



Tech Talk - Pipelines, Eastern Canada and Maine

Posted by [Heading Out](#) on October 9, 2011 - 3:29am

Topic: [Supply/Production](#)

Tags: [canada](#), [cushing](#), [enbridge](#), [hibernia](#), [keystone xl](#), [labrador](#), [maine](#), [new brunswick](#), [oil pipeline](#), [white rose](#) [[list all tags](#)]

I wrote [last time](#) about the projected pipelines that are being anticipated to take advantage of increased production from the oil sands in Alberta, Canada, with the intent that I would use that to lead into a review of the oil sands operation itself. However, Gail has raised the issue of the proposed reversal of the pipeline (Line 9) that runs from Sarnia in Ontario to Montreal so that oil would flow to the Suncor refinery in Montreal, rather than the current flow, which runs the other way. (Sarnia is right by Detroit). The pipeline reversal is planned to continue beyond Montreal, to include reversing the flow of a supply pipeline from Portland, Maine so that the oil from Alberta might also [supply northern New England](#). The project has been called “The Trailbreaker” and [had been postponed](#) two years ago when demand declined.

The overall question of the relative role of exports and imports on the Canadian oil supply equation was also raised in comments on the previous post. As a result, I am going to look a bit more into the overall Canadian picture and particularly that in the East Coast, and will postpone the oil sand piece a week (sorry Neil). To begin, it helps to look at the [current projects](#) that Enbridge has in mind for pipelines.



Overview of the Enbridge planned pipeline projects ([Enbridge](#) - [click for larger version](#))

The Ozark pipeline, which is shown running from Cushing to Wood River was [closed on Friday](#), September 30, when the pipeline was found to be exposed as it ran across the bottom of the Mississippi River. It carries around 240 kbd and the shut down is precautionary, since there has been no leak detected.

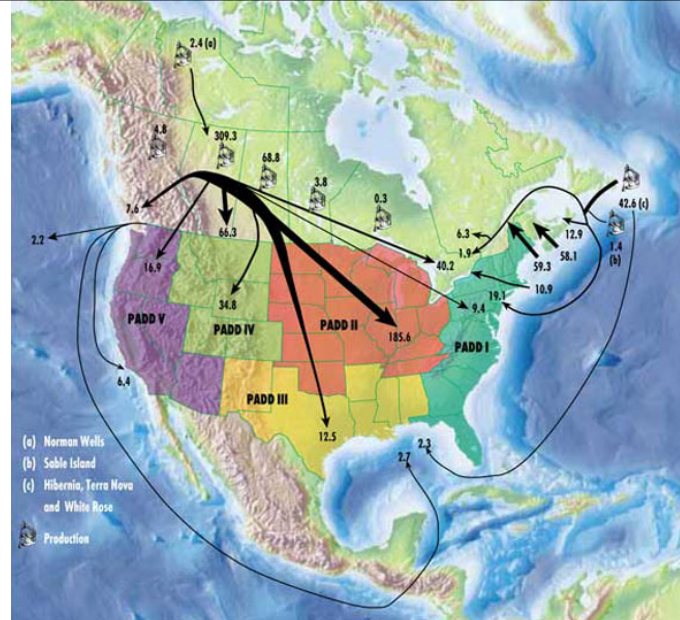
The dark green arrow from Cushing to Houston will be known as the Wrangler pipeline and would carry up to 800 kbd from Cushing to the refineries along the Gulf, competing with the Keystone XL, which is planned to bring an additional 500 kbd down from Alberta (about 500 kbd flows through existing connections). The intent is to move the oil away from Cushing where it is proving to be [a bit of a glut](#).

