Petroleum News
Bakken

page 8 With 75% held by production and $475M Halcon to drill best first

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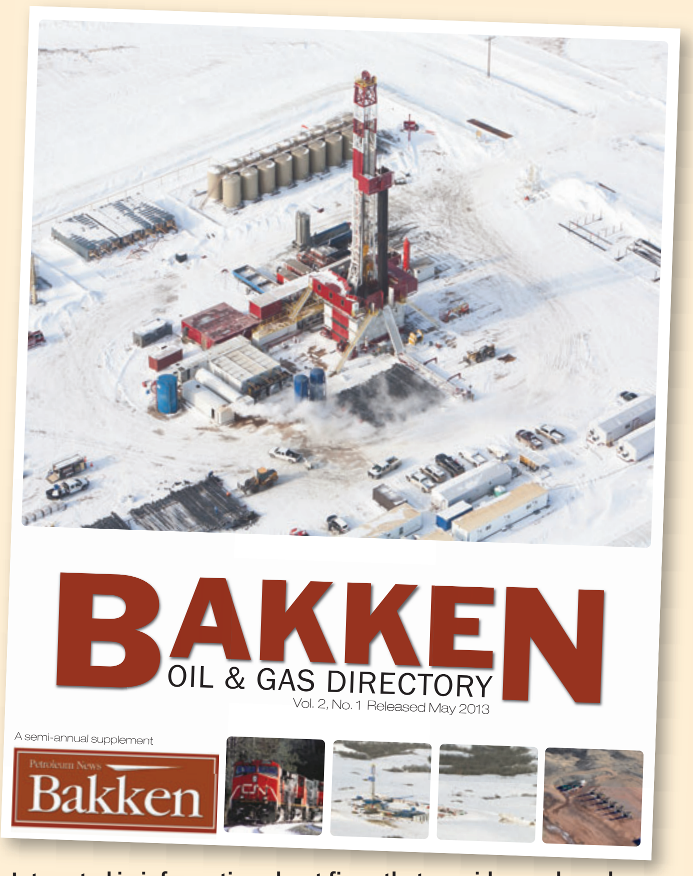
Second edition coming April 30



Interested in information about firms that provide goods and services for oil companies in the Bakken? The Bakken Oil & Gas Directory lists all the operators in the Williston Basin's Bakken/Three Forks play, as well as service, supply, equipment, financial, construction, transportation, housing and other active firms. News items, company profiles and photo features provide more information about those companies that serve the oil and gas industry in the Williston Basin of North Dakota, Montana, Saskatchewan and Manitoba. The second edition of the Bakken Oil & Gas Directory will be released April 30 at the region's largest oil and gas conference, the 21st annual Williston Basin Petroleum Conference, which runs from April 30 through May 2.

Soaring demand for crude cars

United States rail car manufacturers should have enough units on the rails to carry 2 million barrels per day by the end of 2014, well over double what is currently extracted from the Bakken shale basin, according to an rail industry advisor.

Of the current tank car backlog of about 48,000 as many as 30,000 are needed for crude petroleum, Toby Kolstad, who runs the firm Rail Theory Forecasts told the National Post, and the firm is counting on thousands of cars coming off the production lines at Trinity Industries, Union Tank Car and Greenbrier.

Industry observers believe that up to 40 percent of the orders will come from Canadian oil producers anxious to get their volumes from the Alberta oil sands and Saskatchewan Bakken to

see CRUDE CAR DEMAND page 16

Bakken, sands point to exports

Growth in unconventional crude from sources in the Bakken and the Alberta oil sands will see North American become a net exporter of petroleum liquids in the 2020-22 period, the Hart Energy-Canadian Society for Unconventional Resources conference in Calgary was told Feb. 27.

Terry Higgins, director of refining at Hart Energy, predicted shale oil alone will boost output by 2.6 million-2.8 million barrels per day, while the oil sands will add another 2.5 million bpd, along with 800,000 bpd of natural gas liquids, offset by a drop in gasoline demand of 600,000 bpd.

The result will be a need to move the surplus crude, much of it coming from the U.S. mid-continent, to new markets, Higgins said.

He said the pressure is on to consider "sooner than some people realize" the options for exporting crude, although

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COMPANY UPDATE

Pressure theory

Continental builds case for additional Bakken system oil recovery

By RAY TYSON

Petroleum News Bakken

Williston Basin exploration pioneer Continental Resources has learned that the various layers making up the Bakken petroleum system are encased and under "very, very similar" high pressure, meaning a lot more oil than currently estimated by the company may ultimately be recovered from the massive system.

The physics behind the pressure theory may help explain why the Oklahoma-based E&P independent is so bullish on the play. Last October it announced a highly ambitious goal of tripling production and reserves by year-end 2017, with the Bakken taking the lead role in the effort.

In addition to the 20 exploration wells to test Three Forks benches, Continental is launching a separate 47 well density program divided into four separate projects. These wells will be stacked in various zones in an effort to come up with the best development pattern.

In addition to oil saturation, "high pressure greatly increases the odds that I'm going to have producible reserves," Warren Henry,

see PRESSURE THEORY page 14

COMPANY UPDATE

Possible game changer

Kodiak's well-completion technique increases production, recoverable reserves

By RAY TYSON

Petroleum News Bakken

LYNN PETERSON

Kodiak Oil & Gas Corp. may have hit on a company game changer with a well-completion procedure that appears to strengthen production of nearby wells while increasing the amount of reserves that can be recovered from the field.

The theory began to unfold for Kodiak during the second half of last year, when the company said it observed evidence of "communication" between wells during fracture stimulation procedures.

"As a result of that, we decided to revise our completion procedures," Lynn Peterson, Kodiak's chairman and chief executive officer, said during a May 1 conference to discuss fourth quarter and year-end 2012 financial and operating results.

Temporarily shutting in wells help

Based on the observations, he added, Kodiak decided to temporarily shut down all producing wells within the immediate vicinity of new wells being completed.

"With this approach we are seeing a positive response from the shut-in wells once they are returned to production, which leads us to believe

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GEOLOGY & ECONOMICS

Separating the Bakkens

Scott: Canada economics 'truly shine'; US deeper, wider, more productive

By GARY PARK

For Petroleum News Bakken

GIBSON SCOTT

The Bakken is the Bakken is the Bakken. Right?

And there's no difference between apples and oranges?

Like a lot of things on either side of the 49th parallel, from geology to economics the U.S. Bakken in North Dakota and Montana and the Canadian Bakken in Saskatchewan are as dissimilar as they are alike.

Gibson Scott, energy research director at ITG Investment Research, laid out some of the reasons why in late February at the Hart Energy-Canadian Society for Unconventional Resources second annual conference in Calgary in developing unconventional in Canada.

"About the only thing they have in common is that they both begin with the letter B," he said.

Differences in geology play a key role in creating two very different resource plays, Scott said.

Overriding many of the varying characteristics he said the Canadian Bakken presents many better economics than its U.S. peer.

"In terms of economics, the Canadian Bakken truly shines," Scott argued, estimating that the cost of completing a U.S. Bakken well has climbed to $9 million from $6 million in 2009,

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● MOVING HYDROCARBONS

Hopeful sign for Bakken outlet

Department of State draft report says XL pipeline would have 'no significant impact' on air, water quality, or emissions

By GARY PARK
For Petroleum News Bakken

A draft environmental impact statement by the U.S. Department of State has concluded that TransCanada's Keystone XL pipeline can deliver crude as safely as any other means, including rail, and that rejection of the project would not have any substantial impact on development of the Alberta oil sands or the volumes of heavy crude that would be refined in the Texas Gulf Coast region.

RUSS GIRLING

The report based that assumption on TransCanada's willingness to accept mitigation measures relating to groundwater, air quality and greenhouse gas emissions.

It's not the final word on the planned shipment of 830,000 barrels per day to Cushing, Okla., and the Gulf Coast — including a badly needed market outlet for about 100,000 bpd of Bakken production.

A 45-day public comment day starts when the statement is posted on the U.S. Environmental Protection Agency website.

At the end of that process, the Department of State will prepare a final impact statement, after which a National Interest Determination period will begin, when the department will obtain the views of other agencies about whether to grant or deny a permit to TransCanada.

Final verdict this summer

That final verdict, expected in July or August, will be made by President Barack Obama and Secretary of State John Kerry, neither of whom has expressed unqualified support for Keystone XL, raising anxiety levels among Canadian petroleum industry and government leaders and cross-border tensions.

The premiers of Alberta and Saskatchewan, Alison Redford and Brad Wall, are piling up air miles as they buttonhole lawmakers and anyone who will listen in Washington, D.C., while political pundits are warning that the demise of Keystone XL could send U.S.-Canada relations into an abyss.

Wall, whose province might contribute small volumes from its own Bakken fields to XL, has become Redford's strongest ally in calling for approval of the pipeline, while federal Natural Resources Minister Joe Oliver said he does not expect the U.S. to reject the pipeline when it makes a decision by mid-2013.

But even Oliver shows his doubts. "I remain cautiously optimistic. A rejection, which I do not anticipate, would give even more impetus for us to move (crude) west and east, but we're not anticipating that result."

Deep freeze on relations

The Globe and Mail cited unnamed Canadian government officials as saying Canada would regard an XL rejection as a betrayal that would push cross-border relations into a deep freeze "the likes of which have never been seen."

Oliver declined to enter that arena. "I wouldn't view it as a betrayal. We're hope (the U.S.) will do the right thing. The basic relationship between Canada and the United States remains very strong," he said.

However, Oliver continued to hammer on a Canadian theme, saying the Alberta oil sands are responsible for just 0.001 percent of global greenhouse emissions.

"We think we have science and facts on our side," he said.

Insiders less bullish

Canadian government insiders are less bullish, largely because they are uncertain where Obama's loyalties lie between his promises — endorsed by Kerry — to take action on climate change and his pledge to achieve energy self-sufficiency for the U.S.

Derek Burney is a former Canadian ambassador to the U.S. and now a TransCanada board member — someone with an insight in the key camps.

He said rejection of XL would be a "huge boulder on the road of bilateral relationship," although he conceded such a decision might accelerate pipeline construction from the oil sands to the British Columbia coast for shipment to Asia and from Western Canada and the Bakken to eastern Canada and the U.S.

Jack Mintz, one of Canada's leading economists and director of the School of Public Policy at the University of Calgary, wrote in the National Post in February that "it is hard to fully understand why the Canadian oil sands have become the poster child for environmental movements when far bigger environmental issues lie at the doorstep of U.S. and Chinese coal plants."

"The most significant economic benefit to the U.S. in importing Canadian oil is that it is much cheaper compared to other foreign oil — U.S. refineries with excess capacity would be able to substitute oil priced roughly US$15 per barrel below other imported oil.

"Although it is expected the (price) differentials will eventually be eliminated as pipelines are built from Cushing, Okla., to the Gulf Coast, the U.S. domestic price for oil products will decline due to cheaper transport and overall costs for Alberta oil," he said.

"This could be a significant benefit to manufacturers and other industries in the U.S. with reliable cheap energy already being helped by cheap natural gas."

Saskatchewan lesson

Wall, who estimates that the U.S. relies on coal-fired plants for 38 percent-40 percent of its power needs, said Saskatchewan has a lesson to teach the U.S.

A provincial investment of C$1.4 billion in a "clean-coal" project in near Estevan works out at a cost of C$1.40 for every man, woman and child in Saskatchewan, he said.

"I'm not sure of another jurisdiction in North American that can make that claim," Wall said, noting that if the experiment succeeds the benefits could be passed on to the U.S.

Redford has also told U.S. lawmakers that Alberta is doing its part to reduce greenhouse gas emissions that result from carbon intensive projects like the oil sands, emphasizing that her government is the only North American jurisdiction to tax heavy emitters.

Gary Doer, a former Manitoba premier and now Canada's ambassador in the U.S., said Canada is "not interested in gimmicks (on climate change measures), we're interested in real action, both on energy security in North America and in reducing greenhouse gases."

Redford said the draft statement is "important because it showed that a decision not to proceed with the pipeline would not have the desired outcome that some environmental NGOs (non-government organizations) think that it might."

However, the report does say oil sands crude emits 17 percent more greenhouse gases than the average barrel of oil refined in the U.S. in 2005.

Onstream in '14 or '15

Russ Girling chief executive officer of TransCanada, said XL could still be on

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● DRILLING & COMPLETION

Shale 'resetting' American production

Unconventional plays such as the Bakken promise to bring production back to midcentury highs, but price impacts could follow

By ERIC LIDJI
For Petroleum News

Unconventional oil is poised to "reset" energy markets, lifting U.S. production above its midcentury peak and upending global prices, according to an analyst with PFC Energy.

Calling it the "Great American Energy Reset," Janak Mayer, manager of upstream issues for the global consulting firm, recently told members of the Alaska Legislature, which is looking at ways to increase industry investment by changing the state oil tax system.

The "reset" refers primarily to oil production. By 2020, daily domestic oil production is expected to approach the peak levels reporting in the late 1960s, according to PFC forecasting. With shale oil production expected to reach 4 million barrels per day by the end of the decade, total domestic oil production could top 9 million barrels per day.

With 4 million bpd of expected production growth, North America could easily pull prices down.

This reset is already impacting global markets, in both expected and unexpected ways.

Unconventional oil plays across the Lower 48 have boosted domestic production in recent years, but they have also helped change the global flow of industry investment.

Between 2003 and 2005, the oil industry earned more than it spent in North America, Latin America, Europe and the Asia-Pacific, and spent more than it earned in sub-Saharan Africa. But between 2008 and 2010, the industry reported these "cash deficits" in North America and Latin America, meaning the western hemisphere is now "a major destination for investment," Mayer said, and getting capital from the rest of the world.

"It's the rare major that isn't plowing cash into the Lower 48 shale plays," he said.

Non-OPEC production increasing

While non-OPEC regions will remain "price takers," where companies invest as the market allows, and OPEC will continue to play "a balancing role" by influencing prices through production, the growth of North American shale, tight oil and oil sands means production from non-OPEC regions is increasing for the first time in decades and will therefore increasingly be a factor in the OPEC decision-making process, Mayer said.

For example, with Iraqi oil production already on the rise, and the possibility of Iranian oil production resuming if diplomatic efforts lead to the end of sanctions, Saudi Arabia would have to cut its production to 5 million bpd from 9 million bpd to balance global markets, a scenario the leading oil producer finds "intolerable," Mayer said. With 4 million bpd of expected production growth, North America could easily pull prices down.

