ENERGY SECTOR IN THE ALBERTA HUB REGION

Alberta HUB
Where opportunity comes to life

The Alberta HUB region offers excellent investment opportunities into its core oil and gas industry. The region is located on the second largest oil and gas reserve in Alberta, the Cold Lake Oil Sands area and overlaps into the southern part of the Athabasca Oil Sands, the largest.

The Alberta HUB region offers investors diversification possibilities from their existing service offerings or for new start up support businesses. Currently, the Alberta HUB region oil and gas sector represents an estimated 3.5 billion in GDP.

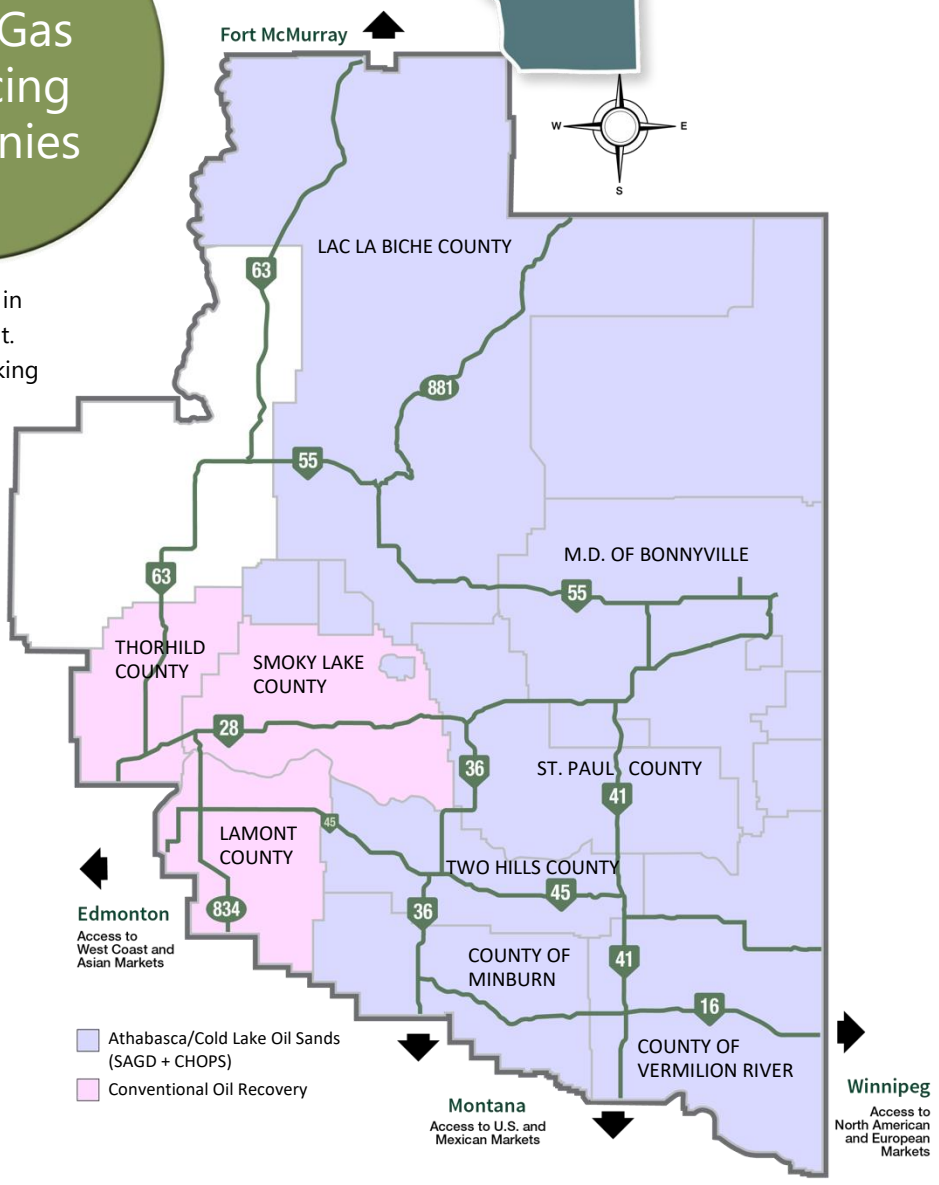
Over 500 Upstream Oil Service Companies

Over 25 Oil/Gas Producing Companies

Companies operating in Canada's oil sands are leaders in environmental innovation and technology development. From planning to land reclamation, the industry is working collaboratively to constantly evaluate and optimize its environmental performance and make ongoing innovations.

Major Oil Producers:

- Canadian Natural Resources
- Imperial Oil
- Cenovus Energy
- Harvest Operations Corp.
- Strathcona Resources
- Osum Oils Sands Corp.

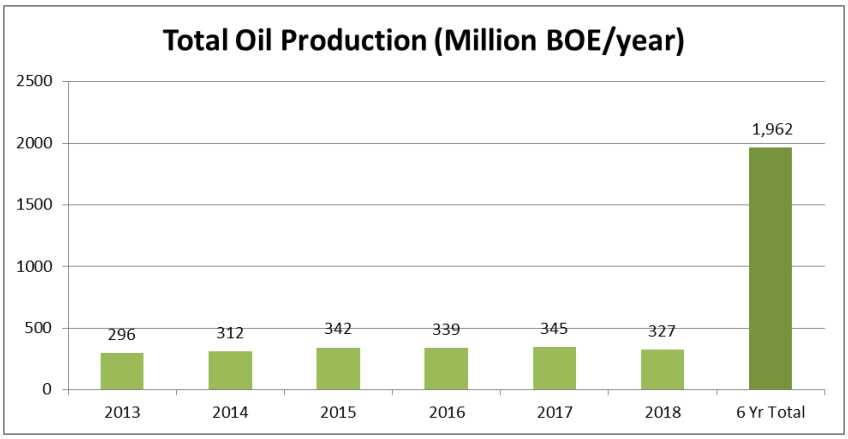


The Alberta HUB region is comprised of two sub-sectors:

- **Oil and Gas producers**
- **Oil and Gas service companies**

ALBERTA HUB REGION OIL PRODUCTION