With this surplus, and the ability to move oil around the Mid-West, the need for additional feed down from Montreal dissipates, and thus the argument for the reversal of flow so that crude from Alberta can be sent back up that pipe to the refineries in Eastern Canada. At present oil comes by tanker to Portland, Maine and then enters the Portland-Montreal Pipe Line ([PMPL](#)) system. The oil flows through either an 18-inch or 24-inch line up to Montreal, a distance of 236 miles, with flow then continuing to Sarnia. A certain [increase in energy security](#) would thus be achieved for the East Coast of North America, if the oil refined on the East Coast was produced in North America instead of coming from Russia and the Middle East. At present, flow would be reversed in [only one of the pipes](#), the 18-inch, coming from Portland. Right now, some 200 tankers a year offload in Portland, and send around 95 kbd up to Montreal. (The pipeline came into being in 1941 to avoid exposing oil tankers moving into Quebec to U-boats).



Portland Montreal Pipe Line ([Wikipedia](#))

If one looks at the overall flows of oil in Canada, the increasing reliance on Albertan oil can be appreciated.



Flows of Canadian crude oil in thousand cubic meters/day – (multiply by 6.3 to get kbd) in 2009 ([Canadian NEB](#))

Canadians consume around 1.5 mbd, of which half is gasoline and 30% diesel. I discussed their exports in [the last post](#).

Interestingly, the largest exporter of gasoline from Canada to the US lies further east, where it comes from the [Irving Oil refinery](#) in St John New Brunswick, with the 300 kbd refinery shipping 75% of the gasoline it produces into the eastern United States.

There are two other refineries in the region, the [Dartmouth refinery](#) at Halifax in Nova Scotia refines 82,000 bd of crude, largely for the Eastern provinces of Canada. The crude is off-loaded from tankers, refined and then loaded onto smaller coastal tankers for delivery.

Yet further east is the [Come by Chance](#) refinery, now the [North Atlantic Refinery](#) in Newfoundland. In its time it was one of the largest bankruptcies in Canadian history, but it now refines some 115 kbd that arrives in 320,000 ton tankers at the nearby ice-free port. It suffers from that bankruptcy in that a subsequent sale was commensurate on the product not being sold in Canada (outside of Labrador and Newfoundland), which means that the products largely ship to the United States.

Yet one must go even further east to find the oil fields of the Eastern Canada Sedimentary Basin. And unfortunately, while the nearest refinery might be near an ice-free port, the fields themselves are not.



Eastern Canadian Sedimentary basins and hydrocarbon fields ([Center for Energy](#))

The fields include [White Rose](#), which is expected to yield around 230 million barrels at around 120 kbd, with a life of 12 – 15 years. First oil was in 2005.

[Terra Nova](#) is estimated at 406 million barrels. With a production of around 125 kbd, it is anticipated to last 18 years. Production began in 2002.

The seasonal floating ice in these parts varies from 1.6 to 5 ft thick and an average wind speed of around 20 mph leads to ice buildup on the tankers and superstructure, making it a consideration in operations, as are icebergs. (Remember the picture of the [tug pulling an iceberg](#)). That was taken around here.

[Hibernia](#) is also producing at around 126 kbd, and by August 2010 had produced 704 million of the 1.4 billion potentially recoverable oil from the field. Approval has now been given to extend development to the south.

Current plans to develop [Hebron](#), some 6 miles north of Terra Nova include also the fields of West Ben Nevis and Ben Nevis. Production is expected to begin in 2017, at a rate of around 150 – 180 kbd of oil and 200 – 350 kbd of water. Reserves are considered to be in the [400 – 700 mb range](#).

Although these numbers are significant and will provide for a considerable fraction of the need in this part of the world and further south, they do not constitute the promise of sustained, increased levels of production that are required for significant help against the declining production seen in many of the world's major oilfields. For some help in that direction it is necessary to head west. And so it is time for the review of the oil sands.

There is, however, considerable controversy over the operation of the oil sands in Alberta, particularly from those objecting who cite the mess that is made of the landscape. In general, the illustrations of oil sand operations that are used show the site during mining, where the black color of the sand tends to make for a dismal picture. It might be more informative to show what the sites are like afterwards. And so, as a prelude to more discussion, here is a photo of some reclaimed land. It is here that the wood bison (as opposed to buffalo) roam.



Reclaimed land after the oil is removed from the sand ([CAPP](#))



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