
Kind of gas	Wet gas**
Pipeline volume	500 million cubic feet/day
Notes: Includes initial treatment at Prudhoe Bay, tariff is rough estimate that could be 30% higher or lower depending on construction costs	
Source: Alaska Gasline Development Corp., 2011	
Prudhoe to Fairbanks – big pipeline	
Tariff per million Btu	\$2.59 to \$3.37*
Kind of gas	Wet gas**
Pipeline volume	2.7 billion cubic feet/day
Notes: Includes initial treatment at Prudhoe Bay	
Source: TransCanada/ExxonMobil, 2010	
Prudhoe to Fairbanks – small pipeline	
Tariff per million Btu	\$8.99
Kind of gas	Wet gas**
Pipeline volume	500 million cubic feet/day
Notes: Includes initial treatment at Prudhoe Bay, tariff is rough estimate that could be 30% higher or lower depending on construction costs	
Source: Alaska Gasline Development Corp., 2011	
* Tariff varies based on length of contract and volume shipped; range shown is for 20- and 25-year negotiated contracts.	
** Wet gas includes methane plus such gas liquids as propane and butane.	
Note: Tariffs do not include costs charged by gas producer or local gas utility.	

Offtakes from a large North Slope natural gas pipeline could supply gas to Alaskans for decades, but delivery would come with an upfront cost of over a billion dollars.

Even then, only people in the state's population core might enjoy ready access to the gas; getting the Btus to more distant communities would take much more effort — and money.

Gas for Alaskans is a central goal of federal and state laws pertaining to any pipeline project.

State leaders have long sought to forge an energy Eden where Alaska, although remote and northern, would tap its fossil-fuel bounty so that residents at least could burn their lights and furnaces warmly and cheaply through the dark chill of winter.

In 2007, during her first state-of-the-state speech, then-Gov. Sarah Palin called gas for Alaskans one of the “bedrock, must-have requirements” for any pipeline project.

The late U.S. Sen. Ted Stevens, running for re-election the next year, said: “Fishermen can't afford to fish, rural Alaskans are migrating, and families choosing between groceries and fuel oil. To restore a vibrant economy, our priority must be to address the high cost of energy. We must develop our resources to create jobs and invest in hydropower, geothermal, and methane energy projects.”

Alaska's commissioners of natural resources and revenue echoed Stevens during their approval that same year of the TransCanada proposal to build a North Slope gas line: “Ever-rising fuel prices are increasing hardships for Alaska communities and families, and there is no single solution to ease this energy crunch. However, in-state supply of North Slope natural gas could help reduce energy costs in some regions of the state.”

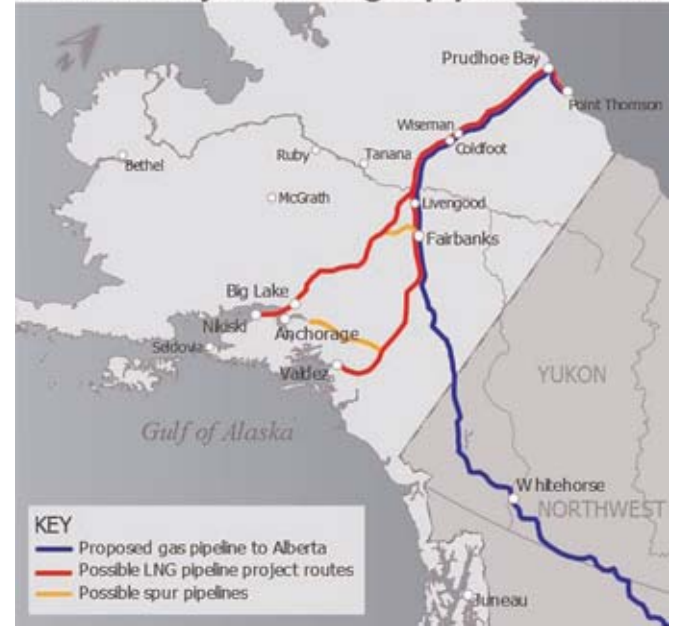
Almost four years later, no one has fully worked out how much it



**BILL WHITE**

1 2 3  
**SERIES**

## Possible major Alaska gas pipeline routes



OFFICE OF THE FEDERAL COORDINATOR

would cost to achieve the goal of gas for Alaskans.

The scattered information that exists suggests it would be possible to deliver gas from a large-volume pipeline to the state's population center in Anchorage and surrounding areas for about the price consumers there now pay for gas — possibly less.

It also suggests that many Fairbanks residents in the state's Interior might see their cost of heating and electricity fall — possibly a lot.

For the vast but sparsely populated rural Alaska — whether far from a major North Slope gas pipeline corridor or even along the route — the price of natural gas or propane extracted from the gas could be too high to win customers without state help in covering construction costs.

At a minimum, delivering gas to Alaskans could involve:

see **GAS DISTRIBUTION** page 13

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- It has the word Zeppelin in white letters on the back cowl.

Please call 440-4664 or 349-2107 with any information.

continued from page 12

## GAS DISTRIBUTION

- Building one or two plants to receive gas from a mainline. The plants would depressurize gas flowing under extreme compression from Prudhoe Bay. They also would cleanse the gas of higher-end gas liquids such as ethane, propane and butane, a step necessary before a home furnace or power plant can safely burn the methane that remains.

- Constructing a thousand miles of gas transmission and distribution pipelines in Fairbanks, a town where the fuels of choice are heating oil and coal.

- Possibly laying a spur pipeline to bring gas to the Anchorage area, depending on the route of the mainline.

Natural gas is only one fragment of the state's efforts to clip high energy prices. Besides subsidizing planning and design of both a large-diameter and a small-diameter gas pipeline from Prudhoe Bay, the state's all-things approach involves spending to date several hundred million dollars to annually underwrite rural electricity bills, advance the gigantic proposed Susitna River hydroelectric project, bankroll small-scale renewable-energy concepts and weatherize homes.

Alaska has the ironic distinction of hosting a large proportion of the United States' oil and gas reserves while its residents pay some of the nation's highest prices for products made from those hydrocarbons.

Below we look at the preliminary, and in some cases only conceptual, work that's been done on the decades-long yearning to provide Alaskans with low-cost natural gas.