The Energy sector continues to be a strong foundation industry for the Alberta HUB region that is built on years of experience, ample natural resources and proven success to evolve with a changing economic landscape. Annual oil production from facilities located within the region has been consistent year over year, with total cumulative production over six years of close to 2 billion BOE.



442M BOE/Year (1.2M BOE/Day) Serviced by the Alberta HUB Region

Regional Oil & Gas Sector contributes $3.5B in GDP (est.)

Represents total production of facilities located within the Alberta HUB region only. Excludes additional facilities located outside the region but are serviced by the Alberta HUB region.

Close to 60,000 Wells

Production by County and Method

Oil in the region is primarily produced through unconventional and conventional means. Unconventional recovery of heavy bitumen oil is done via two methods:

- Steam Assisted Gravity Drainage (SAGD)
- Cold Heavy Oil Production with Sand (CHOPS) using progressive cavity screw pumps

Conventional recovery of more refined oil is extracted via pump jacks.

In-Situ thermal and CHOPS recovery is found in the region's Counties of Lac La Biche, St. Paul and the M.D. of Bonnyville, while the Counties of Vermilion River, Minburn, and Two Hills extract via CHOPS. The region's western Counties of Lamont, Thorhild and Smoky Lake focus production on conventional oil.

According to the International Energy Agency, by 2040, global energy demand is expected to grow by 27 per cent. Canada can help meet this global demand through our vast wealth of energy resources, technology, services and untapped potential. The Alberta HUB region will be a strong contributor towards meeting this demand.