So while strong global economic growth or geopolitical instability could push oil prices up in the decade to come, this "reset," along with an economic slowdown or the unwillingness of OPEC to cut production, could push oil prices down in

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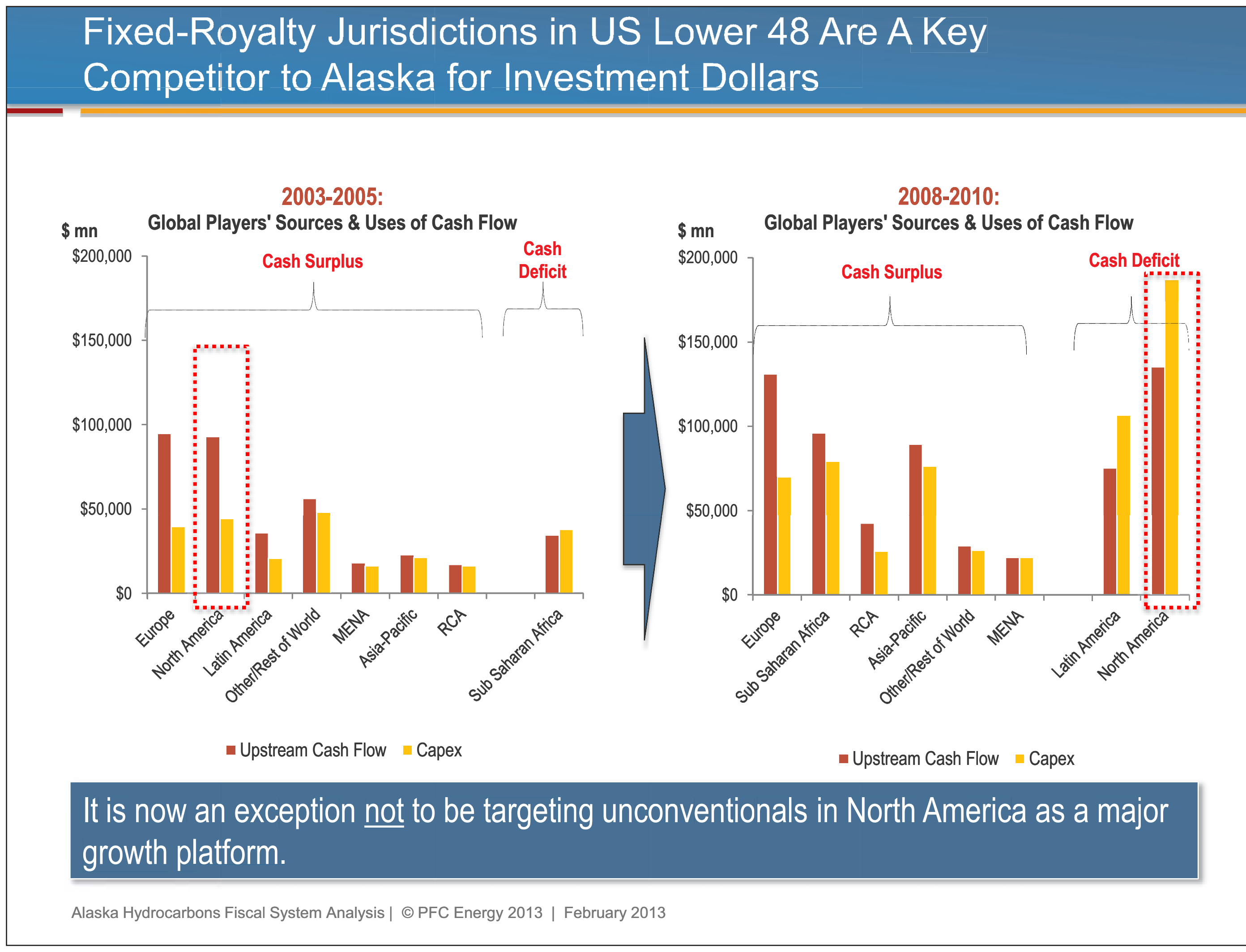

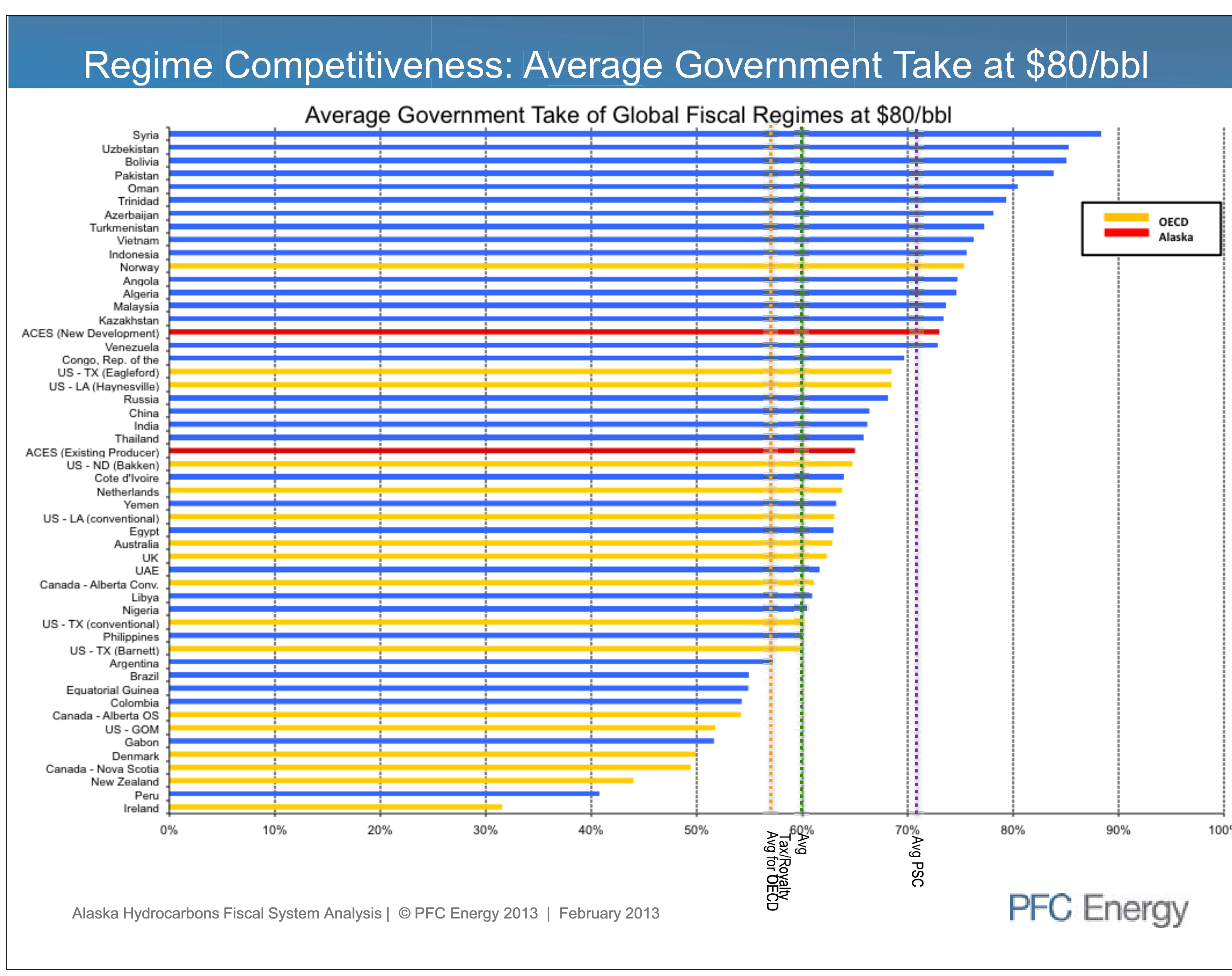

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UNCONVENTIONAL OIL

the near term.

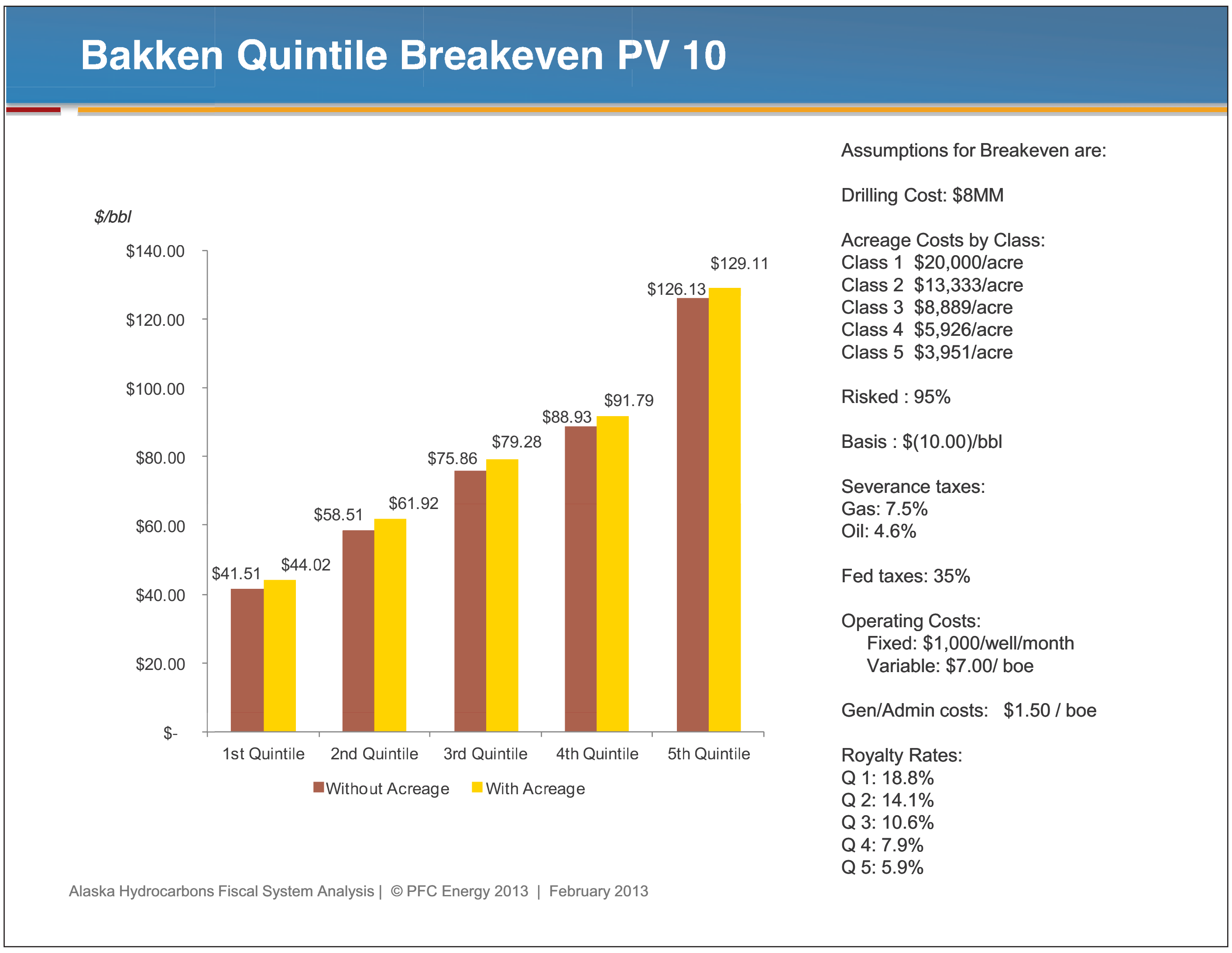
Quintiles of economics

The challenge, though, is the volatility of unconventional oil.

Because shale plays have notoriously steep decline curves, maintaining production requires drilling more and more wells each year, but the breakeven price for drilling new wells varies greatly from one play to the next and even within one play. To measure this volatility, PFC divides each play into "quintiles," five groups based on productivity.

In the Bakken, the average breakeven cost of a well in the first quintile is $44.02 per barrel, or about half the current price, while the average breakeven cost of a well in the fifth quintile is $129.11 per barrel, nearly 50 percent higher than the current price.

Considering this spread, "You would quite happily keep drilling in the Bakken in a very low oil price environment if what you were drilling was in the absolute sweet spot of the play where you can reliably get a first quintile well to come online," Mayer said. "There are other parts of the Bakken that it's really not economic to drill at current prices."



The situation is even starker in the Eagle Ford, where the average breakeven cost of a well in the first quintile is a modest $47.10 per barrel, but the average breakeven cost of a well in the fifth quintile is $266.45. While nearly one-third of all wells drilled in the Bakken are in the first quintile, nearly half of all Eagle Ford wells are in this top tier.

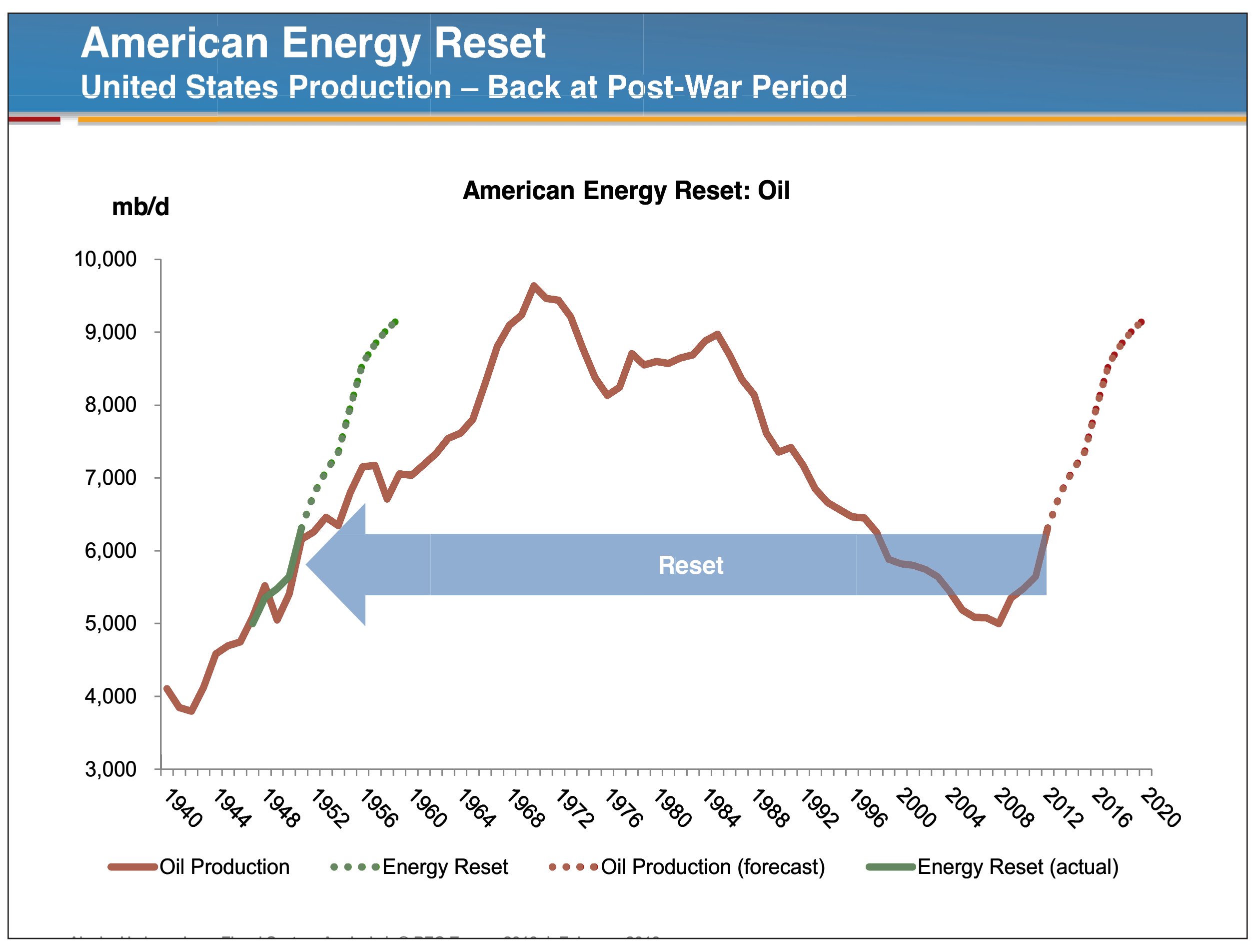
And in the Granite Wash, a tight oil play in the Texas Panhandle, the economics vary even further. The average breakeven cost of a well in the first quintile is $104.41, only marginal at current prices, while the average breakeven cost of a well in the fifth quintile is $589.45 per barrel, a price unlikely to occur outside of some apocalyptic scenario.