### The Anchorage area: affordable gas

North Slope natural gas likely could be delivered in Anchorage and other Southcentral Alaska communities for about the same total cost as Cook Inlet gas today.

That is if the gas traveled most or all of the way in a big gas pipeline.

No one has pinpointed the gas shipping fee, or tariff, all the way from Prudhoe Bay to the Anchorage area in a big pipeline. The tariff would depend on whether the gas exits the big pipeline near Anchorage, Fairbanks, on its way to Valdez or somewhere else along the route. The tariff also would depend on the pipeline's construction cost and the volume it carries.

But parts of the route have been priced, at least preliminarily.

In 2010, the Alaska Pipeline Project, a partnership of TransCanada and ExxonMobil, published proposed rates it would charge for a 2.7 billion-cubic-foot-a-day line ending at a liquefied natural gas export terminal in Valdez. The two partners now are teaming with ConocoPhillips and BP to explore an LNG project that could export North Slope gas from somewhere in Southcentral, possibly Nikiski on the Kenai Peninsula or Valdez. A pipeline from Prudhoe Bay to the Anchorage area would be roughly the same length as one to Valdez.

TransCanada/ExxonMobil's proposed rates to Valdez varied depending on how many years the shipper committed to using the pipeline and how much the pipeline project cost. The companies estimated the project would cost \$20 billion to \$26 billion for the line itself and a Prudhoe Bay gas treatment plant.

For example, at pipeline start-up the tariff would total \$3.85 per million Btu of gas treated and shipped from Prudhoe Bay to Valdez under a 20-year negotiated contract on a \$26 billion pipeline. The price would drop to \$2.96 for a \$20 billion line. The liquefaction plant would add its own fee, which would be charged to the export customers, not Alaskans.

Assuming the tariff for a large-diameter

pipeline to the Anchorage area would be the same as to Valdez, the \$2.96 to \$3.85 fee would be a base. Other costs would be added on. The Southcentral gas utility, ENSTAR Natural Gas Co., charges about \$2 to pipe gas to homes and businesses. In addition, the North Slope producers would expect payment for the gas itself — no one knows exactly how much they would charge but several analyses have assumed a placeholder of \$2.

That would bring the price to roughly \$6.96 to \$7.85 per million Btu delivered to a homeowner's furnace.

Enstar currently delivers residential gas from Cook Inlet for about \$8.60 per thousand cubic feet. A thousand cubic feet is approximately equal to a million Btu.

So in that hypothetical scenario North Slope gas would cost Southcentral customers less than or close to the same as the Cook Inlet gas they use today.

If the LNG plant were in Valdez rather than linked to the Enstar system near Anchorage, North Slope gas would cost more for residents of Southcentral Alaska.

How much higher is not clear, probably between \$8 and \$10 per million Btu.

A spur line would be needed, probably starting in Glennallen and ending at the Enstar system in the Matanuska-Susitna

Borough outside Anchorage. In 2008, the Alaska Natural Gas Development Authority estimated a \$1.40 tariff to pipe methane from Glennallen in a \$725 million, 250 million-cubic-foot-a-day spur.

Or perhaps the spur line could start in Interior Alaska. ANGDA estimated a \$2.34 tariff in a pipeline if the gas started north of Glennallen at Delta Junction. This spur would cost \$1.25 billion to build.

In 2011, the Alaska Gasline Development Corp., another state agency, estimated a 500 million-cubic-foot-a-day gas pipeline from Fairbanks to the Anchorage area would cost \$1.99 billion and charge about \$2.25 per million Btu. The bigger volume would help hold the tariff below the estimated tariff of a Delta Junction-to-Anchorage pipeline, as would a difference in the gas stream: Besides methane, the AGDC line would carry propane and other valuable liquids; the liquids would comprise just over 10 percent of the volume but those shippers would pay 25 percent of the tariff — subsidizing the cost of methane for Southcentral Alaska residents. AGDC estimated its tariff would rise by about 60 percent if the pipeline carried just methane without the liquids.

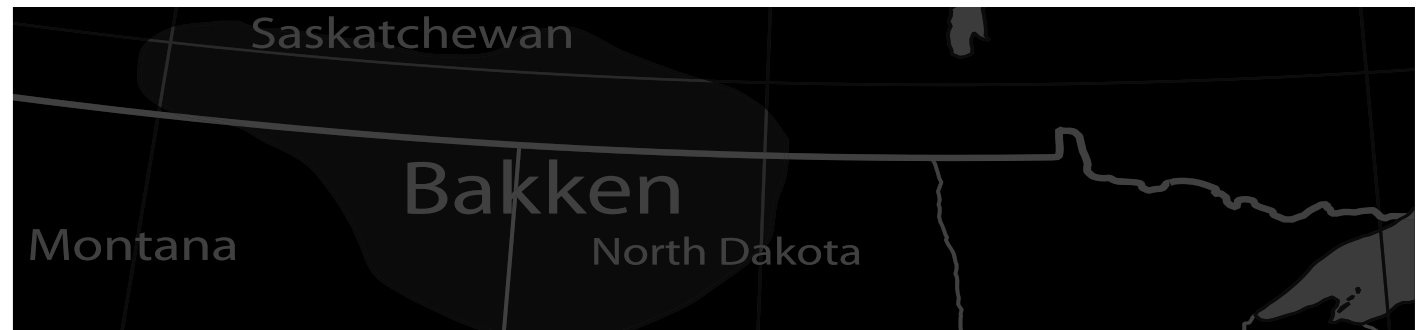
That big economies of scale can result in lower prices is well known in business —

it's why the world has a few large automakers rather than many small ones; it's why Wal-Mart can use bulk purchasing and the power of streamlined distribution to beat mom-and-pop store prices.

To illustrate how volume matters in the gas pipeline business, the small-diameter pipeline pitched by AGDC would carry one-fifth the gas of the TransCanada/ExxonMobil 2010 proposal to Valdez. As a result, its tariff would be higher. AGDC estimates its line from Prudhoe Bay could deliver North Slope gas to Anchorage residents for roughly \$11.75 per million Btu at pipeline start-up, assuming that Enstar and the gas producers each would add \$2 to the delivered gas price, and assuming that someone finds local and export markets for propane and other liquids. (Many supporters of the smaller AGDC line see it as a back-up plan in case a big line is not in Alaska's near-term future.) ●

See part 2 of this story in the May 13 issue of *Petroleum News* and part 3 in the May 20 issue

Editor's note: This is a reprint from the *Office of the Federal Coordinator, Alaska Natural Gas Transportation Projects*, online at [www.arcticgas.gov/challenges-distributing-north-slope-gas-alaskans](http://www.arcticgas.gov/challenges-distributing-north-slope-gas-alaskans).



