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Oil sands facts and statistics

These indicators highlight trends across economic, environmental and social topics in Alberta's oil sands and are subject to change.

Overview

The responsible development of oil sands is a key driver of Alberta's and Canada's economy. It creates jobs and tax revenue for government which support the social programs and capital infrastructure projects we rely on.

Oil sands facts, statistics and indicators are subject to change as new information becomes available. Oil sands sustainability indicators highlight trends across economic, environmental and social topics in Alberta's oil sands areas.

Unless otherwise stated, sources are from the Government of Alberta. Where applicable, external sources have been noted and linked.

Economics

Reserves and production

Alberta's oil sands has the third largest oil reserves in the world, after Venezuela and Saudi Arabia.

Alberta's oil sands' proven reserves equal about 165.4 billion barrels (bbl).

Crude bitumen production (mined and in situ) totalled about 2.8 million barrels per day (bbl/d) in 2017. Source: Alberta Energy Regulator (AER) [ST 98](#), [ST39](#) and [ST53](#) reports.

Learn more about oil sands production at: [Oil Sands 101](#).

Investment

Alberta's upstream energy sector includes oil sands, conventional oil and gas, and mining and quarrying. Capital investment in this sector:

- was equal to about \$28.3 billion in 2016
- was estimated at \$26.5 billion in 2017
- is forecast at \$23.7 billion in 2018

Source: [Statistics Canada](#)

Employment

In 2017, approximately 140,300 people were employed in Alberta's upstream energy sector. Source: [Statistics Canada](#), Survey of Employment, Payrolls and Hours.

Royalties

For the eighth fiscal year in a row, bitumen royalty made the largest contribution to provincial resource royalty revenue. In 2016 to 2017, bitumen revenue totalled \$1.48 billion, or 47.9% of the non-renewable resource revenue. Bitumen royalties were higher than budgeted due to higher-than-expected crude oil prices. For more information, see:

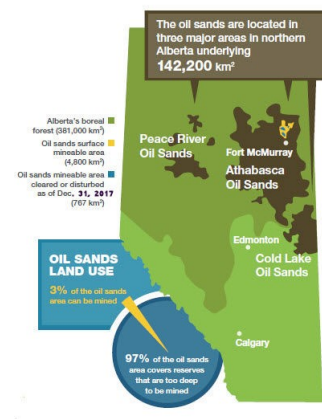
- [Energy annual report](#)
- [Historical royalty data](#)

Geography

Alberta's oil sands lie beneath 142,200 km² of land in the following areas of Northern Alberta:

- Athabasca
- Cold Lake
- Peace River

Reserves up to 75 metres deep are shallow enough to mine and found only within the Athabasca oil sands area. About 4,800 km² of surface mineable area make up roughly 3.4% of all Alberta oil sands.



AER has established regulatory boundaries for each of Alberta's oil sands areas.

Environment

Greenhouse gas (GHG) emissions

Alberta became the first jurisdiction in North America to legislate GHG emission reductions for large industrial facilities. For national statistics on emissions, see Environment Canada's [GHG emissions by province and](#)

[territory](#).

[Carbon capture and storage](#) (CCS) technology can be used in many industries to reduce CO² emissions. Alberta is investing \$1.24 billion over 15 years in 2 large-scale CCS projects:

- Alberta Carbon Trunk Line
- Quest Project

The [Carbon Competitiveness Incentive Regulation](#) came into effect on January 1, 2018, replacing the Specified Gas Emitters Regulation. It applies to:

- large industrial emitters of 100,000 tonnes or more
- smaller emitters who choose to opt in

For more information on Alberta's approach to reducing GHG emissions, see:

- [Capping oil sands emissions](#)

Water usage

Oil sands projects recycle 80% to 95% of the water they use. They also use saline water where possible.

Alberta Environment and Parks imposes strict limits on water usage. See: [River Management Frameworks](#).

Land management/reclamation

The [Oil Sands Sustainable Development Secretariat \(2010-2016\)](#) worked to address rapid growth issues in the oil sand regions. Comprehensive Regional Infrastructure Sustainability Plans (CRISP's) were developed for two of the areas.

Reclamation requirements

Mine operators are required to supply reclamation security bonds to ensure they meet requirements. Reclamation certificates are only issued if monitoring through time demonstrates that these particular lands meet the criteria to return to self-sustaining ecosystems. The first successful reclamation occurred in 2008.

Legislation

On Oct 12, 2017, AER released its updated [Directive 085: Fluid Tailings Management for Oil Sands Mining Projects](#) under the [Oil Sands Conservation Act](#). It will drive further operator action to reclaim legacy tailings in Alberta's mineable oil sands.

The [Alberta Land Stewardship Act](#) supports the [Land-use Framework](#), designed to encompass province-wide strategies to manage the province's land and natural resources. It aims to achieve Alberta's long-term economic, environmental and social goals.

Data

Disturbed oil sands surface mineable area equalled roughly 895 km² in 2013, accounting for less than 1% of the total oil sands area. This makes up about 0.2% of Alberta's boreal forest, which covers over 381,000 km².

By the end of 2013, the total area occupied by oil sands tailings ponds and associated structures, such as dikes, was 220 km². Of that, the total liquid surface area of the ponds was 88 km². The total volume of fine fluid tailings reported by mine operators was 975.6 million m³.

[Oil sands mine reclamation and disturbance tracking by year](#) is a sustainability indicator found in the [oil sands information portal](#). It offers:

- environmental data and information
- an interactive map
- a searchable data library

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