

Are recent cost inflation reports in the media relevant to Osum's projects?

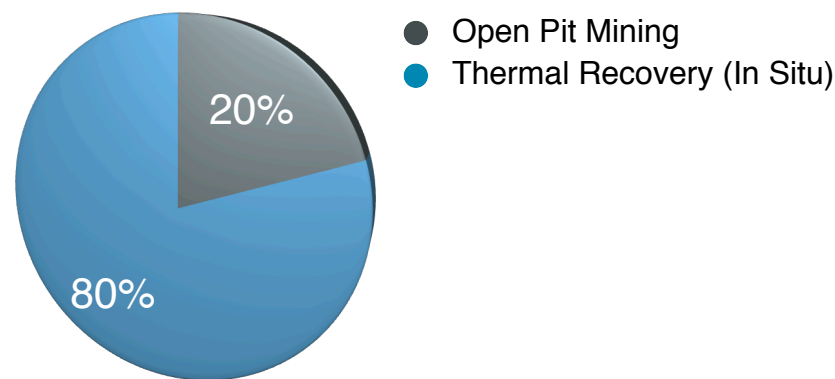
No. The large cost inflation estimates recently reported in the media are exclusively referring to new open pit bitumen mining operations. Pure thermal recovery projects like Osum's have not seen as dramatic a rise in inflation as reported for specific pit mining projects (for example, UTS-Teck-Petrocan). Osum is not in the business of pit mining.

What are the key differences between pit mining and pure thermal recovery?

Open pit mining is only practical for bitumen deposits that exist near the surface. These deposits are mined and moved by trucks to a cleaning facility where the bitumen is extracted from the sand. For oil sands beneath the surface, however, thermal recovery methods (often called "*in situ*" methods) are required. Pure thermal recovery methods separate bitumen from the sand underground by using steam to heat it so that it can flow to the surface.

Pure thermal recovery has a vastly smaller surface footprint and does not require tailings ponds. If carbon capture is moved forward as proposed, Canadian *in situ* projects will be among those with the least impact on the environment.

In Alberta, approximately 80% of oil sands must be recovered through thermal or alternative *in situ* technologies, with only 20% recoverable through open pit mining.



Why has the cost of pit mining increased more than that of thermal recovery projects?

Pit mining projects are more sensitive to inflation than pure thermal recovery projects for a number of reasons:

- Pit mining projects require a larger labour force and are located in areas where the cost of labour has increased the most.
- The cost of fuel involved in transporting vast quantities of oil sands in enormous trucks and mining equipment is a major factor for pit mining projects, whereas these costs are not involved in thermal recovery projects.
- Many thermal recovery projects are located in areas that support year round operations.

Are cost over-runs generally the same for all thermal recovery projects?

No. Vertically integrated projects that include upgraders in their capital cost structure are 2.5 to 6 times more expensive per flowing barrel than smaller, non-integrated projects like Osum's. Costs reported by companies who are constructing upgraders fall in the band of \$100,000 - \$200,000 per flowing barrel (e.g. Nexen/OPTI at Long Lake, CNRL at Horizon,

UTS-Teck-Petrocan at Ft Hills, Suncor at Firebag). Osum is not in the business of bitumen upgrading and, as a consequence, its project costs are expected to be in the range of \$35,000 - \$40,000 per flowing barrel.

Do smaller thermal recovery projects have a cost advantage over the larger "mega-projects"?

Recent thermal recovery projects that target production rates of 10,000-40,000 bopd have consistently been brought on-line with costs in the \$25,000-\$40,000 per anticipated flowing barrel range. Examples include Connacher Algar Lake, Shell Orion, CNRL Wolf Lake B10, Husky Bolney, and Husky Tucker Lake. Osum's Cold Lake project is aiming to produce at a peak rate of 35,000-40,000 bopd with an estimated capital cost of \$1.4 billion dollars which equates to \$35,000-\$40,000 per flowing barrel.

What differentiates Osum's Cold Lake project?

Osum is the only junior oil sands company developing a thermal recovery project at Cold Lake where commercial thermal productivity has been established for over 24 years and where the bulk of Canada's current thermal recovery of bitumen occurs. The Cold Lake region does not suffer the same cost pressures encountered in the greater Ft McMurray region. This is due to Cold Lake possessing a fully developed infrastructure, a 12-month operating environment, and project scales that can be constructed without the need for labor forces in excess of a few hundred people.

Do the analyst reports recently cited in the media include reviews of all bitumen recovery projects?

No. Most, if not all, analyst reports are focused exclusively on bitumen recovery projects in the greater Athabasca region. This region holds all of Alberta's open pit bitumen mining projects and most of the new and planned thermal recovery projects. Thermal recovery projects at Athabasca have not experienced long periods of commercial productivity. Osum is the only junior oil sands company developing a substantial thermal recovery project in the commercially proven Cold Lake region where commercial production has occurred for over 24 years. **As a consequence, analyst reports dealing with the Athabasca region have little or limited relevance to thermal development at Cold Lake.** The reservoirs are different, the operating environment is different, the infrastructure development is different, and the cost structure is different.

To our knowledge, no analyst has recently publicly assessed Cold Lake capital costs and compared these to costs at Athabasca.