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● NATURAL GAS

# TransCanada AGIA focus shifts to LNG

State Natural Resources, Revenue commissioners OK project plan amendment; FERC application deferred from this October to 2014

By KRISTEN NELSON

Petroleum News

The State of Alaska is shifting focus under the Alaska Gasline Inducement Act or AGIA from work on a line to Lower 48 markets to work on a large-diameter line from the North Slope to tidewater for in-state use, liquefaction and export.

The Alaska Gas Pipeline Project Office said May 2 that Natural Resources Commissioner Dan Sullivan and Revenue Commissioner Bryan Butcher had approved a project plan amendment for TransCanada Alaska under AGIA, allowing TransCanada to shift its focus to liquefied natural gas.

Because of the transition to an LNG project, the date for filing an application for an Alberta line with the Federal Energy Regulatory Commission has been moved two years — from this October to October 2014.

TransCanada, ExxonMobil, ConocoPhillips and BP said March 30 that they would work together on commercializing North Slope natural gas and would focus on large-scale LNG exports from Southcentral Alaska under an AGIA framework.

The project plan amendment, approved May 2, calls for TransCanada Alaska to complete initial work on an LNG project by September and conduct a comprehensive market

solicitation by year's end.

TransCanada will provide an updated project plan amendment early next year, reflecting details of the LNG project and its associated timeline. That amendment will also need commissioner approval.

The Alaska Gas Pipeline Project Office said that approximately half of the work done by TransCanada so far on the Alberta option is applicable to the LNG line.

## Parnell nudged plan to LNG

The shift to LNG began Oct. 27 when Alaska Gov. Sean Parnell told the Alaska Oil and Gas Association annual luncheon that there needed to be greater alignment among shippers of gas and called for that alignment around a line going to tidewater in Southcentral Alaska, with natural gas going to the Pacific Rim as LNG.

The governor cited the lack of commercial alignment on a line to Lower 48 markets and said the market may have shifted since AGIA was passed, with the 2011 tsunami in Japan and that nation's shift away from nuclear power, combined with changing market conditions in the Lower 48.

Parnell set a target of the first quarter for alignment, and in a March 30 letter to Parnell the CEOs of ExxonMobil, ConocoPhillips and BP said the companies were making progress on "the next generation of North Slope resource

development." That resource, natural gas, has been re-injected to increase oil production, but, the CEOs said, "under the right business climate, the full commercial potential of this world-class resource can be unlocked."

Among the challenges the CEOs cited was a requirement for the establishment of "competitive and stable fiscal terms with the State of Alaska."

In his January state-of-the-state address Parnell listed benchmarks for an LNG project, and said if those benchmarks were met the 2013 Legislature would take up gas tax legislation designed to move the project forward. Parnell has said in the past that he won't negotiate separately with the players on a fiscal system for gas, but only with a project.

## Changed circumstances

The commissioners said in their May 2 letter to TransCanada that changed circumstances since the issuance of the AGIA license in 2008 justify the plan amendments. Those changed circumstances include: substantial increase in U.S. shale gas reserve estimates; significantly higher natural gas prices in Asia reflecting a higher oil to natural gas price ratio; the U.S. Energy Information Administration's projection that the U.S. will become a net

see AGIA FOCUS page 15

● FINANCE & ECONOMY

# Senate Finance to issue RFP on pricing

By KRISTEN NELSON

Petroleum News

The Senate Finance Committee has committed \$150,000 for a study over the interim of energy pricing issues across the state. As Sen. Bill Wielechowski, D-Anchorage, said to the committee April 27, "Alaska ranks first among the 50 states in terms of our energy consumption per capita — unfortunately the price we pay for energy are among the highest in the nation."

And the cost of energy to Alaskans is growing, Wielechowski said, citing a study indicating that in 2000 low income households in rural Alaska spent 16 percent of their incomes on energy, compared to 47 percent over the last decade.

"This situation is untenable," he said.

Wielechowski requested a request for proposals, RFP, "to investigate what can be done to ensure Alaskans have access to more affordable and reliable energy supplies."

He said the RFP should look at factors which cause Alaska's energy prices "to far exceed national averages," whether price gouging is occurring and if it is, to what extent, whether a price gouging law should be enacted and any other actions that "can be taken to bring down energy prices for the wellbeing of Alaskan families and the competitiveness and success of our businesses."

Finance co-Chair Bert Stedman, R-Sitka, said the proposal was being taken up at the request of co-Chair Lyman Hoffman, D-Bethel.

## Hoffman: solution needed

Hoffman said that with oil prices at record highs, the state has saved an amount approaching \$15 billion over the past six years, but "we haven't come up with an adequate solution" for Alaskans who are suffering due to those high prices.

Hoffman said the \$150,000 would "continue work in reviewing energy pricing in Alaska over the interim to pro-

vide the Legislature with options to consider during the 28th Alaska legislative session," beginning in January.

Wielechowski, Hoffman and Sen. Joe Thomas, D-Fairbanks, were named to a subcommittee to determine the scope of work to be included in a request for proposals.

Sen. Johnny Ellis, D-Anchorage, noted that legislators have worked with the attorney general and others in the past on this issue.

"We've been unsuccessful," Ellis said, adding that he thought inquiries in the past hadn't been as wide ranging "as was warranted by the pain and suffering across the state."

He said with this proposal "we envision going beyond the normal channels, or what we've done in the past, to have a more robust aggressive look at this to get somewhere rather than just spinning our wheels with the administration." ●

Contact Kristen Nelson at [knelson@petroleumnews.com](mailto:knelson@petroleumnews.com)



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• EXPLORATION & PRODUCTION

# April ANS production down from March

Alaska North Slope averages 587,162 bpd, with largest month-over-month percentage drop at Kuparuk, largest volume drop at Prudhoe

By **KRISTEN NELSON**  
Petroleum News

Alaska North Slope crude oil production averaged 587,162 barrels per day in April, down 0.66 percent, 3,904 bpd, from a March average of 591,066 bpd. In April 2011, ANS crude oil production averaged 634,028 bpd.

