

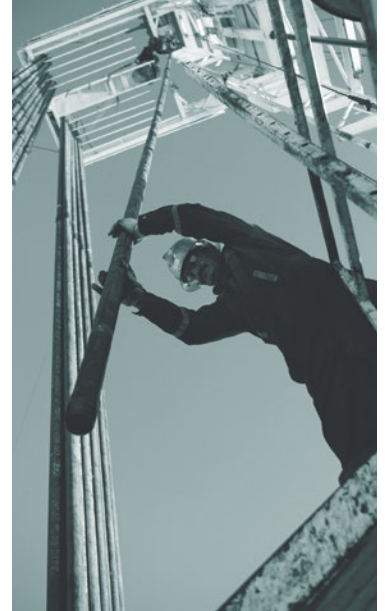


ALBERTA OIL & GAS INDUSTRY

QUARTERLY UPDATE

FALL 2014

Reporting on the period: June 15, 2014 to Sept. 30, 2014



All about oil and gas*

Technological advancement has set the stage for another boom in Alberta's non-oil sands oil and natural gas industry. Until the last few years, the sun had slowly been setting on Alberta's conventional oil and natural gas industry. Oil production had declined from a peak of 1.43 million barrels per day in 1973 to a low of around 460,000 barrels per day in 2010.

But things are changing for the better, as increased implementation of long



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horizontal wells and multistage fracturing in tight oil plays across the province—not to mention new provincial royalty incentives to encourage drilling—has crude oil drilling activity and production on the upswing.

In fact, the tight oil revolution that began in the United States and gradually moved north into Alberta marks the dawning of a new day for oil and natural gas exploration and production in the province.

In Alberta, the new technology is being used in an increasing number of oil plays. Among the most advanced plays are the Cardium in west-central Alberta, the Beaverhill Lake Carbonates near Swan Hills, the Viking in east-central Alberta, at Red Water north of Edmonton, the Pemiscot at Princess in southern Alberta and at Judy Creek in northwestern Alberta.

Additionally, emerging liquids-rich plays like the Montney and Duvernay shale show great promise. In fact, the Duvernay play may have the most potential going forward.

At the end of 2013, industry giants such as Chevron Canada Limited and Encana Corporation reported strong liquids yields, particularly for valuable condensate, and producers are preparing to ramp up activity this year.

The Duvernay is often compared to the prolific Eagle Ford of Texas because they are both shale plays that offer a full spectrum, from dry gas through liquids-rich gas to oil. Many other shale plays, such as the Horn River Basin in British Columbia and the Marcellus or Barnett south of the border, are much more gas-focused.

In terms of the potential size of the play area, the richness of the source rock and even some of the early production results, the Duvernay "is well on its way to being as big or bigger than the Eagle Ford," Canadian Discovery Ltd. has proclaimed.

The increase in horizontal drilling activity is expected to offset the steep decline in Alberta conventional production that would otherwise be expected.

The Alberta Energy Regulator estimates the remaining total established reserves of conventional crude oil in Alberta to be

1.8 billion barrels, representing about one-third of Canada's remaining conventional reserves. This is a year-over-year increase from 2012 of five per cent, resulting from all reserve adjustments less production in 2013.

Alberta's production of conventional crude oil totalled 213 million barrels in 2013, an increase of five per cent.

The province is also the largest contributor to Canadian oil and equivalent production and is the only contributor of upgraded and non-upgraded bitumen, which are the marketed components of raw bitumen production.

Alberta is Canada's largest producer of marketable natural gas. In 2013, Alberta produced 69 per cent of Canada's total production, down from 70 per cent in 2012. Over the same period, Canada's second-largest contributor, British Columbia, increased its share from 25 per cent to 26 per cent.

Although relatively low natural gas prices have reduced drilling activity in Alberta for that commodity the past few years, when prices rebound, the province will be well positioned to capitalize.

Canada is the third-largest natural gas producer in the world, with the majority of the country's gas being produced in Alberta. According to provincial figures, at the end of 2012, remaining established reserves of conventional natural gas stood at 33 trillion cubic feet, while remaining established coalbed methane gas reserves stood at 2.4 trillion cubic feet. The province estimates the remaining ultimate potential of marketable conventional natural gas at 74 trillion cubic feet.

Although conventional natural gas remains a very important part of Alberta's natural gas supply, horizontal drilling and multistage fracturing now allow for development of natural gas from a new source—unconventional natural gas resources.

Aside from coalbed methane, Alberta's unconventional natural gas resources include tight gas (natural gas trapped in low-permeability sedimentary rocks, such as sandstone or limestone) and shale gas (trapped in shale rock). ■

All photos © 2014,
JuneWarren-Nickle's Energy Group

*This publication contains information about Alberta's oil and gas industry, excluding the oil sands. For information on the oil sands, please refer to the Alberta Oil Sands Industry Quarterly Update on this [website](#).

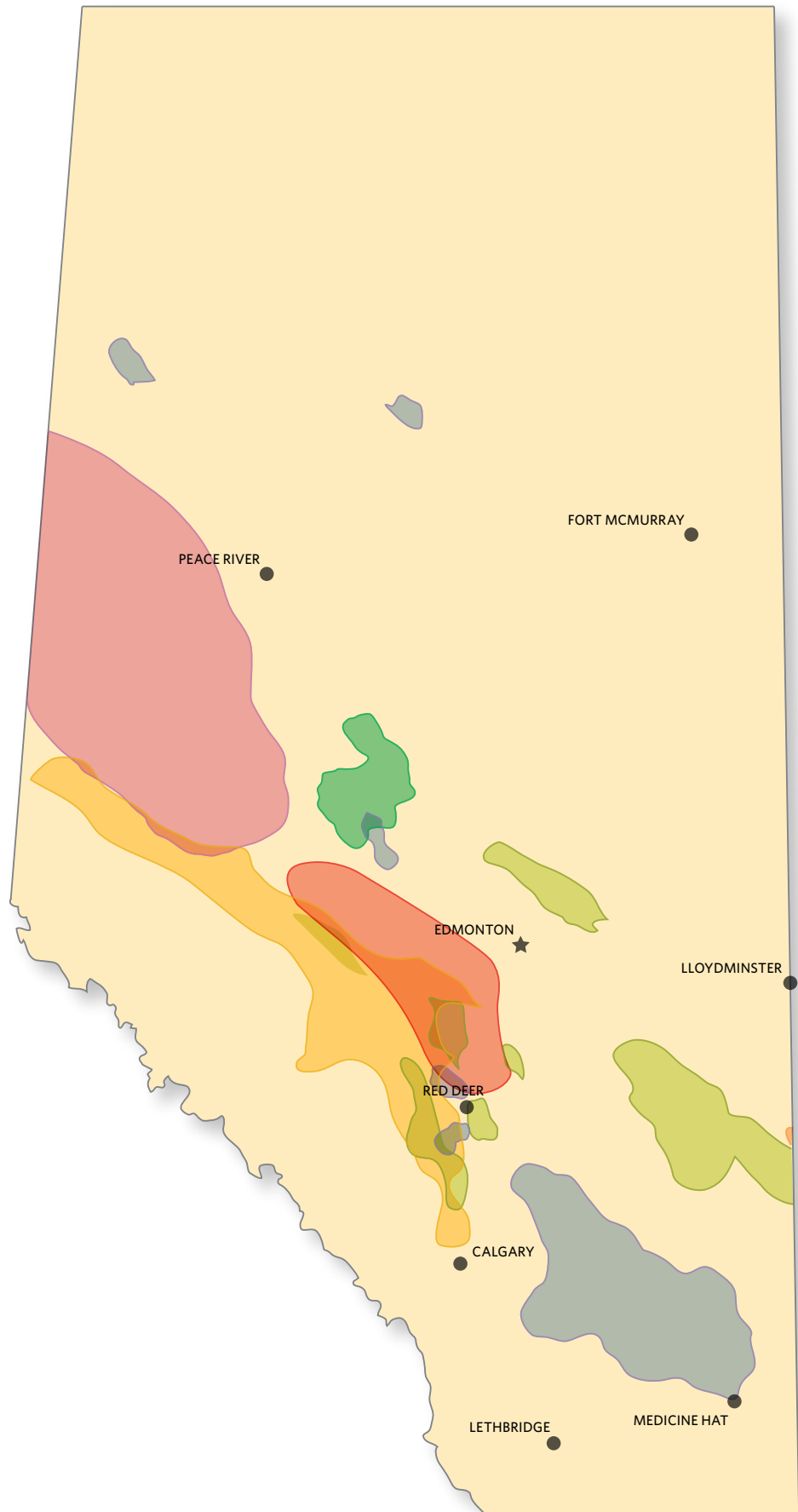
Oil plays

The Alberta Energy Regulator (AER) estimates the remaining established reserves of conventional crude oil in Alberta to be 1.7 billion barrels, representing about one-third of Canada's remaining conventional reserves.

