

# Upgrading and Refining

## Production

- In 2012, Alberta produced about 1.9 million barrels per day (bbl/d) of crude bitumen from three oil sands regions – Athabasca, Cold Lake and Peace River, with surface mining accounting for 48% and in-situ for 52% of the production.
- In 2012, about 54%, or 1,044,000 bbl/d of crude bitumen production, was sent for upgrading in Alberta.

## Upgrading

- There are currently five operating upgraders in Alberta with the capacity to handle approximately 1.3 million bbl/d of bitumen.

Project Name	Location	Capacity (bbl/d) Bitumen
Athabasca Oil Sands Project - Shell Scotford	Fort Saskatchewan	255,000
Suncor Base and Millennium	Fort McMurray	440,000
Syncrude Mildred Lake	Fort McMurray	407,000
CNOOC Long Lake	Fort McMurray	72,000
Canadian Natural Resources Ltd Horizon	Fort McMurray	141,000
<b>Total</b>		<b>1,315,000</b>

NOTE: total capacity does not equal total production

- Most upgraders produce synthetic crude oil, but some also produce products such as diesel.
- Upgraders (and refineries) also produce off-gases, gaseous mixtures rich in alkanes and alkenes, which are potential feedstocks for Alberta's petrochemical industry.

## Refining

- There are four operating refineries in Alberta with a combined crude processing capacity of over 457,000 bbl/d.

Company	Location	Capacity (bbl/d)
Suncor	Edmonton	142,000
*Imperial Oil	Edmonton	187,200
Shell Canada	Scotford	100,000
**Husky Asphalt Refinery	Lloydminster	28,300
<b>Total</b>		<b>457,500</b>

\*Refining feedstock is conventional oil. The Suncor and Shell refineries are configured to handle feedstock from oil sands.

\*\*The Husky Asphalt Refinery in Lloydminster, AB is integrated with the Husky Upgrader in Lloydminster, Sask which produces synthetic crude oil (SCO) from heavy oil in the two provinces. The refinery produces asphalt products which are then transported to market.

## New Projects:

Project Name	Scheduled Start-up	Capacity (bbl/d) Products
CNRL Horizon (Expansion) Phase 2A Phase 2B Phase 3	2015	10,000
	2016	45,000
	2017	80,000
		Total: 135,000
North West Sturgeon Refinery Phase 1 Phase 2 Phase 3	2016	50,000
	Approved	50,000
	Approved	50,000
		Total: 150,000
BP plc Terre de Grace Pilot	Approved	8,400
	<b>Total</b>	<b>293,400</b>

Alberta also has new projects which are either under construction or approved for development.