The largest month-over-month drop by percentage was at the ConocoPhillips Alaska-operated Kuparuk River field, which averaged 127,614 bpd in April, down 3.9 percent and 5,178 bpd from a March average of 132,792 bpd.

Kuparuk River production includes satellites at Tabasco, Tam and Meltwater and West Sak viscous oil production. Kuparuk volumes also include oil from the Eni-operated Nikaitchuq field and the Pioneer Natural Resources Alaska-operated Oooguruk field.

Except where noted, volumes in this story are from the Alaska Department of Revenue's Tax Division, which reports oil production only by major production centers and provides daily production and monthly averages.

The most recent figures from the Alaska Oil and Gas Conservation Commission, reported by field and pool, are

**The largest month-over-month volume drop between March and April was at the BP Exploration (Alaska)-operated Prudhoe Bay field, which averaged 329,105 bpd, down 6,508 bpd or 1.94 percent from a March average of 335,613 bpd.**

for March. In that month, Nikaitchuq averaged 7,850 bpd, down 2.27 percent from a February average of 8,032 bpd, while Oooguruk averaged 5,820 bpd in March, down from 5,844 bpd in February.

The largest month-over-month volume drop between March and April was at the BP Exploration (Alaska)-operated Prudhoe Bay field, which averaged 329,105 bpd, down 6,508 bpd or 1.94 percent from a March average of 335,613 bpd. Prudhoe production volumes include satellite fields at Aurora, Borealis, Midnight Sun, Orion, Polaris and Point McIntyre.

Prudhoe volumes also include production from the BP-operated Northstar and Milne Point fields. AOGCC figures

for March show Milne Point averaging 17,560 bpd and Northstar averaging 9,126 bpd.

Production from the BP-operated Endicott field, which includes Badami volumes, averaged 12,078 bpd in April, up 3.5 percent from a March average of 11,669 bpd. AOGCC figures for March show 1,197 bpd from Badami, an increase of 8 percent from February production averaging 1,107 bpd.

The BP-operated Lisburne field, part of Greater Prudhoe Bay, averaged 42,226 bpd in April, up 30 percent from a March average of 33,939 bpd. Lisburne production includes Point McIntyre and Niakuk.

AOGCC figures for Cook Inlet show an average of 10,072 bpd in March, down 14.4 percent from a February average of 11,391 bpd. Only three fields in Cook Inlet have production exceeding 1,000 bpd: Granite Point at 1,947 bpd; McArthur River at 3,957 bpd; and Middle Ground Shoal at 2,345 bpd.

ANS crude oil production peaked in 1988 at 2.1 million bpd; Cook Inlet crude oil production peaked in 1970 at more than 227,000 bpd. ●

Contact Kristen Nelson at [knelson@petroleumnews.com](mailto:knelson@petroleumnews.com)

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## AGIA FOCUS

exporter of natural gas; and the interest of the Alaska North Slope producers in aligning their work effort behind an LNG alternative.

The commissioners also said that work will continue on the Alaska-Alberta project but with reduced expenditures on that option "during the period the LNG alternative is being evaluated." Because the plan amendment postpones the FERC filing date for the Alberta plan by two years, a reduction of fiscal year 2013 state-reimbursable expenditures on the Alaska-Alberta project under the AGIA license is expected. ●

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## HYDRATE TEST

viable gas production.

The department announced that it is making \$6.5 million available in fiscal year 2012 for research into technologies for characterizing sub-sea methane hydrate deposits in deepwater settings; into new tools and techniques for determining reservoir response and environmental impacts relating to methane hydrate production; and into the role of methane hydrates in the natural environment, including the response of the material to warming climates.

The department also announced that it will request a further \$5 million in research funding in the federal administration's fiscal year 2013 budget for domestic and international methane hydrate research. That research could include a longer-duration test of methane hydrate production on a North Slope gravel pad that could accommodate year-round operations, the department said, adding that this research would require the involvement of private sector and international partners. ●

Contact Alan Bailey at [abailey@petroleumnews.com](mailto:abailey@petroleumnews.com)



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**Johnston joins Doyon Emerald as VP of engineering**

Doyon Emerald said May 1 that it is pleased to welcome David K. Johnston as its new vice president and engineering manager. Johnston is a registered professional engineer and has more than 28 years of engineering and operations experience in the oil and gas industry. He will lead Doyon Emerald's engineering team, providing leadership in detail design, resource planning, budgets, and development.

Most recently Johnston served as the Eni Petroleum Facilities Engineer Manager for the Nikaitchuq Development Project where he provided leadership and technical oversight for a \$2 billion project from concept to engineering closeout. He has also assisted in generating development drilling opportunities, supervised the design and construction of surface equipment for new and expanding gas fields, and developed reservoir depletion, drilling, and utilization plans.

Johnston has served in various executive management and senior level positions at Armstrong Oil and Gas, ASRC Energy Services, Schlumberger Oilfield Services, and Coastal Oil and Gas Corp. David has proven his ability as a leader in engineering and production, with a great knowledge of resource planning, drilling, strategies, design, and implementation.



DAVID K. JOHNSTON

**Global Diving & Salvage takes delivery of ROV**

Global Diving & Salvage Inc. said April 24 that its acquisition of a Saab Seaeeye Falcon ROV adds substantial capacity to its existing fleet of underwater vehicles. The Falcon, depth rated to 1,000 feet, will be fully outfitted with manipulator, high resolution color and black and white cameras, fast scanning sonar, and a digital altimeter. Lightweight and portable it goes where needed — inshore, offshore, down tunnels or for flyaway operations.

The Falcon provides added capabilities to Global's current diverse fleet of ROVs. In addition to the Falcon, assets include a Saab Seaeeye Cougar XT, a Spectra DS 4, two Benthos Stingrays, two Video Ray Pro 3 XE's and an Inuktun Versatrax 150 Pipe Crawler. Global also maintains an array of navigation and positioning systems to support its remote technology operations.



