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# Pipeline Congestion Revives Cushing Rail Option

## Canadian oil sand production due on line in December.

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Sandy Fielden  
Director, Oil and Products Research  
+1 512 431-8044  
sandy.fielden@morningstar.com

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**Data Sources for This Publication**  
Energy Information Administration  
CME Group  
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### USD Group Purchases Stroud

New production expected on line in December from the Suncor Fort Hills project in the oil sands region of northern Alberta faces pipeline congestion getting out of Canada to the U.S. Gulf Coast market where the oil is in demand. Existing capacity across the Canadian border is running close to full, and no new pipelines are expected in service before the end of 2019. As a result, producers are turning to rail transport to bypass pipeline congestion and ensure their crude gets to market. Last week, USD Group announced a new route option for Canadian producers following its purchase of a rail terminal in Stroud, Oklahoma, that is connected by pipeline to the Midwest crude trading and storage hub at Cushing, Oklahoma. USDG will offer direct rail service from its Hardisty, Alberta, terminal to Cushing. In this note, we review the economics of this new rail transport route for oil sands producers.

### Interim Solution

Since the beginning of the shale oil era, rail has provided an interim solution for producers looking to ship crude over long distances to market where no pipelines existed or where existing pipes were already full. Since new pipelines take time (at least three years) to plan, justify, permit, and build, rail offers a flexible alternative that can be up and running in a matter of months. The downside of moving crude by rail is that it is relatively more expensive than pipelines. The upside is that building a crude loading terminal connected to a Class I railroad allows midstream companies to offer producers access to destinations throughout the nation. Unloading terminals are located either at specific refineries or more often at terminals with pipeline or barge connections offering access to multiple refineries. According to data from the Energy Information Administration, U.S. domestic crude-by-rail volumes grew from just over 100 thousand barrels/day in January 2011 to peak at 944 mb/d in October 2014. As new pipeline capacity has been built out, U.S. rail use has declined to 285 mb/d as of March 2017 (the latest EIA data).

### Pioneer Terminal

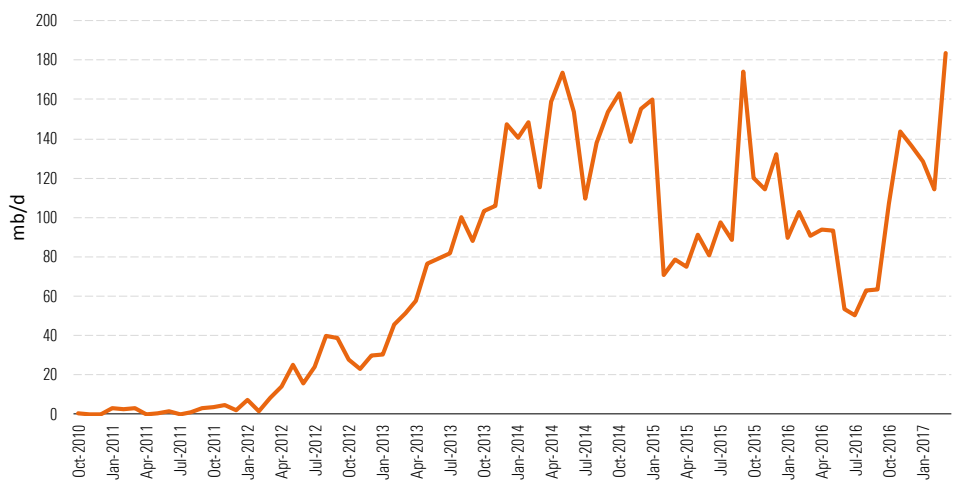
The Stroud terminal that USDG purchased June 2 for \$25 million was originally built for crude-by-rail pioneer EOG Resources and took its first delivery of Bakken shale oil from that company's Stanley, North Dakota, load terminal on New Year's Eve 2009. Stroud is operated by Watco and located on the Stillwater Central Railroad, linking to Class I BNSF and Union Pacific services. EOG built the 17-mile Hawthorn pipeline connecting Stroud to Cushing storage tanks. The terminal and pipeline can unload and ship up to 60 mb/d of crude and has two 70 thousand-barrel storage tanks. After EOG developed the Stroud terminal, crude discounts developed at Cushing when inventories swelled because incoming new production exceeded Midwest refining demand and pipeline takeaway capacity. Consequently, EOG

built another destination terminal at St. James, Louisiana, on the Gulf Coast together with NuStar Energy and diverted production to that more lucrative market. Nowadays there is plenty of available pipeline capacity out of Cushing to the Gulf Coast market, and USDG is betting the Stroud terminal can once again provide a profitable delivery point for crude delivered by rail — this time Canadian heavy grades from Hardisty.

