ALBERTA OIL & GAS INDUSTRY QUARTERLY UPDATE

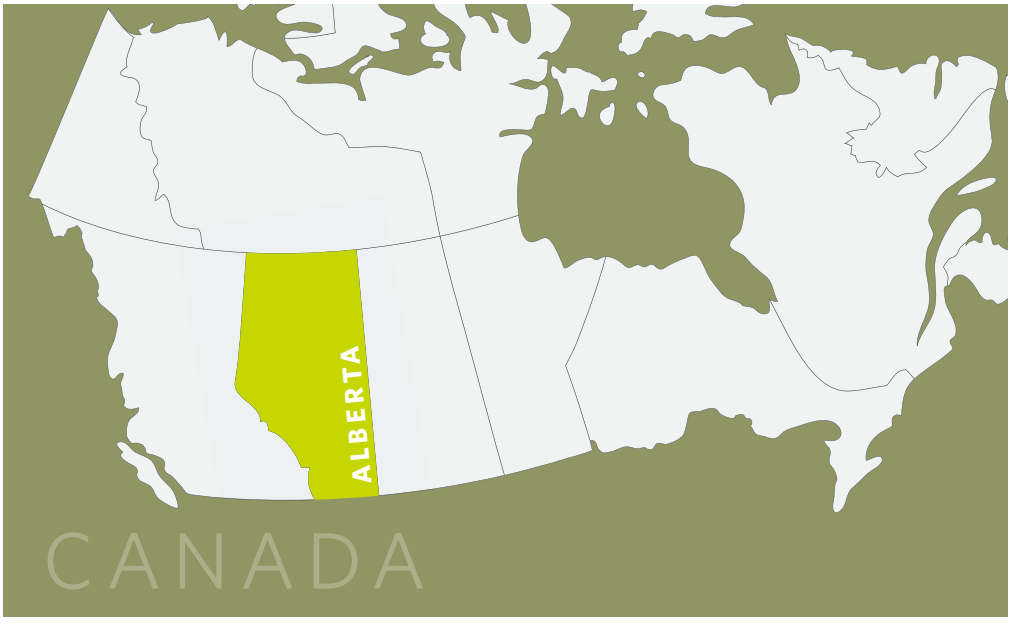

PHOTO: ENCANA

SUMMER 2016

Reporting on the period: March 5, 2016 to June 15, 2016

All about oil and gas

While Alberta and its petroleum sector have endured the hurt of sinking world crude oil prices and continued weak natural gas prices, the province is well positioned to rebound once the cyclical nature of commodity prices eventually recalibrates.

In fact, technological advancement has set the stage for future growth in Alberta's non-oil sands oil and natural gas industry. Until the turn of the last decade, 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 (bbls/d) in 1973 to a low of around 460,000 bbls/d in 2010.

But things, low commodity prices notwithstanding, have changed for the better, as increased implementation of long horizontal wells and multistage fracturing in tight oil plays across the province—not to mention attractive provincial royalty incentives to encourage drilling—have allowed industry to extract crude from resource bases that had previously been essentially untapped.

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

In Alberta, the 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 and the Viking in east-central Alberta.

More importantly, 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.

Although drilling activity has slowed given the current commodity price environment, many producers are still reporting strong results and liquids yields from their Duvernay and Montney programs.

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 B.C. 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 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 (AER) estimates the remaining established reserves of conventional crude oil in Alberta to be 1.8 billion barrels, representing more than one-third of Canada's remaining conventional reserves. This increase of 1.6 per cent over the 2013 estimate is from all reserve adjustments less production in 2014.

According to the AER, in 2015 Alberta produced 68 per cent of Canada's natural gas and 80 per cent of Canada's oil and equivalent. More than 60 per cent of Canada's total oil and equivalent production was marketable bitumen.

Shale gas production in Alberta continued to increase in Alberta in 2015, growing by 32.1 per cent to 5.9 million cubic metres per day (208 mmcf per day) from 4.5 million cubic metres per day (159 mmcf per day) in 2014.

In 2016, shale production is forecast to grow by another 25.4 per cent to 7.4 million cubic metres per day, reaching 12.3 million cubic metres per day by 2025. The number of shale wells expected to be placed on production in the period is expected to increase to 215 by 2025 from 135 in 2016.

Overall marketable natural gas production in Alberta, which includes shale gas, increased for the second year in a row in 2015, growing by 2.2 per cent to 298.6 million cubic metres per day from 292.1 million cubic metres, due to the lag effect from high drilling levels in 2014.

At the end of 2015, the province had 31.3 trillion cubic feet (tcf) remaining established reserves of natural gas with ultimate potential (recoverable) of 223 tcf (excluding unconventional gas). The province has 1.8 billion barrels of remaining established reserves of crude oil, with ultimate potential (recoverable) of 19.7 billion barrels. ■

NOTE: 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.

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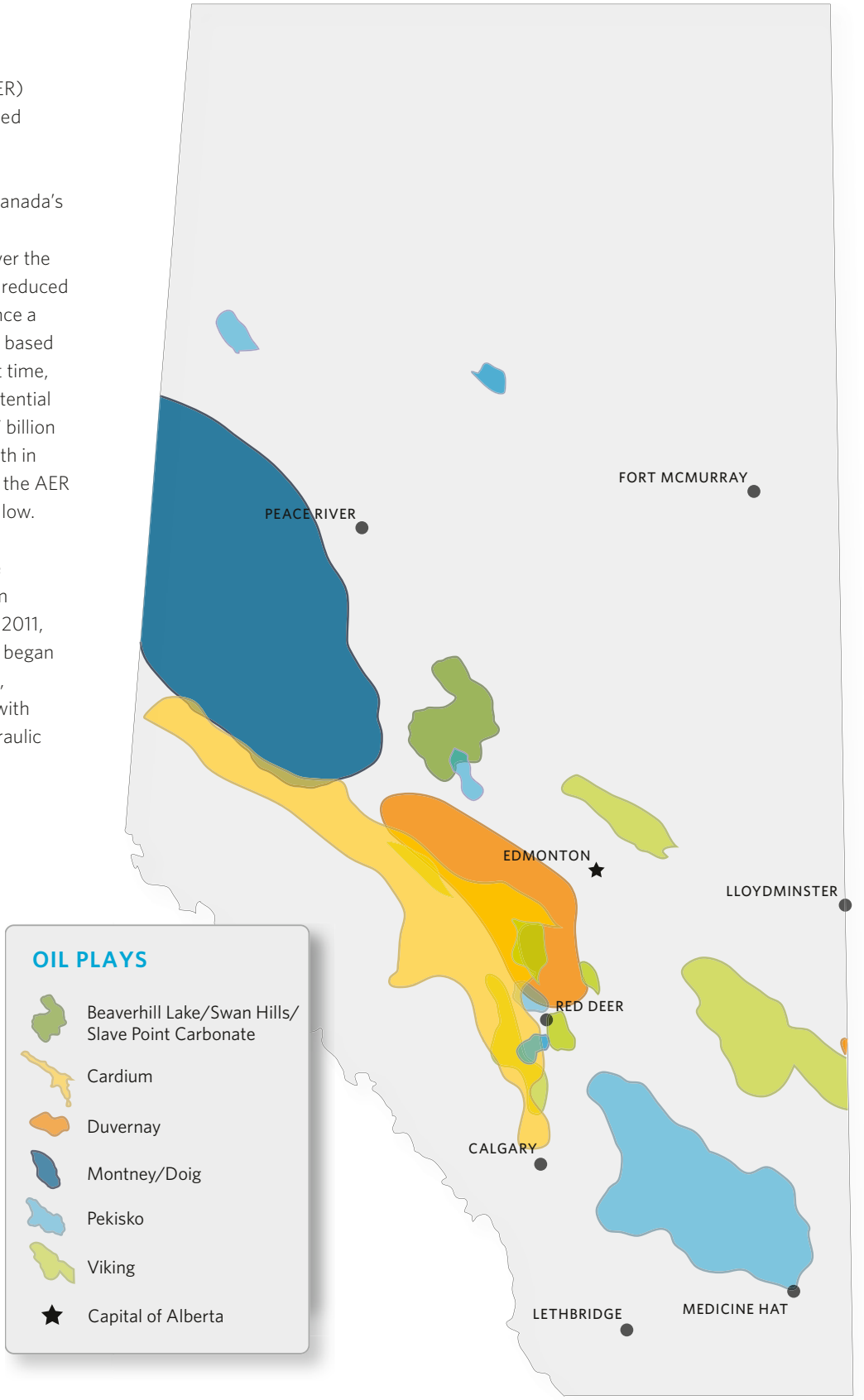
OIL PLAYS

The Alberta Energy Regulator (AER) estimates the remaining established reserves of conventional crude oil in Alberta to be 1.8 billion barrels, representing about one-third of Canada's remaining conventional reserves.