This is a year-over-year increase of 9.5 per cent, resulting from production, reserves adjustments and additions from drilling that occurred during 2011.

In 1994, based on the geological prospects at that time, the AER estimated the ultimate potential of conventional crude oil to be 19.7 billion barrels. Given recent reserve growth in low permeability, or tight oil plays, the AER believes that this estimate may be low.

Starting in 2010, total crude oil production in Alberta reversed the downward trend that was the norm since the early 1970s. In 2010 and 2011, light-medium crude oil production began to increase as a result of increased, mainly horizontal, drilling activity with the introduction of multistage hydraulic fracturing technology.



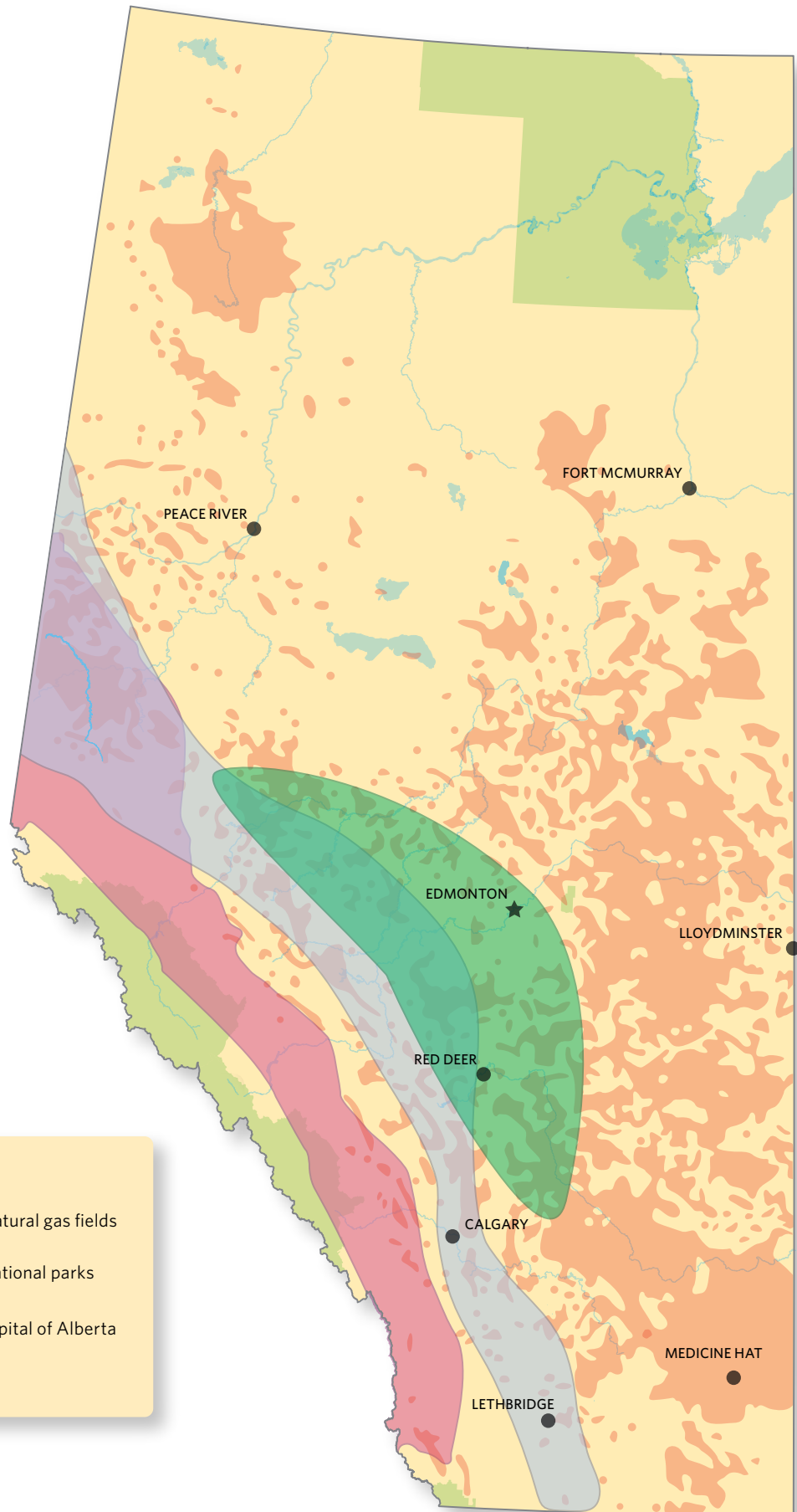
OIL PLAYS

-  Beaverhill Lake/Swan Hills/Slave Point Carbonate
-  Cardium
-  Duvernay
-  Montney/Doig
-  Pekisko
-  Viking







Natural gas plays

Alberta's natural gas bounty is plentiful and is produced from both conventional and unconventional reserves. While the majority of the province's natural gas is still produced from conventional sources, growing natural gas volumes from coal, shale and tight formations will also be strong contributors going forward.

Alberta has a large natural gas resource base, with remaining established reserves of about 33 trillion cubic feet and estimated potential of up to 500 trillion cubic feet of natural gas from the coalbed methane resource. In addition, a large-scale resource assessment of shale gas potential in Alberta is underway and could significantly add to the natural gas prospects for the province.



GAS PLAYS

 Deep Basin Cretaceous multi-zone gas play	 Natural gas fields
 Nikanassin Deep Basin gas play	 National parks
 Montney Hybrid tight gas/shale play	 Capital of Alberta

GOVERNMENT

UPDATE



PRENTICE SWORN IN AS PREMIER, OBERLE NEW ENERGY MINISTER

Signalling the importance of the post, Alberta's new premier will serve as his own minister of aboriginal relations as well as head of the executive council.

Jim Prentice, who was sworn in as Alberta's 16th premier on September 15, will also serve as international and intergovernmental affairs minister.

Frank Oberle, MLA for Peace River, will replace Diana McQueen as energy minister, and she will move to municipal affairs.

Kyle Fawcett, MLA for Calgary-Klein, is the new minister of environment and sustainable resource development. He replaces Robin Campbell, who will serve as finance minister and president of the treasury board.

"As of this moment, Alberta is under new management," said Prentice.

"This is a new government with new leadership, new voices and a new way of doing things," he said. "Today and in the days and weeks to come, we will take strong and decisive action to bring real and tangible change to the way in which Alberta is governed."

In addition to the premier, the new cabinet has 16 ministers and three associate ministers, down from the 19 ministers and 10 associate ministers who were sworn in on Dec. 6, 2013, under former premier Alison Redford.

Oberle, the new energy minister, has a background in forestry. He studied forest resource technology at the College of New Caledonia in Prince George, B.C., in 1980 and obtained his bachelor of science in forestry from the University of New Brunswick in 1988.

From 1988 to 2000, Oberle worked for Daishowa-Marubeni International Ltd., first as a management forester and then as senior forestry adviser. He is a registered professional forester with the College of Alberta Professional Foresters.

ALBERTA GOVERNMENT REFOCUSES ON MARKET ACCESS AND COMPETITIVENESS

On September 17, Premier Jim Prentice announced the appointment of three renowned leaders who will refocus efforts to increase the sale of Alberta goods and services around the globe.

