Canadian Oil Sands: Canada’s Energy Advantage

INVESTED IN OUR ENERGY FUTURE
In the interest of providing you with information regarding Canadian Oil Sands Limited (“Canadian Oil Sands”), Syncrude Canada Ltd. (“Syncrude”) and the oil sands industry generally, certain statements and graphs throughout this presentation contain “forward-looking statements”. Forward-looking statements in this presentation include, but are not limited to, statements and graphs (collectively “statements”) with respect to: expectations regarding crude oil production, global energy demand, the estimated reserves and resources at Syncrude, views as to the amount of “reserves” remaining globally, the future of Canadian oil and energy supply, the view that the world will need oil for decades to come, the expectations regarding oil sands productive capacity, the assumption that all land disturbed by Syncrude will be reclaimed, the anticipated reduction in water demand at Syncrude, the expectation that the Syncrude Emissions Reduction Project will reduce sulphur dioxide emissions by 60% from current approved levels, the expectation that technology will increase environmental efficiencies, and the economic and employment impact of the oil sands over the next 25 years. The use of the term “reserves” in the global context is really resources and not reserves as defined in National Instrument 51-101.

The factors or assumptions on which the forward-looking statements are based include, but are not limited to: the successful and timely implementation of capital projects; the ability to obtain regulatory and joint venture owner approval; Canadian Oil Sands’ ability to either generate sufficient cash flow from operations to meet its current and future obligations or obtain external sources of debt and equity capital; the continuation of assumed tax, royalty and regulatory regimes and the accuracy of the estimates of Canadian Oil Sands’ reserves volumes.

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Who is Syncrude?

• Incorporated in 1964; start-up in 1978

• Large producer of crude oil from oil sand. Daily production capacity of 350,000 barrels – equal to approx. 15 percent of Canada’s crude oil requirements

• Operator of oil sands mines, bitumen extraction and upgrading facilities, and utilities plants

• Produced over 2 billion barrels of crude oil to date

Source: Syncrude Canada Ltd.
33 years ago...oil sands were a technical and economic curiosity
Today...oil sands are a globally significant resource

Only 21% of total world oil reserves are accessible for private sector investment, 56% of which are found in Canada’s oil sands.

Source: Oil & Gas Journal 2011, CAPP 2011
Oil sands production technologies have significantly evolved...

Mining – 20% of the oil sands resource is less than 200 feet deep

In-Situ – 80% of the oil sands resource is more than 200 feet deep
Steam Assisted Gravity Drainage (SAGD)

In-situ operations do not have mines or tailings ponds
Oil sands – poised for growth...

1) Operating Projects: 1.89 M bbl/d
   - Mining – 1.057 M bbl/d
   - In-situ – 0.833 M bbl/d

2) Under Construction: 0.607 M bbl/d
   - Mining – 0.390 M bbl/d
   - In-situ – 0.217 M bbl/d

3) Projects with Regulatory Approval 1.717 M bbl/d
   - Mining – 0.880 M bbl/d
   - In-situ – 0.837 M bbl/d

4) Projects Under Regulatory Review: 1.426 M bbl/d
   - Mining – 0.520 M bbl/d
   - In-situ – 0.906 M bbl/d

Source: The Oil Sands Developers Group
Economic benefits over the next 25 years—provinces outside Alberta

- **$28 billion**
  - British Columbia

- **$5 billion**
  - Saskatchewan

- **$4 billion**
  - Manitoba

- **$14 billion**
  - Quebec

- **$63 billion**
  - Ontario

**Other: $3 billion**
(Includes New Brunswick, Newfoundland and Labrador, Northwest Territories, Nova Scotia, Nunavut, Prince Edward Island, Yukon)

Source: CERI 2011
A range of products made in Canada

- **Heat Exchanger:** Made in British Columbia
- **Coils of steel:** Made in Quebec
- **Valve:** Built in Ontario
- **Process equipment:** Built in Alberta
- **Truck:** Built in Ontario
Percentage of the total employment created over the next 25 years—provinces outside Alberta

- **25%** British Columbia
- **3%** Saskatchewan
- **4%** Manitoba
- **13%** Quebec
- **52%** Ontario

Other: **3%**

(Includes New Brunswick, Newfoundland and Labrador, Northwest Territories, Nova Scotia, Nunavut, Prince Edward Island, Yukon)

Source: CERI 2011
### Economic and employment impacts of oil sands over 25 years...