Though the pace has slowed over the past year due to low oil prices and reduced activity, it's expected to resume once a market correction occurs. 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.

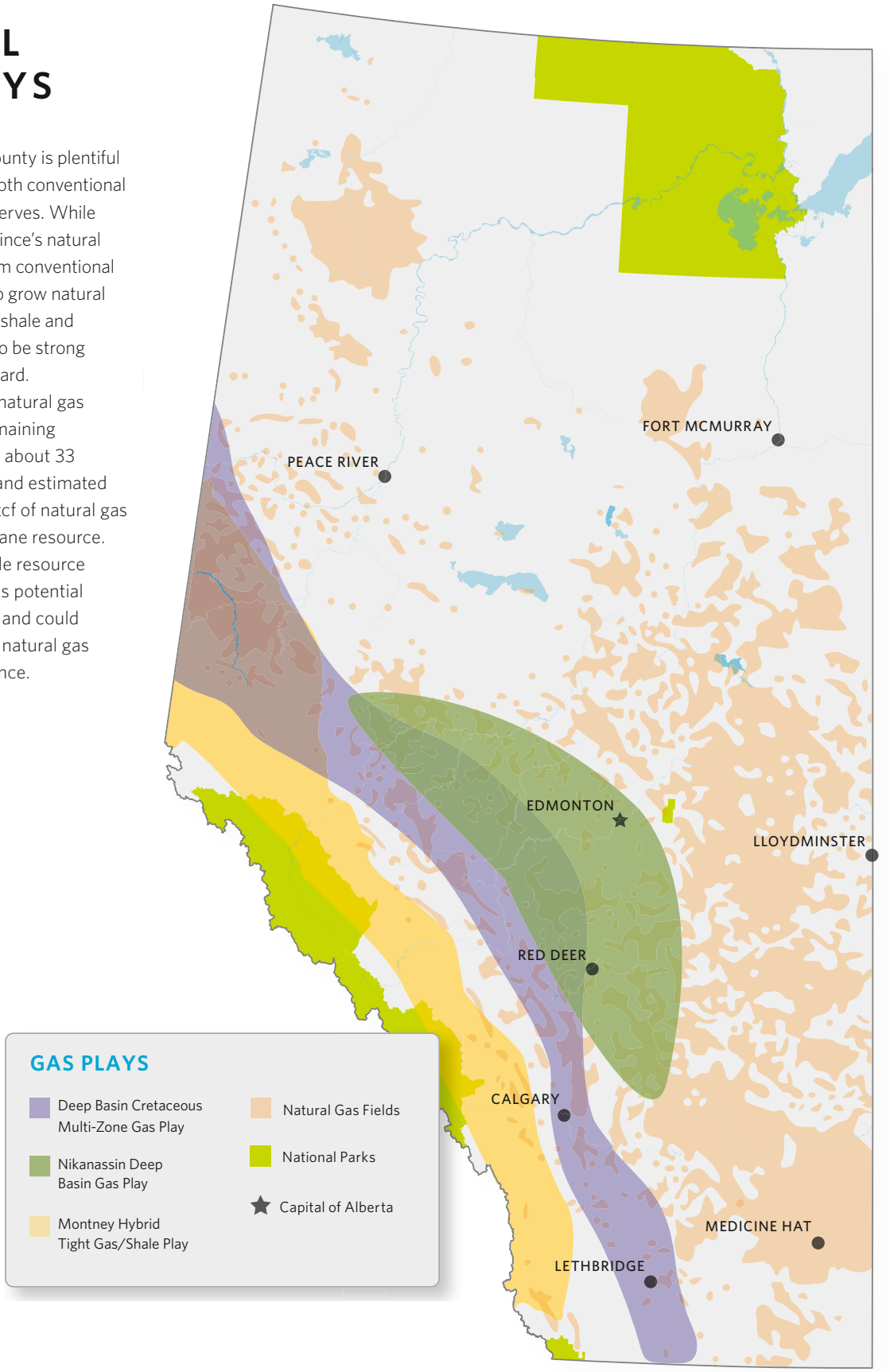
Starting in 2010, total crude oil production in Alberta reversed the downward trend that was the norm since the early 1970s. In 2010 and 2011, light-medium crude oil production began to increase as a result of increased, mainly horizontal, drilling activity with the introduction of multistage hydraulic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



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, the potential to grow 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 (tcf) and estimated potential of up to 500 tcf 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.



GOVERNMENT UPDATE

Alberta Government

CLIMATE LEADERSHIP PLAN TO REDUCE CARBON POLLUTION MOVES ALBERTA FORWARD

On June 7, the Alberta government passed the Climate Leadership Implementation Act.

This law implements key elements of Alberta's Climate Leadership Plan. It will create jobs by investing in a higher-value, lower-carbon, energy-efficient economy, and it will help Alberta do its part by reducing greenhouse gas emissions and energy consumption, and improving the energy efficiency of Alberta homes, businesses and public buildings.

Alberta's Climate Leadership Plan is widely supported in both the energy industry and in civil society. Alberta is taking its place as the leader on these issues.

"Our plan to reduce carbon pollution will diversify the economy, create jobs, protect the health of Albertans and erase any doubt about Alberta's environmental record. It's the right thing to do today and for future generations. Climate change denial is wrong for our economy and it's wrong for Alberta's future," said Phillips.

The $20 per tonne carbon levy takes effect on Jan. 1, 2017. All revenue raised through the carbon levy will be reinvested in Alberta to reduce carbon pollution and provide rebates to help low- and middle-income Albertans offset the costs of the carbon levy. Sixty-six per cent of Alberta households will receive a full or partial rebate.

The legislation also establishes Energy Efficiency Alberta as the provincial agency that will develop and deliver provincial-scale energy efficiency and small-scale renewable programs and services.

To launch programming in early 2017, the Alberta government is taking the steps it needs to get the agency up and running as quickly as possible.

In consultation with Albertans and stakeholders, programs will be designed to help people better understand and manage their energy consumption and footprint, and reduce their overall energy costs.

ALBERTA AND ONTARIO WORK TOGETHER TO FIGHT CLIMATE CHANGE

A new interprovincial alliance between Alberta and Ontario will accelerate the development of cleantech initiatives.

On May 26, Alberta Premier Rachel Notley and Ontario Premier Kathleen Wynne met in Edmonton to discuss new opportunities to partner on energy and climate change initiatives.

The premiers announced a new Memorandum of Understanding (MOU) between Alberta's Climate Change and Emissions Management Corporation (CCEMC) and Ontario Centres of Excellence (OCE).

The MOU commits CCEMC and OCE to examining opportunities including, but not limited to:

- reducing greenhouse gas emissions in the production, transportation and use of natural resources in Alberta and Ontario;
- accelerating the development of renewable energy and energy storage; and
- fostering new and innovative uses of CO_2.