These new appointments in key markets around the world underline a fresh approach to global affairs and signal streamlined priorities that will be fundamentally tied to achieving secure market access and improving Alberta's global competitiveness overall.

They reflect a clear indication of the importance placed on enhancing intergovernmental and industry relationships across Canada and the United States and around the world. More effective global partnership development across government and industry is a priority of the Prentice government.

In addition to seeing the premier retain the duties of the international and intergovernmental relations and aboriginal relations portfolios, the government has also recruited individuals who are leaders with deep expertise in priority geographies.

"I am honoured to welcome our new senior representatives. These are people who have considerable skills that will advance Alberta's interests in terms of relationship-building, policy alignment and market development. Each will work in close contact with our government's overall efforts to remove barriers and ensure that market access and global prices are achieved," Prentice said.

The appointments include the following:

Asia Pacific

Ron Hoffmann has accepted the position of Alberta's senior representative for the Asia Pacific Basin and will immediately begin to conduct a review of Alberta's offices in Asia and make recommendations to ensure all of Alberta's activities abroad are optimally aligned.

Alberta presently has offices in Beijing; Hong Kong; New Delhi; Seoul, South Korea; Shanghai; Singapore; Taipei, Taiwan; and Tokyo. Hoffman will also begin to work closely toward the transition of the Hong Kong office in order to ensure an orderly handover following the expiration of Gary Mar's contract in June 2015.

United States

The Honourable Rob Merrifield, who has resigned his seat in the House of Commons, has accepted the position of senior representative to the United States of America. His position builds on his extensive experience representing Canada in the United States, most recently as a congressional liaison ►





for the Government of Canada. Merrifield will replace David Manning following an orderly transition of the Alberta office in Washington.

Canada

The Honourable Jay Hill has accepted a position as senior representative in Saskatchewan, British Columbia and the North and to the New West Partnership. His position represents a realignment of the existing representation based in Ottawa with a priority focus on market access and western Canadian partnerships.

Alan Ross, who is the government's current representative in Ottawa, tendered his resignation in August 2014 in order to return to private sector pursuits. He will stay on until the end of October in order to assist with the transition.

The premier thanked departing representatives for their service. Contracts for new senior representatives will be in keeping with Alberta's International Service Guidelines and other departmental guidelines and subject to public service commissioner approval. Each contract will be struck through the International and Intergovernmental Relations Department.

ALBERTANS INVITED TO PROVIDE INPUT ON ENERGY DEVELOPMENT NEAR URBAN AREAS

Albertans were recently invited to provide input on issues relating to energy development in urban areas through an online forum.

Fact sheets and educational information on safety standards and environmental regulations were available, and a series of questions helped gather ideas and opinions on this important topic.

The online feedback form was available until July 15 and was supplemented by discussions with local stakeholders in Grande Prairie, Red Deer, Calgary, and Lethbridge between June 16 and June 24.

The ministries of energy, health and municipal affairs, the Alberta Energy Regulator and the property rights advocate participated in the discussions using the same information available to online participants.

"Alberta has a rich history of energy development and strict environmental regulations and safety standards in place. With this online tool, municipalities, industry, stakeholder organizations and all interested Albertans [had] the opportunity to learn more about how energy development is regulated and monitored in Alberta and [offered] their suggestions on how provincial regulations and policies can balance rapid urban growth and future energy development. I look forward to hearing Albertans' views," said Diana McQueen, then minister of energy.

MINISTER FAWCETT RESPONDS TO CHANGES TO FEDERAL TEMPORARY WORKER PROGRAM

Former jobs, skills, training and labour minister Kyle Fawcett was concerned that federal changes to the Temporary Foreign Worker Program would hurt Alberta's and Canada's economies, and he issued the following statement on June 20, 2014:

"We are comfortable with changes to the Temporary Foreign Worker Program (TFWP) that tighten the program's administration. But introducing caps and using the province's median wage to differentiate low-skill occupations and reducing the length of time workers can stay is simply bad economic policy for Alberta. [This] announcement from the federal government is disappointing on a number of levels.

"We recognize that some concerns about the TFWP are valid. Alberta's position is clear: the rules of the TFWP must be enforced, and we have offered to work with the federal government to strengthen compliance measures for employers. While we support many of the enforcement actions being taken today, we note that they are required because the rules were not being adequately enforced by the federal government in the first place.

"Separately, we recognize that employers need to demonstrate that TFWs are actually needed, and we support a fair application process. But introducing hiring caps does not address that issue. As a result, companies may go through an expensive and rigorous process to demonstrate that they actually need foreign workers, only to be denied the opportunity to hire them.

"Unfortunately, the changes announced today are a one-size-fits-all solution and only compound the labour challenges faced by many Alberta businesses. The federal TFWP has been valuable during periods of strong economic growth.

"Alberta is committed to building a permanent workforce to keep pace with our growth. This includes training Albertans who want to work, attracting Canadians to our booming job opportunities and welcoming immigrants from around the world. Even with all of this, Alberta will be short 96,000 workers over the next decade. Our labour pressures are significant and permanent. The TFWP helps temporarily fill short-term needs, so tightening this program further exacerbates the larger challenge." ■





What's new in the oil and gas industry

LAND SALE UPDATE

The Alberta government attracted \$18.59 million at its sale on September 3, where land buying was focused on various targets.

Industry purchased 54,989 hectares at an average price of \$338.08. Year-to-date, the province has brought in \$354.97 million on 733,776 hectares at an average price of \$483.76. Up to the same point in 2013, the government had attracted \$528.87 million in bonus bids for 1.68 million hectares at an average price of \$314.81.

Badger Pass Minerals Inc. paid both the bonus and average high prices during the sale. The broker submitted a \$1.66-million bid, at an average of \$6,493.91, for section 21 at 072-09W6 for all petroleum and natural gas (P&NG) rights.

"There are several prospective targets in the area, but this sort of valuation indicates they are likely pushing out the margins of the tight Montney oil fairway, as there are horizontal Montney producers in the townships," said Brad Hayes, president of Petrel Robertson Consulting Ltd.

Steve Hager, senior exploration analyst with Canadian Discovery Ltd., added that the lease is located in the Albright Field in an area where recent horizontal drilling has targeted the Cretaceous Dunvegan and the Juro-Cretaceous Nikanassin formations for oil and the Triassic Montney Formation for oil and gas.

The Albright Nikanassin B Pool to the east of the subject parcel has produced 430,000 barrels of oil from eight wells since its discovery in 2008. ConocoPhillips Canada, Encana Corporation and Canadian Natural Resources Limited are active in the Montney play.

Bidding under its own name, Enerplus Corporation picked up a 256-hectare licence for \$1.64 million, paying an average price of \$6,421.96. The producer acquired section seven at 049-19W5, which included all P&NG rights.

Hager said this parcel is located in the Minehead field, where Tourmaline Oil Corp., Husky Energy Inc. and Enerplus have been very successful developing Mannville Group equivalent Lower Cretaceous liquids-rich gas production using horizontal drilling and multistage fracturing.

"The Wilrich member of the Spirit River Formation is the most popular target in this area, with the Notikewin and Gething also contributing to the recent activity," he said.

Hayes added, "This area is being actively developed with horizontal gas wells, particularly in the Wilrich, and with some wells in the upper Mannville [Notikewin]. These are the targets likely assigned the most value here."

INTERPROVINCIAL OPPORTUNITY BECKONS

The Canadian economy is far too fragmented, and in the 20 years since the Agreement on International Trade (AIT) was signed and implemented, there has never been a better time to tear down interprovincial trade barriers, says Canada's minister of industry.

There are no sovereigntists in power in Quebec, and there is only one NDP government remaining in Canada, and that government is forward-leaning and open-minded about the subject, James Moore, also the MP representing the B.C. riding of Port Moody-Westwood-Port Coquitlam, told a Calgary audience recently.

According to Moore, when Canada's premiers met in Charlottetown in late August, they said they were prepared to move forward on reducing interprovincial trade barriers.

