

Oil Sands Facts and Stats

What are oil sands?

- Oil sands are a mixture of sand, water, clay and a heavy oil called bitumen. Once extracted, bitumen must be diluted or heated to enable it to flow or be pumped.

Alberta's Oil Sands Area

- Oil sands underlie 142,200 square kilometres (km²) of land in northern Alberta.
- Depending on the depth of the deposit, one of two methods is used to recover bitumen:
 - Surface mining** - Reserves shallow enough to mine (up to 75 meters) underlie an area about 4,800 km² and account for about 3% of total oil sands area.
 - In-situ** - About 97% of the oil sands area covers reserves recoverable by in-situ (*Latin for: in place*) methods such as steam-assisted gravity drainage in which the reservoir is heated to reduce the viscosity of the bitumen, allowing it to flow to a vertical or horizontal wellbore.

Oil Sands Reserves and Production

- Alberta has the third largest oil reserves after Venezuela and Saudi Arabia.
- As of 2016, Alberta's oil sands proven reserves were 165.4 billion barrels. Out of this volume, 20% is recoverable by mining while about 80% is recoverable through in-situ production.
- Crude bitumen production totaled 2.5 million barrels per day in 2016.

Oil Sands Investment

- Capital investment in Alberta's oil sands sector was equal to \$23.4 billion in 2015, estimated at \$16.6 billion in 2016 and is forecast at \$12.1 billion in 2017.

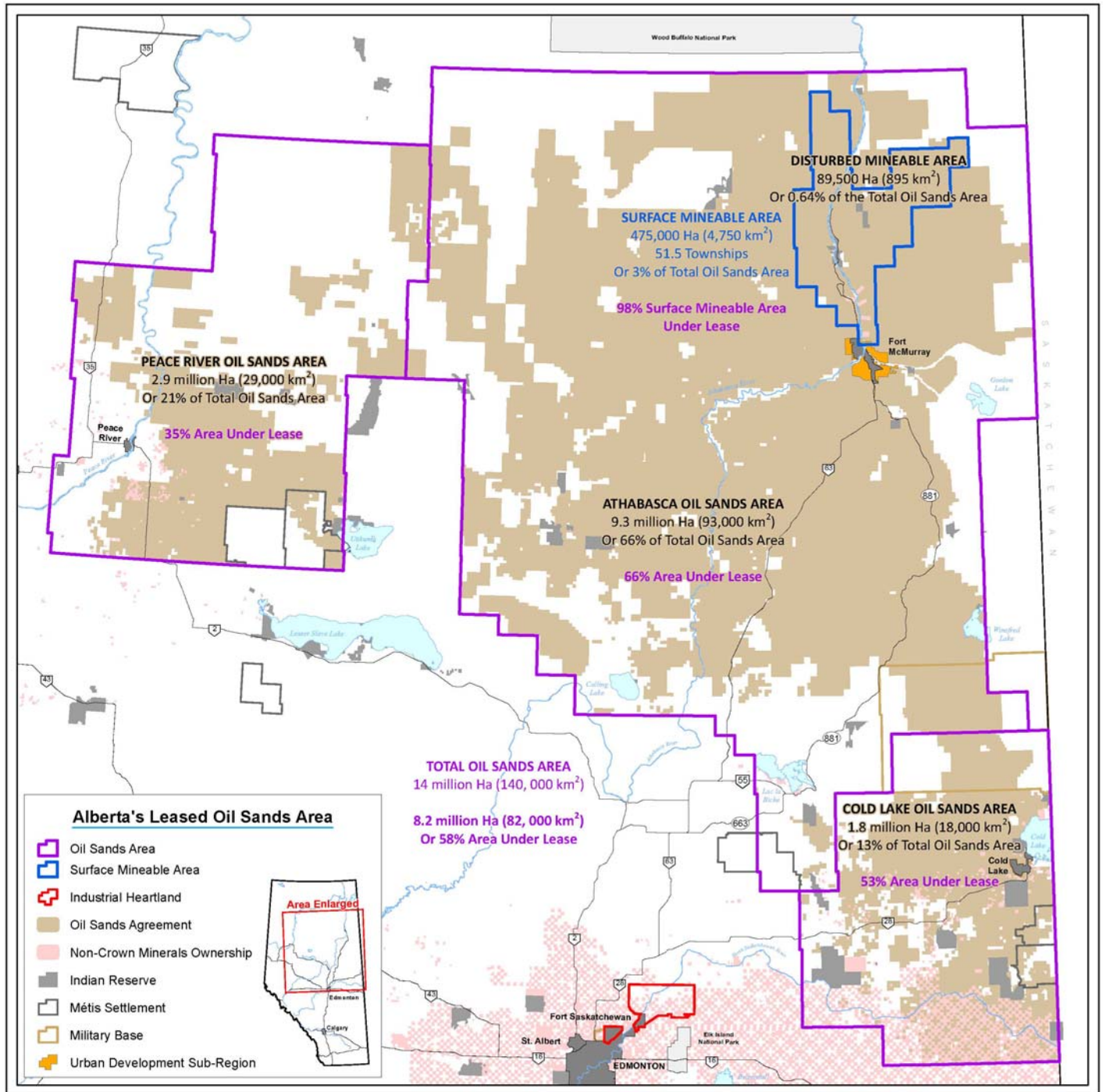
Approved Alberta oil sands projects

- There are nine approved oil sands mining projects in Alberta.
- More than 50 thermal in-situ projects are approved where techniques that involve introducing heat in the reservoir allow the bitumen to be recovered.
- In addition, over 200 primary and enhanced recovery projects extract bitumen that flows enough to be recovered from wellbores either on its own or with the injection of fluids into the reservoir.
- About 13 experimental schemes are currently approved that are testing unproven technology or new applications of existing technologies to more efficiently extract bitumen.
- Alberta has 12 approved bitumen processing plants that upgrade bitumen to a variety of lighter hydrocarbon products.

How are proposed oil sands projects assessed?

- Before companies can construct a project, they must apply to the Alberta Energy Regulator (AER) for approval. Even before that application is filed, however, companies must consult stakeholders to ensure that affected parties have an opportunity to understand how the project might affect them. In situations where unresolved issues or conflicts exist, stakeholders may submit a statement of concern to the AER about the project application, and the statement of concern may lead to a hearing.
- Project applications are comprehensive. Alberta Environment and Parks requires environmental impact assessments for all new oil sands mines and any commercial in-situ project or bitumen processing plant producing more than 12,000 barrels per day of crude bitumen or its derivatives.
- Alberta Energy also reviews applications to ensure they align with existing government policies before approval is given. For more information on the regulatory process visit www.aer.ca.

Oil Sands: Facts and Stats



NOTE: (for current map version please see; <https://open.alberta.ca/publications/alberta-s-oil-sands-projects-and-upgraders-map>)

Area and percentage calculations are rounded figures.

For Surface Mineable Area calculations, a township is deemed to contain exactly 9,216 hectares.

Within the Oil Sands Area boundaries, lands may not be available for development due to Access Restrictions, Parks and Protected Areas, Military Reserves, and Department of Energy Mineral Restrictions. Oil Sands Agreements are shown to the nearest quarter section, and therefore may appear to include minerals not owned by the Alberta Crown and/or Minerals Reserved From Disposition.