This partnership will combine the strengths of CCEMC and OCE to help Alberta and Ontario reduce greenhouse gas emissions and shift to a lower-carbon economy by identifying technology development and demonstration projects. The cleantech initiatives that result from the MOU will benefit the environment, nurture and grow the sector, and enhance Ontario and Alberta's response to climate change.

"Alberta is taking action to implement our Climate Leadership Plan. Reducing greenhouse gas emissions is a challenge shared by all provinces and, by working together, we can advance clean technology, diversify our respective economies and create good jobs," Notley said.

The cleantech MOU builds on the $8-million Alberta-Ontario Innovation Program, which is jointly managed by Alberta Innovates–Technology Futures and the OCE, and which brings industry leaders and academia from Ontario and Alberta together to collaborate on solutions to key industry challenges, including those related to advanced manufacturing, energy, environment and information and communications technology.

PROVINCIAL GOVERNMENT TO CONSOLIDATE ALBERTA INNOVATES INTO ONE ENTITY

The Alberta government has passed a bill to consolidate the existing four Alberta Innovates companies (Energy and Environment Solutions, Technology Futures, Health Solutions and Bio Solutions) into one. The new board will be chaired by Judy Fairburn, executive vice-president, business innovation at Cenovus Energy.

The province says the single entity will control spending, create jobs and diversify the economy. ➤

GOVERNMENT UPDATE CONTINUED

"Under a single board and CEO, the corporation would focus on Alberta's strengths in health, environment, energy, food, fibre and emerging technologies. This model is based on several reviews and expert reports on the system," the government said. "The single corporation is expected to save Alberta taxpayers approximately $2 million annually through streamlined governance."

Fairburn, who has chaired Alberta Innovates—Technology Futures, said in a statement that the decision "positions the province to build on our strengths while positioning us solidly for success in the 21st century. We are committed to working with innovators, whether from academia, entrepreneurial ventures or established businesses, to enable them to accelerate their good ideas through to impactful application and job growth."

PETROCHEMICALS DIVERSIFICATION PROGRAM ATTRACTS SIGNIFICANT INTEREST FROM GLOBAL INVESTORS

The provincial government says international companies want to invest in Alberta's petrochemical sector, which will play a key role in job creation and economic diversification.

Alberta's new Petrochemicals Diversification Program received 16 applications locally and from across the globe, representing more than $20 billion in potential new investment interest in Alberta's petrochemicals industry.

These applications are now under consideration with a third-party monitor, with final decisions to be made within 60 days from June 6. The highly competitive application process will ensure good value for Albertans, while also supporting the Alberta Jobs Plan to diversify our energy industry and create new job opportunities for Albertans.

"Companies across the globe want to invest billions in Alberta. The number of applications to this program roughly doubled the amount we expected," Margaret McCuaig-Boyd, minister of energy.

"By investing in new ways to get every bit of value out of our energy resources, we are positioning Alberta to be a major player in the growing global demand for petrochemical products, which will help diversify our energy markets and, most importantly, create stable jobs and more opportunities for Alberta's workforce to grow and prosper."

The Petrochemicals Diversification Program, announced on Feb. 1, 2016, encourages companies to invest in the development of new Alberta petrochemical facilities through a $500-million royalty credit program. Credits will be earned once approved projects are completed and feedstock consumption begins.

Applications to the program closed April 22. Each application will be evaluated to ensure the proposed project is economically viable, meets Alberta's strict environmental performance conditions and demonstrates the best overall benefits to Alberta.

New facilities resulting from this program are expected to create up to 3,000 new jobs during construction, as well as more than 1,000 jobs once operation begins, and result in between $3 billion and $5 billion worth of investment.

Information about the Petrochemicals Diversification Program, including the competitive selection process, is available at energy.alberta.ca.

SEISMIC LINES TO BE RESTORED BY OIL AND GAS INDUSTRY, ADDITIONAL LAND TO BE PRESERVED TO PROTECT ALBERTA CARIBOU

The Alberta government plans to work with industry to ensure the restoration within five years of more than 10,000 kilometres of legacy seismic lines to caribou habitat in the Little Smoky and A La Peche caribou ranges in northwestern Alberta.

It also will require that future seismic development is sensitive to caribou conservation and recovery requirements.

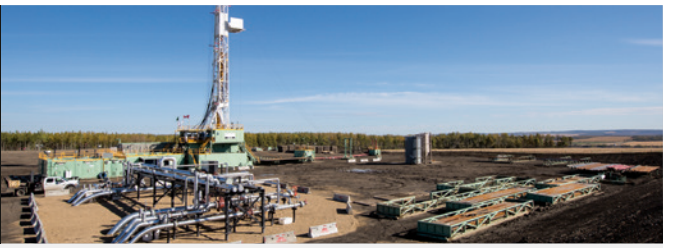
The seismic line restoration is included in the first draft plan for the Little Smoky and A La Peche ranges, which is based on a report by Eric Denhoff, a mediator commissioned by the government, who details strategies for caribou range protection in north and central Alberta.

"Caribou recovery in the Little Smoky and A La Peche caribou ranges depends on addressing habitat-related factors that result in excessive predation rates on caribou populations," says the draft plan. "This requires both short- and long-term strategies and actions towards a future where caribou populations can be self-sustaining."

The government says it is taking action to provide economic certainty for industries and workers who make their living in the north and to do what's right to protect the estimated 3,500 caribou in the province. The range plan, it says, supports a working landscape where caribou and industrial activity co-exist, with strict regulation, investment in aggressive and innovative approaches, and careful monitoring of outcomes.

The potential cost of seismic line restoration, which industry has agreed to pay for, could be as high as $40 million or more and approach $60 million with the added cost of a caribou rearing facility, says Denhoff in his report. "Over a five-year period, the resulting cost to contributing energy companies would pose a significant cost to their cash flow, especially during the current economic downturn." ■

WHAT'S NEW IN THE OIL & GAS INDUSTRY



SUNCOR CONTINUES TO RE-ESTABLISH OPERATIONS AFTER WILDFIRE THREAT

Suncor Energy is pushing to reach full operations at its oil sands projects before July 1.

A massive wildfire that erupted in early May in the nation's energy heartland forced Suncor and a number of other major crude producers around Fort McMurray to halt operations, at one point cutting Canada's crude output by about a million bbls/d.

Suncor has several oil sands facilities, including the main mining site, which has the capacity to produce up to 350,000 bbls/d.

With the fire held at bay near prized oil sands mines, Suncor and other producers started bringing staff back to facilities in late May after evacuation orders were lifted at all worker camps in the province.

The wildfire that cut Canadian crude output by 25 per cent is set to crimp corporate earnings beyond the oilpatch, especially hitting the rail and hospitality sectors.

As of June 10, the province estimated that the wildfires covered about 589,995 hectares, including the Saskatchewan side, with a perimeter estimate of 996 kilometres.

The fire, which has caused an estimated $50 million per day in lost production for oil sands companies near the city of Fort McMurray, has also caused pain to large companies that serve the sector and smaller ones catering to thousands of industry workers.

The Bank of Canada says the wildfire disaster will shave 1.25 percentage points off economic growth in the second quarter.

AER RELEASES 2015 RESERVES REPORT

Alberta has remaining established reserves of 165 billion barrels of crude bitumen with an ultimate potential (recoverable) of 315 billion barrels, says the Alberta Energy Regulator (AER) in its 2015 annual reserves report.

The province has 31.3 tcf remaining established reserves of natural gas with ultimate potential (recoverable) of 223 tcf (excluding unconventional gas). The province has 1.8 billion barrels of remaining established reserves of crude oil, with ultimate potential (recoverable) of 19.7 billion barrels.