COURTESY GLOBAL DIVING

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**Companies involved in Alaska and northern Canada's oil and gas industry**

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• PIPELINES & DOWNSTREAM

# 8-inch hole punched in oil tanker hull

No spill reported from double-hull ship, which carries Alaska North Slope crude for BP; precise cause of breach remains unclear

By WESLEY LOY

For Petroleum News

A tanker carrying Alaska North Slope crude oil sustained a hole in the bottom of its hull while in California waters.

Exactly what caused the breach remains something of a mystery.

The double-hull tanker Alaskan Navigator was traveling from Long Beach, Calif., to Washington's Puget Sound when seawater was discovered leaking into one of the ship's segregated ballast tanks, says a summary of the Jan. 25 incident.

Only the outer hull was holed. The ship's inner hull remained intact, meaning no cargo holds were breached. Thus, no oil escaped to the sea, the summary says.

The ship proceeded to Port Angeles, Wash., where a dive survey was conducted on Jan. 26. Representatives from the U.S. Coast Guard, the Washington State Department of Ecology and the American Bureau of Shipping were there.

## Anchor to blame?

Investigators found a gash in the hull measuring about 2 inches by 8 inches, Anil Mathur, president of Alaska Tanker Co., told Petroleum News on May 1.

The Beaverton, Ore., company carries Alaska crude for BP to West Coast refineries. The 941-foot Alaskan Navigator, launched new in 2005, is one of four matching double-hull tankers in the ATC fleet.

After ATC tankers pick up North Slope oil at the Valdez terminal, they typically deliver part of their load first to Long Beach and then head back north to supply refineries such as BP's Cherry Point plant in Puget Sound. They follow that route because the tankers, with a capacity of 1.3 million barrels, are barred from taking an oil cargo that large into Puget Sound.

The Alaskan Navigator hull breach is believed to have happened while the ship was at anchor in the Long Beach harbor, Mathur said.

An investigative team has finished its work, but the results are inconclusive, he said.

"There's circumstantial evidence that we ran over our anchor," Mathur said.

That can happen if the anchor, designed to lay flat on the bottom, becomes fouled in the anchor chain, he said.

The problem is, the Alaskan Navigator's anchor showed little to no damage, and the hull puncture doesn't seem to match any

*The 941-foot Alaskan Navigator, launched new in 2005, is one of four matching double-hull tankers in the ATC fleet.*

part of the anchor, Mathur said.

A diver searched for objects in the harbor that could have caused the hole, but found nothing, he said.

## Presentation in Valdez

The Alaskan Navigator was carrying about 520,000 barrels of crude at the time the hull breach was discovered.

"The double hull did what it was supposed to do," Mathur said, referring to no oil leakage from the ship.

Authorities allowed the tanker to proceed to Cherry Point to offload its oil. Repairs approved by the Coast Guard and the American Bureau of Shipping were made later, and the ship is now in service, Mathur said.

ATC's Mike Meadors was scheduled to make a presentation on the incident to the Prince William Sound Regional Citizens' Advisory Council during its May 3-4 board meeting in Valdez. The council is a congressionally sanctioned nonprofit that monitors the Valdez oil terminal and associated tanker operations. ●

Contact Wesley Loy  
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## PIPELINES & DOWNSTREAM

### DEC confirms oil tank inspection waiver

The Alaska Department of Environmental Conservation has rejected an appeal of its decision to grant a two-year waiver on a required inspection of a giant oil storage tank at the Valdez Marine Terminal.

A Valdez-based nonprofit organization, the Prince William Sound Regional Citizens' Advisory Council, had asked the DEC to reconsider the waiver.

Tank 5 is one of the enormous tanks used to store North Slope crude prior to loading aboard tankers. Each has a capacity of 510,000 barrels.

Tank 5 was coming due for a summer internal inspection and cleaning, but terminal operator Alyeska Pipeline Service Co. on Feb. 1 obtained permission from the DEC to delay the procedure for two years until 2014.

The tank was last drained, cleaned and inspected internally in 2001.

The citizens' council raised various objections to the waiver, including corrosion on the tank roof.

But the DEC, in an April 5 letter, stood by its decision.

The letter said "all requests for waivers to established internal inspection intervals are thoroughly and rigorously reviewed," with the involvement of DEC's professional engineering staff.

The agency has determined "we made the correct decision" in granting the two-year internal inspection deferral, the letter said. It also noted the tank is up for a 2012 external inspection, which isn't covered under the waiver, and this will include inspection of the tank's external roof plates.

The DEC now is evaluating Alyeska's request for an internal inspection waiver for Tank 10. The citizens' council opposes this waiver as well.

—WESLEY LOY



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## OIL PATCH BITS

"The extended array of tooling and sensor packages available for the Falcon makes it a valuable addition to our ROV fleet. The Falcon extends our range of capabilities to insure we have an ROV to match any customer's needs," said Eric Crumpton, manager of Global Diving & Salvage's ROV Division. "We are excited about the new opportunities that this acquisition will bring and are fully committed to expanding our market share in the remote technology arena."

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## ONE LINE

on the Lower 48 pipeline will be preserved and some of it will be useful in to the LNG studies “because somewhere between one-third and one-half of the route is similar between the two projects.”

He said the original pipeline plan had always targeted early in the 2020s to monetize Alaska’s stranded gas and “we think it’s in the mind of producers.”

On the Canadian side of the emerging LNG export option, Girling said that “to the extent that customers want us to participate in a liquefaction facility, we’d look at that,” while doubting whether liquefaction would represent “a whole bunch of value-added” for his company.

But TransCanada’s “true expertise” lies in being one of the only companies in

North America with the ability to build large-diameter pipelines through the “treacherous and very-difficult” mountain terrain to the British Columbia coast.

Girling said the decision by partners to stop financing Canada’s Mackenzie Gas Project does not mean development of the “tremendous” Arctic resources has been abandoned.

He said that with conventional gas supplies in North America declining by 15 percent to 20 percent every year and shale supplies falling by an “even greater” percentage, North America will have to replace its gas supply by three times over the next 10 years-15 years.

“Things change very quickly and we need to maintain our options (for Arctic gas) in a developed form,” Girling said. ●

Contact Gary Park through  
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## REFINERY CRUNCH

No other company’s oil tankers are known to have made similar returns.

Anil Mathur, the president of Alaska Tanker Co., the Beaverton, Ore., company that carries BP’s oil, declined to specify how much oil his ships have back-hauled. His company operates four double-hull tankers to carry BP oil between Valdez and West Coast ports.