These varying economics show how "with changes in the oil price, one has potentially very significant changes in drilling activity and future production," Mayer said. While Saudi production remains profitable at a wide range of oil prices, and Alaska production can be somewhat slow to respond to market signals because of the concentration of industry players, the least productive wells in the Lower 48 will fall off at low prices, he said. But the most productive wells can produce at "surprisingly" low prices, he noted.

Regressive fiscal regimes

Even so, the unusual royalty structure of shale plays impacts their competitiveness.

According to PFC, the average government take is around 60 percent when oil prices are around $80 per barrel — with the average dropping to 57 percent among tax and royalty regimes and climbing to 70 percent among regimes with production sharing contracts.



Because shale plays are largely on private land, the high costs combined with fixed royalty rates can lead to regressive fiscal regimes. So at $80 oil, the average take in the Eagle Ford is around 68 percent while the average take in the Bakken is 65 percent, but at higher oil prices the average take in these shale plays moves closer to the global average. ●

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KEYSTONE PIPELINE

stream by late 2014 or early 2015, adding "I believe this was a very good day for the Keystone project."

The report "again confirms the fact that the U.S. will continue importing crude for decades into the future. This isn't an issue of alternative energy versus fossil fuels. This is really just a question of where do you want to get your oil from, given that you're going to need it."

Gillian McEachern of Environmental Defense in Canada said the pipeline would be responsible for a massive increase in production from the oil sands, which she blamed for Canada's failure to "take climate change seriously. If built, the pipeline would be responsible for a whopping rise in carbon pollution."

The National Wildlife Federation said the environmental analysis "fails in its review of climate impacts, threats to endangered wildlife like whooping cranes and woodland caribou, and the concerns of (aboriginal) communities."

Jim Lyon, the federation's vice president for conservation policy, said that if Obama rejects the proposal, billions of tons of climate-disrupting carbon pollution would remain locked in the ground.

Marty Dubin, executive vice president of the American Petroleum Institute, said that no matter how many times XL is reviewed "the result is the same ... no significant environmental impact," predicting the draft report "puts this important, job-creating project one step closer to reality." ●

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● COMPANY UPDATE

WPX boosts Bakken production

Shift to multi-well drilling driving growth; company expects additional increases in the coming year; costs coming down as well

By ERIC LIDJI
For Petroleum News

WPX Energy Inc. is hitting its stride in the Bakken.

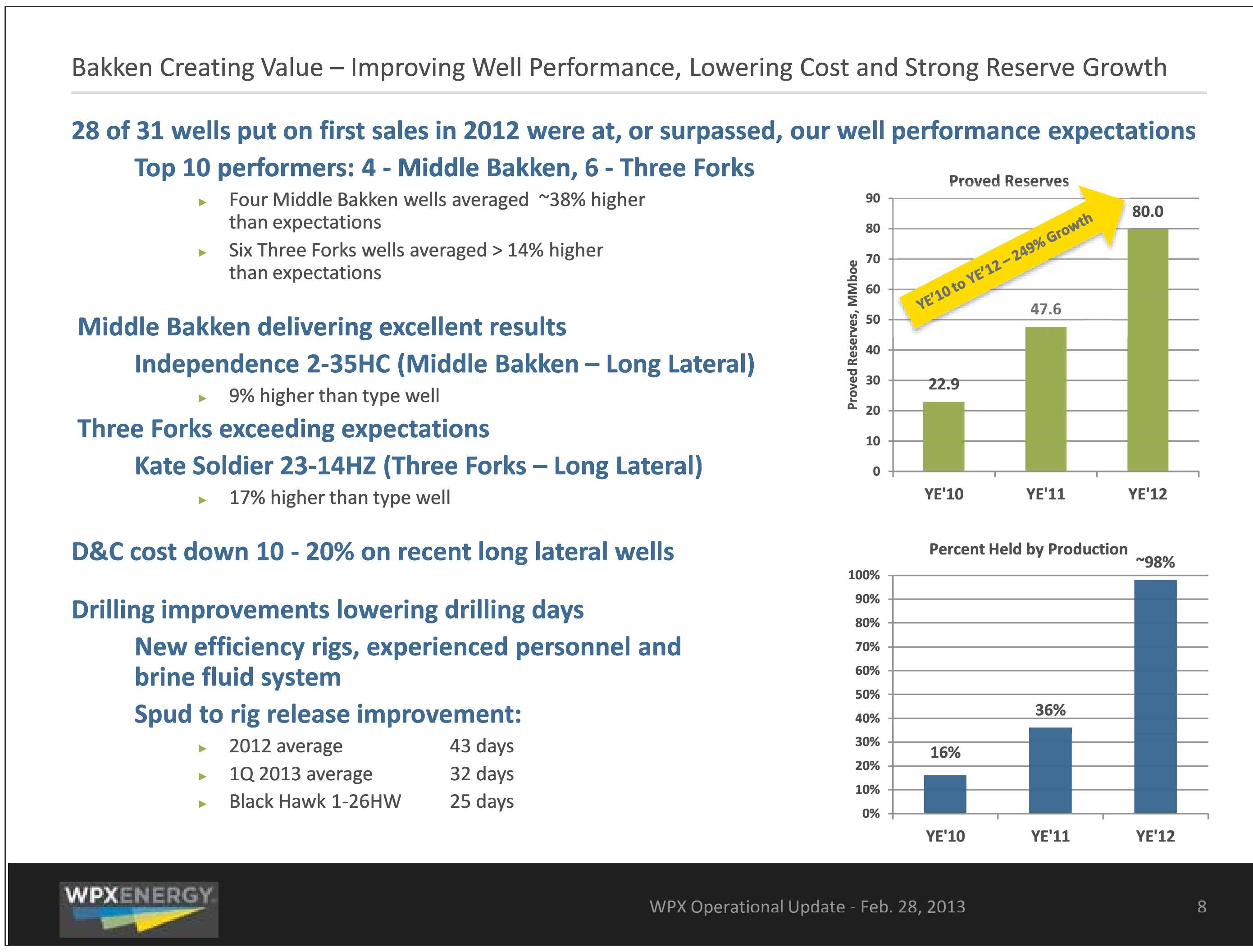
In 2012, the Oklahoma-based company nearly doubled its production out of the Williston Basin, while lowering its well costs and making a shift to multi-well drilling pads.

"The efficiencies are just now starting to kick in there," CEO Ralph Hill said during an earning call Feb. 28, "so we're feeling very good about where we're headed there."

RALPH HILL

WPX produced some 9,500 barrels of oil equivalent per day from its Bakken-area properties in 2012, up 98 percent from 4,800 bpd produced in 2011. In the fourth quarter, the company produced some 11,400 bpd from the Bakken, up 78 percent from the fourth quarter of 2011. And the company closed out the year producing some 11,600 bpd from the play.

All told, the Bakken accounted for more than half of WPX's total oil production in 2012, and WPX expects Bakken production to grow between 25 and 30 percent this year.



WPX is almost completely through with the "one and gone" wells required to hold acreage with production and is increasing drilling multiple wells on each pad.

7 percent of wells in Bakken

Of its 548 gross (367 net) wells across the United States last year, WPX drilled 41 gross (27 net) wells in the Bakken, or about 7 percent of its total drilling activities. Of the 31 Bakken wells WPX brought online last year, 28 surpassed performance expectations, with many coming in "significantly higher than our type curves" of 800,000 barrels of oil equivalent for the Middle Bakken and 600,000 boe for the Three Fork, Hill said. The top 10 performers included four Middle Bakken wells averaging some 38 percent above expectations and six Three Forks wells averaging some 14 percent above expectations.

Specifically, the Independence 2-35HC long lateral into the Middle Bakken is producing about 9 percent above the type curve and the Kate Soldier 23-14HZ into the Three Forks is producing about 17 percent above the type curve, according to company data.

Even with the good production news, though, WPX reported a net loss of $223 million for 2012, up from a net loss of $302 million in 2011, as expenses outpace revenues.

Of its $1 billion to $1.2 billion budget for 2013, WPX expects to spend between $765 million and $950 million on its "core developments" of the Piceance, the Bakken and the Marcellus, with between $360 million and $380 million of that going toward the Bakken.

WPX holds some 84,205 net acres in the Bakken region, with 80 million barrels of oil equivalent of proved reserves and 173 million barrels of oil equivalent of 3P reserves.

Increased efficiencies

Alongside those improvements, WPX is drilling more efficiently.

In 2012, WPX essentially completed the backlog of wells it needed to drill to hold its acreage and now the company can drill numerous wells from each pad, a luxury unavailable when development dollars must be spent on single wells to hold acreage.

With the increasing shift to more efficient multi-well drilling, WPX said its costs are down some 10 to 20 percent over 2011. Even so, WPX is spending between $10.5 million and $11 million per well in the Bakken, a range Hill said is similar to what other leaseholders around the Fort Berthold Indian Reservation are spending, but acknowledged is higher than it might be because WPX insists on using ceramics for its well completions. The ceramics add $1 million to each well "but we think it's a better performer," Hill said. While noting that WPX is aiming for average well cost of $10 million in the Bakken, Hill said the company is unlikely to hit the target this year.

Faster drilling

Also helping to bring down well costs is quicker drilling times. WPX recently drilled the Black Hawk 1-26HW well in a record 25 days from spud to release, and believes it can beat that record in the coming year, according to Hill. After averaging 43 days per well in 2012, WPX said it is currently averaging 32 days per day in the first quarter of 2013.

"We know we have a ways to go there, but the team has done the right things," Hill said.

Among the factors bringing down drilling times are "eliminating or greatly reducing trouble time" on rigs, changing out vendors and converting three rigs to brine drilling fluid systems, according to Senior Vice President of Operations Bryan K. Guderian.

Because of these efficiencies, WPX expects its drilling levels this year to be roughly the same as last year at around 40 gross wells, but its rig count to fall from six to four. ●

Contact Eric Lidji at ericlidji@mac.com

● COMPANY UPDATE

Halcon 4Q output up 349 percent

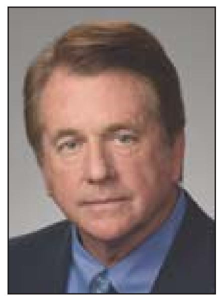
With 75% of acreage held by production and $475M budget in 2013, it can now drill the best of the best in its Bakken anchor play

By MIKE ELLERD
For Petroleum News Bakken

Halcon Resources announced on Feb. 27 that its average net daily production in 2012 reached 9,404 barrels of oil equivalent per day, an increase of 128 percent over its 2011 production. Even more impressive, however, was the company's fourth quarter 2012 average net daily production of 18,348 boepd, which was a 349 percent increase over its fourth quarter of 2011 production. Of the total fourth quarter production, 75 percent was oil, 19 percent was gas and 6 percent was natural gas liquids.

When production from the company's 2012 GeoResources and Petro-Hunt acquisitions are included, Halcon's pro forma average daily output in fourth quarter 2012 was 25,340 boepd, half of which, some 12,710 boepd, was from the Williston Basin. Halcon's pro forma fourth quarter Williston Basin production was a 41 percent increase over its pro forma 7,518 boepd average daily production in the first quarter of 2012. In addition, 45 percent of the company's 108.8 million in proved reserves boe are in the Williston Basin.

Halcon has three core plays: the Woodbine in East Texas, the Utica/Point Pleasant in Ohio and Pennsylvania, and the Bakken. The Bakken, however, constitutes a significant share of the company's production. Within the Bakken, Halcon is focused on four areas of higher internal rates of return, IRR: the Fort Berthold area of McKenzie and Dunn counties, the Marmon and New Home II areas in Williams County, and the Eastern Montana area in Roosevelt County. Approximately 75 percent of its 130,000 acres in the Bakken is held by production, or HBP, and approximately 81 percent is operated. The company reports proved Williston Basin reserves of over 48 million boe, which is estimated at 91 percent oil and natural gas liquids.


FLOYD WILSON

"The Bakken/Three Forks, one of our anchor plays, contributed approximately 50 percent of pro forma production in the fourth quarter of last year and accounts for approximately 45 percent of total proved reserves," said Halcon Chairman and Chief Executive Officer Floyd Wilson in a Feb. 28 conference call. "We own over 130,000 net acres in the Williston Basin. This year and next we'll spend the majority of our drilling and completion budget on the highest IRR locations, signifying that lease capture is essentially behind us."

What's ahead in 2013?

Halcon is targeting both the Bakken and Three Forks formations in its North Dakota focus areas in 2013. With literally hundreds of drill locations, and with its lease capture essentially complete, Wilson said the company can now focus its rigs in the Fort Berthold area and "drill the very best of the best first." After that, he said, Halcon can then fine tune its drilling and completion practices as the company branches out to other areas.

The company is planning to spend a total of $1.2 billion on drilling and completion in 2013, of which $475 million is slated for it Bakken operations. It plans to operate six to eight drill rigs and spud 65 to 75 gross operated in wells in the Williston Basin where it has an average working interest of approximately 63 percent. The company also plans to participate in 90 to 100 gross non-operated wells where it has 10 percent to 12 percent average working interest.

Increasing efficiencies

Wilson said Halcon is taking a number of steps to improve overall well economics in its Williston Basin operations.