The reserves report also determines reserves for natural gas liquids, sulphur and coal. Up until now, the AER used a reserves reporting system called Inter-Provincial Advisory Committee on Energy (IPACE) for uniform terminology and definitions in estimating and publishing hydrocarbon reserves information in Canada.

This was adopted in Canada in 1978 to provide consistency between provincial regulators, and the system is still in use for this report. IPACE focuses on conventional reservoirs and does not fully account for the complexities of unconventional plays, according to the AER.

Unconventional plays are more complex and uncertain, and probabilistic methods that produce a range of values within a reasonable level of certainty are more appropriate, said the regulator.

In 2015, it created a differentiated resource classification system to be used in the future to capture the increased production from the low permeability and shale resources. The resource classification system accounts for both conventional and unconventional resources and gives the AER the flexibility to tailor its reserves evaluation, classification and reporting procedures according to the unique properties of individual resource types.

Six different resource categories are identified within the system: conventional, low permeability, shale, coalbed methane, bitumen and coal. Each resource category has a unique set of properties and requirements for characterizing the resource and evaluating its reserves and focuses on trapping mechanisms as the means of categorizing unique resource types.

The system criteria are now also being used to assign a resource type to the geological plays defined in Alberta. The AER is moving to a more flexible play-based approach with more probabilistic methods to help capture the uncertainty of unconventional reserves while still providing an unbiased and transparent reporting of Alberta's hydrocarbon reserves. For the past few years, the AER has been developing subsurface plays based on geological attributes and currently has identified more than 160 plays.

MOST ALBERTANS SURVEYED RANK OIL AND GAS AS MOST IMPORTANT NATURAL RESOURCE: RBC STUDY

A majority of Albertans surveyed believe that oil and gas represents the most important natural resource in Canada, according to a recently released Royal Bank of Canada poll. ➤

WHAT'S NEW IN THE OIL & GAS INDUSTRY CONTINUED

In every other region in the country, those polled said fresh water was the most important natural resource, although for the most part they still ranked hydrocarbons as highly important.

In the *2016 RBC Canadian Water Attitudes Study*, 53 per cent of those polled in Alberta believe oil and gas to be Canada's most important natural resource. Thirty per cent of Albertans surveyed consider fresh water to be the most important resource while 12 per cent say it is farmland. Five per cent believe forests are most important.

Robert Sandford, chair of water and climate security at United Nations University, said it is interesting just how high oil and gas ranks overall in Canada, and how it has changed in the nine years RBC has done its polling, which is probably a product of economic concerns over ecological ones for most people.

"The interesting thing is that between 2013 and 2016 there has been an increase of five percentage points—[from] 15 to 20 per cent of Canadians—who consider oil and natural gas as Canada's most important natural resource," he said.

The number of Canadians who considered oil and gas as the most important commodity peaked in 2012 at 24 per cent before dropping, he noted, and then climbing back up each year afterwards.

"I am guessing this increase of five percentage points is probably a concern about oil prices and its impact on the economy... In Canada, you have healthcare and unemployment as the top concerns. The three most important concerns facing Canadians in 2016 were the economy, healthcare and unemployment."

PENN WEST TO FOCUS ON ALBERTA ASSETS

Penn West Petroleum is streamlining operations to three focus areas in Alberta as it sells off all its Saskatchewan assets, including from the Dodsland Viking area.

"We will be focused on our industry-best Cardium position, and exciting new growth fairway in the Alberta Viking, and maintaining our stable production and cash flow rates in the Peace River area," Dave Roberts, president and chief executive officer, told a conference call recently.

Penn West announced it is selling its stake in Saskatchewan for $975 million to Teine Energy, with assets split about even between medium and heavy oil properties currently under waterflood, as well as Dodsland light oil properties within Teine's core position.

Roberts said, "We have taken the necessary steps and in fact, made bold and transformational changes to reduce our debt metrics and strengthen our balance sheet. We are all excited about the new developments and growth options that have opened up for us through this transaction. We are currently evaluating potentially increasing our development spending in the second half of the year as the commodity [price] strengthens."

Teine will acquire approximately 16,300 boe/d (91 per cent liquids) of production as of the first quarter of 2016, estimated proved-plus-probable reserves of about 53.2 million boe (91 per cent liquids), and roughly 410,000 net acres of undeveloped land. Penn West says its Saskatchewan asset sale closed meaningfully above recent similar area deals.

CEO PLEASED WITH NEW ALBERTA ROYALTY SCHEME

While the oil industry was initially edgy about Alberta Premier Rachel Notley's approach to oil and gas royalties, the changes her government tabled earlier this year have raised few complaints.

Indeed, a number of producers have expressed support for the new royalty regime, a feeling that was reinforced at one junior producer's annual meeting in late May.

"We're quite surprised," Jim Evaskevich, president and chief executive officer of Yangarra Resources, said following the meeting in Calgary. "We just didn't think [the royalty changes] would work out that well."

In particular, he said rates of return on horizontal, extended-reach wells have improved under the new regime. "On a one-mile [horizontal] well, we have a 10 per cent increase in half-cycle economics and a 15 per cent increase on a mile-and-a-half well," with corresponding improvements on a two-mile well.

Considering the more punitive measures the NDP government could have adopted, Evaskevich said the course it actually took was a matter of smart governance. "We believe it will wind up putting a lot more people to work in Alberta, which is important to all of us," he added. "On balance, we think it's a great policy."

As oil prices hovered around $50 WTI, Evaskevich outlined how an industry recovery might shape up in western Canada. With many producers financially strained, he suggested they will first use cash from higher crude prices to pay down debt, then "restock their wallets and heal their balance sheets." ■

TECHNOLOGY UPDATE

PTAC'S NEW GOAL: HELP CUT METHANE VENTING AND FLARING BY 80 PER CENT—ECONOMICALLY

Alberta-based Petroleum Technology Alliance Canada (PTAC) has set its sights on advancing technologies that dramatically reduce methane venting and flaring by oil and gas producers in western Canada.

"PTAC understands that the reduction of methane venting and flaring from western Canadian hydrocarbon development and production activities is critical to our environment, and through collaborative applied research and technology development, demonstration, deployment and commercialization, we are confident that we as an industry will work towards a common goal of substantial emissions reduction while improving profitability," wrote PTAC president Soheil Asgarpour in his most recent message to stakeholders.

"We are combining our existing activities and new activities under an overarching program to economically reduce methane venting and flaring by 80 per cent."

Asgarpour says that PTAC has worked on various programs that address the issue both past and ongoing, including the Alberta Upstream Petroleum Research Fund Program, Technology for Emissions Reductions and Eco Efficiency, Nationally Appropriate Mitigation Actions, United Nations Environmental Program, the Resource Emissions Technology Action Plan and a new proposed program for the reduction of vented gas from suspended and abandoned wells.

"Overall, production and development from conventional oil and gas and heavy oil production results in significantly more methane venting and flaring than the oil sands," Asgarpour said.

The Alberta government's new climate action plan includes a separate, targeted approach to methane emissions reductions.

CANADIAN GOVERNMENT TO DOUBLE INVESTMENT IN CLEAN ENERGY R&D BY 2020

The Canadian government has taken another step in its support for clean technology with plans to double its investment in clean energy research and development over the next five years.

The government will seek to double its 2014–15 funding of $387 million for clean energy and clean technology research and development to $775 million by 2020, Jim Carr, federal minister of natural resources, announced June 2 during the inaugural Mission Innovation Ministerial, in San Francisco, Calif.

He was following up on a commitment made by Prime Minister Justin Trudeau at the United Nations Paris conference on climate change.

"Clean technologies will play a key role in Canada's transformation to a low-carbon economy," Carr said in a news release. "By doubling our investment in clean technology, we will help meet our climate change objectives, increase the productivity and competitiveness of Canadian firms and create clean jobs.