A nonprofit organization that monitors the Valdez terminal and tanker operations has been keeping track of the back-hauling. The Prince William Sound Regional Citizens’ Advisory Council says that since late February, five ATC ships have returned to Valdez still partially filled after having not delivered their full cargoes to Lower 48 refineries.

Here are the five back-haul events, including the arrival date, ship name and volume of oil aboard:

- Feb. 27, Alaskan Explorer, 81,000 bbl
- March 20, Alaskan Frontier, 175,000 bbl
- April 11, Alaskan Explorer, 300,000 bbl
- April 28, Alaskan Frontier, 200,000 bbl
- May 2, Alaskan Explorer, 140,000 bbl

In-bound ships with oil aboard receive the same tug escort as fully loaded ships sailing out of Port Valdez into Prince William Sound.

### Factors behind oil returns

Each ATC tanker has a capacity of 1.3 million barrels.

The tankers don’t offload oil at Valdez, ATC’s Mathur said. Rather, the tankers are topped off with more oil and then sent south again.

As to why ATC ships are returning with some cargo still aboard, Mathur said BP simply tells his company “what oil they want us to carry where.”

The back-hauling of oil to Alaska “has happened before,” he said, “but it’s not common.”

Although it seems odd, back-hauling actually makes sense under certain circumstances.

“The incremental cost of doing so is not that much,” Mathur said. The tankers are going to return to Alaska regardless of whether they’re empty or carrying some crude, he said, and the oil can act as ballast for the ships.

Leaving some oil aboard ship is not ideal, but it can give the owner “more flexibility” in placing it, Mathur said.

“Ultimately, all the oil gets placed in the Lower 48,” he said.

The major problem appears to be a capacity crunch at refineries that take a lot

of North Slope crude.

BP’s Cherry Point refinery at Ferndale, Wash., remains down due to a Feb. 17 fire and a major spring maintenance turnaround.

Another big delivery point for North Slope oil is BP’s Carson refinery near Los Angeles. It also has undergone maintenance recently.

Complicating matters was some extensive maintenance at the ConocoPhillips refinery at Ferndale.

All these refinery constraints are important considerations as BP, ConocoPhillips and others continue to produce oil daily from the North Slope. That oil must go somewhere, so storage must be assured from the Slope to the Valdez terminal to the tanker fleet and ultimately at the refineries.

The refinery issues are expected to clear up soon. Spokesmen for BP Cherry Point failed to return phone calls seeking a status update. But a local newspaper report quoted one spokesman as saying the refinery is expected to resume normal operations in early May.

### No Slope proration

In effect, keeping some oil aboard tankers is “storage in motion,” BP’s Rinehart said.

Managers have decided it’s the best and safest option in some cases, he said.

“This is basically managing inventory,” Rinehart said. “We expect it to be short-term.”

Joyce Lofgren, a petroleum economist with the Alaska Department of Revenue, sees a reasonable explanation for BP back-hauling oil.

“The economics of storing the crude in the tanker for a trip back to Alaska must have been better than the price required to offload,” she said.

Lofgren also believes the “larger market situation” is at work, with high oil prices driving soft domestic demand and oversupply.

“Less consumption and more supply sends crude to storage, inventories build and refineries adjust their operations,” she said.

At the Valdez Marine Terminal, the crude working inventory since March has ranged from 41 percent to 90 percent of storage capacity, said Michelle Egan, spokeswoman for Alyeska Pipeline Service Co., which runs the terminal.

The good news for industry is that no proration, or curtailment, of oil production on the North Slope has been necessary this year, she said. ●

Contact Wesley Loy  
at wloy@petroleumnews.com

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## FURIE JACK-UP

announced a gas discovery.

Four tugs, from Foss and Crowley, assisted in securing the jack-up to the seafloor, Furie said, managing to position it within 1.5 feet of its original location.

After the rigs legs were pinned to the seafloor on April 24, Furie drilled a geotechnical bore hole at KLU 1. Another bore hole will be drilled at the KLU 2 well, which Furie plans to drill this summer, once it has finished with KLU 1.

“The data obtained from the bore holes will be used for engineering permanent production facilities, as anticipated in the recent Unit Plan of Exploration,” Furie

told the Division in an April 9 letter

In addition to the gas Furie has already found at KLU 1, there is a good possibility of finding further significant gas, deeper in the well, Furie President Damon Kade told legislators in March.

And the West Foreland formation, towards the bottom of the Tertiary sequence, at a depth of about 15,500 feet, may contain oil — the casing that Furie will install in its wells will be suitable for both gas and oil production, Kade said.

Furie was formerly known as Escopeta Oil Co.

—KAY CASHMAN

Contact Kay Cashman  
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## SHELL FLEET

had to show ... for the five to six years in which we've been preparing to drill," he said.

### Permitting and litigation

In addition to meeting the operational challenges of activating its drilling assets, Shell is addressing two other factors that are also critical to being able to start drilling: obtaining the necessary government permits and dealing with litigation that seeks to block the drilling, Henry said.

From a regulatory perspective, Shell either has obtained or expects to receive in good time all of the permits that it needs to start drilling as planned, Henry said.

However, the company has no control over the various lawsuits targeting its Arctic plans and faces significant uncertainty on the outcome of this litigation, he said. Following past experience of legal actions with unpredictable outcomes being launched shortly before the planned start of drilling, Shell this year has asked the court in Alaska to rule on the validity of the company's drilling plans, thus enabling the court to deal in a timely manner with litigation that Shell anticipates.

"We are confident that we are ready, willing and able to drill, that we can do so in a very safe and responsible manner, and we look forward to a successful (drilling) campaign this year," Henry said.

Appeals are currently in progress in the U.S. Court of Appeals for the 9th Circuit against the air quality permits for the Noble Discoverer, the drillship that Shell plans to use in the Chukchi Sea, and against the Bureau of Ocean Energy Management's approval of Shell's Chukchi Sea and Beaufort Sea exploration plans. An appeal against the lease sale in which Shell purchased its Chukchi Sea leases has also been filed in the same court.

### Shale gas

During the question and answer session Henry also commented on Shell's strategy in North America for the development of shale gas, and the potential for Shell monetizing its substantial North American natural gas resources through the manufacture of liquefied natural gas or liquids fuels.