"We've got energy in Alberta, we've got energy in British Columbia, we've got people who want to get this modernized, liberalized and moving forward. It's a phenomenal opportunity to get something significant done," he told a conference hosted by the Alberta Enterprise Group, a non-profit business advocacy group, in collaboration with the Atlantic Metal Working Association, an organization representing fabrication, machine shops and related suppliers from across Atlantic Canada.

ALBERTA WELL LICENCES UP YEAR-OVER-YEAR

Over the first eight months of 2014, a total of 10,298 wells across Canada have been permitted compared to 9,450 in the prior year's period (up about nine per cent).

Operators across the country licensed 1,091 wells in August, about even with the 1,083 wells permitted in August 2013. Alberta and British Columbia both reported increases in year-over-year permitting for the month.

Alberta approved 684 new licences last month compared to 658 a year ago. To the end of August, the province had licensed 6,267 wells, up about five per cent from 5,963 wells a year ago.

In British Columbia, the province assigned 93 new licences in August, while 39 were approved or input. Last year, 83 new permits were assigned. To the end of August, British Columbia has authorized 738 new wells compared to 568 in the January-to-August period last year (up about 30 per cent). ➤

What's new in the oil and gas industry *continued*



In Saskatchewan, 274 well permits were issued in August compared to 277 in the prior year's period. The province has permitted 2,965 wells in the first eight months of the year versus 2,539 a year ago (up almost 17 per cent).

Manitoba granted 39 well authorizations last month, down from 57 in August 2013. Over the first eight months of the year, Manitoba has licensed 314 new wells compared to 344 a year ago.

ALBERTA FISCAL OUTLOOK BRIGHTENS

The Alberta government has boosted its outlook for non-renewable resource revenue for 2014-15 to \$9.82 billion, up \$612 million from the budget forecast.

The government touted an improved fiscal situation at its fiscal first-quarter update, during which the finance minister outlined a higher operational surplus expected for 2014-15 when compared to original budget predictions.

"I can say with confidence that I believe we have turned the corner financially," former Minister of Finance Doug Horner said during a conference call. "When it comes to Alberta's economic indicators, everything is looking up."

The outlook for bitumen and crude oil royalties led the hike for resource revenues, offset by a reduction in expected revenue from Crown land sales and natural gas and by-product royalties.

The provincial government now expects bitumen royalties of \$6.09 billion, up \$506 million from budget, while crude oil royalties of \$2.25 billion are now forecast, up \$226 million from the budget. On the other hand, natural gas royalties are now estimated at \$788 million, down \$35 million

from the original forecast, while Crown land sale revenue is now forecast at \$535 million, down \$88 million.

"One of the things that we've been saying all along is market access is one of the two or three critical points for not only the risk to Alberta's balance sheet and economy, but also in terms of Canada's economy," Horner said. "Market access is a huge issue for Albertans and Canadians."

NATURAL GAS PIPELINES NEEDED FOR NEW SUPPLY VOLUMES

TransCanada Corporation continues to see unprecedented interest in connecting new natural gas supply to the NOVA Gas Transmission Ltd. (NGTL) system as production continues to grow in Alberta and northeastern British Columbia, according to company officials.

"We continue to work through significant requests for additional pipeline receipt and delivery capacity on the NGTL system, which I expect in the next couple of months will lead to additional firm contracts for expanded capacity and significant capital investment requirements," Russ Girling, president and chief executive officer, said in a conference call to discuss second-quarter financial results for 2014.

"We are talking more just about new supply and load [demand] on our system," added Karl Johannson, executive vice-president and president of natural gas pipelines. "We have had some substantive subscriptions for new service on our pipeline, and what we are doing is going through and getting them qualified and getting contracts signed," he said. Based on that, the company will know how much expansion capacity is needed.

In addition, last winter was exceptionally cold across North America, including Alberta, and NGTL customers that had historically used interruptible capacity found it wasn't available on cold winter days, Girling said. Demand for gas service has grown substantially, especially in the Fort McMurray area, and customers are seeking increased capacity to meet current needs and for future growth and expansion, he said.

"It's more related to intra-Alberta growth and supply and, quite frankly, a demand that hasn't been addressed in some time." The demand is driven primarily by oil sands development and demand for gas-fired electrical generation, according to the company.

DRILLING FORECAST BUMPED UP

In response to stronger-than-anticipated drilling performance in the first half of the year, in late July the Petroleum Services Association of Canada (PSAC) increased its 2014 Canadian drilling activity forecast by six per cent over its original outlook.

In its third update to its forecast, PSAC said it now expects to see 11,460 wells drilled (rig released) in Canada this year. That's 660 more wells than in the original forecast, released in late October 2013, that called for 10,800 wells to be drilled in 2014.

In January 2014, the association increased its forecast by 1.2 per cent (130 wells) to 10,930 wells and in April of this year forecast 370 more wells for 2014 than initially expected.

PSAC's updated 2014 forecast is based on average natural gas prices of \$4.75 per metric cubic foot at AECO, crude oil prices of US\$100 per barrel (West Texas Intermediate) and the Canadian dollar averaging 90 cents.

"PSAC has revised its figures based on a stronger-than-anticipated performance during the first two quarters, with 245 more wells drilled during that period," Mark Salkeld, PSAC president and chief executive officer, said in a news release. "We are confident this performance trend will continue, and we are forecasting an additional 415 wells to be drilled in Q3 and Q4."

On a provincial basis, the updated forecast includes increasing activity across most of western Canada.

Alberta is expected to see an additional 207 wells drilled, up from 6,555 for a total of 6,762 wells, representing a three per cent change from the October outlook. Additionally, PSAC said it expects an uptick in activity in British Columbia with 157 additional wells for the year, or a 28 per cent increase, to a total of 707 wells in that province. ■

TECHNOLOGY

UPDATE



≡ BOOKLET SIMPLIFIES THE COMPLEXITIES OF THE ENERGY SECTOR

Simplifying the complexities of the energy sector for a general reader is particularly difficult, according to Canadian Society for Unconventional Resources (CSUR) president Kevin Heffernan, largely because much of the language used in the oilpatch comes in the form of technical jargon, which is not easily understood by outsiders.

“The reason jargon exists is because it takes something complicated and turns it into one word,” he said. “However, when you step outside the oil and gas industry, regulator or government departments that deal with oil and gas, then that jargon does not mean anything.

“And so we were faced with taking all that technical oil and gas jargon and turning it into sentences that people could understand. It can be pretty tricky, as it is easy to slip into jargon.”

Turning the complexities of the industry into an easily readable document is exactly what CSUR did, though, in its recently released *Understanding Oil & Gas*, which is the latest in a [series](#) of booklets aimed at providing comprehensive, layperson-level explanations of Canada’s energy sector.

Heffernan said that it is important to equip Canadians with unbiased scientific facts about unconventional resource extraction, in large part because it helps them understand what to expect from an operator in the event of an encounter with industry.

≡ HARVEST INSTALLING WATCHDOG MONITORS ON 1,000 WELLS

Harvest Operations Corp. is now installing low-cost monitoring devices on 1,000 of its oil wells in Alberta, Saskatchewan and Manitoba, reports Calgary-based Advanced Flow Technology Inc. (AFTI).

AFTI, developer of WatchDog, an oil well monitor and monitoring system, announced Harvest’s order in early September.

George Briggs, Harvest’s manager of operations, said the company is installing WatchDog on 1,000 wells because it cuts down on unnecessary wellsite visits and is ideal for marginal production wells.

“We want our field crews to focus on safety, maintenance and prevention, environmental issues and production goals,” he said. “With WatchDog, we’re making better use of field personnel time, saving money and—most importantly—keeping our wells running all of the time. Our crews are no longer checking wells for the sake of checking wells.”

According to AFTI, WatchDog is a battery-operated monitor that weighs less than two pounds and is easily installed. It continually monitors an oil well’s temperature, pressure and vibration. Data is sent via satellite to a secure, password-protected website.