"We look forward to working with our domestic and international partners to help advance our Mission Innovation goals," he said.

The Canadian government joined Mission Innovation in November 2015 with 19 other nations as part of a global effort to accelerate clean energy innovation with the goal of making clean energy widely affordable. Its newest member is the European Commission on behalf of the European Union.

Beyond new spending in support of Mission Innovation, the government said it is working to encourage greater private sector investment and increase domestic and international collaboration to advance Mission Innovation goals. It also will continue to support measures that will help Canada take advantage of new global opportunities in clean technology. ■

LABOUR UPDATE

JOB LOSSES IN ALBERTA'S OIL AND GAS SECTOR EXPECTED TO RISE

More oil workers are going to lose their jobs in 2016 before an expected modest turnaround in commodity prices in 2017 brings some stability back to the labour force, according to a new report by PetroLMI.

Industry employment is expected to contract by up to 24,400 jobs in 2016 as prices remain low and spending cuts continue, according to the *Labour Market Outlook 2016 to 2020 for Canada's Oil and Gas Industry*, released in April by PetroLMI, a division of Enform.

Additionally, companies are not expected to fill positions left vacant by retirees in 2016. Instead, those vacated positions are more likely to be used as a way to reduce workforce numbers and further reduce costs during this period of continued low oil prices.

"The industry underwent significant job losses in 2015 due to the rapid decline in oil prices, and that trend is continuing in 2016," says Enform's Carol Howes, vice-president of communications and PetroLMI.

"Based on assumptions that oil prices will start to rise in 2017, some rehiring is expected to begin as capital investment resumes and there is a need to fill positions left vacant by retiring baby boomers."

The *Labour Market Outlook 2016 to 2020 for Canada's Oil and Gas Industry* provides an overview of workforce requirements by sector, including conventional exploration and production, oil and gas services, oil sands and pipelines, as well as by key oil and gas operating regions.

The report provides a range of labour market projections for the industry based on two scenarios, which include assumptions for oil prices, capital and operating expenditures, and industry activity. In a lower scenario, oil prices remain below US$60/bbl to 2020 and net hiring requirements for the industry reach 46,435 jobs, assuming historical retirements remain the same. In a higher scenario, oil prices increase to the US$60–$80/bbl range by 2020 and net hiring reaches 55,305 jobs.

Regionally, Alberta, the hub of Canada's oil and gas industry, has been the most impacted by the downturn, witnessing the largest drop in employment. Companies are expected to continue to find opportunities to reduce costs across their operations in Alberta and the rest of Canada in order to survive the downturn. Investing in innovation and technology to drive efficiencies and productivity will be key to increasing profitability in the future, says the report.

NEW CHAIR APPOINTED TO ALBERTA APPRENTICESHIP BOARD

j'Amey Holroyd has been appointed to a three-year term as the chair of the Alberta Apprenticeship and Industry Training Board, the first time in the board's 71-year history that it has been chaired by a woman.

The new chair has more than 17 years of experience in the industrial construction and maintenance industry. She holds a trade certificate with an Interprovincial Standards Red Seal endorsement in the boilermaker trade and is an active member of the Boilermakers Union, with a Blue Seal Certificate. Holroyd also holds a master's degree in leadership.

She is also a director and board member of Tradewinds to Success Training Society and chairs the Building Trades of Alberta Training Co-ordinators Group.

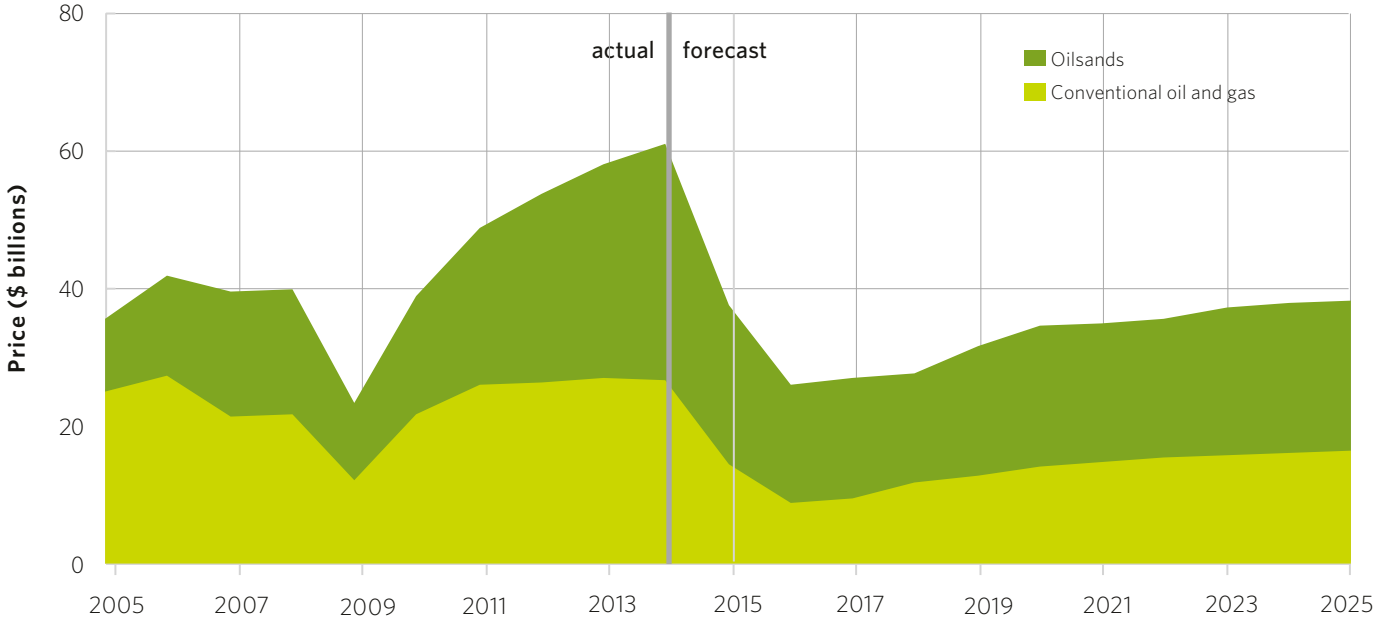
The Apprenticeship and Industry Training Board plays a vital leadership role in developing Alberta's trades professionals to meet the needs of Alberta's industry and society.

"I look forward to working with my fellow distinguished board members and strong industry partners to continue the excellent work Alberta's apprenticeship and industry training community has done," Holroyd said. "I'm honoured to be named as chair of the Apprenticeship and Industry Training Board and excited to assist in positioning Alberta for great future success."