"Our goal in the Williston Basin is to increase recoveries by up to 25 percent while lowering costs by about that same amount."

In the Bakken, he said, Halcon has begun a move to full-scale pad drilling that includes the high-efficiency skid-capable rigs. He said the company is also presetting surface casing on wells, implement batch drilling on intermediate and production intervals, modifying motor and bit configurations in the curves and laterals, and utilizing more geosteering tools in the laterals for better targeting.

On the completion side, Halcon is developing a petrophysical model to aid in optimizing completion techniques. The company is also increasing frack stage density from 30 to 25, increasing proppant from 100,000 pounds to 120,000 pounds per frack stage, and has changed the fluid design to a slightly lighter gel. In addition, the company has eliminated blast joints in favor of swell packers in its completions, and is conducting perf and plug completion projects in it Fort Berthold and Marmon areas. The company is also incorporating frack strings in its completions for improved safety and flow back.

Flaring

Halcon also reported that it is currently flaring approximately 6 million cubic feet of gas per day in the Williston Basin due to infrastructure constraints, and that the flared gas negatively impacted production by approximately 300 boepd. However, Wilson said the company is addressing that issue. "We expect to have a solution in place for most of this flaring by the end of this year."

Some fourth quarter well stats

In the Williston Basin, Halcon said it put 31 wells online in the fourth quarter, and that currently it has 123 wells producing there, 95 of which are Bakken wells. The remaining 28 are in the Three Forks formation. The company has another six Bakken wells and two Three Forks wells that are either completed or awaiting completion, with yet another five Bakken and three Three Forks wells being drilled.

Of the 31 wells that went online in the fourth quarter, 17 are in the company's Fort Berthold area, eight of which are Bakken and the other nine are Three Forks wells. The company reported that the eight Bakken wells which have been producing over 30 days, i.e., "applicable" wells, had an average 24-hour initial production, IP, rate of 1,544 boe per day and an average 30-day IP of 780 boepd. Those productions consisted of 83 percent and 84 percent oil, respectively. These wells had an average effective lateral length of 10,020 feet and were fracked with an average of 26 stages.

Average 24-hour and 30-day IPs for the applicable Three Forks wells in the Forth Berthold area were 1,472 boepd (84 percent oil) and 823 boepd (82 percent oil), respectively. The average effective lateral length of the nine Three Forks wells was 9,987 feet and those wells averaged 25 frack stages at completion.

Additionally, Halcon put one Bakken well and one Three Forks well online in the Marmon area in the fourth quarter. The company reported average 24-hour and 30-day IPs for the Bakken well of 836 boepd (91 percent oil) and 505 boepd (96 percent oil), respectively. The 24-hour and 30-day IPs for the Three Forks well in the Marmon area were 531(100 percent oil) and 245 boepd (90 percent oil), respectively.

In its New Home II core area, Halcon brought 10 Bakken wells online in the fourth quarter. The average 24-hour and 30-day IPs for applicable wells in that area were 646 boepd (90 percent oil) and 282 boepd (88 percent oil), respectively. The average effective length of the laterals of those 10 Bakken wells is 9,742 feet. The wells were completed with 30 frack stages.

In its Eastern Montana area, Halcon reports average 24-hour and 30-day IPs for applicable wells that went online in the fourth quarter of 408 boepd (88 percent oil) and 193 boepd (79 percent oil), respectively. Halcon is not planning to drill any new wells in its Eastern Montana area in 2013. ●

Contact Mike Ellerd at mellerd@petroleumnewsbakken.com

BAKKEN Stats

Montana oil activity report, Feb. 22 – Feb. 28

Abbreviations & parameters

With a few exceptions, such as the Heath shale play in the central part of the state, the Montana weekly oil activity report includes horizontal well activity in the Bakken petroleum system in the eastern/northeastern part of the state within the Williston Basin. It also includes what is referred to as the South Alberta Bakken fairway in northwestern/west-central Montana, which is at least 175 miles long (north-south) and 50 miles wide (east-west), extending from southern Alberta, where the formation is generally referred to as the Exshaw, southwards through Montana's Glacier, Toole, Pondera, Teton and Lewis & Clark counties. The Southern Alberta Bakken, under evaluation by several oil companies, is not part of the Williston Basin.

Following are the abbreviations used in the report and what they mean.

BHL: bottomhole location
BOPD: barrels of oil per day
BWPD: barrels of water per day
IP: initial production
MCFPD: thousand cubic feet per day
PBHL: probable bottomhole location
SHL: surface hole location
TD: total depth

COMPILED BY DARRYL L. FLOWERS
For Petroleum News Bakken

New locations — horizontal wells

In Richland County, Continental Resources Inc. was approved for five wells, all aiming for the Bakken formation. The wells are: the Constance-Linnea HSU, with an SHL at SE SE 13-23N-55E (250 FSL/298 FEL) and a PBHL of 20,162 at EL SE 12-23N-55E (200 FNL/0 FEL); the Earl-Rita HSU, with an SHL at SE SE 13-23N-55E (250 FSL/253 FEL) and a PBHL of 20,647 feet at EL SE 25-23N-55E (200 FSL/0 FEL); the Swenseid-Ardelle HSU, with an SHL at SE SE 16-23N-55E (270 FSL/175 FEL) and a PBHL of 19,955 feet at EL NE 9-23N-55E (200 FNL/0 FEL); the Clayton-Alice HSU, with an SHL at NE NE 20-23N-56E (255 FNL/228 FEL) and a PBHL of 20,232 feet at EL SE 29-23N-56E (200 FSL/0 FEL) and the Stoney Butte-Prevost HSU, with an SHL at NE NE 20-23N-56E (255 FNL/273 FEL) and a PBHL of 20,726 feet at EL NE 8-23N-56E (200 FNL/0 FEL).

Re-issued locations

In Richland County, Slawson Exploration Co. Inc. won approval of three wells, all targeting the Bakken formation. The Mace 1-22H has an SHL at SE SW 22-20N-60E (200 FSL/1600 FWL) and a PBHL of 14,651 feet at NW NW 22-20N-60E (700 FNL/700 FWL). The Hunga Munga Federal 1-14H has an SHL at NW NW 23-21N-59E (587 FNL/311 FWL) and a PBHL of 15,390 feet at NW NW 14-21N-59E (700 FNL/867 FWL). The Scavenger 1-28H has an SHL at NE NE 28-24N-52E (280 FNL/350 FEL) and two laterals, with a PBHL of 13,454 feet at SE SE 28-24N-52E (250 FSL/750 FEL) and 13,604 feet at NW NW 28-24N-52E (750 FNL/250 FWL).

Completions

In Petroleum County, Cirque Resources LP reported the completion of the Lightner Creek 18-3. The Heath formation well has an SHL at NE NW 18-14N-29E (600 FNL/1600 FWL) and a BHL of 7,326 feet at NE SE 18-14N-59E (3786 FNL/3888 FWL).

In Richland County, XTO Energy Inc. reported the completion of the Ruffatto 13X-24B. The well is located at NW SW 24-26N-52E (2222 FSL/300 FWL) and has a BHL of 18,620 feet at NE SE 19-26N-53E (1895 FSL/255 FEL). The Ruffatto taps into the Bakken formation, and reported an IP of 529 BOPD, 242 MCFPD and 919 BWPD.

In Sheridan County, Marathon Oil Co. reported the completion of the Orville Hendrickson 24-12H, with an SHL at SE SW 12-31N-58E (329 FSL/1438 FWL) and a BHL of 18,819 feet at NE NW 1-31N-58E (712 FNL/1477 FWL). The Bakken formation well turned in an IP of 254 BOPD, 180 MCFPD and 1,637 BWPD. ●

North Dakota well operator transfers

February 25 – March 01, 2013

LEGEND
Date of well operator transfer
Well(s) transferred from
Well(s) transferred to
NDIC well file number — well name — well type — pool — field — completion date — IP (initial production) test date — IP oil rate in barrels — location — county
N/A means does not apply because well might be used, for example, for fluid injection

February 25, 2013

From: Cenex Harvest States Cooperatives
To: CHS Inc.
06418 - Burlington Northern 2-29, vertical, Duperow, Four Eyes, 10/12/1978, N/A, N/A, SWNW 29-143N-100W, Billings Co.

March 1, 2013

From: DRD Saltwater Disposal, LLC
To: Waterworks Johnson Corners, LLC
90183 - Levang SWD 1, vertical, Dakota, Blue Buttes, 5/2/2012, N/A, N/A, NWNW 14-150N-96W, McKenzie Co.

From: DRD Saltwater Disposal, LLC
To: Waterworks Corral Creek, LLC
90257 - Kleeman SWD 1, vertical, Dakota, Corral Creek, 11/13/2012, N/A, N/A, SWSW 19-147N-95W, Dunn Co.

Note: The information in this chart was compiled by Petroleum News Bakken from the online daily activity reports of the North Dakota Industrial Commission, or NDIC. The operator names in this report are as they appear in State of North Dakota records, even though some of the companies, or their Bakken assets, might have been purchased by other companies. XTO Energy, for example, is now a subsidiary of ExxonMobil.

Bakken producers' stock prices

Closing prices as of March 6, along with those from previous Wednesday

Company	Exchange	Symbol	Closing price	Previous Wed.
Abraxas Petroleum Corp.	NASDAQ	AXAS	$2.09	$2.00
Arsenal Energy USA, Inc.	TSE	AEI	$0.52	$0.54
Baytex Energy Corp.	NYSE	BTE	$42.21	$42.20
Brigham Exploration Co. (Statoil)	NYSE	STO	$24.90	$25.35
Burlington Resources Co. (ConocoPhillips)	NYSE	COP	$58.00	$58.04
Continental Resources, Inc.	NYSE	CLR	$88.40	$83.97
Crescent Point Energy Corp.	TSE	CPG	$38.70	$38.80
Enerplus Resources USA Corp.	NYSE	ERF	$13.77	$13.32
EOG Resources, Inc.	NYSE	EOG	$125.60	$126.92
Fidelity Exploration and Production (MDU)	NYSE	MDU	$24.60	$23.97
G3 Operating LLC (Halcon Resources Corp.)	NYSE	HK	$6.55	$7.16
GMX Resources, Inc.	NYSE	GMXR	$2.49	$2.21
Hess Corp.	NYSE	HES	$69.49	$65.68
Kodiak Oil and Gas (USA), Inc.	NYSE	KOG	$9.09	$8.83
Legacy Reserves Operating LP	NASDAQ	LGCY	$26.00	$26.17
Marathon Oil Co.	NYSE	MRO	$32.75	$33.42
Newfield Production Co.	NYSE	NFX	$23.15	$23.24
Oasis Petroleum Inc.	NYSE	OAS	$37.16	$35.95
OXY USA (Occidental Petroleum Corp.)	NYSE	OXY	$81.89	$82.23
QEP Energy Co.	NYSE	QEP	$29.82	$30.88
Resolute (Resolute Energy Corp.)	NYSE	REN	$9.99	$9.53
Samson Resources Co. (KKR & Co.)	NYSE	KKR	$18.85	$18.02
SM Energy Co.	NYSE	SM	$57.06	$59.03
Triangle USA Petroleum Corp.	NYSE	TPLM	$6.47	$6.48
Whiting Oil and Gas Corp.	NYSE	WLL	$48.61	$49.16
WPX Energy Inc.	NYSE	WPX	$15.14	$14.50
XTO Energy Inc. (ExxonMobil)	NYSE	XOM	$89.56	$89.53

Looking for a rig report?

Montana

Drilling Ahead at **www.drillingahead.com/USARigReport** offers a U.S. Drilling Rig Report that includes Montana.

North Dakota

The best list for North Dakota is updated daily by the North Dakota Oil and Gas Division at **www.dmr.nd.gov/oilgas/riglist.asp**

Saskatchewan

Weekly drilling activity report from the government of Saskatchewan:
www.economy.gov.sk.ca/Daily-Well-Bulletin-Weekly-Drilling-Reports

Manitoba

Weekly drilling activity report from the government of Manitoba:
www.manitoba.ca/iem/petroleum/wwar/index.html

PHOTO COURTESY CONTINENTAL RESOURCES

Petroleum News Bakken

IPs for ND Bakken wells

February 26 – March 4, 2013

This chart contains initial production rates, or IPs, for active wells that were filed as completed with the state of North Dakota from Feb. 26 to March 4, 2013 in the Bakken petroleum system, which includes formations such as the Bakken, Three Forks and Birdbear. The completed wells that are missing either haven't been tested or were awarded tight-hole status, so the IP rate is not yet available. This chart also contains a section with active wells that were released from tight-hole status during the same period, Feb. 26 to March 4. The information was assembled by Petroleum News Bakken from daily activity reports from the North Dakota Industrial Commission's Department of Minerals, Oil and Gas Division, website and other sources. The name of the well operator is as it appears in state records, with the loss of an occasional Inc., LLC or Corporation. Some of the companies, or their Bakken assets, have been acquired by others. In those cases, the current owner is in parenthesis, such as ExxonMobil in parenthesis behind XTO Energy.

LEGEND

The well operator's name is on the upper line, followed by individual wells with data in this order: NDIC file number; well name; field; location; spacing; county, wellbore type; total depth; IP test date; IP oil flow rate. (IP stands for initial production; in this chart it's the first 24 hours of oil production.)