When there is a change in one of the three monitored areas, which could mean the well has stopped producing, WatchDog immediately “barks” by sending customers a text and email. Customers can then access historic information about the well, identify its location and decide if a field visit is necessary.

≡ ROTARY STEERABLE SYSTEM HELPS COMPANY DRILL EXTENDED-REACH WELLS

At the beginning of 2014, DeeThree Exploration Ltd. stated that its future wells would be drilled with the use of extended-reach horizontal drilling technology in order to realize the capital efficiencies of wells with horizontal lengths in excess of 1.3 miles.

And that move has paid off.

Jonathan Fleming, the company’s vice-president of capital markets, said DeeThree drills nothing but extended-reach wells for both its Alberta Bakken and Belly River interests using the rotary steerable system.

In the Alberta Bakken, he noted, the company has drilled some wells that are 4,200-plus metres in horizontal length for a play that is only 1,250 metres deep.

“That should give you a sense of how good the tool is, because when you start getting wells that start to be materially longer than they are deep, you end up with problems of getting enough weight on the bit,” he said.

From the drillers’ perspective, the rotary steerable system eliminates the sort of downhole sliding that can occur with other systems, and it can make it possible to drill the longest wells, as the tool is always rotating and cleaning out the hole. Because the tool maintains good hole direction and inclination, the hole is much smoother. ■

LABOUR

UPDATE



≡ MORE JOBS THAN PEOPLE

The Alberta government's [Short-Term Employment Forecast](#) for 2014-16 looks at 260 occupations across the wage and skills spectrum and reveals 31 that are expected to be in the highest demand.

Most occupations in the high- and moderately high-demand categories require a college education or apprenticeship training. The report looks at seven variables to determine where demand is heading, including:

- employment growth rates;
- industry forecasts;
- the unemployment rate; and
- vacancy rates from wage and salary surveys.

The forecast is released annually to help bridge the gap between what is happening now in Alberta's economy and where the labour pressure points are expected to be longer term.

It is a complementary tool to Alberta's [Occupational Demand and Supply Outlook](#), which forecasts labour shortages for the next 10 years. Alberta's most recent long-term forecast predicts that Alberta will be short 96,000 workers by 2023.

≡ ALBERTA MAKES PROGRESS ON REDUCING LABOUR SHORTAGES

Alberta faces a shortage of 96,000 workers by 2023, according to the most recent [Occupational Demand and Supply Outlook](#), down from 114,000 workers by 2021 in the previous forecast.

Released every two years, the outlook is one of the key indicators the Alberta Ministry of Jobs, Skills, Training and Labour will use to help build a skilled workforce capable of meeting the province's labour demands.

The ministry will continue to ensure Albertans have access to the opportunities that Alberta's labour market offers.

Other key projections include the three-year [Short-Term Employment Forecast](#), and monthly and annual unemployment reports.

≡ WORKPLACE INJURY RATES HIT ALL-TIME LOW

The latest statistics show a 20-year trend of improved workplace safety.

The rate of Alberta workers being hurt on the job dropped in 2013, according to information provided by the Workers' Compensation Board. In fact, the lost-time claim rate is now at an all-time recorded low.

In addition, the disabling injury rate (DIR) dropped in some of Alberta's key sectors last year: construction, manufacturing, and oil and gas development. The DIR combines information on workers who couldn't work because of their injury or who had their duties modified due to workplace injury or disease.

Despite safety improvements, there were 188 workplace fatalities in 2013. More than half of the fatalities resulted from occupational disease. In some cases, the worker may have been exposed to the disease decades ago.

While the rate of injury went down, the number of disabling injury claims rose slightly as Alberta's workforce grew by 2.9 per cent to 2.1 million.

Occupational health and safety data can be found [here](#).

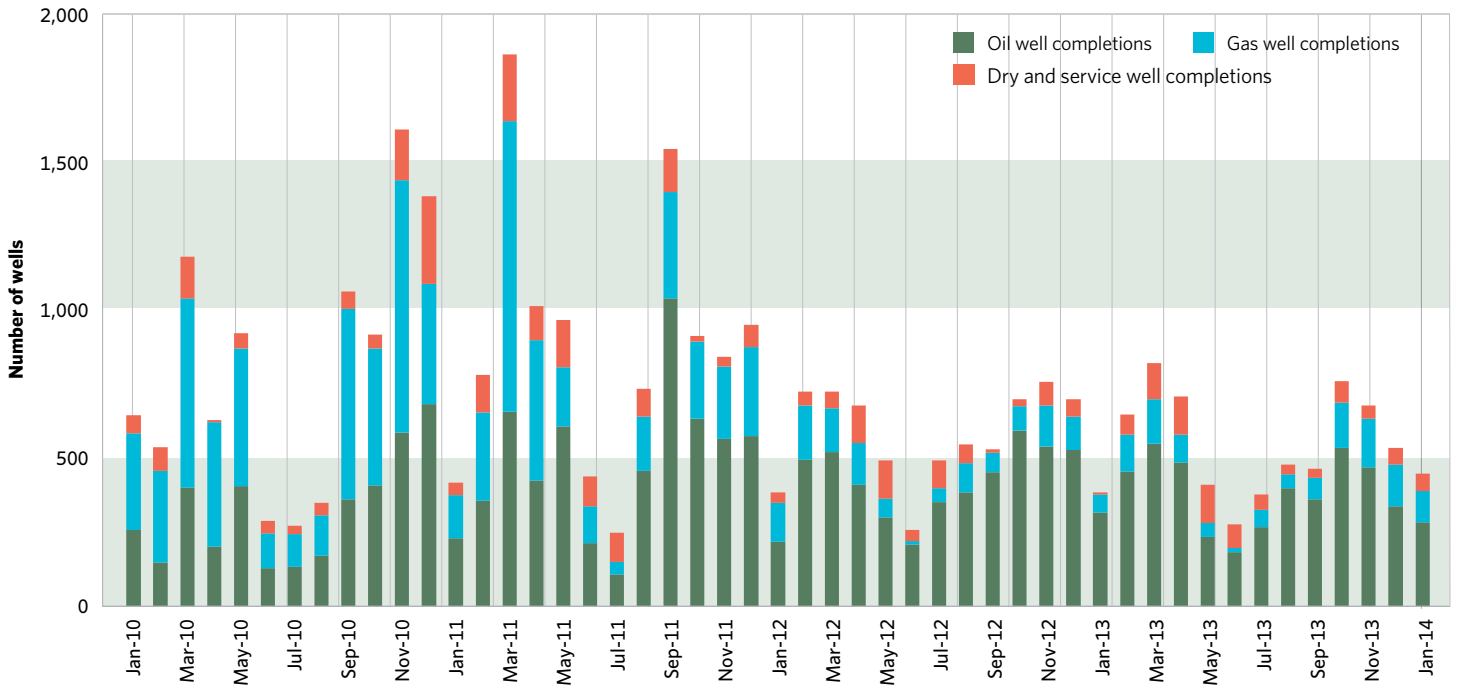
2013 highlights:

- The lost-time claim rate is now 1.34 per 100 person-years, an all-time recorded low. That's down from 1.40 in 2012.
- The disabling injury rate decreased to 2.67 from 2.72 per 100 person-years in 2012.
- In 2013 there were 54,140 disabling injury claims—the combination of lost-time claims and modified work claims—an increase of two per cent from 53,081 claims in 2012. ■