The board advises the advanced education about the needs of the labour market for trades and skilled workers, while promoting careers in the designated trades and occupations to Albertans. The board is also responsible for setting standards and requirements for training and certification in trades and occupations programs. ■

OIL & GAS STATISTICS

INVESTMENT IN ALBERTA OIL AND GAS SECTOR

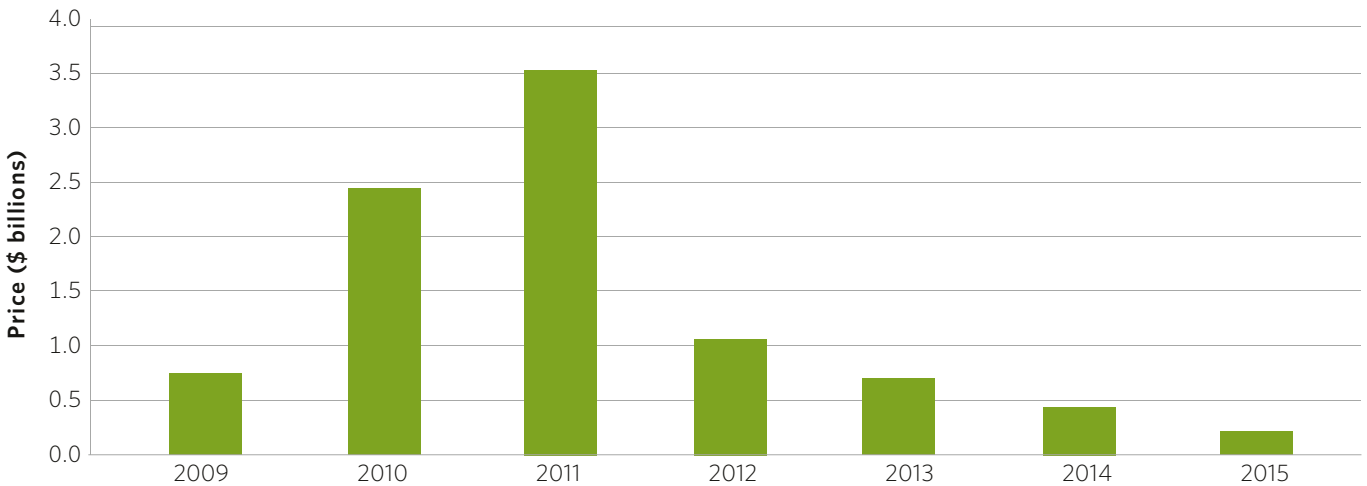


Historical values sourced from the Canadian Association of Petroleum Producers.

Source: JWN

ALBERTA CROWN LAND SALES

Petroleum and natural gas rights, excluding oil sands



Source: Alberta Energy Regulator

STATISTICS CONTINUED

DRILLING RIG COUNT BY PROVINCE/TERRITORY

June 7, 2016

	ACTIVE	DOWN	TOTAL	ACTIVE
Western Canada				(Per cent of total)
Alberta	45	417	462	10
Saskatchewan	15	103	118	13
British Columbia	9	66	75	12
Manitoba	0	12	12	0
WC total	69	598	667	10

Source: JWN

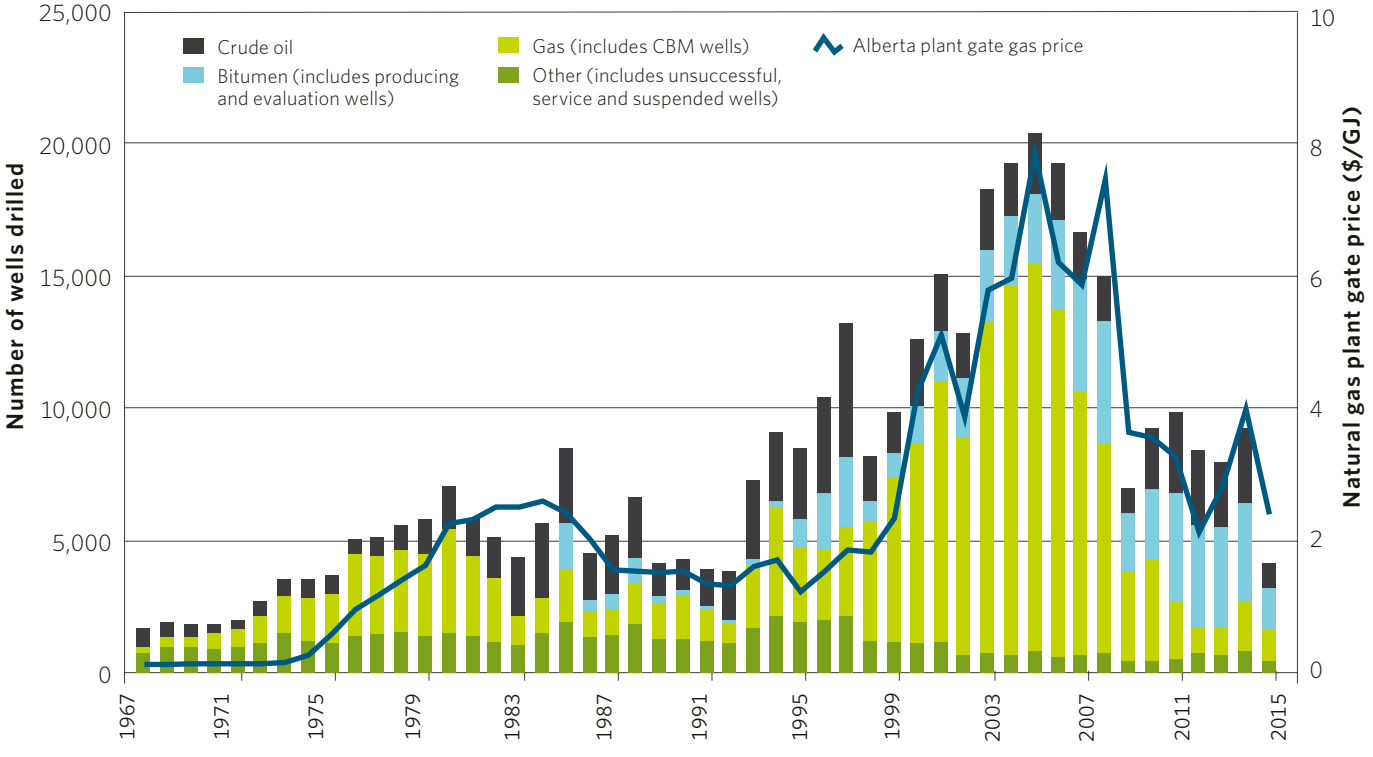
OIL AND GAS WELL COMPLETIONS BY PROVINCE

May 2016

	OIL WELLS		GAS WELLS	
Western Canada	MAR '15	MAR'16	MAR'15	MAR '16
Alberta	34	11	42	29
British Columbia	2	0	21	26
Manitoba	0	0	0	0
Saskatchewan	23	17	0	0
Total	**59**	**28**	**63**	**55**

