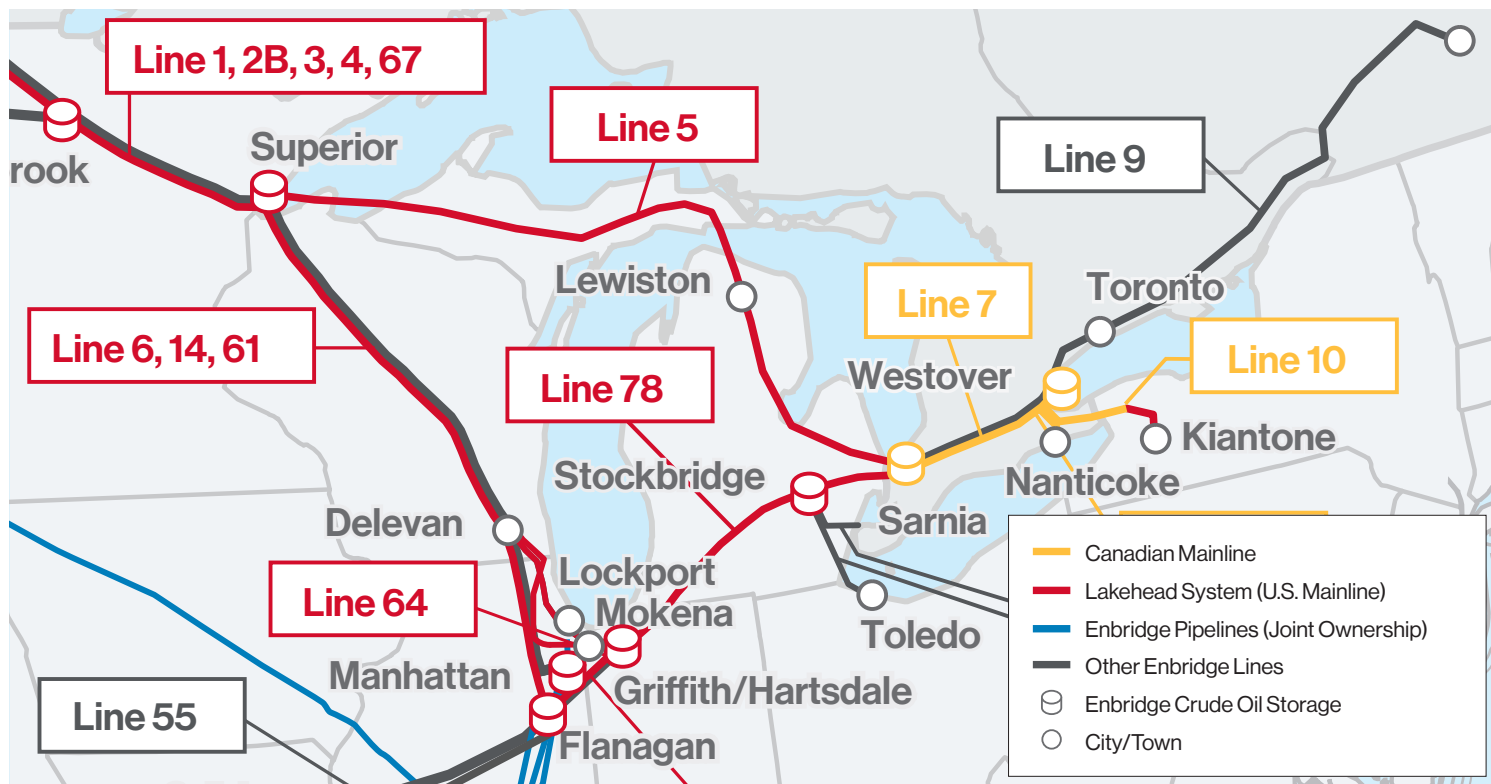




The importance of Line 5

Enbridge's Line 5 has been a vital piece of energy infrastructure since 1953—not just for Michigan, but for the entire U.S. Midwest and points beyond.

For more than 65 years, Line 5 has delivered the light oil and natural gas liquids (NGL) that heat homes and businesses, fuel vehicles and power industry.

Shutting down Line 5 would have immediate and severe consequences on the economies of Michigan, Ohio, Ontario, and elsewhere.

Enbridge's Line 5 is a 645-mile, 30-inch-diameter pipeline that travels through Michigan's Upper and Lower Peninsulas—originating in Superior, Wisconsin, and terminating in Sarnia, Ontario, Canada.