IPs for completed North Dakota wells

Brigham Oil and Gas (Statoil)
23319; Porter 35-26 #1TFH; Alexander; SESW 35-151N-101W; 2SEC; McKenzie, horizontal; 20,757; 1/10/2013; 1,271 bbl

Continental Resources
23048; Chicago 3-26H; Banks; NENE 26-152N-99W; 4SEC; McKenzie, horizontal; 20,950; 1/17/2013; 606 bbl
21980; Florida 1-11H; Camp; SWNE 14-152N-100W; 4SEC; McKenzie, horizontal; 23,529; 1/27/2013; 569 bbl
21518; Lawrence 5-13H; North Tioga; SESW 12-159N-95W; 2SEC; Williams, horizontal; 19,660; 1/21/2013; 710 bbl
22617; Sorenson 1-21AH; Alkali Creek; SESE 21-154N-94W; 4SEC; Mountrail, horizontal; 20,690; 2/4/2013; 448 bbl
22619; Sorenson 2-21AH; Alkali Creek; SESE 21-154N-94W; 4SEC; Mountrail, horizontal; 20,452; 2/5/2013; 781 bbl
22618; Thronson 1-28AH; Alkali Creek; SESE 21-154N-94W; 4SEC; Mountrail, horizontal; 21,354; 2/5/2013; 907 bbl
22620; Thronson 2-28AH; Alkali Creek; SESE 21-154N-94W; 4SEC: Mountrail, horizontal; 21,153; 2/9/2013; 946 bbl

Crescent Point Energy
22281; Walters 35-26-158N-101W; Little Muddy; NWNE 2-157N-101W; 2SEC; Williams, horizontal; 20,035; 10/22/2012; 373 bbl

Hess
23060; LK-M Elisabeth 147-97-1522H-4; Little Knife; SESW 10-147N-97W; 2SEC; Dunn, horizontal; 22,158; 2/4/2013; 763 bbl

Whiting Oil and Gas
23567; McNamara 42-26XH; Sanish; SENE 26-153N-91W; 4SEC; Mountrail, horizontal; 19,775; 1/31/2013; 356 bbl
22971; Rodney Olson Federal 42-8-2TFH; Sanish; SESE 8-153N-91W; 2SEC; Mountrail, horizontal; 21,039; 1/25/2013; 1,103 bbl

XTO Energy (ExxonMobil)
23393; Fbir Baker 34X-25F; Heart Butte; SWSE 25-149N-92W; 2SEC; Dunn, horizontal; 20,536; 1/14/2013; 943 bbl

IPs for ND wells released from tight-hole status

American Eagle Energy
23466; Silas 3-2N-163-101; Colgan; NENW 2-163N-101W; 2SEC; Divide, horizontal; 14,335; 12/6/2012; 226 bbl

Burlington Resources Oil and Gas (ConocoPhillips)
22758; Iron Horse 11-2TFH; Union Center; LOT4 2-152N-96W; 2SEC; McKenzie, horizontal; 21,097; 11/19/2012; 2,485 bbl

Continental Resources
23397; Collison 1-23H; Avoca; NWNE 23-154N-100W; 2SEC; Williams, horizontal; 20,677; 12/4/2012; 969 bbl
23492; Lovland 1-7H; Upland; SWSE 7-161N-96W; 2SEC; Divide, horizontal; 18,748; 12/17/2012; 199 bbl

Cornerstone Natural Resources
22013; Jepsen 3-20-17H; Coteau; SESW 20-161N-90W; 2SEC; Burke, horizontal; 17,720; 11/30/2012; 360 bbl

EOG Resources
21689; Bear Den 104-2116H; Spotted Horn; NWNE 21-150N-94W; 2SEC; McKenzie, horizontal; 16,047; 9/11/2012; 1,665

G3 Operating LLC (Halcon Resources Corp.)
22448; C. Rasmussen 1-23-14H; Strandahl; NENW 26-157N-102W; 2SEC; Williams, horizontal; 20,602; 12/4/2012; 650 bbl
22447; J. Rasmussen 1-26-35H; Strandahl; NENW 26-157N-102W; 2SEC; Williams, horizontal; 20,145; 12/6/2012; 973 bbl

Hess
23167; Bb-Sivertson 151-95-2019H-3; Blue Buttes; SENE 20-151N-95W; 2SEC; McKenzie, horizontal; 20,650; 11/8/2012; 1,127 bbl
23191; Bl-Myrtrice-156-96- 2536H-2; Beaver Loge; NWNW 25-156N-96W; 2SEC; Williams, horizontal; 20,163; 12/20/2012; 682 bbl
22685; En-Jeffrey 155-94- 2215H-2; Alkali Creek; SWSE 22-155N-94W; 4SEC; Mountrail, horizontal; 19,014; 2/4/2013; 598 bbl
22686; En-Jeffrey A-155-94- 2734H-1; Alkali Creek; SWSE 22-155N-94W; 4SEC: Mountrail, horizontal; 21,596; 1/29/2013; 771 bbl
23009; Ha-Grimestad-152-95- 3031H-2; Hawkeye; NENW 30-152N-95W; 2SEC; McKenzie, horizontal; 20,329; 11/18/2012; 815 bbl

Kodiak Oil and Gas
22850; Koala 15-33-28-2H; Poe; SWSE 33-152N-99W; 2SEC; McKenzie, horizontal; 21,115; 11/14/2012; 2,338 bbl
23084; Moccasin Creek 16-10-3-3H; Moccasin Creek; SESE 10-147N-93W; 2SEC; Dunn, horizontal; 20,906; 1/13/2012; 2,129 bbl
23085; Moccasin Creek 16-10-3-3H3; Moccasin Creek: SESE 10-147N-93W; 2SEC; Dunn, horizontal; 20,497; 12/24/2012; 2,506 bbl

Legacy Oil and Gas
21821; Legacy Etal Wunderlich 5-6H; North Souris; SWNW 6-163N-76W; N2; 10/31/2012; 180 bbl

Marathon Oil
22114; Baker USA 11-18TFH; Van Hook; LOT1 18-150N-92W; 2SEC; Mountrail, horizontal; 20,474; 10/30/2012; 1,712 bbl

Oxy USA (Occidental)
22197; Griggs 2-8-9H-142-97; Willmen; NWNW 8-142N-97W; 2SEC; Dunn, horizontal; 20,388; 9/1/2012; 508 bbl
20750; Katie Heiser 1-12-1H-142-95; Murphy Creek; SWSE 12-142N-95W; 2SEC; Dunn, horizontal; 19,760; 8/28/2012; 53 bbl
22881; State Frank Butler 1-29-32H-142-94; Murphy Creek; NWNE 29-142N-94W; 2SEC; Dunn, horizontal; 19,733; 8/20/2012; 2,210 bbl

Petro-Hunt
21716; Fort Berthold 147-94-1A-12-2H; Charlson; SESW 28-153N-95W; 2SEC; McKenzie, horizontal; 20,140; 12/6/2012; 943 bbl

QEP Energy
22029; MHA 4-32-29H-150-91; Heart Butte; SESW 32-150N-91W; ICO; Dunn, horizontal; 20,031; 11/29/2012; 1,961 bbl

Slawson Exploration
22164; Athena 3-36H; Alger; SWSE 36-155N-92W; 2SEC; Mountrail, horizontal; 14,281; 11/1/2012; 693 bbl
23638; Pathfinder 2-9H; Sanish; NWNW 9-152N-91W; SEC; Mountrail, horizontal; 13,396; 12/17/2012; 490 bbl

Sinclair Oil and Gas
23459; Crosby Creek 2-5H; Little Knife; LOT3 3-156N-97W; 2SEC; Dunn, horizontal; 21,450; 12/5/2012; 1,358 bbl

Whiting Oil and Gas
22532; Mildred Roggenbuck 41-24TFX; Sanish; NENE 24-153N-93W; ICO; Mountrail, horizontal; 20,700; 8/28/2012; 1,491 bbl

XTO Energy (ExxonMobil)
23394; Fbir Baker 34X-25A; Heart Butte; SWSE 25-149N-92W; 2SEC; Dunn, horizontal; 21,274; 1/9/2013; 1,170 bbl

Zavanna
21868; Barker 24-13 1H; Boxcar Butte; SWSE 24-149N-102W; 2SEC; McKenzie, horizontal; 20,615; 12/19/2012; 957 bbl

Zenergy
22343; Cliffside 25-26H; Assiniboine; NENE 25-151N-104W; 2SEC; McKenzie, horizontal; 20,230; 11/14/2012; 655 bbl
22359; Helling 30-31H; Pronghorn; SWSE 19-150N-101W; 2SEC; McKenzie, horizontal; 21,301; 1/2/2013; 1,147 bbl

—Compiled by Kay Cashman

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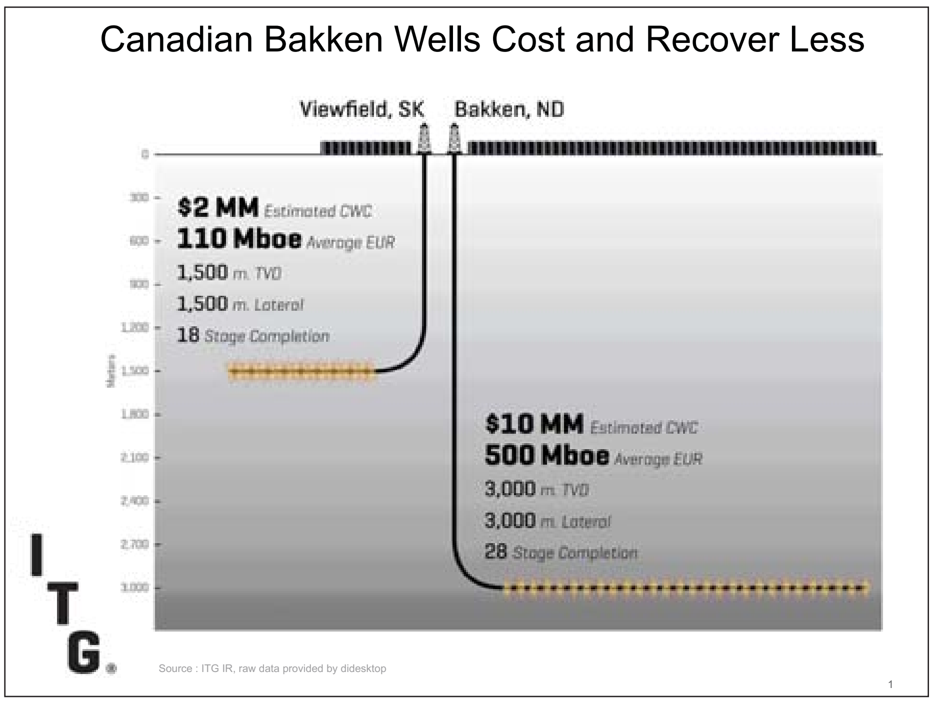