Source: JWN

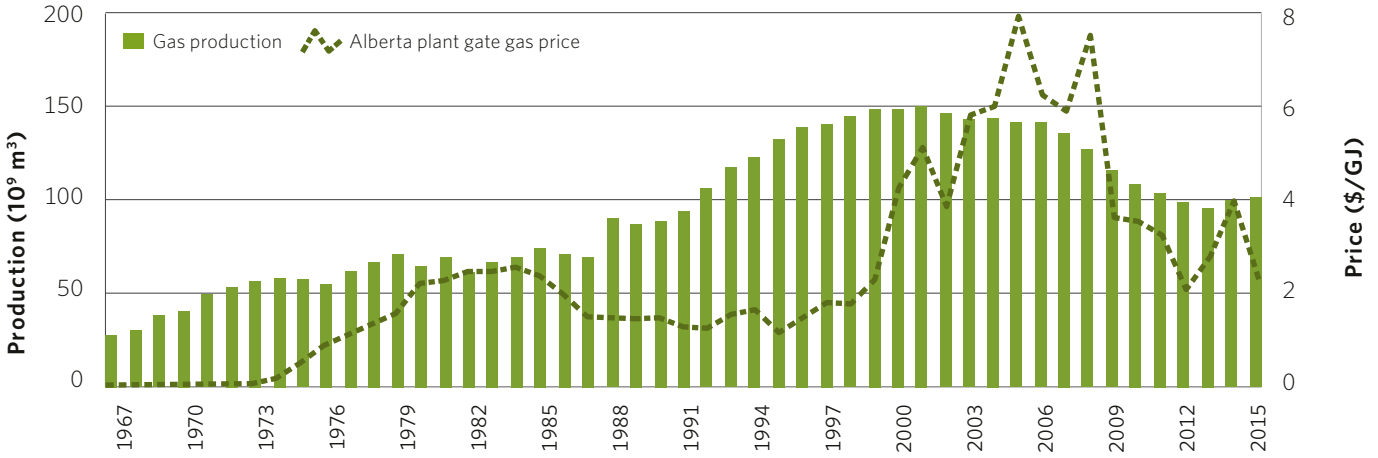
DRILLING ACTIVITY IN ALBERTA, 1967–2015



Source: Alberta Energy Regulator

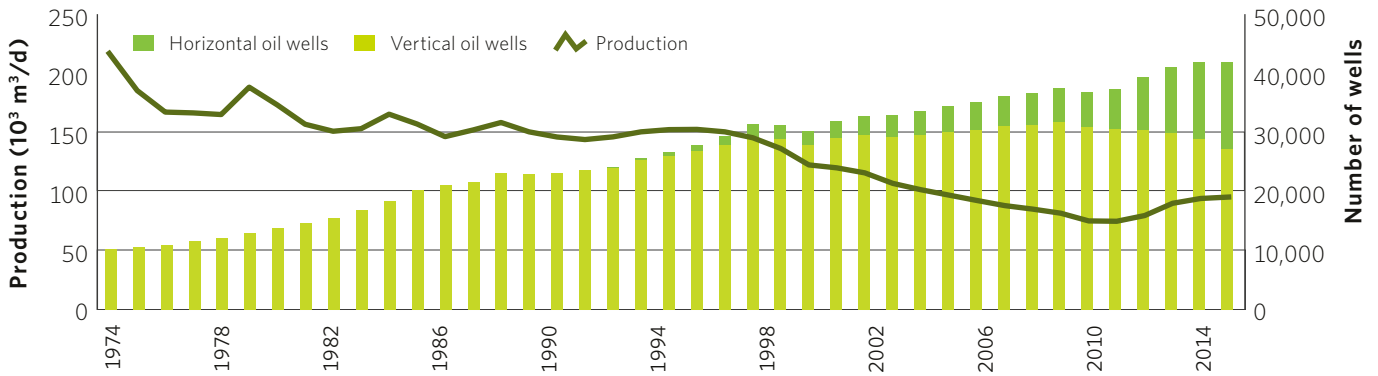
STATISTICS CONTINUED

ALBERTA MARKETABLE GAS PRODUCTION



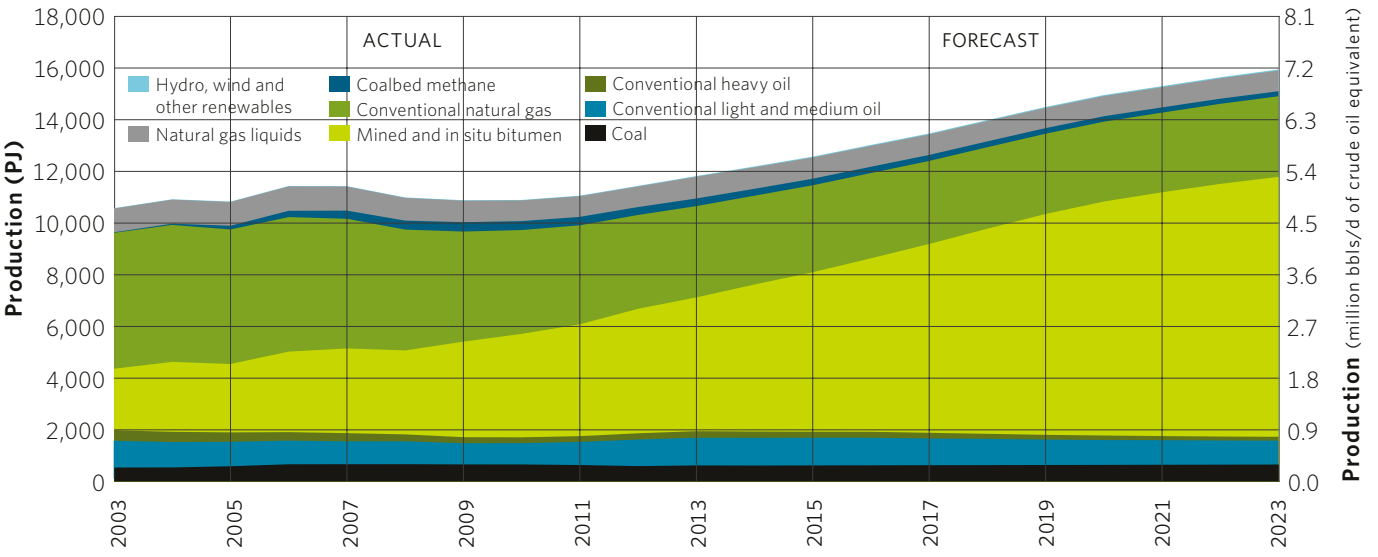
Source: Alberta Energy Regulator

ALBERTA CRUDE OIL PRODUCTION AND PRODUCING WELLS



Source: Alberta Energy Regulator

TOTAL PRIMARY ENERGY PRODUCTION IN ALBERTA



Source: Alberta Energy Regulator

THE **ENVIRONMENTAL** FILE

ALBERTA UPS ITS GAME ON CLIMATE CHANGE, NDP CONVENTION TOLD

Alberta is "punching above its weight" when it comes to climate leadership and the province's actions would influence not only actions on climate change in Canada, but also internationally, says the head of the Pembina Institute.

The province's plan to phase out all coal-fired power generation by 2030 is coming at a time when the Canadian government is considering its own national plan and it is being closely watched by Canada's partners in the U.S., U.K. and Germany, Ed Whittingham, executive director of the environmental think tank, said in a speech to the Alberta NDP convention in Calgary on June 11.

"The proposition is simple: if Canada's fossil fuel capital can do this, then surely you can too," he told the more than 800 delegates attending the convention. This also comes at a time when the leaders of France and Italy are considering their own coal phase-out requirements, convention delegates heard.

Alberta's Climate Leadership Plan was released in November 2015 with the backing of both industry and environmental groups. The plan, which includes an emissions limit for the oil sands, a carbon price across all sectors and an energy efficiency program, is now law with the approval last week by the legislature.

"Six months after the 2015 election, Alberta went from being a laggard and international whipping boy on climate to being one of the most progressive jurisdictions acting on the issue in the entire OECD [Organization for Economic Development and Co-operation]," said Whittingham. The province, he added, has gone from "being part of the problem to being part of the solution and a critical piece of the puzzle."

That's because while the previous Progressive Conservative government had failed to address the "elephant in the room"—absolute greenhouse gas emissions—Alberta Premier Rachel Notley and Environment Minister Shannon Phillips tackled the elephant head on by setting an absolute emissions limit of 100 megatonnes of greenhouse gases from the oil sands, he said.

"Some will argue that it's too high and I can show you scars on my back from the environmental community of those who share that space," he said.

IT'S A 'NEW GAME' WHEN IT COMES TO CLIMATE CHANGE

Companies involved in hydrocarbon industries must be aware of a "new game" related to climate change as governments, including Alberta, implement new regulations to reduce greenhouse gas emissions, a conference heard June 6.

"I think as we reflect on business strategy, often you have a choice, fundamentally, sometimes of whether you play the current game or the old game incrementally better, or you have to declare a new game. I would say absolutely that we're in the midst of a new game model on the climate change file, which is all about energy transition as well," Gord Lambert, president and chief collaboration officer of consultancy GRL Collaboration for Sustainability, said during a session at the Canadian Energy Research Institute petrochemical conference in Kananaskis.

A former vice-president of sustainability at Suncor Energy, Lambert also served on the Alberta government's Climate Change Advisory Panel.

"At virtually all levels of government, we have an engagement on the climate file that we hadn't seen before, and we have policy development across multiple jurisdictions," he said. "Like all change, it represents both risk and opportunity."

As the Alberta government implements its climate policy legislation, there have been diverse views, both positive and negative, Lambert noted.