<table>
<thead>
<tr>
<th>Location</th>
<th>$ million GDP</th>
<th>Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Canada</td>
<td>2,106,443</td>
<td>905,000</td>
</tr>
<tr>
<td>Alberta</td>
<td>1,989,565</td>
<td>779,500</td>
</tr>
<tr>
<td>BC</td>
<td>28,481</td>
<td>32,100</td>
</tr>
<tr>
<td>Ontario</td>
<td>62,921</td>
<td>66,400</td>
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<tr>
<td>Quebec</td>
<td>13,845</td>
<td>15,900</td>
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<tr>
<td>Saskatchewan</td>
<td>4,855</td>
<td>4,200</td>
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<tr>
<td>Manitoba</td>
<td>4,422</td>
<td>5,100</td>
</tr>
<tr>
<td>Maritimes</td>
<td>2,135</td>
<td>3,100</td>
</tr>
<tr>
<td>Northern Canada</td>
<td>2,170</td>
<td>200</td>
</tr>
</tbody>
</table>

...extend across Canada.

Source: Canadian Energy Research Institute, Economic Impacts of the Petroleum Industry in Canada. May 2011
Energy security also flows from the oil sands
“Clean oil”…synthetic crude oil from Syncrude

Source: Syncrude
“Wells-to-wheels” CO₂ emissions

Kg CO₂e emitted for every bbl of crude oil produced (extraction, processing, distribution and combustion).

Full-life cycle, well-to-wheels, including combustion.

Source: Cambridge Energy Research Associates, 2009
Oil sands emissions have fallen...

...by 29 per cent per barrel since 1990.

Source: Environment Canada
New technologies

THAI™

Solvent Recovery

Geothermal

Electro Thermal
Dynamic Stripping
• Potential to capture over one million tonnes of CO₂ per year

• Equivalent of taking 175,000 vehicles off the road
Air monitoring in the oil sands region...

www.wbea.org

...has allowed the University of Alberta’s Department of Public Health Services to conclude there has been little to no change in the concentrations of various air pollutants in the oil sands region...

http://www.publichealth.ualberta.ca/research/~/media/University%20of%20Alberta/Faculties/SchoolofPublicHealth/Faculty%20Site/Documents/Research%20Reports/WBEA_summary.ashx
Water management is a priority

In Alberta …

Water used for oil sands is about 179 million m³
Water used for agriculture is about 4,100 million m³

*Actual usage in 2010 was 0.5% of average river total flows and about 3.4% of the lowest weekly winter flow.
Extensive water monitoring in the oil sands region has been ongoing...

...providing the data that allowed The Royal Society of Canada to conclude...

“Current industrial water use demands do not threaten the viability of the Athabasca River system…”

”Oil sands development activities are not a current threat to aquatic ecosystem viability…”

“There is no credible evidence of environmental contaminant exposures from oil sands reaching Fort Chipewyan at levels expected to cause elevated human cancer rates…”

http://www.rsc.ca/documents/expert/RSC_ExP_ExecutiveSummary_ENG_Dec14_10_FINAL_v5.pdf
Boreal Forest use

Source: CAPP, Alberta Environment

- Canada’s Boreal Forest = 3,200,000 km²
- Canada’s Oil Sands = 142,200 km² (4.5% of Boreal Forest)
- Oil Sands Mineable Areas = 4,802 km² (0.2% of Boreal Forest)
- Total Land Mined Over The Last 40 Years = 862 km² (0.02% of Boreal Forest)
How big is that?

Greater Toronto Area = 7,125 km²
Total Land Mined Over The Last 40 Years = 662 km² or about 9% the size of the GTA
Oil Sands Mineable Area = 4,802 km² or about 67% the size of the GTA

Source: CAPP, Alberta Environment
Reclaimed area – Syncrude’s Gateway Hill

Source: Syncrude
Syncrude Fen Reclamation Pilot Project

Fen wetland under construction

Former east mine, filled with composite tails, prior to full-scale reclamation

Fen wetland research plot

Source: Syncrude
The oil sands industry is highly regulated...

Government of Alberta
ERCB
National Energy Board
Oceans and Fisheries Canada

“...At the project level, government regulation of oil sands activities is stronger than in many other oil-producing regions in the world.”

Source: Cambridge Energy Research Institute. Growth in the Canadian Oil Sands Report 2009
The road to the future