Oil and gas statistics

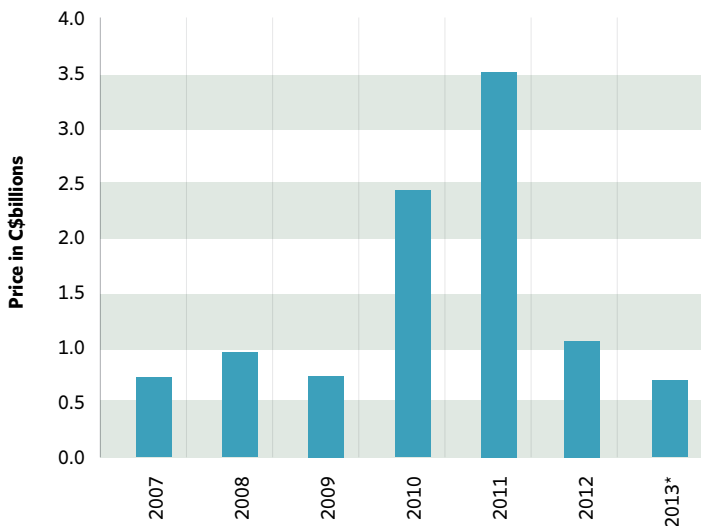
ALBERTA WELL COMPLETIONS



Source: JuneWarren-Nickle's Energy Group

ALBERTA CROWN LAND SALES

Petroleum and natural gas rights, excluding oil sands



*\$698.32 million

Source: Alberta Energy Regulator

WELL DEPTHS

	GAS			OIL		
	Total metres	Wells drilled	Avg. well depth (m)	Total metres	Wells drilled	Avg. well depth (m)
2009	6,638,293	4,194	1,583	5,448,442	3,574	1,524
2010	8,517,619.4	4,566	1,865	10,981,237	6,709	1,637
2011	7,253,946	2,800	2,591	15,387,285	8,891	1,731
2012	5,010,521	1,488	3,367	15,907,496	8,505	1,870
2013	5,198,392	1,528	3,402	15,327,052	8,181	1,873

Source: JuneWarren-Nickle's Energy Group

DRILLING RIG COUNT BY PROVINCE/TERRITORY

September 9, 2014

	ACTIVE	DOWN	TOTAL	ACTIVE (Per cent of total)
Western Canada				(Per cent of total)
Alberta	267	297	564	47
Saskatchewan	80	66	146	55
British Columbia	50	17	67	75
Manitoba	12	13	25	48
WC total	409	393	802	51
Northern Canada				(Per cent of total)
Northwest Territories	0	1	1	0
Eastern Canada				(Per cent of total)
Quebec	0	1	1	0
Canada total	409	395	804	51

Source: JuneWarren-Nickle's Energy Group

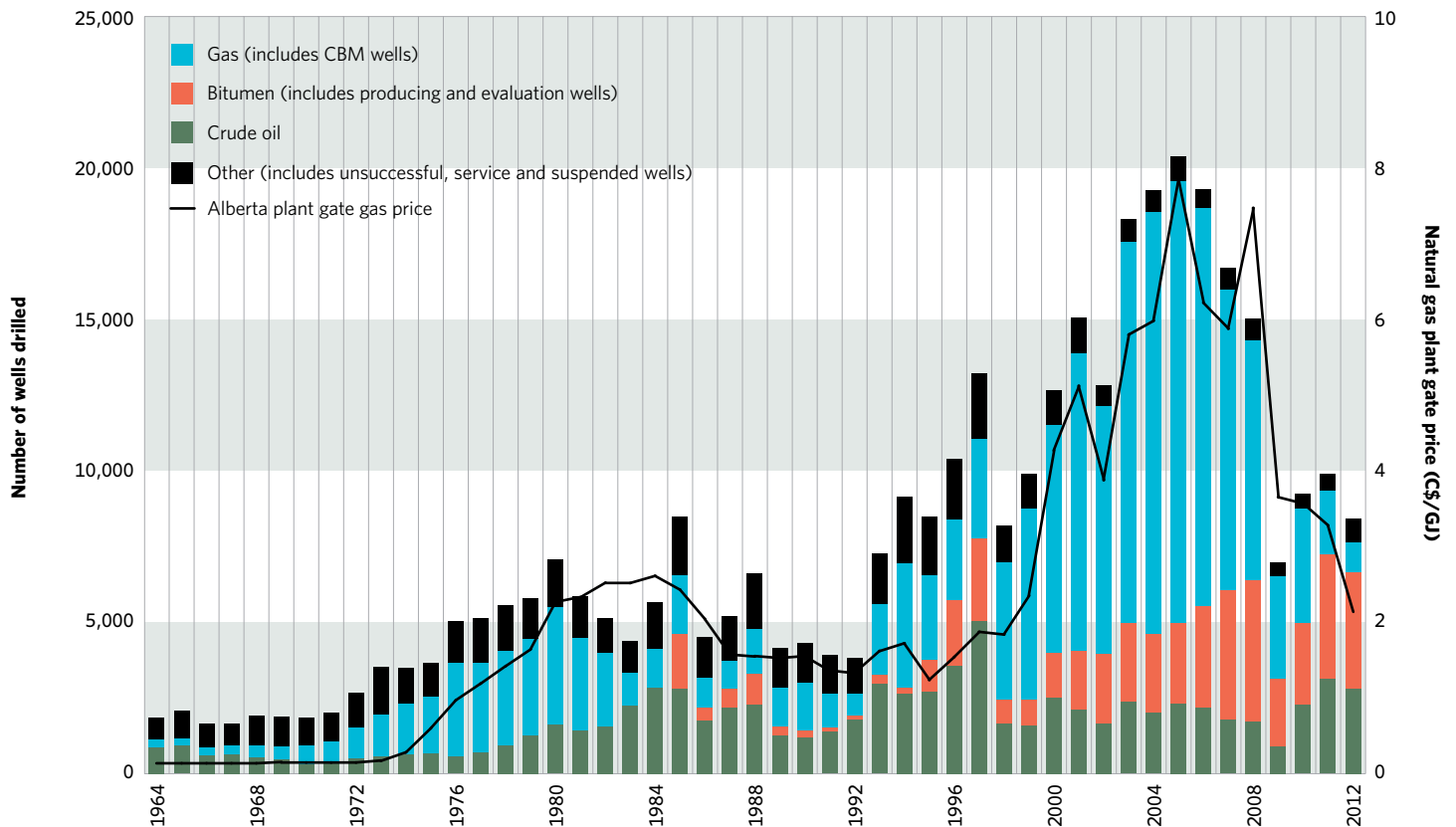
OIL AND GAS WELL COMPLETIONS BY PROVINCE

August 2014

Western Canada	OIL WELLS		GAS WELLS	
	Aug 2013	Aug 2014	Aug 2013	Aug 2014
Alberta	393	257	46	63
Saskatchewan	360	338	1	0
British Columbia	0	4	26	14
Manitoba	60	48	0	0
Total	813	647	73	77

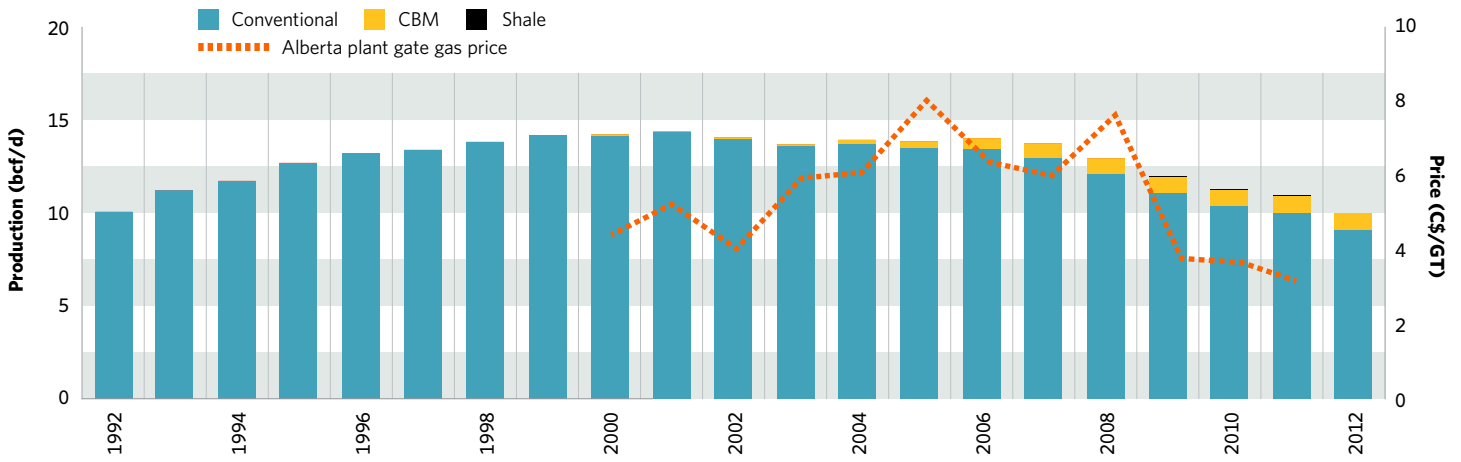
Source: JuneWarren-Nickle's Energy Group