"On the one hand, you see the notion that climate change [policy] will result in us becoming uncompetitive relative to other jurisdictions in the world," he said. "The other extreme is the notion that, if you actually design the policy properly, and if you look at the world that we have to position ourselves for in the future, we have to position ourselves for carbon competitiveness and we have to drive improvement and innovation at a pace and scale that we haven't done before.

"Yes, there will be negative consequences potentially as part of those changes, but there will also be opportunities." ■

FOCUS ON THE **DUVERNAY**

PHOTO: COURTESY OF ENCANA

DUVERNAY PLAY CONTINUES TO EVOLVE

Six years into the Duvernay shale gas play, the technology has come a long way and costs have come down, although research funding has fallen off as producers have cut spending in light of low commodity prices.

Major players are still interested in the Duvernay, focusing on the liquids-rich gas area rather than the dry gas deeper into the basin or the shallower area originally designated as oil prone.

"They have focused on the middle, which appears to be the right marriage of depths, reservoir pressures and energies, and the fluids they are getting out," says Brad Hayes, president of Petrel Robertson Consulting. "I see well pads being licensed, I see development at a very measured pace in there by a few major operators. I think that is where the play is at."

"You really want to be in that core Kaybob, Kaybob-south area for the reasoning that you are getting these highly productive wells and you are also getting the liquids," adds Mark Oberstoetter, senior research manager for Wood Mackenzie Canada. "The value is still coming from the condensate and the butane side of the liquids of the gas. That is still the story and it has not really changed too much in the last few years."

Wood Mackenzie remains "relatively positive" on the Duvernay, although its updated forecasts push further into the future some of the activity as commodity prices remain low. Nonetheless, Oberstoetter considers the Duvernay a "highly valuable" play within its core sweet spot.

While there also has been a lot of Pembina-area activity, the industry has retrenched in the core area, and is starting to expand into the Fox Creek southern and Kaybob northern areas, he says. "The more data and wells that come in, the better we can draw the lines and compare these little sub-play areas against each other."

DEALMAKING IN THE DUVERNAY

With growing interest in the Duvernay, operators have been quick to snap up any available land. Greater Kaybob-area Duvernay rights are largely held and any new entrant who wants to establish a position in the play would need to do so by acquiring or entering into a joint venture with an existing operator, says Matthew Taylor, vice-president of capital markets and communications at Athabasca Oil Corporation.

Earlier this year, Athabasca Oil announced a joint venture with Murphy Oil Company in the greater Kaybob area to leverage Murphy's shale gas expertise in the Eagle Ford shale in Texas. The Oklahoma-based company has drilled more than 700 wells in the Eagle Ford, which is regarded as a close analog to the Duvernay, says Taylor.

Under the agreement, Murphy would carry 75 per cent of Athabasca's interest, and Athabasca Oil's net capital exposure is $75 million to retain a 30 per cent working interest in 200,000 gross acres. The joint venture is expected to result in approximately $1 billion worth of Duvernay spending over the next four to five years.

Two large global players, PetroChina Company and Kuwait Petroleum, also have entered the play through joint-venture agreements with Encana and Chevron, respectively.

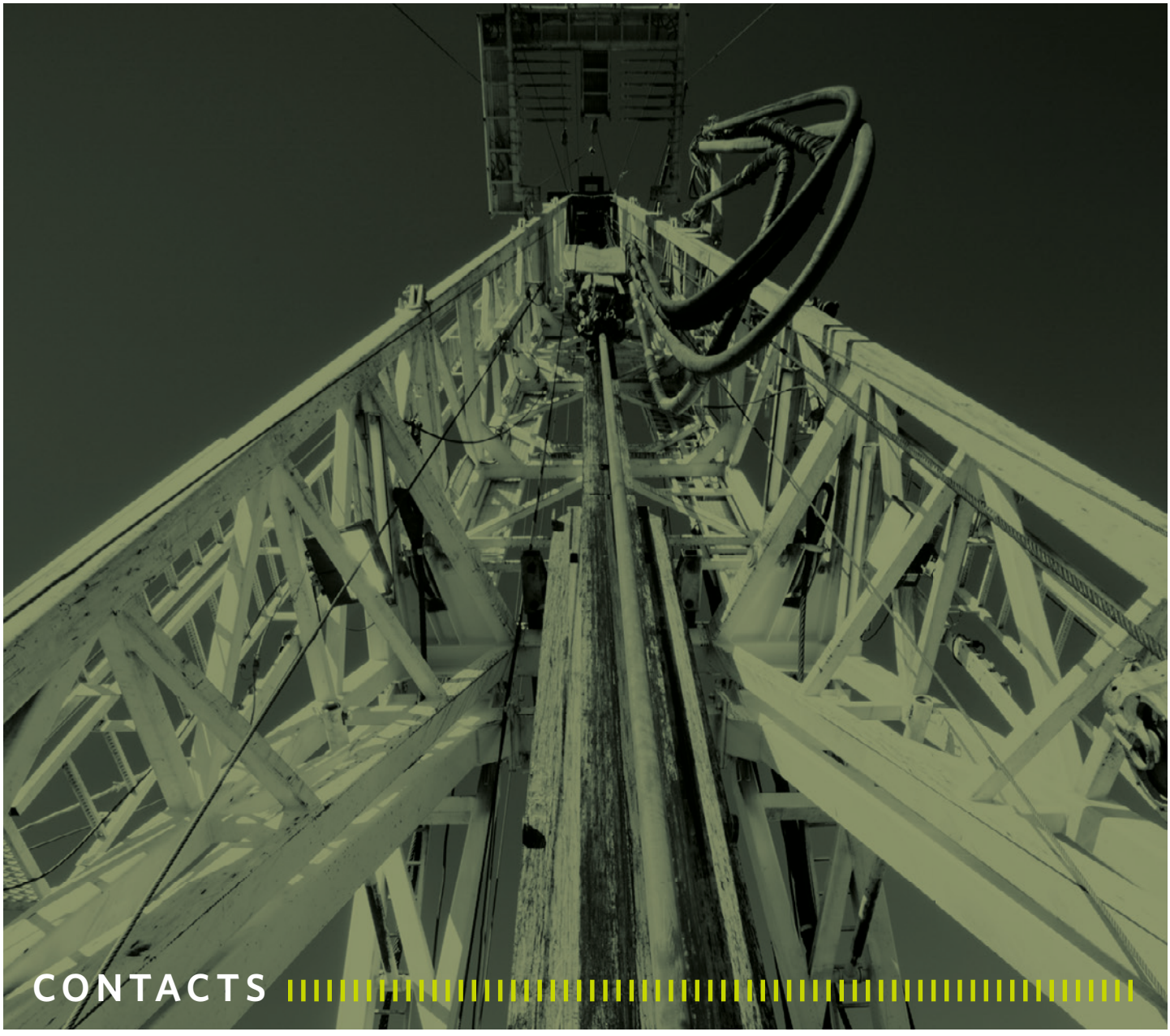
PARAMOUNT BULLISH ON THE DUVERNAY

The Duvernay at Willesden Green is the "perfect combination" of what a resource play needs, according to Jim Riddell, president and chief executive officer at Paramount Resources.

To date, Paramount has tested three parts of the play, confirming alignment with its exploration model, with condensate-gas ratios increasing from west to east across the property to as much as 1,000 bbls/mmcf from 200 bbls/mmcf.

With quite a bit of activity in the area by some of the other operators, Paramount also believes it's an area that is going to benefit from significant reductions in well costs as industry learns how to drill them, he told the company's recent annual meeting.

The company recently increased its ownership in the Willesden Green–area Duvernay play to 100 per cent from 50 per cent, Riddell said. ■



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 Natural Gas www.canadiannaturalgas.ca
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