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Saskatchewan Bakken Play – A Triumph of Innovation and Inspiration

About the time economists and Wall Street bankers were debating Peak Oil, just before the Great Recession of 2008, oil companies in southeast Saskatchewan were drilling wells as fast as they could into the largest reservoir of hydrocarbons discovered in Western Canada since the 1950s: the Bakken Formation.

It's hard to believe that only a few short years ago the notion that the world would soon run out of oil was all the rage. Books, magazine articles and even documentary films all chronicled the inevitable decline of oil production worldwide. The idea was simple: the global economy had reached the maximum amount of oil it could produce. In a few years, as reservoirs tapered off, the yield curve for oil production would inevitably drop off, and the world would face an energy shortage.

What the experts didn't count on was new technology.

Beneath southeast Saskatchewan, southwest Manitoba, North Dakota and Montana lies a 200,000 square mile pool of what is known as "tight

oil.” The shale in the Bakken formation has a very low permeability, which means oil doesn’t flow well through it. Scientists and oil men have known for 60 years that billions of barrels of light crude lay waiting several miles beneath the surface – estimates ranged as high as 400 billion barrels, but the consensus now seems to be 24 billion barrels of recoverable crude – they just didn’t know how to produce it.

Technology to the rescue.

Horizontal drilling and hydraulic fracturing had been used successfully in American tight shale gas plays like the Barnett Shale field in Texas during the late 1990s. A few years later, producers decided to give it a try in the Bakken.

One of the original forward thinkers was Dick Findlay, a veteran geologist based out of Billings, Montana. In 1995, Findlay was drilling a deep well when he hit a “drilling break” and plenty of gas in the middle formation of the Bakken shales, which convinced him that the oil was not in the upper shale after all. He brought in giant energy services company Halliburton to help.

“That is when we started thinking about the horizontal drilling and the fracture stimulation of the horizontal well bore, and that is really new technology,” Findley told the Financial Post.

Horizontal drilling and fracking soon caught on in the Bakken. Not surprisingly, much of the technology fueling the Bakken’s growth was developed in western Canada.

For instance, a prominent company in Estevan, the epicentre for southeast Saskatchewan’s oil industry, is Packers Plus Energy Services, often credited with introducing the packer technology that allows multiple fractures of horizontal wells. The company was started in Calgary in 2000 by three partners: Dan Themig, Ken Paltzat and Peter Krabben.

“When we started the company we saw the need for high-end fracturing completions technology. There was horizontal drilling going on, but nobody was fracking,” Themig told Canadian Oilpatch Technology

Guidebook.

The first innovations came in 2001 for a client operating out of the Permian Basin in Midland, Texas. But it took five long years to be accepted in Canada.

Finally, near the end of 2006, several oil companies in the Bakken agreed to test the company’s StacFRAC system. “When we started you could do five fracs. Our StarFRAC brought that up to 20 and now we have technology that can do 60,” Themig said.

Themig says even now not all companies in the Canadian oil patch accept the Bakken as a credible oil play. Medium-sized companies, in particular, tend to be risk-averse and shy away from fields that are capital and technology-intensive; the cost of failure is more than they are willing to bear.

For the companies that have staked a claim in the Bakken, however, the risk has been richly rewarded.

Take Crescent Point Energy Corp., which started life in 2003 with the merger of two small junior oil and gas companies. The next year it began acquiring more property in southeast Saskatchewan and within five short years, thanks to a savvy combination of acquisitions and drilling, had emerged as a major player in the Bakken. According to the Oil and Gas Inquirer, Crescent Point has over 1,100 net sections of development land, a drilling inventory of 3,800 wells, and could deliver as much as 300 million barrels in reserves, with production peaking as high as 266,000 barrels of oil equivalent per day.

But increased production from the Bakken, by both Canadian and American producers, comes with its own set of headaches, most notably transportation infrastructure. Producing the oil is now relatively easy, getting it to market, not so much.

All that Bakken oil headed to market has flooded the Cushing, OK hub and lowered prices for Canadian producers. It’s also filled up much of the existing pipeline capacity. Operators like TransCanada Corp. are busy planning and building new pipelines, but some are hitting political and regulatory snags (like the Keystone XL leg across the Canada-U.S. border), while others take time to construct (the Gulf Coast project, which will relieve congestion at Cushing).

One company’s problems are another’s opportunity – at least as far as CP rail is concerned. The iconic Calgary-based railroad built a new transload facility in Estevan that will be operated by Bulk Plus Logistics and is also moving oil from its Dollard facility on the Great western railway, a short-line partner of CP.

“To move the crude by rail, CP will take what it has learned and apply it in the emerging Saskatchewan and Alberta Bakken markets. The model we developed in North Dakota is proven and we’re now bringing that north,” Energy and Merchandise VP Tracy Robinson told the Oil and Gas Inquirer.

CP announced in August that it will be investing \$90 million to build a logistics hub serving its North Dakota network. The high-capacity facility will service 15 to 17 crude oil unit trains (trains of up to 104 cars that remain together until arriving at the destination). Up to 30 unit trains per month will be accommodated once the terminal is fully developed.