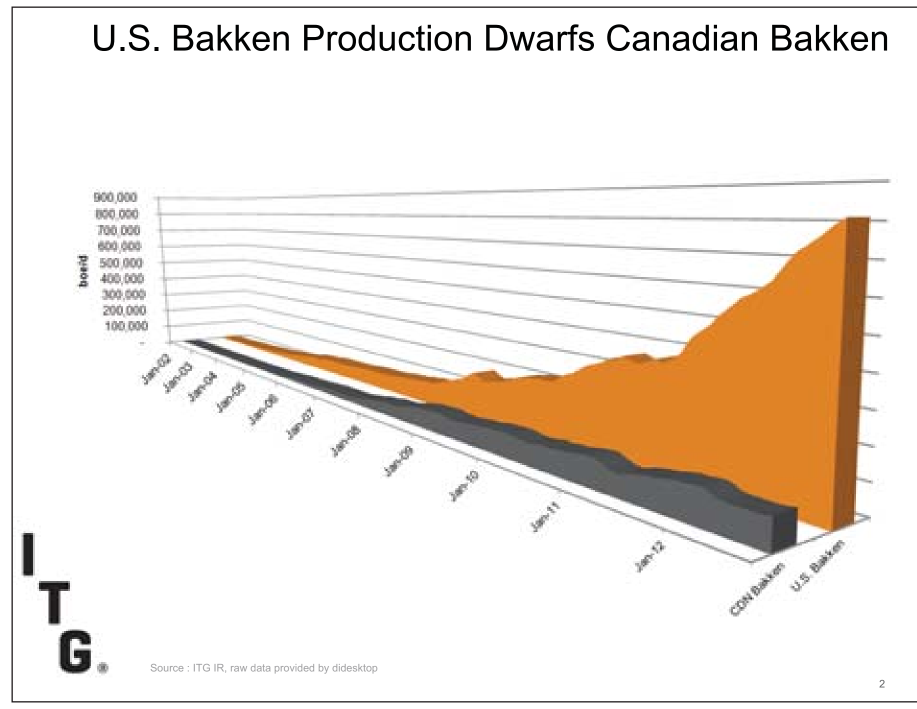

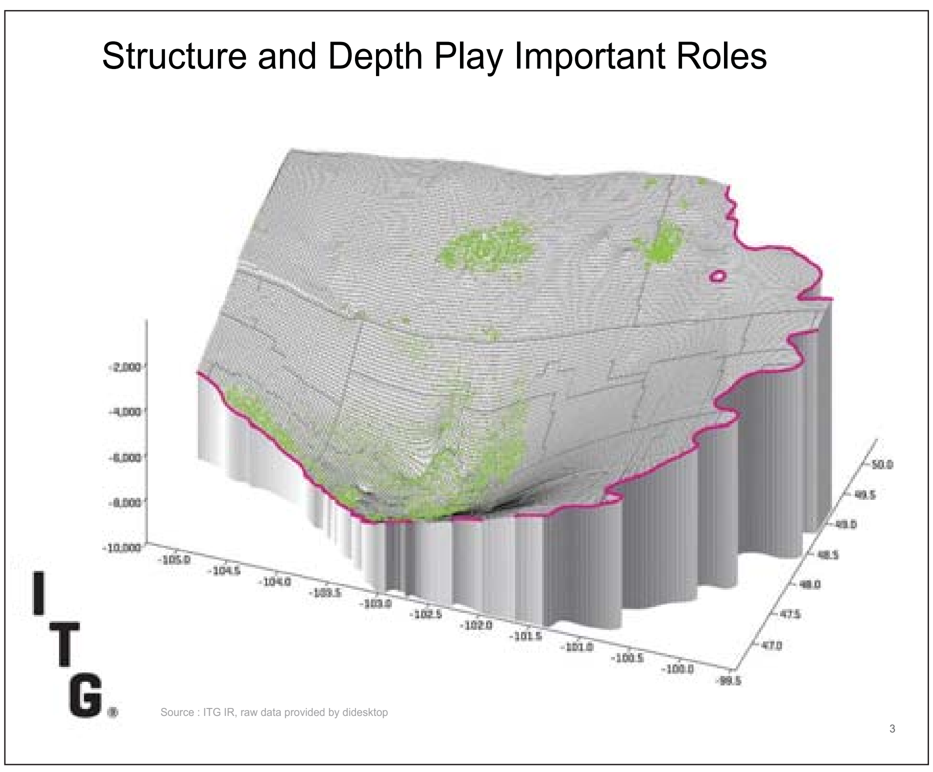

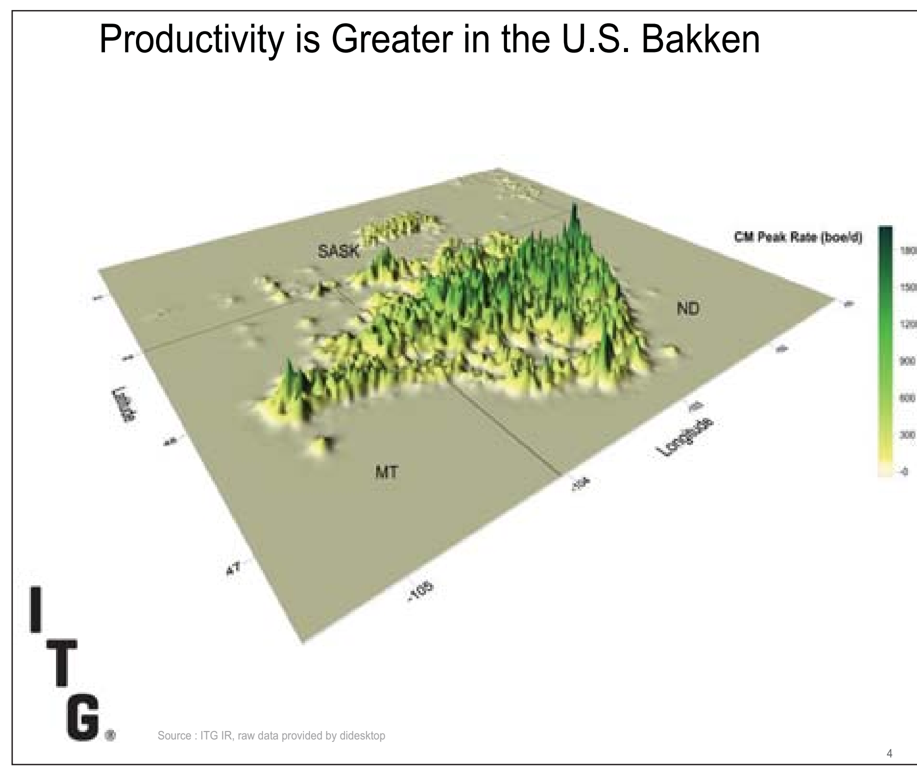

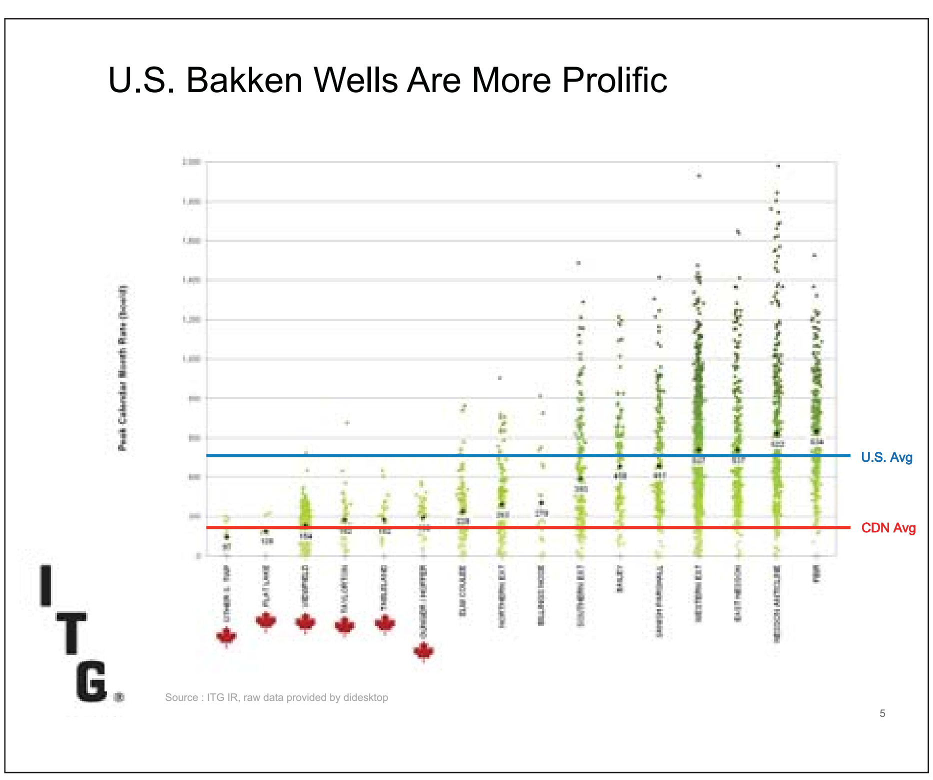

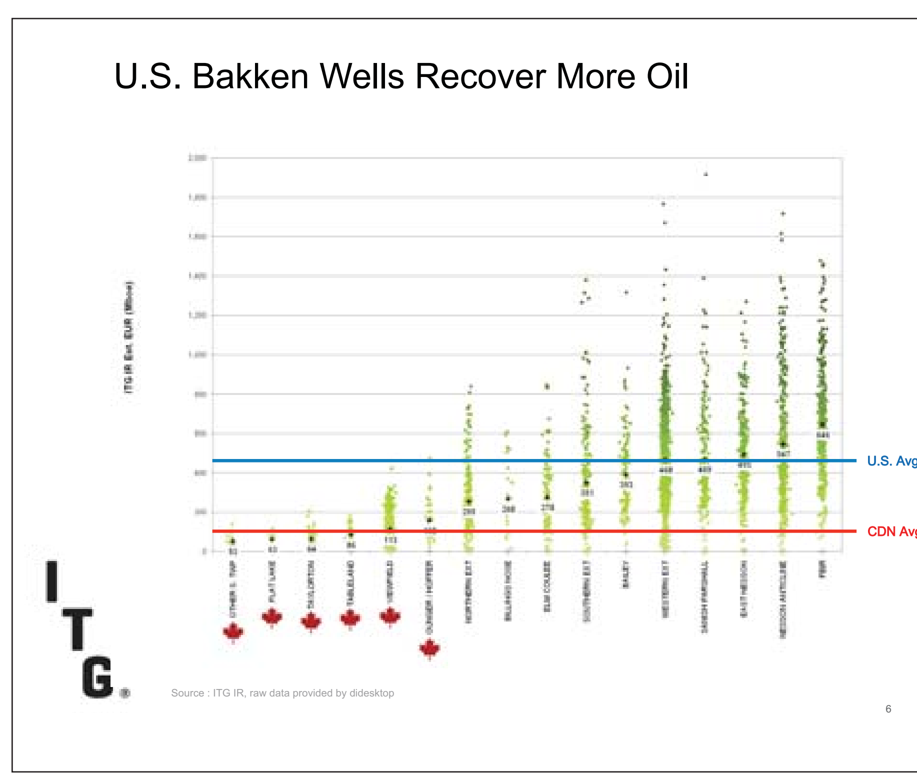

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THE BAKKENS

compared with an increase in Canada to C$2.0 million-$2.9 million from $1.6 million over the same period.

Canadian pools localized

One of the distinguishing features is that the Canadian Bakken exists in localized pools that have risen over time and become trapped in small pockets along an incline into Canada, while the U.S. Bakken formation is deeper and more widespread.

It's the result of millions of barrels of oil that "escaped the United States" millions of years ago and flowed into what is now Canada, Scott said.

The end result is that the Bakken is different to produce depending on where drilling is taking place in the Williston Basin, with the Bakken-rich plays of southern Saskatchewan offering shallow pockets that are comparatively easy and cheap to access.

One of the distinguishing features is that the Canadian Bakken exists in localized pools that have risen over time and become trapped in small pockets along an incline into Canada, while the U.S. Bakken formation is deeper and more widespread.

On the flip side, the Saskatchewan pockets do not yield the same large volumes of oil as North Dakota, where Bakken crude has drastically altered the North American oil supply.

Currently, Scott estimates, the U.S. Bakken has topped 800,000 barrels of oil equivalent per day, up about eight-fold from the Canadian Bakken.

The cost of doing business in Canada is bolstered by the Saskatchewan government's royalty rates, he said.

What the two sides of the border share is a lack of pipelines to access markets, triggering the emergence of rail, which puts pressure on producers to move quickly to collect the best price for their production, Scott said.

Alberta Energy Minister Ken Hughes told the conference the U.S. Bakken caught everyone off guard, by growing faster than had been anticipated and significantly changing the continental industry.

"Everyone knew that was possible, but not everyone predicted how quickly that would happen," he said. ●

Contact Kay Cashman at publisher@petroleumnews.com

● COMPANY UPDATE

Oneok feeling ethane rejection

Despite lower NGL prices, Oneok Partners reports higher 2012 gas volumes and plans to continue with 2013 Bakken growth projects

By MIKE ELLERD

For Petroleum News Bakken

On Feb. 25, Oneok Partners L.P. said that its overall 2012 earnings were 7 percent above its 2011 earnings due to an increase in volumes of natural gas and natural gas liquids, NGLs, but the partnership's fourth quarter 2012 earnings were nearly 30 percent lower than its earnings in the fourth quarter of 2011, due primarily to lower NGL prices. The partnership said the lower than expected NGL prices are the result of what it calls "widespread and prolonged ethane rejection."

As a result, Oneok has revised its 2013 income guidance downward along with its 2012 to 2015 three-year growth forecasts because of lower than expected NGL exchange margins in the Rocky Mountain region and now lower than expected NGL and natural gas prices in 2014 and 2015.

However, the partnership doesn't expect the revised income guidance and revised three-year growth projections to affect its current or projected timelines or project costs and is continuing with ongoing and planned growth projects through 2015, many of which are in the Williston Basin.


JOHN W. GIBSON


TERRY K. SPENCER

Ethane rejection and NGL prices

When the price of ethane does not warrant separating it out to be sold as a petrochemical feedstock, it is rejected, i.e., the ethane is not stripped out with the other natural gas liquids. The ethane then remains, up to certain limits, with methane in the natural gas stream.

Ethane prices have been declining over the last year, and those lower prices are driving persistent ethane rejection across the U.S. Oneok reports the average ethane price differential in an ethane/propane mix in the fourth quarter of 2012 between Conway, Kan., the eastern terminus of the Overland Pass pipeline, and Mont Belview, Texas, was 7 cents per gallon. That compares to 16 cents per gallon in the third quarter and 47 cents per gallon in the fourth quarter of 2011.

For NGLs, the partnership reported a realized NGL net sales price of $1.05 per gallon in the fourth quarter of 2012. That was a 5 percent decrease over the third quarter of 2012 and a 1 percent decrease from the fourth quarter of 2011.

"Our fourth-quarter results reflect significantly narrower natural gas liquids price differentials, compared with historically wide differentials in 2011 in our natural gas liquids segment," said Oneok Chairman and Chief Executive Officer John Gibson in a Feb. 25 press release.

Williston Basin volume growth

For 2012, the volume of natural gas that Oneok gathered in the Williston Basin increased over 8 percent compared to 2011 while the volume of natural gas processed in the basin increased by more than 20 percent. "Our natural gas gathering and processing segment benefited from volume growth, primarily from our new Garden Creek and Stateline I natural gas processing plants in the Williston Basin and increased well connections in the area," Gibson said. However, he added that volume growth, "was offset partially by higher compression costs and lower margins realized from new contracts as we compete for new and existing volumes in the Williston and lower realized natural gas and natural gas liquids prices."

According to Spencer, the partnership set a record in 2012 with 940 well connections, approximately 760 of which were in the Williston Basin. In 2011, the partnership connected 600 wells of which approximately 415 were in the basin. For 2013, the partnership plans to connect an estimated 1,000 wells and approximately 850 of those will be in the Williston Basin.

Spencer also said the partnership expects overall gathered gas volumes to increase by 22 percent and processed volumes to increase by 30 percent in 2013. He added that "crude oil production in the Williston Basin continues to grow along with the associated NGL rich natural gas, and we are working hard to quickly connect new wells and build the infrastructure required to reduce the continued flaring of natural gas."

Williston Basin expansions

Oneok has natural gas process plants operating, under construction and in the planning stages in the Williston Basin. The Garden Creek plant, near Watford City, went into service in 2011 and continues to operate near capacity. Its sister Garden Creek II plant is expected to go into service in the third quarter of 2014. The partnership is planning yet another Garden Creek gas plant, the Garden Creek III, which is scheduled to go into service the first quarter of 2015. Each of the three Garden Creek plants has or will have capacities of 100 million cubic feet per day.

Closer to the Montana border, the partnership's Stateline I plant near Williston went into service in September 2012 and is currently operating near its capacity of 100 million cubic feet per day. The partnership's neighboring Stateline II plant, which will also have a capacity of 100 million cubic feet per day, is expected to be in service in the first quarter of this year.

In Divide County, Oneok is constructing a 270-mile natural gas gathering system that will gather and transport gas south to the Stateline II plant. That gathering system is expected to be in service in the third quarter of 2013.

The partnership's Bakken NGL pipeline, which will transport NGLs south from North Dakota some 600 miles to a terminal on the Overland Pass pipeline in Colorado, is expected to go into service this quarter of 2013. The pipeline will have an initial capacity of 60,000 barrels per day, but partnership is already planning to expand that capacity to 135,000 bpd with that expansion expected to be completed in the third quarter of 2014. Oneok owns a 50 percent share in the Overland Pass pipeline, which is a 760-mile NGL pipeline running from southern Wyoming to Conway, Kan.

In addition, the partnership completed capacity expansion in September 2012 of an NGL fractionation facility in Bushton, Kan., by 60,000 bpd to accommodate additional Williston Basin and Mid-Continent NGL volumes. In January 2013, the partnership announced the construction of a 95-mile NGL pipeline between a fractionation plant in Hutchinson, Kan., and Medford, Okla., and modification of the partnership's fractionation infrastructure at Hutchinson in order to accommodate lighter Williston Basin NGLs. Both of these projects are expected to be completed by first quarter of 2015.

Overall fourth quarter summary

Company-wide, Oneok' natural gas gathering and processing segment gathered approximately 1.2 trillion British thermal units per day of natural gas (approximately 1.18 billion cubic feet per day) in the fourth quarter 2012, a 5 percent increase over third quarter of 2012 and a 14 percent increase over the fourth quarter of 2011. The partnership also saw a fourth quarter 2012 natural gas processing increase of 6 percent over the third quarter and a 27 percent processing increase over the fourth quarter of 2011, for a 2012 total of 964 billion Btu per day (approximately 945 million cubic feet per day).

The partnership's contracted natural gas transportation capacity was approximately 5.4 million decatherms per day (approximately 5.3 trillion cubic feet per day) and was 90 percent subscribed in the fourth quarter. Both of these metrics were up 3 percent over the third quarter of 2012, but relatively unchanged from the fourth quarter of 2011. Oneok reported an average Mid-Continent regional natural gas price in the fourth quarter of $3.29 per million Btu, an increase of 20 percent over the third quarter of 2012 and an increase of 3 percent over the fourth quarter of 2011.

The partnership fractionated 600,000 barrels per day of NGLs in the fourth quarter of 2012, a 3 percent increase over both the third quarter of 2012 and the fourth quarter of 2011. Concerning gathering pipelines, the partnership transported 531,000 bpd of NGLs in the fourth quarter, relatively unchanged from the third quarter but up 12 percent over the fourth quarter of 2011. However, the volume of NGLs transported through distribution lines was down 1 percent from both the third quarter of 2012 and the fourth quarter of 2011 to 507,000 bpd. ●

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MOVING HYDROCARBONS

Bakken pipeline expansion in service

Enbridge Energy Partners and Enbridge Income Fund announced March 4 that a 145,000 barrels per day expansion of their Bakken Pipeline is now completed and in service.