With North American natural gas prices currently hovering around just \$2 per thousand cubic feet, Shell is moving its shale development efforts away from dry natural gas plays into what are referred to as liquids-rich shale plays, plays in which perhaps 50 percent of the production consists of natural gas liquids, rather than just the methane that constitutes dry natural gas, Henry said.

Natural gas liquids, with uses such as providing feedstock for the petrochemical industry, are more valuable than dry gas and currently command higher prices in North America.

Shell is operating just under 40 drilling rigs in North America and will probably shift more than half of these into liquids-rich opportunities, Henry said. The company

*Appeals are currently in progress in the U.S. Court of Appeals for the 9th Circuit against the air quality permits for the Noble Discoverer, the drillship that Shell plans to use in the Chukchi Sea, and against the Bureau of Ocean Energy Management's approval of Shell's Chukchi Sea and Beaufort Sea exploration plans. An appeal against the lease sale in which Shell purchased its Chukchi Sea leases has also been filed in the same court.*

is drilling in some acreage that it has picked up in the Texas Eagle Ford shale and has acreage in several other plays, including the Alberta section of the Bakken, he said.

### Appraisal activity

But, although natural gas production from shale has achieved some level of maturity and commercial understanding, Shell views liquids-rich shale development as an exploration or appraisal activity, with Shell's liquids production potentially coming on line in 2013, Henry said.

There are, for example, significant differences in the production characteristics between different liquids-rich plays and even within a single play, where wells as close as a kilometer apart can give quite different results, Henry said.

"This is an immature activity. It is not as mature as the gas and it's very difficult for anybody to project specific outcomes based on what we know about reservoirs," he said. "Almost all of our acreage is what we call emerging or frontier. None of it is mature to the extent of having a high level of production."

### Monetizing gas

With a substantial natural gas resource within its acreage, Shell is also seeking ways of making a profit from producing dry gas. The company is looking at a North American gas portfolio of more than 40 trillion cubic feet "which in a \$2 world we'd like to monetize as something other than natural gas," Henry said.

One possibility is the liquefaction of the gas for export to overseas markets where the price of liquefied natural gas, or LNG, is much higher than gas prices in North America. From this perspective, Shell is focusing on the potential export of LNG from Canada to Asian markets. LNG export from the United States looks possible but access to needed U.S. facilities appears expensive, Henry said.

In the United States Shell is considering the construction of a gas-to-liquids plant, producing materials such as diesel fuel, kerosene and naphtha from gas: The company is looking for a suitable site, either in Texas or Louisiana, with access to the existing support and gas infrastructures. The facility would replicate a major gas-to-liquids plant that Shell operates in Qatar. Shell wants

to use its lessons learned in Qatar to reduce the facility costs while improving production efficiency, Henry said.

Although the gas-to-liquids option appears attractive, Shell is still some time away from deciding on whether to pursue this project — if the project does go ahead it will likely be the end of this decade before a gas-to-liquids plant goes into operation. Other possibilities for monetizing gas are the use of natural gas as a transportation fuel and its use as a chemical feedstock. The chemical feedstock option consists essentially of a play involving the use of ethane in Pennsylvania, Henry said.

### De-risking

The conversion of gas to liquids would provide a means of de-risking Shell's gas portfolio in a world of fluctuating commodity prices by developing an exposure to liquids-related pricing for at least part of the portfolio. On the other hand, a reversion of North American natural gas prices to, say \$10 or \$11, would become an opportunity cost of liquids production — Shell's strategy is evolving as the company gains a better understanding of the economics of the different options and the company has not yet determined what proportion of its gas that it might want to convert to liquids, Henry said.

Assuming that Shell can produce its own natural gas at relatively low cost, with no requirement to purchase gas from external sources, gas-to-liquids is a play on long-term oil prices, becoming increasingly viable at higher oil price levels.

"That's how we think about it," Henry said.

### Chinese shale gas

In response to a question about the potential impact of shale gas development in China on LNG prices, Henry said that an answer to that question would not emerge for another 12 to 14 months.

Shell, working with PetroChina, completed 11 shale gas wells in China last year and hopes to complete about 25 wells this year, he said. The companies are trying to establish the potential for shale gas development in the country.

"We don't know that yet," Henry said. "That's what we're trying to help establish together with PetroChina, at least in the acreage where we're working together. ... By the beginning of next year we will have a much better feel for what's the real volume potential and what is the cost of producing that volume."

Once the economics of Chinese shale gas development become clearer the Chinese government will probably consider a long-term policy to encourage that development, Henry said.

The current Chinese government plan is to grow natural gas's share in the country's energy mix from 4 percent of demand in 2010 to 10 percent or more by 2020, Henry said, adding that this policy assumes the use of gas that is imported either by pipeline or as LNG. Chinese LNG prices are typically set on the coast, with inland gas prices then being linked back to those coastal prices, he said. ●

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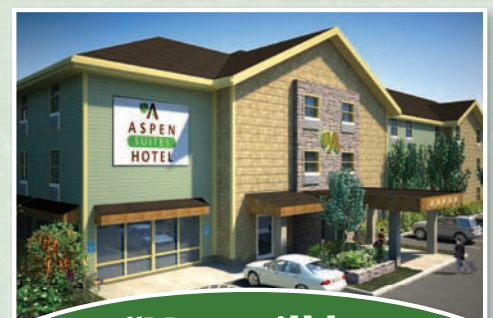
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## SPECIAL SESSION

effect, ended the special session.

The Senate's small Republican minority, in debate and votes on the floor, opposed the Senate's interpretation of the governor's ability or inability to remove items from the call, and that body's subsequent adjournment.

House Bill 9 remained on the call for the special session.

The House majority — Republicans and Bush Democrats — said the Senate had refused to work on the proposal in HB 9 to move an in-state gas pipeline project ahead.

The House Democratic minority opposed both the oil tax change and HB 9.

The House struggled to continue after the Senate left, but without the oil tax the only issue remaining was HB 9 which had been in the Senate since before the end of the regular session in mid-April. After efforts to redraft HB 9, the House followed the Senate out of Juneau April 30, adjourning sine die.

In a statement following House adjournment the governor said he supported the House decision to gavel out "after the Senate Majority failed to address the state's energy needs."

