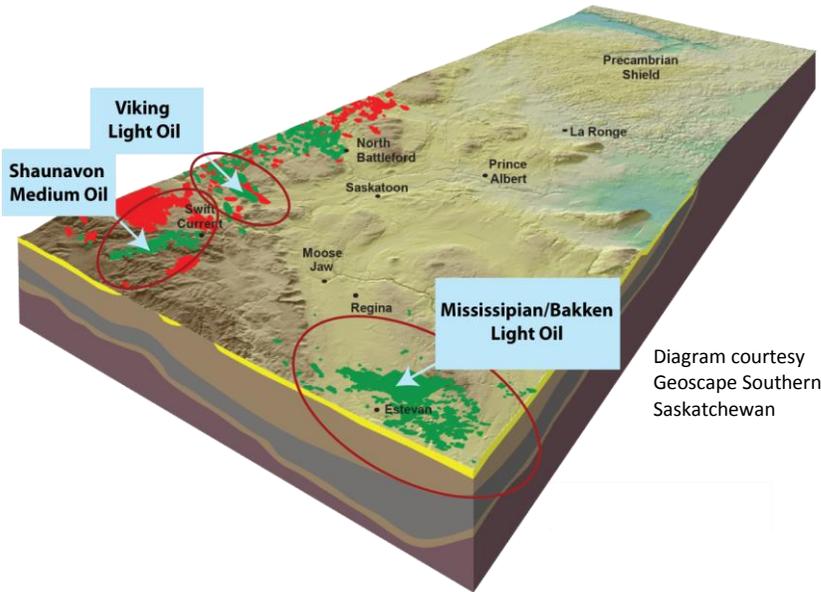


# Saskatchewan's Top Oil Play Opportunities

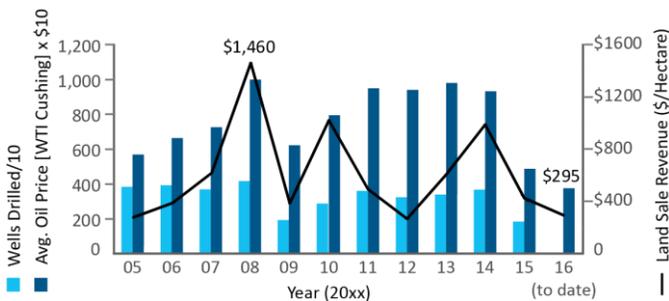


Saskatchewan is Canada's second-largest oil producer with about 13% of Canadian crude oil production.

Unique opportunities in Saskatchewan currently exist as a result of lower oil prices and subsequent petroleum and natural gas land sale prices.

Saskatchewan saw reduced activity levels in land sales, drilling, petroleum exploration and development due to low oil prices in 2015. There were an estimated 1,639 oil well completions, down from 3,290 in 2014. The province also experienced an average of 485,750 barrels of oil per day (77,228 m<sup>3</sup>) in 2015, down from 515,300 barrels per day (81,926 m<sup>3</sup>) in 2014. Despite the lowered number of completions and overall reduction in barrels per day, many reservoirs still saw an increase in production.

Fortunately, opportunities still exist in Saskatchewan during times of lower oil prices and drilling activity. Historically, as oil prices fall so has the price per hectare of land. Saskatchewan's land sale prices peaked at a yearly average of \$1460 CDN/Ha in 2008 at the same time as WTI-Cushing reached a yearly average of \$100 USD/barrel. With WTI-Cushing around \$40 USD/barrel in April 2016, Saskatchewan land sale prices correspondingly have dropped to approximately \$300 CDN/Ha marking a unique opportunity to acquire land at a relative bargain. It should then be noted that over 1,000 Saskatchewan petroleum and natural gas parcels reached the end of their primary term in April 2016 and have been relinquished back to the Ministry of the Economy as full or partial rights. These lands are available for posting request in the coming Saskatchewan land sales.



Though there are many oil plays in the province the seemingly most resilient four are indicated on the map above and described below.

### ***Viking Light Oil***

- The Cretaceous Viking Formation is a geologically complex unit consisting of interbedded, mainly marine-influenced fine-grained sandstones, siltstones and mudstones sandwiched between two marine shales. Oil was discovered in the Viking in the 1950s. Proven initial oil-in-place is estimated at 3.0 billion barrels (478 million m<sup>3</sup>), with recoverable reserves based on conventional technology (vertical wells and waterflood) estimated at 296 million barrels (47.1 million m<sup>3</sup>).
- Approximately 5,200 well completions have occurred into the Viking since January 1, 2008. These wells have produced approximately 85 million barrels of 36° API oil (13.5 million m<sup>3</sup>) in 2015, up from 62 million barrels (9.9 million m<sup>3</sup>) in 2014 at a 2015 rate of 61,520 barrels/day (9,800 m<sup>3</sup>/day).

### ***Shaunavon Medium Oil***

- The Jurassic Shaunavon Formation has been a known oil producer in southwestern Saskatchewan for over 60 years. Initial production came from the Delta field in 1952 and was followed shortly thereafter by a second producer in the Eastend field.
- Despite the recent drop in oil prices, Shaunavon production increased in 2015 and had its second highest producing year ever.
- There have been approximately 24,343 well completions in the Shaunavon, with total production around 434 million barrels (68.9 million m<sup>3</sup>) of 22° API oil.
- Since 2007, with the advancement of multi-stage fracturing techniques in horizontal wells the Shaunavon has produced around 43.2 million barrels (6.9 million m<sup>3</sup>) of oil.

Thick carbonate-clastic reservoirs combined with very low decline rates make the Shaunavon Formation an ideal target for oil exploration and development.

### ***Bakken Light Oil***

- The Mississippian-Devonian Bakken, in southeast Saskatchewan, saw limited production in the 1950s.

Since 2005, technological innovation has led to a major increase in production.

- In total, there has been approximately 4,100 well completions in the Bakken, up from just 211 in total as of 2004.
- Wells are primarily horizontal with a multi-stage frack completion.
- In 2015, the Bakken produced approximately 21 million barrels of oil (3.3 million m<sup>3</sup>) and currently produces approximately 56,740 barrels per day (9,000 m<sup>3</sup> per day).
- The 38° API oil is hosted in very fine-grained dolomitic sandstones and siltstones that typically have about 10 to 15 per cent intergranular porosity and permeability less than one millidarcy.

### ***Mississippian Light Oil***

- Mississippian strata have been producing oil in southeastern Saskatchewan since the 1950s, providing the best overall production in the province with over 2.4 billion barrels (393 million m<sup>3</sup>) produced to date.
- In 2015, the Mississippian produced nearly 41 million barrels (6.6 million m<sup>3</sup>) of oil, keeping it amongst the province's top producers and remaining above its historical daily production average of 107,608 barrels (17,102 m<sup>3</sup>).
- There are seven producing strata within the Mississippian. The Midale Beds are the most prolific of these, having the highest accumulative oil production and the second highest monthly average oil production of any stratigraphic unit in Saskatchewan. Even with half the number of horizontal wells drilled in 2015 than in the previous year, oil production was 21.5 million barrels (3.4 million m<sup>3</sup>), which is 929,186 barrels (147,670 m<sup>3</sup>) above the historical production average.

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*Disclaimer: The information in this document is accurate as of May 2016; however, the Government of Saskatchewan accepts no liability for any actions taken as a result of the information contained herein.*