The U.S.-Canada partnership reversed and expanded an existing pipeline from Berthold, N.D., to Steelman, Saskatchewan, and built a new 16-inch diameter line from a new terminal near Steelman to the Enbridge mainline terminal near Cromer, Manitoba.

The new capacity is designed to handle growing production from the Bakken and Three Forks formations in Montana, North Dakota, Saskatchewan and Manitoba, of which 25,000 bpd was brought into service in the first quarter of 2012.

Once the crude is on the Enbridge mainline, Bakken output will have access to multiple markets accessible from the mainline and connected pipeline systems.

Firm commitments of 100,000 bpd

Anchor shippers have so far made firm shipping commitments of 100,000 bpd.

Partnership President Mark Maki said in a statement that the project has been completed on time and under budget.

"By leveraging our extensive existing operations in the area, we were able to effectively respond to the needs of our customers and provide economical and attractive transportation takeaway options," he said.

The statement said production from the Bakken formation in the Williston Basin is now more than 700,000 bpd, up 500,000 bpd from five years ago, with the potential to reach 1.2 million bpd or more over the next six years.

Enbridge Income Fund President John Whelen said the third expansion undertaken in the last five years will serve Saskatchewan producers and enable growing production from the Bakken region to access key U.S. markets.

"This latest expansion, which is predominantly underwritten by take-or-pay contracts, represents another attractive and stable source of distributable cash flow for the fund," he said.

—GARY PARK

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GAME CHANGER

that we are initiating new fractures into the old well bores and finding new reserves," he said.

Though the procedure has resulted in a delay of some production, it is Kodiak's view that the new approach "will help us prudently manage the reservoir and enhance our expected long-term results," Peterson said.

He said Kodiak would continue to monitor production through the first quarter of this year and would provide "additional clarity at the end of the quarter as to the impact, if any …"

Possible far-reaching benefits

The well completion procedure adopted by Kodiak may have far-reaching benefits for companies holding properties with similar characteristics. However, it is unclear whether any other company employs the same or similar completion technique.

Kodiak's communications theory will be further tested using tight well spacing in two North Dakota pilot projects, called Smokey and Polar. The pilots are expected to consume about a third of the company's entire 2013 drilling budget. Kodiak's assets are primarily located in the Williston Basin.

Kodiak feels it's important to test the concept throughout an entire 1,280-acre drilling unit, and in each pilot the company plans to drill six wells in the Middle Bakken and six wells in the Three Forks.

Wells in the Middle Bakken are to be placed about 800 to 850 feet apart, while vertical spacing between the Middle Bakken and Upper Three Forks are to be situated about 70 feet apart. Spacing between the Upper three Forks and Middle Three Forks is about 50 feet.

Staggering the fractures

Kodiak believes that by staggering fractures, the benches may communicate better and open up the entire interval. The work is spread over the entire unit because, if the procedure works, the company will have a better interval to work with and more oil to recover.

Completion operations at Polar are scheduled to begin mid-year. Smokey will be done throughout the year with full development completed after the Polar project. Information collected from the pilots is expected to have a major impact on how Kodiak designs future development programs.

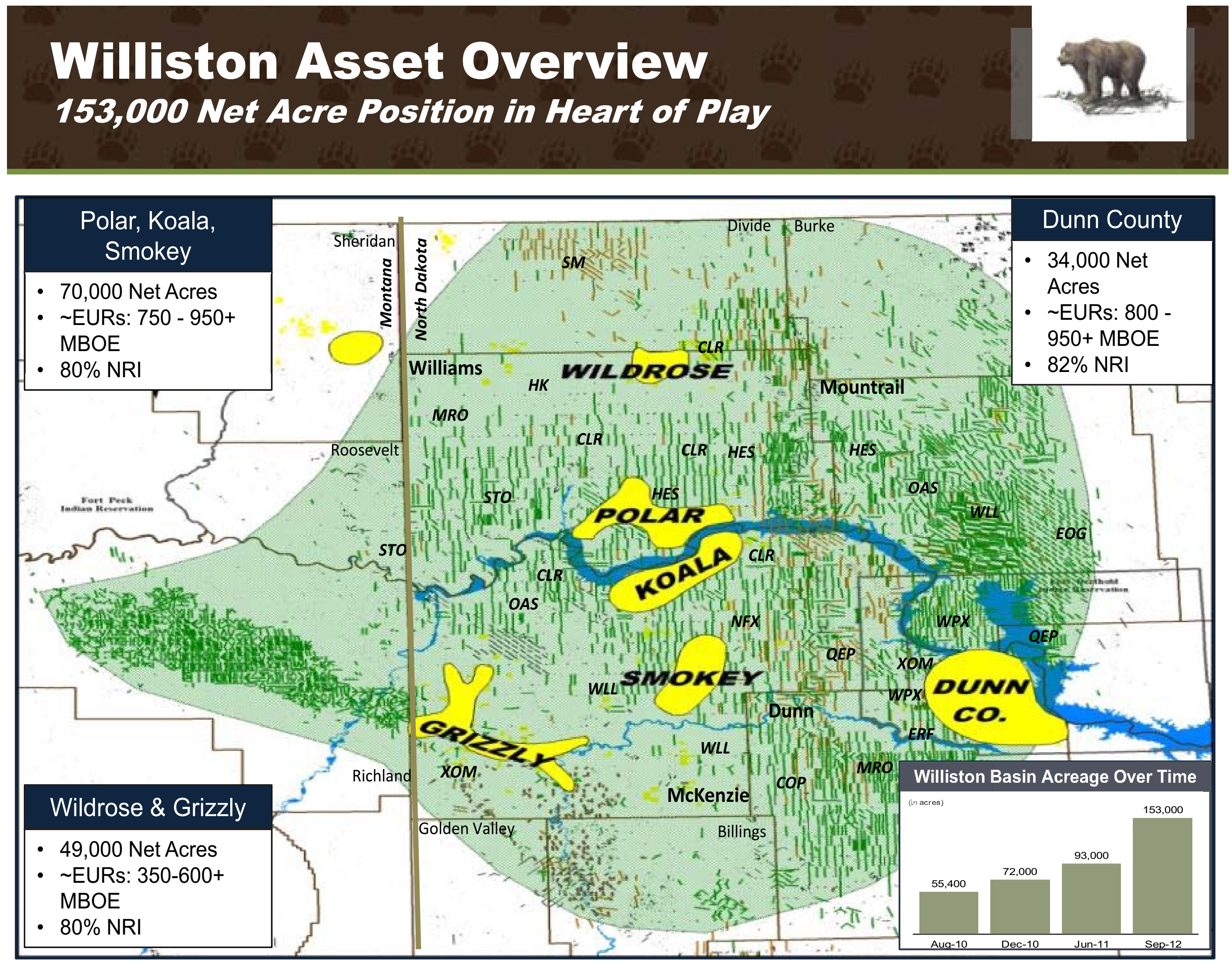
Kodiak said that drilling in the Bakken continues with seven operated rigs. Currently, four rigs are running in the Polar area in southern Williams County, with one rig in each of the Smokey and Koala project areas in McKenzie County and one rig operating in Dunn County.

Kodiak completes 19 wells

Completion operations in the Williston Basin also continue with two full-time, 24-hour per day crews. Since the last operational update on Jan. 11, Kodiak has completed 10 gross (7.9 net) operated wells, bringing the year-to-date completions to 19 gross (13.5) operated wells.

"Ongoing Williston Basin infrastructure build-out is resulting in more gas being sold and processed and greater volumes of crude being hauled by rail to strong pricing points through the U.S. and Canada," Peterson said.

Due in part to the proliferation of rail terminals and their access to premium markets, he added, "we are currently experiencing historically low Williston Basin (commodity price) differentials. We expect the contracted … differential to continue to the benefit of most operators."



18,200 boepd in 2012

Meanwhile, Kodiak reported average sales volumes of 18,200 barrels of oil equivalent per day for the 2012 fourth quarter, a staggering 153 percent increase of 7,200 boe per day for the fourth quarter of 2011 and a 15 percent increase over third-quarter 2012 sales volumes of 15,850 boe per day. Crude oil accounted for 89 percent of fourth-quarter 2012 sales volumes, the company said.

For full-year 2012, Kodiak reported average sales volumes of 14,400 boe per day, representing a 267 percent increase over average volumes of 3,900 boe per day in 2011.

"Last year was transformational for Kodiak and it shareholders," Peterson said, noting that largely because of key acquisitions completed in October 2011 and January 2012, the company was able to double the size of its operations while increasing production.

To deliver 100 percent growth

He said Kodiak is on track to deliver about 100 percent sales growth in 2013, with projected sales expected to range from 29,000 to 31,000 boe per day.

Kodiak anticipates capital expenditures of $775 million for 2013, but that investment amount could increase as the year progresses. Last year the company ended up spending $810 million, up from an initial capex forecast of $738 million. The increase was attributed primarily to more wells drilled because of efficiencies gained during the year, spending related to non-operated activity and "unseasonably good weather" in the fourth quarter allowing for additional activity.

Kodiak also had a hefty increase in estimated proved reserves, reporting about 94.8 million boe at year-end 2012, a 138 percent increase compared to 39.8 million boe of proved reserves at year-end 2011.

Reserves hit 80.9 million boe

The reserve mix for 2012 consists of 80.9 million boe and 83.1 billion cubic feet of natural gas, or about 85 percent oil, along with 15 percent associated natural gas. About 46 percent of the 2012 total proved reserves are categorized as proved developed producing, and about 54 percent are classified as proved developed, according to the company.

On the financial front, Kodiak reported record net income for full-year 2012 of $131.6 million, compared to net income of just $3.9 million for all of 2011, pulled down because of a fourth-quarter 2011 net income loss of $33.8 million, compared to net income of $33.3 million in the fourth quarter of 2012.

The company noted that the net loss for the fourth quarter of 2011 included unrealized derivative losses of $31.7 million attributed to the non-cash charge in the value of derivatives used for commodity price risk management. Also included in the loss is $18.3 million in interest expense. ●

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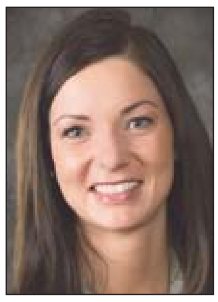
Oil Patch Bits

Ebeltoft Sickler attorneys give presentation at SAHRA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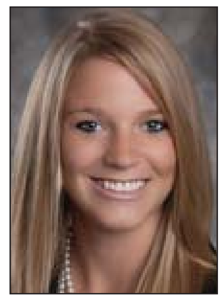
COURTNEY OLSON

The law offices of Ebeltoft Sickler Lawyers said Feb. 27 that attorneys Bekki Grant and Courtney Olson recently gave a presentation to the Southwest Area Human Resources Association on the issue of age discrimination in the workplace. The Southwest Area Human Resources Association is an affiliate of the Society for Human Resource Management. The Society for Human Resource Management is the world's largest association devoted to human resource management.

Attorneys Grant and Olson's presentation covered federal and state regulations on age discrimination, including the Age Discrimination in Employment Act of 1967 and the North Dakota Human Rights Act. They also touched on safeguarding employment practices from age discrimination by adopting protective policies, impact monitoring, and education. The presentation concluded with an interactive session in which audience members were asked to work through a potential age discrimination scenario.

Lister adds new team member to its front office

Lister Industries said Feb. 28 that it is pleased to announce the addition of Marjorie Parker to its team in 2012 as office manager of its Edmonton Alberta office. Parker has a solid background in oil and gas office management coming from Carlyle Saskatchewan where she worked for an oilfield service company. She will keep a steady hand on

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Bakken Players

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PRESSURE THEORY

Continental's vice president of investor relations, said in a May 6 interview with Petroleum News Bakken.

It likely will take until the end of 2013 before Continental has done enough drilling and testing to determine by how much it's going to raise its current recovery estimate of 24 billion barrels of oil equivalent, an amount that already vastly exceeds the federal government's estimate by nearly seven fold.

More in common than not

But Continental has analyzed enough core samples and drilled enough wells under its current 20-well exploration program to conclude that the Bakken petroleum system and its seven layers have a lot more in common than not.

Continental views the Bakken as an integrated, high-pressured petroleum system, top to bottom, compared to the former theory that the deeper Three Forks "was sort of a halo of oil" pushed down into that interval based on the pressure in the Middle Bakken, Winston Frederick Bott, Continental's president and chief operating officer, said in a Feb. 28 conference call with industry analysts.

"We now feel it's all one cell and it's all very, very similar pressure," he added. "And therefore, the recovery factors are going to be much more an important factor for us to determine."

From top to bottom

The cell actually extends from the Lodgepole just above the Upper Bakken downward through the Middle Bakken and Lower Bakken to the "Nisku" just below the fourth bench of the Three Forks, Henry explained. The cell is sealed with rock shale at the top and bottom.

"The key thing is that you have consistent pressure throughout that cell, and you have lower pressure above it and below it," he added.

Recoverable oil estimates from the Bakken petroleum system have varied widely dating back to the 1950s. In April 2008, the U.S. Geological Survey estimated the amount of oil that could be recovered using technology of the time at 3-to 4.3 billion barrels, 28 times USGS' earlier estimate.

The state of North Dakota also released a report in April 2008 estimating there were 2.1 billion barrels of technically recoverable oil in the Bakken.

But these earlier studies largely excluded the Three Forks and its lower benches — estimates Continental has been trying to nail down for several years.

Bakken's true pioneer

The Bakken's largest leaseholder and oil producer, Continental is a true pioneer. In 2004, the company completed the first commercially successful well in the North Dakota Bakken to be both horizontally drilled and fracture stimulated, a technology that has allowed the Bakken to evolve into a world-class producer.

Continental also was the first explorer to demonstrate incremental reserves from the Three Forks first bench in 2008 and from the second bench in 2011. Last year the company also became the first to establish production from the third bench, as part of its current program designed to determine the region's production and reserve potential.

But at year-end 2010 it was Continental's general belief that the producing Middle Bakken and Three Forks formations were separate and isolated. The company estimated that when including the Three Forks, roughly 24 billion boe could be recovered from 577 billion boe of in-place resource, representing a 3.5 percent recovery rate.

> *"The saturation levels and the pressures were not declining as we got lower. We had expected to see a decrease. But they were hanging in there and looked just like the first bench of the Three Forks all the way down to the Nisku. So suddenly, I not only have a cell sealed on top, I have a cell that is sealed on top and the bottom."*
> **—Warren Henry, Continental Resources VP of investor relations**

Consistent saturation, pressure

The isolation view changed about a year ago after the company drew numerous top-to-bottom core samples across a vast area of the play and found consistent oil saturation and pressure throughout the system.

"The saturation levels and the pressures were not declining as we got lower," Henry said. "We had expected to see a decrease. But they were hanging in there and looked just like the first bench of the Three Forks all the way down to the Nisku. So suddenly, I not only have a cell sealed on top, I have a cell that is sealed on top and the bottom."