“These investments expand network capacity and enhance our proven oil-by-rail service model in order to meet increased traffic demands from the Bakken play and the input growth it will drive for inbound materials such as frac sand and pipes,” said Jane O’Hagan, CP executive

VP and chief marketing officer in a press release.

"By taking advantage of our network to the Northeast U.S. and through our Kansas City gateway to the U.S. Gulf Coast, Canadian Pacific is able to partner with the energy industry to facilitate further growth in moving oil and energy-related materials."

Speaking of all that oil, by 2012 the Saskatchewan Bakken production had reached 60,000 barrels a day from 2,200 wells (13 per cent of provincial output and a third of production from southeast Saskatchewan), which is where it sits today, according to Mike Serguson, director of petroleum royalties for the Saskatchewan government.

Serguson says production might increase to 70,000 or 80,000 barrels a day, but it will never reach the levels of the American fields. North Dakota Bakken production reached 660,000 barrels a day from 4,141 wells according to an August 2012 report from the U.S. Energy Information Administration, while Montana production is about 10 per cent of its neighboring state.

While the Saskatchewan output may be less than across the line in North Dakota, that doesn't mean it's any less important to the provincial oil industry. Last year the region saw 2,500 new wells drilled in the Bakken and this year that number will be higher.

"The Bakken oil play is very important to Saskatchewan. It contributed largely to investment, employment and in the province starting back in 2006," said Serguson.

Saskatchewan Premier Brad Wall's government is pleased with the development of the Bakken and plans to maintain a competitive regulatory regime to support continued development of the industry.

"We're pretty happy with the way things have progressed in the Bakken development," said Serguson. "Our regulatory structure is certainly sound. We feel our fiscal structure is working very well. Industry looks for stability, they look for predictability, and they look for competitiveness, and we provide all of that."

The epicenter of the Saskatchewan Bakken play is Estevan, which used to be a quiet little town that billed itself as the Energy Capital of Saskatchewan and today is a bustling and hustling city of 13,500 – which is 2,500 more than listed in the 2011 census that locals say is already way out of date.

Estevan is home to SaskPower Corporation's Boundary Dam and Shand coal-fired power plants. But these days all the action is fueled by oil. Business is booming and workers are flocking in to the city located just 11 miles north of the American border.

Michel Cyrenne is the executive director of the Estevan Chamber of Commerce. He moved his family from Swift Current, across the province along the border with Alberta, because he was attracted to the small town atmosphere and a prosperous economy.

"It's a city with a strong sense of community," he says. "The people here are some of the nicest you'll ever meet."

As the chief cheerleader for the business community, Cyrenne has a lot to promote. He points out the newly completed Spectra Place, a multipurpose entertainment and sports facility that opened last year with a concert by Canadian rock stars Tom Cochrane and Kim Mitchell. The Local Jr. A club, the Estevan Bruins have been entertaining fans for 55 years, but now they get to do it in a swanky new arena, which was desperately needed because of the rapidly growing youth population.

Even with the swelling population, Estevan has 1,200 jobs it can't fill. Cyrenne estimates about 40% of those positions are with local businesses that have expanded to take advantage of the extra money in everyone's pocket. But even with above average wages, many of the restaurants and retail stores can't find enough workers.

"There's help wanted signs everywhere you look," said Cyrenne. "When it comes to service, retail, restaurants, accommodation – it's been a struggle for them."

One of the pleasant surprises is that the increased prosperity has allowed the new big box stores and national chains to move into town without hurting local businesses.

"Now they can do more comparative shopping in Estevan, they've got more choices. They can shop at a national chain they otherwise would have gone to Regina to shop at and that keeps them spending in the local economy, which benefits the smaller mom and pop stores," he said.

One of the biggest headaches is finding housing for all the new residents.

"We have to tell people we can't promise them housing, which is too bad. We'd love to say, 'Hey, come west, we've got jobs for you,'" Mayor Gary St. Onge told the Regina Leader-Post.

Saskatchewan has been setting records for new housing starts in 2012 and many of them are in Estevan. A subdivision near the hospital will accommodate 3,800 people when it's completed.

Many of the houses popping up in Estevan's newest neighborhoods can compete with Calgary or Regina because workers are making above average wages, says Cyrenne. And oil field workers, especially if they're highly trained and skilled, make excellent money.

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“We’ve established a new industrial park, with a new facility, the Energy Training Institute that is completely dedicated to training people in the energy sector,” Cyrenne said.

Alberta-based service companies have been quick to set up in Estevan and the surrounding municipalities, but Saskatchewan entrepreneurs are no slouches when it comes to spotting a chance to cash in on the Bakken boom.

“The local people that have been working in the field for a number of years, they see the opportunity, too,” according to Cyrenne. “We’ve had a number of local business start ups by people who worked for larger companies, then struck out on their own.”

Entrepreneurship, hard work and technical innovation have proven to be the solution to the predicted global energy shortage, and nowhere are those qualities more on display than in the Saskatchewan Bakken play.



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