**Crude Shifting to Rail**

We recently discussed the tight balance for Canadian crude out of Canada (see our May note "[Oil Sands Growth Tightens Canadian Takeaway Capacity](#)"). Pipeline takeaway capacity out of western Canada has frequently been constrained since 2013, particularly across the Canada/U.S. border. The lengthy process and final rejection surrounding the granting of a presidential border-crossing permit for the TransCanada Keystone XL pipeline was a primary cause of this congestion, but delays to proposed alternative pipeline routes within Canada have also restricted outbound shipments. As a result of the capacity restrictions, Canadian crude producers have turned to rail to get their crude to market. According to EIA data (Exhibit 1), Canadian crude-by-rail shipments to the U.S. ramped up in 2013 and averaged 146 mb/d in 2014 before dropping in early 2015 as new pipeline capacity from the Midwest to Cushing came on line (Enbridge Flanagan South). Rail shipments from Canada increased again in October 2015 before wildfires in Fort McMurray, Alberta, reduced crude export volumes in the first part of 2016 (see our May 2016 note "[Western Canadian Wildfires](#)"). Since October 2016, U.S. imports of Canadian crude by rail have been ratcheting up again to reach a record 183 mb/d in March 2017. Given that no new cross-border pipeline capacity is expected on line before 2019, we expect Canadian crude-by-rail traffic into the United States to continue growing as production increases.

**Exhibit 1** U.S. Imports of Canadian Crude by Rail



Source: EIA

### **Fort Hills Production**

The next major production boost expected from oil sands is from the Suncor-operated Fort Hills project located 60 miles north of Fort McMurray, due on line in December. The Fort Hills plant is expected to produce 194 mb/d using surface-mining technology to retrieve the oil-bearing sand and a paraffinic froth treatment to extract the bitumen. The heavy viscous bitumen will be shipped from Fort Hills in a heated pipeline operated by TransCanada to Suncor's East Tank farm at Fort McMurray, where it will be blended with condensate—creating a blend known as dilbit—that can flow unheated in a pipeline. According to a presentation by Teck Resources, a 20% stakeholder in Fort Hills, the blended dilbit (75% bitumen, 25% condensate) will then be shipped to Hardisty on the Enbridge Wood Buffalo and Athabasca Twin pipelines.

At the same time as its Stroud rail terminal acquisition announcement, USDG said it signed a long-term producer customer committed to ship 30 mb/d of crude by rail from Hardisty to Cushing beginning in October. Given the timing of the transaction, we believe that customer is Teck Resources. We base this on Teck Resources having leased 425 thousand barrels of storage capacity owned by Gibsons Energy at Hardisty that is linked by pipeline to USDG's rail terminal and the absence of other new available pipeline capacity excluding Hardisty until the Enbridge Line 3 replacement is completed in 2019. Once Fort Hills reaches full capacity in late 2018, Teck's 20% share of production will be about 39 mb/d of plant bitumen, increasing to 48 mb/d once diluent is added. Teck will not necessarily use the USDG rail capacity committed to if it can source pipeline capacity instead, but it has to pay a terminal fee for the capacity regardless of whether it is used, under a standard take-or-pay contract. Under these circumstances, rail capacity offers at best a concrete solution to the lack of pipeline capacity and at worst an option payment in case rail is needed.

### **Freight Economics**

The current Enbridge pipeline tariff from Hardisty to Cushing for uncommitted "walk-up" heavy crude shippers is \$8.57/barrel (the lowest tariff for a 10-year committed customer is \$7.16/barrel). Rail shipping costs from Hardisty to Cushing or the Gulf Coast are not made public but are variously estimated by reporting services at between \$12 and \$15/barrel with additional terminal fees at both ends. Given the choice, shippers will use the pipeline option when capacity is available. Looking at the economics, it has made more sense recently for producers to sell crude at Hardisty than to ship to Cushing. Exhibit 2 shows the weekly average premium for Western Canadian Select crude—the benchmark dilbit grade—at Cushing over the equivalent price at Hardisty. The Cushing premium for WCS increased throughout 2016 and early 2017 to peak at just under \$8/barrel in March 2017. Since then, the Cushing premium has fallen in response to increased demand for WCS following a fire that shut down production at the Suncor syncrude plant and curtailed Canadian dilbit supplies. The current \$4.50 WCS Cushing premium doesn't justify pipeline tariffs of \$8.50/barrel let alone far higher rail costs. However, we expect the Cushing WCS premium over Hardisty to increase by the end of 2017 as the syncrude plant comes back on line and new production from Fort Hills comes on line.

**Exhibit 2** Premium of WCS Cushing to Hardisty

Source: CME Group

**Margin Squeeze**

A greater risk for Canadian producers is that U.S. crude oil prices are currently back below \$50/barrel following market skepticism about the impact of OPEC's May 25 production cut extension. That means high transport costs weigh heavily on oil sands producers, which already face higher production costs than their brethren in prolific shale basins like the Permian (see our March note "[Lower For Longer Crude Prices Threaten Oil Sands Investment](#)"). The combination of lower market crude prices and higher transport costs due to congestion can easily squeeze oil sands producer margins into negative territory.

**Long-Term Project**

The up-front investment in new oil sands projects like Fort Hills is already made, leaving producers with little option but to weather adverse market pricing in the short term. Their advantage lies in the long-term horizon of the plant's production. Fort Hills is expected to have consistent production of 194 mb/d over a 45-year project life. In that time frame, a two-year delay for new pipeline capacity out of Canada is a minor hurdle. If crude prices recover to the \$60/barrel level when world supply and demand return to balance over the next two years (as expected by most analysts), then the project will produce consistent positive margins. ■■

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+1 800 546-9646 North America

+44 20 3194 1455 Europe

commoditydata-sales@morningstar.com



22 West Washington Street  
Chicago, IL 60602 USA

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