County	Total Oil Production (BOE/yr)	Total Oil Production (BOE/day)	In-Situ Thermal – SAGD (BOE/day)	CHOPS (BOE/day)	Conventional (BOE/day)
Lac La Biche County (LLBC)	66,415,481	181,960	85,000	96,960	
Minburn County No. 27	1,190,631	3,262		3,262	
Vermilion River County	20,516,406	56,209		56,209	
M.D. of Bonnyville (incl. I.D. 349)	220,696,543	604,648	528,000	76,648	
St. Paul County	14,791,424	40,524	18,000	22,524	
Two Hills County No. 21	1,658,105	4,543		4,543	
Total Unconventional	*325,268,591*	*891,147*	*631,000*	*260,147*	-
Smoky Lake County	392,109	1,074			1,074
Thorhild County	739,220	2,025			2,025
Lamont County	1,059,421	2,903			2,903
Total Conventional	*2,190,749*	*6,002*	-	-	*6,002*
Alberta HUB Region Total	327,459,340	897,149	631,000	260,147	6,002
RM Wood Buffalo serviced by LLBC	*114,975,000*	*315,000*	*315,000*		
Total incl. Out-of-Region Servicing	442,434,340	1,212,149	946,000	260,147	6,002

Source: Data based on latest figures from Alberta Economic Development and Trade (2018) and Oil Sands Magazine (2019). Data based on best estimation and is subject to change.

ALBERTA HUB REGION INVESTMENT OPPORTUNITIES

Leverage the many assets of the Alberta HUB region, with over $28 Billion worth of oil investment already underway or planned.

Natural Gas - Maximizing the Extraction Process

Natural gas is produced along with the oil (via CHOPS and SAGD). This gas - "solution or casing gas" - is being captured and is either used to run wells/facilities or cleaned and sold to heat homes.

There are investment opportunities to leverage existing resources in the region and work with oil companies to re-use the low cost, excess gas as an alternative to flaring.

Research, Development and Training

Numerous opportunities exist for research and development in addressing environmental impacts and technological enhancements.

According to a study, Canadian companies spend about $1.4 billion a year on clean technology investments and 75 percent of that comes from our oil and natural gas industry (more than all other industries – combined).
Study by Global Advantage Consulting Group for the Clean Resource Innovation Network

Many technologies have been developed in the region with the most notable being Progressing Cavity Pumps (PCP), which can tolerate large amounts of sand and viscous oil. Opportunities exist to develop:

- Products or services to increase efficiencies (lower operations costs, increased recovery speed)
- Advancements in technology to address environmental issues and improve profitability to offset fluctuations in the energy market

The Sector is heavily supported by Transportation and Utilities Infrastructure

Over 97 million BOE/year or 30% of total oil production is being shipped by truck on the region's highways to then be pipelined to export markets

Lakeland College offers partnership and learning opportunities through their combined heavy oil and power engineering programs. The College's Energy Centre is one of the best equipped and modern steam labs in Canada with the only once-through steam generator (OTSG) at a post-secondary institution.

Portage College is home to Canada's first Pipeline Training Centre.

Alberta HUB Advantage

Canada's Oil Sands Innovation Alliance (COSIA) is reaching out to innovators and technology developers in Alberta, across Canada, and around the world to help it find solutions for a set of more than 60 specific environmental needs related to water, land, tailings and greenhouse gas emissions (GHGs).
See cosia.ca for details.

ALBERTA HUB REGION INVESTMENT OPPORTUNITIES

Environmental Monitoring

There are investment opportunities in the use of drones to monitor active and shut-in wells:

- Pipeline management and detection in thousands of oil wells in region
- Mineral exploration/exploitation
- Spill tracking
- Power transmission line monitoring
- Infrastructure Monitoring
- Reclamation and remediation of shut-in oil wells

Maintenance and Repair

Consultative and/or maintenance services will help oil businesses develop a successful maintenance strategy to predict repairs and determine a regular maintenance schedule. Proactive maintenance will boost well oil production rates and revenues by alerting well operators to conduct maintenance and repairs before equipment failure happens.

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