DRILLING ACTIVITY IN ALBERTA, 1964 - 2012



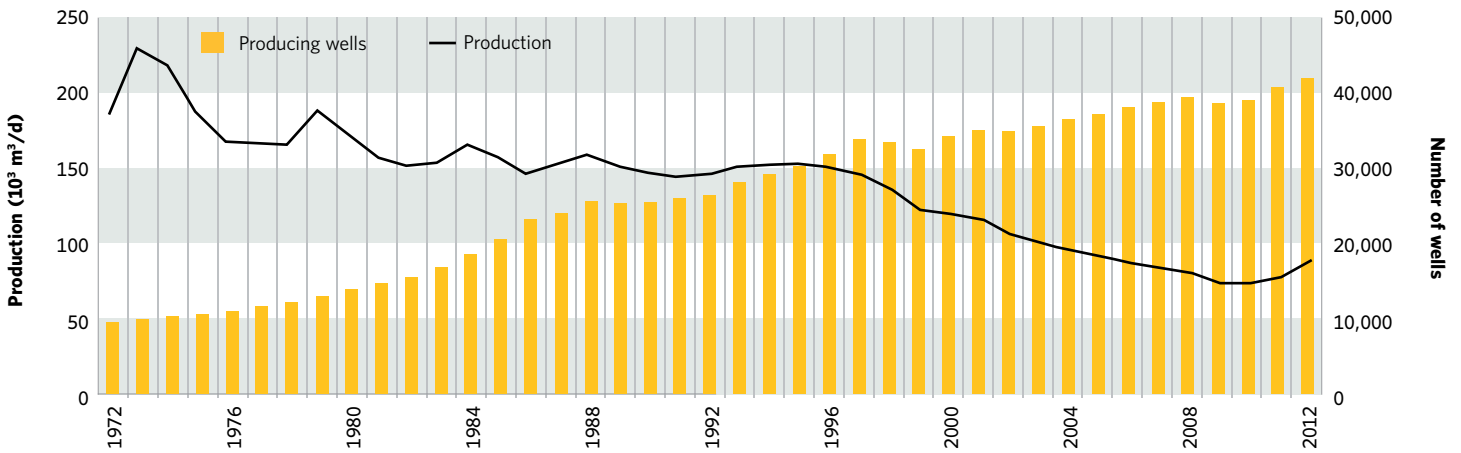
Source: Alberta Energy Regulator

ALBERTA MARKETABLE GAS PRODUCTION



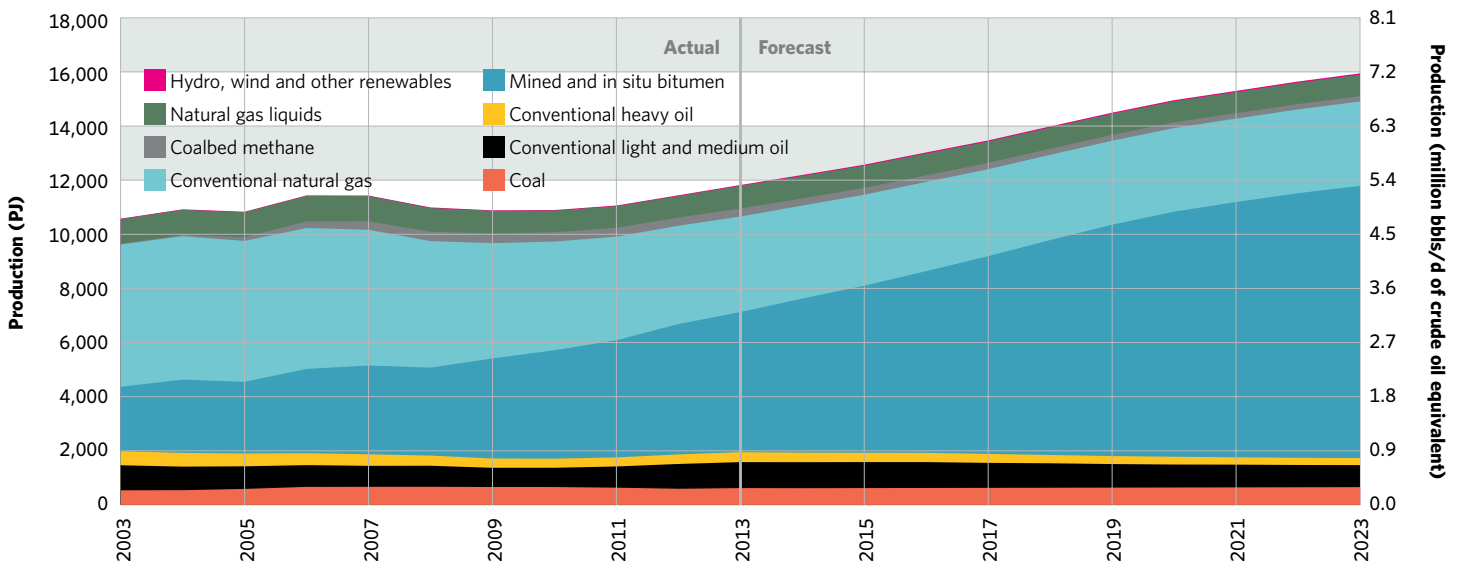
Source: Alberta Energy Regulator

ALBERTA CRUDE OIL PRODUCTION AND PRODUCING WELLS



Source: Alberta Energy Regulator

TOTAL PRIMARY ENERGY PRODUCTION IN ALBERTA



Source: Alberta Energy Regulator

The Duvernay:

A rising star?

In December 2009, the Alberta government's final land sale of the year generated an eye-widening \$384.3 million—a bright spot in what had been, to that point, a pedestrian year for provincial Crown auctions.

The Duvernay play in Alberta's Deep Basin was identified as a chief reason for the high bonus bids paid at this sale, and this was merely the opening act—it kicked off an over-two-year boom in Crown land spending. The apex came on June 1, 2011, when Alberta attracted a massive \$843.03 million—an all-time high for a single sale—fuelled by the Duvernay.

With most of the prospective land spoken for, the question now is; Will the Duvernay fulfill its promise as the next star play of North America, or were those billions in land-acquisition dollars spent in vain?

According to a November 2013 study by BMO Capital Markets, drilling results over the last 1.5 years have confirmed the existence of multi-phase windows—dry gas, liquids-rich gas, volatile oil and black oil—and the ability of the reservoir to behave as a true, over-pressured shale reservoir and, from most windows, deliver hydrocarbons economically.

The Alberta government's royalty regime favours Duvernay gas wells over Duvernay oil wells, which suggests activity, at least in the near term, will be relegated to defining and drilling in the condensate- and natural gas liquids-rich windows, the study notes.

"It is with this continued investment that the Duvernay shale has emerged as a highly sought-after, world-class unconventional shale play, with a focus now on condensate—the new gold," BMO stated.

EARLY WELL RESULTS

Canadian Discovery Ltd. identified 59 wells that report production from the Duvernay in Alberta, with 50 of these wells still on stream at Aug. 31, 2013.

The well with the highest oil rate is at that time was a Royal Dutch Shell plc well in the Kaybob field at 15-09-063-20W5, which averaged about 200 barrels of oil per day during that month. The best condensate rate was from an Encana Corporation well at 06-09-063-23W5 in the Waskahigan field, which averaged 480 barrels per day. And the best gas rate came from a Chevron Canada Limited well at Kaybob South 02-16-062-20W5, which averaged about 2.5 million cubic feet per day in August.