Line 5 transports up to 540,000 barrels per day (bpd), or 22.68 million US gallons per day, of light crude oil, light synthetic crude and natural gas liquids (NGLs), which are refined into propane.

Line 5 supplies 65% of propane demand in Michigan's Upper Peninsula, and 55% of Michigan's statewide propane needs. The light crude transported by Line 5 feeds refineries in the Upper Midwest and Eastern Canada.

If Line 5 were shut down*:

- Refineries served by Enbridge in Michigan, Ohio, Pennsylvania, Ontario and Quebec **would receive approximately 45% less crude from Enbridge** than their current demand.

- Michigan would face a **756,000-US-gallons-a-day propane supply shortage**, since there are no short-term alternatives for transporting NGL to market.
- The region (Michigan, Ohio, Pennsylvania, Ontario and Quebec) would see a **14.7-million-US-gallons-a-day supply shortage of gas, diesel and jet fuel** (about 45% of current supply).
- Michigan would need to **find an alternative supply for anywhere from 4.2 million to 7.77 million US gallons of refined products a day** (gas, diesel, jet fuel and propane).

Alternatives for the above shortages are limited—and that would mean massive investment in pipeline infrastructure, or significantly increasing rail or trucking capacity, to make up for the shortfall caused by a Line 5 shutdown.

*Estimates are based on current market conditions, and contingent on similar energy demands in the future (crude oil demand is not expected to see an appreciable change)

The effects of a Line 5 shutdown

Shutting down Line 5 would have a major and immediate impact on crude oil supply for refineries—and, as a result, refined product supply for consumers, motorists and industry.

Crude oil impacts

Regional **crude oil and NGL demand** on Enbridge’s Line 5 and Line 78 totals about **40.74 million US gallons a day**.

Demand for crude is not expected to change any time soon—and with Enbridge’s pipeline system already essentially full, a Line 5 shutdown would cause federally regulated apportionment, or reduction in deliveries, on our Line 78 by approximately 45%.

In other words, refineries in Michigan, Ohio, Pennsylvania, Ontario and Quebec **will receive approximately 45% less crude from Enbridge** than their current demand.

Refined products impacts

Michigan uses about **15.75 million US gallons of transportation fuel (gas, diesel and jet fuel) every day**—and with Detroit’s refining capacity meeting only about 25% of that demand, Michigan relies heavily on surrounding states like Ohio, Illinois and Indiana for its refined products.

A Line 5 shutdown would cause a **shortfall of 14.7 million US gallons of transportation fuel a day** (that’s 45% of the current Enbridge supply in Michigan, Ohio, Pennsylvania, Ontario and Quebec) and a **Michigan propane shortage of 756,000 US gallons a day** (or 55% of the current supply).

That means Michigan would **need to find more than 4.2 million US gallons a day of gas, diesel, jet fuel and propane** to make up for the shortfall—assuming Ohio and other regional refineries are receiving crude oil from Line 78 at an apportioned rate of approximately 55%. If those refineries are unable to meet local needs, and stop supplying Michigan, then **that number would rise to 7.77 million US gallons a day**.



The effect on regional refineries

According to PBF Energy, which operates one of two refineries in Toledo:

- A Line 5 shutdown would put Ohio refineries at risk. The closure of one of those refineries could result in the loss of **\$5.4 billion in annual economic output** to Ohio and southeast Michigan, and the **loss of thousands of direct and contracted skilled trades jobs**.
- A Line 5 shutdown would compromise crude supply to 10 refineries in the region to varying degrees, **directly affecting fuel prices**.
- Closing Line 5 would **hurt Ohio and Michigan economies**, and **threaten union jobs**.
- There are **no viable options for replacing** the volume of light crude delivered by Line 5, with **rail able to provide less than 10%** of that volume.
- A Line 5 shutdown puts **at least 15% of northwest Ohio’s fuel supply at risk**, as well as more than **half of the jet fuel supplies** for the Detroit Metro Airport.

Demand on Enbridge pipelines (approximate)

Line	Kbpd	US gallons per day
Line 5 (including NGL)	500	21,000,000
Line 78	480	19,740,000
Total	970	40,740,000

Capacity of Enbridge pipelines

Line	Kbpd	US gallons per day
Line 5	540	22,680,000
Line 78	570	23,940,000
Line 78 (ex-Stockbridge)	502	21,084,000