



Alberta Oil Sands Products: Background

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Alberta Oil Sands Are a Vast Resource

Canada has the third largest oil reserves in the world, (behind Saudi Arabia and Venezuela). Since 2002, Canada has been the largest exporter of oil to the U.S.. Oil sands (tar sands) constitute the largest part of that resource, with an estimated reserve remaining of 174 billion bbl.



...But They Aren't Worth Much If They Can't Be Moved to Markets (Ports)!

In order for the oil sands oil to be a commodity, it must be transported to markets. And in order for it to be transported to market, the oil must be made less viscous.

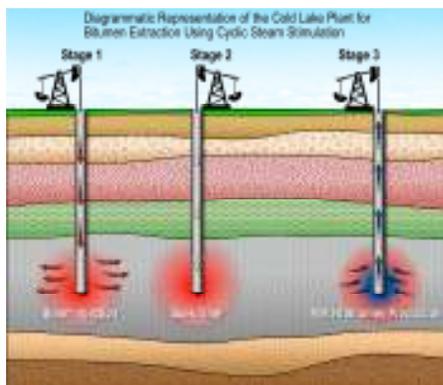


Figure 2. Bitumen production by steam. Alberta Government graphic.

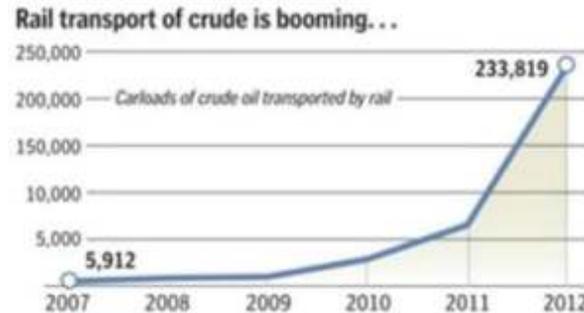


Figure 3. Growth in crude oil transport by rail, 2007-2012. Boston Globe graphic.

Oil Transport by Pipeline and Rail Is Growing Rapidly

In order to transport oil from the production fields in Alberta and the western U.S., many pipeline expansion plans have been proposed. However, as has been seen with the acrimonious debate over the Keystone XL pipeline proposal, these have been slow to clear the many levels of approval and permitting.

One consequence of this has been the phenomenal growth in rail shipments of oil in the last four years. Rail transports offers the main advantage of requiring no additional review or permitting.



Figure 4. Existing and planned oil pipelines in North America. Canadian Association of Petroleum Producers.

Spill Risks Are Growing With This Increased Transport

In some regions like the Pacific Northwest, contingency planning will be significantly affected by increased volumes of oil being transported by pipeline, rail, and vessels. Agencies and responders are scrambling to catch up with the emerging risks represented by large amounts of different new oil being moved through the area.



Figure 5. Mayflower, AR, April 2013. Dilbit.org.



Figure 6. Marshall, MI, July 2010.

What Are the Issues and Risks?

In October 2012, the Emergency Response Division of NOAA began a collaboration with the Program of the Environment at the University of Washington to study the implications of this dramatically shifting portrait of oil production and transportation in North America. Their report was delivered in March 2013. It is currently being edited for release as a NOAA Technical Memorandum.