It's still too early to declare the play a commercial success, Canadian Discovery admitted, as operators are currently experiencing a range of successes.

"However, indications are that after operators determine the areas with the greatest potential and which completion programs work effectively in those areas, the project costs will come down significantly enough to provide long-term strong economics," the firm said.

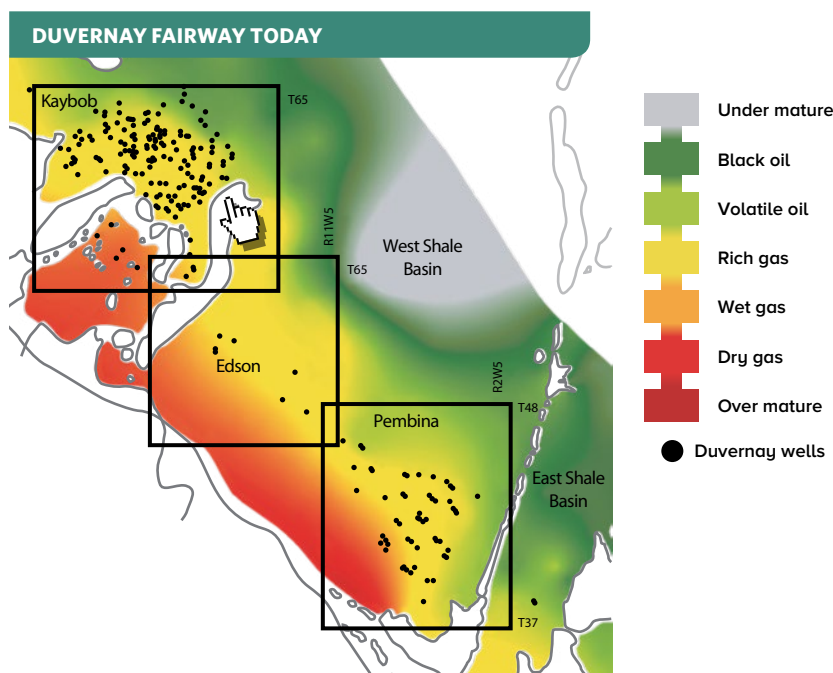
FUTURE DEVELOPMENT

Brad Hayes, president of Petrel Robertson Consulting Ltd., said that while 2014 will be an important year for the Duvernay, he did not characterize it as a pivotal one. Companies will continue to optimize their drilling and completions practices, and some, such as Chevron and Encana, will ramp up development in areas they see as economic.

"The play will progress, but it's unlikely there will be any pivotal events that will suddenly change the course of overall development—we're a few years into it, and there are many more to go," he said. "Duvernay lands in the areas where commerciality is reasonably envisioned—around the liquids-rich part of the fairway—are quite tightly held.

"There are some land opportunities in areas of uncertain economic merit—in the dry gas or oil areas—but there is unlikely to be much more land activity in these areas until their productive and commercial merits are proven up."

BMO said the type well economics show that liquids-rich Duvernay gas wells are profitable and that the condensate has the greatest impact on value. This has led to operators pushing the play boundaries further into the oily phase window in their quest for higher condensate yields. ■



Sources: GeoEDGES; GeoSCOUT; BMO Capital Markets

A snapshot of some major players in the Duvernay

With most of the prospective liquids-rich Duvernay land in Alberta's Deep Basin tied up, producers are slowly starting to drill the play in an attempt to prove up its potential.

The following is a summary of some of the companies with an acreage position in the Duvernay and their recent activity and plans for the near term.

ATHABASCA CONTINUES TO BE BULLISH ON THE DUVERNAVY

The core growth pillars at the foundation of Athabasca Oil Corporation's strategy remain unchanged. In the light oil division, the Kaybob region will continue to be Athabasca's focus, with the Duvernay play in Alberta serving as the company's primary driver of growth.

Although the company is well-funded, it will continue evaluating partnership opportunities on its many assets, both in light oil and in thermal oil. The company sees joint ventures as an excellent tool for additional future funding, acceleration of development plans, reduction of risk and leveraging partner expertise and skills.

In the Kaybob region, capital will be directed primarily toward the Duvernay, where Athabasca holds 200,000 net acres of high-grade lands with greater than 20 metres of shale pay in the heart of the fairway.

Specifically, in the Simonette, Saxon and south Kaybob areas, Athabasca and other industry players have delivered consistent commercial results that have advanced the stage of development to multi-well pad drilling. As such, Athabasca is also proceeding to the early stages of development in these areas where there is confidence in well productivity.



During the upcoming 2014-15 winter program, Athabasca plans to run four rigs in order to accomplish two objectives: first, to accelerate production and cash flow growth; and second, to drill the remaining land-holding wells to continue 95 per cent of the company's high-graded acreage into the intermediate term. The winter program will include 16 horizontal and two vertical wells.

Development drilling began in mid-September and will target near-term production growth at Simonette/Saxon and Kaybob West. The program will also include one new horizontal well at Kaybob East. Athabasca intends to start some pad drilling in 2015, which is expected to improve capital costs.

Well costs are expected to be within the range of \$10 million to \$15 million per well. The range is driven primarily by depth variance across the play. Alberta's favourable land tenure system enables the company to develop its extensive inventory at an appropriate pace across the thermal maturity windows.

Athabasca has sufficient funding in place to fully develop its Duvernay acreage based on its current full field development plan assumptions, which include a ramp-up to six rigs in future years. Based on the current development plan, the play is expected to be self-funding within the next three to four years.

APACHE AND CHEVRON ENCOURAGED BY DUVERNAVY RESULTS

Apache Corporation and Chevron Corporation both outlined expanded drilling plans for the Duvernay shale gas play during respective second-quarter conference calls.

George Kirkland, vice-chair and executive vice-president of upstream with Chevron said "good progress" is being made on its Duvernay program.

"Our wells have demonstrated good flow rates and high condensate yields, and we are confident of the quality of our acreage," he said. "In the third quarter, we anticipate spudding the first of 16 wells as part of our expanded appraisal program."

Apache said it was excited by drilling results in the Duvernay and Montney plays.

"Initial production rates have been encouraging," said Steven Farris, chair, chief executive officer and president. "In the Duvernay in the first quarter, we completed a well with a 24-hour rate of 1,963 barrels of oil equivalent a day. In the Montney, our first well was completed in the first quarter at a 30-day initial production [rate] of 926 barrels of oil equivalent a day."

With these results, the company is increasing its drilling in these plays. Farris said. "We now have 146,000 net acres in the Montney and 177,000 net acres in the Duvernay." ■

For more on the Duvernay, see the [Daily Oil Bulletin's special digital magazine](#) of the play.

CONTACTS

Industry Associations

- Alberta Land Surveyors' Association www.alsa.ab.ca
- Canadian Association of Geophysical Contractors www.cagc.ca
- Canadian Association of Oilwell Drilling Contractors www.caodc.ca
- Canadian Association of Petroleum Producers www.capp.ca
- Canadian Energy Pipeline Association www.cepa.com
- Canadian Gas Association www.cga.ca
- Canadian Natural Gas www.canadiannaturalgas.ca
- Canadian Natural Gas Vehicle Alliance www.cngva.org
- Canadian Society of Exploration Geophysicists www.cseg.ca
- Canadian Society of Petroleum Engineers www.speca.ca
- Canadian Society for Unconventional Resources www.csur.com
- Gas Processing Association Canada www.gpacanada.com
- Petroleum Services Association of Canada www.psac.ca
- Petroleum Technology Alliance Canada www.ptac.org
- Explorers and Producers Association of Canada www.explorersandproducers.ca

Alberta Government

- Alberta Energy www.energy.gov.ab.ca
- Alberta Environment and Sustainable Resource Development www.esrd.alberta.ca
- Alberta Innovation and Advanced Education www.eae.alberta.ca
- Alberta Energy Regulator www.aer.ca
- Alberta Innovates www.albertainnovates.ca
- Alberta Geological Survey www.ag.gov.ab.ca
- Alberta Surface Rights Board www.surfacerights.gov.ab.ca

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