With this revelation in hand, he conceded, Continental had widely underestimated the amount of in-place oil within the petroleum system, and therefore boosted the number from 577 billion boe to 903 billion boe, a whopping 57 percent increase. However, the total amount of oil that might be produced, or recovered from the Bakken did not change.

24 billion boe estimate low

"We believe our 24 billion boe recoverable is low, but we don't know how low," Henry said. "So that is what we're in the process of doing right now."

However, a 3.5 percent recovery rate on 903 billion boe of estimated in-place resource would yield 32 billion boe, while 4 percent would yield 36 billion boe and 5 percent 45 billion boe.

Continental recently increased its exploration program from 14-to 20 wells, with one well currently drilling and seven wells competing. The effort is designed to establish the extent of the lower Three Forks benches, building on the success of the Charlotte 2-22H and 3-22H, the initial producing wells in the second and third benches in the field.

The most recent completion in Continental's 2013 program is the Angus 2-9H, which flowed at an impressive 1,556 boe per day at 3,200 psi in its initial one-day test period. It is the second well to be completed in the second bench, and is considered a significant step-out, located 27 miles northeast of the Charlotte 2-22H.

Another well is currently testing the fourth bench.

Drilling confirms theory

Drilling results from exploratory wells drilled so far essentially confirm the pressure theory derived from the earlier core samples, Henry said.

"So far, the variation (900-1,500 boe/day) in the initial production results from the second and third bench wells looks just like the variation in other wells," he said.

Jack Stark, the company's senior vice president of exploration, told analysts that Continental should have by year-end "a fairly good opinion about the viability of

see **PRESSURE THEORY** page 15

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PRESSURE THEORY

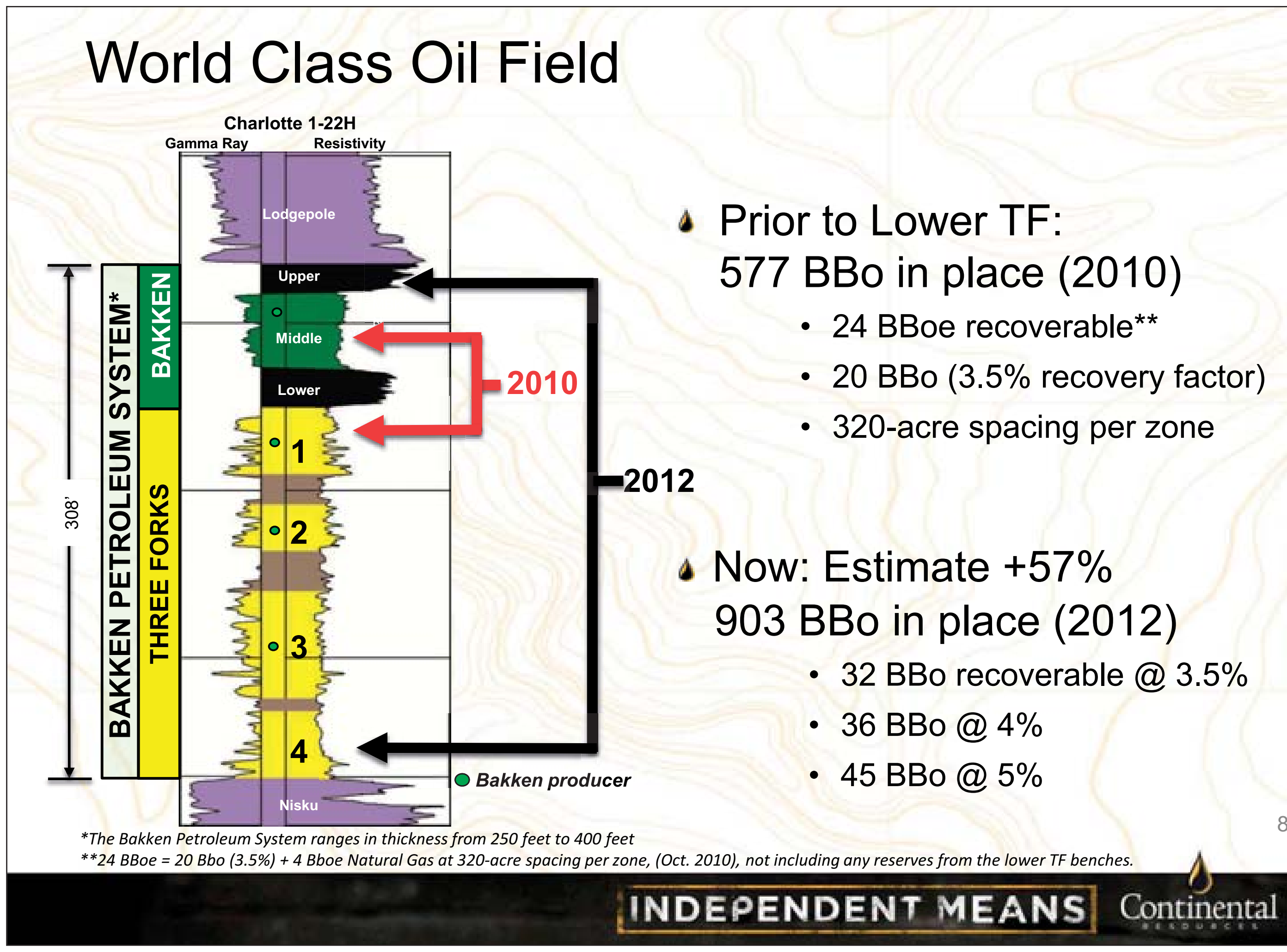
or the producibility of these zones across much of the basin."

In fact, a company priority for 2013 is "to extend the viability of lower Three Forks benches (layers) to accelerate productivity testing," Harold Hamm, Continental's executive chairman and chief executive officer, told analysts.

In addition to the 20 exploration wells to test Three Forks benches, Continental is launching a separate 47 well density program divided into four separate projects. These wells will be stacked in various zones in an effort to come up with the best development pattern.

"What this is all headed for is putting us in a position 18 months to two years from now to where we can say, okay, given all these 70 wells, plus everything else we're doing, here is the optimum development approach for PAD drilling with today's technology," Henry explained.

"We believe our 24 billion boe recoverable is low, but we don't know how low," Henry said. "So that is what we're in the process of doing right now." However, a 3.5 percent recovery rate on 903 billion boe of estimated in-place resource would yield 32 billion boe, while 4 percent would yield 36 billion boe and 5 percent 45 billion boe.



Production jumps 64 percent

Meanwhile, Continental continues to expand its Bakken production, reporting average output of 67,522 boe per day during the 2012 fourth quarter, a 64 percent increase versus the fourth quarter of 2011. Moreover, Bakken production as a percent of total company output continued to increase over the past year, accounting for 63 percent of total output in the fourth quarter of 2012, compared to 55 percent for the same period a year earlier.

The company recorded overall production of 106,831 boe per day for the fourth quarter of 2012, a 42 percent increase from fourth quarter 2011 levels. Its goal for 2013 is to boost overall production 35-to 40 percent in 2013 over 2012, with total production in February alone on track to exceed 120,000 boe per day.

Continental doubles reserves

Continental also nearly doubled its proved reserves in the Bakken in 2012, ending the year with 564 million boe.

The company participated in 51 net (135 gross) operated and non-operated wells in the Bakken during the fourth quarter. In terms of operated wells, it completed 42 net (55 gross) wells in the Bakken in the fourth quarter, with 30 net (42 gross) wells in North Dakota and the remainder in Montana.

Continental said it plans to complete or participate in completing 226 net (558 gross) wells in the Bakken in 2013, including both operated and non-operated wells. It operates 21 rigs in the play, with 16 in North Dakota and five in Montana.

Continental increased its Bakken acreage position to about 1,140,000 net acres at year-end 2012, up 24 percent from year-end 2011, solidifying its position as the largest leaseholder in the play.

The company also expanded its acreage position to 218,000 acres in another "key catalyst" area called SCOOP, located in Oklahoma. The company plans to double SCOOP's rig count by the end of the year, from six to 12.

"As excited as we are at what we've accomplished this past year in SCOOP, we just barely begun to scratch the surface there," Hamm said. "One year ago, this play was hardly more than conceptual. Today, it's one of the most exciting in Oklahoma."

Continental also had a stellar financial year, reporting net income of $739.4 million for 2012 compared to $429.1 million for 2011, a 72 percent increase. Net income for the fourth quarter of last year was $220.5 million versus a loss of $112.1 million for the same period a year earlier. ●

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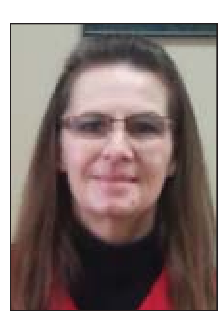
OIL PATCH BITS

Lister's billing and receivables and employee payrolls. Parker arrives into the office well before sun up to ensure those early bird truckers are able to load Lister rig mats quickly and get on the road to the many destinations Lister ships to throughout North America and works closely with Nicki Fox to ensure customer's needs are fully met.



MARJORIE PARKER

In her spare time, Parker enjoys reading, taking long walks, camping and spending time with her two grandchildren whenever she is able to get back to Saskatchewan.

Lister Industries Ltd., a family owned company, is a global leader in the design and manufacturing of rig mats since 1968. Lister's product has been designed and built with quality craftsmanship using top grade materials. They are built to last through years of rough field service.

Four Seasons rallies to support Special Olympics

Four Seasons Equipment said Feb. 28 that in partnering with the Williston Special Olympics to help raise money for a trip to the state tournament in March, it held a cook-out for the team and their families at its shop in Williston, N.D., on March 9.

Four Seasons would like your continuing support for these athletes and their journey to the state tournament and is requesting community support for the athletes to compete and help in developing important skills for their future.

Four Seasons is especially excited for this year's event, as one of its employee's sons, Christian Garzon, will be competing with the team from Williston.

To support the Special Olympics athletes with various expenses on their journey to the state basketball tournament, donations will be put toward the purchase of team uniforms, transportation to and from the tournament, and hotel accommodations, among various other expenses. Your support is greatly appreciated. Please mail donations prior to the March 15 tournament to Special Olympics North Dakota, 2616 South 26th St., Grand Forks, ND 58201, or visit www.specialolympicsnorthdakota.org/home/.

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CRUDE CAR DEMAND

U.S. refineries in the east and Gulf Coast.

Others share Kolstad's predictions, with Doug Reece, business development manager for Procor, an Ontario-based affiliate of Union Tank Car, estimating the backlog at 45,000 cars, including a "considerable number" for crude oil service.

Rail moving 4 percent

Currently, about 4 percent of total Canadian crude output is believed to be moving by rail and more than C$1 billion has been earmarked for investment in rail infrastructure.

Kolstad was reluctant to forecast a peak for crude tanker demands, noting that rail movement out of shale deposits, such as the Bakken, could be made redundant if TransCanada's Keystone XL pipeline goes ahead.

Jean-Jacques Ruest, chief marketing officer with Canadian National Railway, said in a recent TV interview that the shortage of rail cars will probably extend through 2014 and "after that we'll see."

A spokesman for rival Canadian Pacific Railway said the energy and rail industries want to ensure rail car capacity is "built up quite rapidly. It is something that is being worked on and monitored very closely by both industries."

The prospects are sufficiently encouraging that big-time investors like Carl Icahn and Warren Buffett are building their rail interests.

Icahn has disclosed a 9.9 percent stake in Greenbrier and is eager to merge that Oregon-based company with American Railcar Industries, in which he holds 56 percent.

Buffett has a controlling share of Union Tank Car and is a major player in BNSF Railway, which reported earnings of $272 million from crude shipments last year.

A spokesman for Greenbrier said the demand for tank cars was seven times greater last year than in 2011, but doubts there will be a shortage given the options that are available to handle the pressures.

However, Greenbrier has introduced a new tank-car line at its Mexican plant, doubling capacity and taking orders for 2015 from crude producers and refiners.

Kolstad was reluctant to forecast a peak for crude tanker demands, noting that rail movement out of shale deposits, such as the Bakken, could be made redundant if TransCanada's Keystone XL pipeline goes ahead.

—GARY PARK

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LIQUIDS EXPORTS

Eastern North America (the U.S. East Coast, Quebec and Atlantic Canada) does represent a potential outlet for unconventional crude if a way can be found to get shipments to that region.

Refinery capacity

Higgins said eastern region refineries have current capacity of 1.8 million bpd, with about 62 percent designed to handle light crude similar to the Bakken along with other light unconventional crudes.

Currently, those refineries receive only 30,000 bpd of Bakken crude and 70,000 bpd of Canadian heavy crude, most of it arriving by rail, but rail could carry the bulk of another 220,000 bpd-260,000 bpd in the 2015-18 period, although there is potential for another 800,000 bpd, he said.

Higgins also suggested an influx of North American unconventional crude could see light sweet crudes in the U.S. Gulf Coast lose $1-$2 per barrel from the usual premium for light sweet crude over the 2016-22 timeframe.

Over the short-term he expects there will be a global abundance of light low-sulfur crude, because no one had anticipated the sudden surge in that product, least of all China and India, which have been designing new refineries to run heavier, higher-sulfur crudes, he said.

He explained that Gulf Coast refineries have been retooled to make them the world's most sophisticated for running heavy, high-sulfur crudes, with light crude accounting for only 17 percent of the optimum refinery mix.

"If they go on up to 25-26 percent, they are running more light than they want to and their economics would tell them 'don't pay a premium for that.'

"Likely what that will do is put pressure on the differential between the light and heavy crudes so you would see a little depression in the premium that light low-sulfur crudes normally get," Higgins said.

Short-term abundance

Over the short-term he expects there will be a global abundance of light low-sulfur crude, because no one had anticipated the sudden surge in that product, least of all China and India, which have been designing new refineries to run heavier, higher-sulfur crudes, he said.

If light crude volumes continue to increase and the price discounts persist, Gulf refineries might start retooling to handle more light, with the result that medium crudes could be squeezed out of the market as refineries use extremely heavy crudes to balance the light, Higgins speculated.

He said very heavy crudes and Canadian heavy crudes, which can back out Mexican and Venezuela production, comprise about 26 percent of the current Gulf refinery mix.

Greg Haas, director of research for Hart Energy, said that while moving crude by rail is one of the best short-term options for unconventional plays such as the Bakken, rail — using 500 barrel to 700 barrel tankers — is also viable over the longer-term because of the growth rates seen in some plays and the demand-pull from all parts of the continent.

He said Hart's research suggests that, despite the anticipated rise in unconventional production, both incline and decline should be taken into account as declining production in the Gulf of Mexico may offset the rapid growth in the Bakken.

"Light shale oil cannot simply be a direct substitute for heavy oil," Haas said. "The refineries are set up completely differently."

—GARY PARK

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