"By failing to consider HB 9, the Senate Majority has delayed shipping gas from the North Slope to Fairbanks and the Railbelt for at least one to two years," Parnell said.

### House Democrats

House Minority Leader Beth Kerttula,

D-Juneau, said April 26 that she believed the governor "needed to fish or cut bait on the oil tax and it was kind of a shock last night when we all saw him cut bait."

She called it "a good day for Alaskans. There was no reason to have a \$2 billion a year giveaway that gives away roads, schools, our ability to see good strong jobs for Alaskans."

Minority Whip Berta Gardner of Anchorage said "the administration simply failed to make the case" for its oil tax changes. She said administration officials "were unprepared to answer obvious questions; they answered inaccurately; they said they'd get back to us and failed to do that; and lastly they told us to ask the oil industry."

Rep. Pete Petersen of Anchorage said he was surprised by the governor's withdrawal of oil taxes, but said "we have been making the case the entire session — we didn't feel that there was a need to lower oil taxes, especially on the legacy fields."

On HB 9, Rep. Scott Kawasaki of Fairbanks said energy relief is a concern for Fairbanks, but that area also wants to make sure it's at an affordable price, "and House Bill 9 as it crossed over to the Senate was a plan that missed Fairbanks by 40 miles, would have added an extra billion-dollar straddle plant so that Fairbanks, once again, is helping to pay for a line that's not economic" with gas from the line more expensive in Fairbanks than it would have been in Anchorage.

Petersen said that with the tax credits the Legislature passed for Cook Inlet explo-

ration and additional rigs posed for drilling there this year, "I believe we need to give the explorers a chance to use those credits and find more natural gas in Cook Inlet."

### The Senate's view

Members of the Senate Bipartisan Working Group met with the press after the Senate adjourned April 26.

Senate President Gary Stevens, R-Kodiak, said that since the governor had removed oil tax legislation from the special session call, "I see little option for the Senate other than to bring this session to an end."

He said the Senate was holding hearings on the governor's oil tax bill, but was "disappointed in the administration's poor performance throughout this special session. They could not adequately defend the governor's plan."

On HB 9, in the Community and Regional Affairs Committee, Stevens said the chair of that committee, Sen. Donny Olson, D-Golovin, said there weren't the votes in the committee to move the bill. Stevens said he didn't think there were the votes in other committees or in the majority caucus to pass the bill out of the Senate.

Stevens said the Senate Bipartisan Working Group did not "set out to oppose the governor at every turn — that's not the case at all. It is that we honestly and respectfully disagree."

He said the administration had not proved its case for an oil tax change.

"We are fairly being blamed for asking tough questions — but that's our job," Stevens said. "And it's the administration's job to answer those tough questions."

There are billions and billions of dollars at stake, he said, "We just have to be convinced with expert testimony, with adequate defense of the governor's bill, with answers to basic questions, with study and analysis."

The governor's tax bill was in Senate Resources during the special session, and the co-chair of that committee, Sen. Joe Paskvan, D-Fairbanks, said he'd requested that the committee hear "from Gaffney Cline, the governor's advisor." He said Gaffney Cline "is well respected and we were hoping to engage in the policy discussion with the advisors to the governor."

Since the Senate asserted that the governor did not have the ability to withdraw a subject from the call, they could have continued on, but since the governor had withdrawn oil taxes from the call, "it's unlikely that we're going to receive access to the governor's advisors" for a policy discussion, Paskvan said.

### House majority view

Following the Senate's adjournment on April 26, the House majority held a press conference — it held another one April 30, after the House adjourned sine die.

On April 26, House Speaker Mike Chenault, R-Nikiski, said he was disappointed that the Senate "refused to take up House Bill 9 in any credible manner."

By leaving without addressing HB 9, the Senate "has delayed in-state gas by in my estimation of minimum of a year and probably longer," he said.

HB 9 was a complicated bill which included giving the Alaska Gasline Development Corp. access to pre-approved funding to get through an open season and exemption from Alaska's public information requirements in business dealings.

Chenault said there was a committee substitute proposed to the Community and Regional Affairs chair that would have allowed AGDC "to build a line from Cook Inlet to Fairbanks" and said the Senate, "by their inaction ... effectively killed any opportunities for Fairbanks to have a gas pipeline anytime in the near future."

Rep. Mike Hawker, R-Anchorage, co-sponsor of HB 9, said opponents of the bill have played "awfully loose" with the facts.

He said statements that Cook Inlet is "awash in gas" are difficult to support with Southcentral utilities "developing plans to build LNG import plants" just to meet base-load natural gas needs in the area.

As for U.S. Geological Survey projections that there may be as much as 19 trillion cubic feet of natural gas in Cook Inlet, he noted USGS recently cut its estimation of oil in the National Petroleum Reserve-Alaska "by over 90 percent."

He said he and Chenault "don't want to bet our communities" on the possibility of 19 tcf of natural gas.

Chenault said some have claimed that bringing North Slope natural gas to Cook Inlet would kill Cook Inlet exploration. He said he has letters from Cook Inlet explorers saying they don't think a line to Cook Inlet would hurt exploration, and in fact, that a line with some sort of export facility would give them an opportunity to sell gas that they find.

Hawker noted that HB 9 had "a number of critical elements that would be universally applied to all gas pipeline development in the state." The regulatory structure in the bill would apply to a standalone pipeline under the auspices of AGDC or a larger line under the Alaska Gasline Inducement Act, AGIA, he said.

Hawker said the Senate refused to consider the work the House did on House Bill 110 in 2011.

So the Legislative Budget and Audit Committee engaged consultants to support work in the Senate.

"Over the course of the past three months, our friends in the Senate have spent nearly \$650,000 with those consultants to develop a new method of calculating progressivity," he said, a method based on the gross value of oil.

But the tax on new oil only that the Senate sent the House on the last day of the regular session, "reverted back to net progressivity," Hawker said.

That mechanism was never stress tested by consultants engaged to support the Senate, he said.

Hawker said he did some rudimentary stress testing and found that for frontier basins at oil prices of about \$100 a barrel, "those basins had no taxes for a long time."

"Now to me, that's a real giveaway," he said. "We're basically giving away more upfront tax credits but still not getting any long-term production in this state."

—KRISTEN NELSON

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