

What Railroads Haul: Crude Oil

Everything from transportation fuels and plastics to polar fleece jackets, toiletries and medicines are made from crude oil. Railroads have played an essential role in helping the U.S. become more energy secure by safely moving crude oil extracted domestically.

The “shale revolution” created more U.S. crude oil production.

U.S. crude oil production in 1970 averaged 9.6 million barrels per day. By 2008, it had fallen to just 5 million barrels per day as new fields failed to keep pace with depletion of older fields. However, thanks mainly to growth in shale oil, U.S. crude oil production grew to 12.2 million barrels per day in 2019. Texas and North Dakota have accounted for most of the increase in U.S. crude oil output. Production also rose sharply in New Mexico, Oklahoma and Colorado.

Rail shipments of crude oil have fluctuated.

The growth in domestic crude oil production presents a tremendous opportunity for the United States to move closer to energy independence. Railroads have been crucial to this effort.

Historically, pipelines have transported most crude oil. However, especially in North Dakota, higher crude oil production outpaced growth in pipeline capacity. Railroads helped fill this gap. Originated carloads of crude oil on U.S. Class I railroads surged from 9,500 in 2008 to 493,146 in 2014. They then fell sharply the next few years as new pipelines were built, but carloads rebounded somewhat in 2018 and 2019. Terminated carloads of crude oil on U.S. Class I railroads rose from 9,344 in 2008 to a peak of 540,383 in 2014 before falling sharply and then rising again, in part because of large volumes of crude oil originated in Canada and shipped by rail to refineries in the United States. (1)

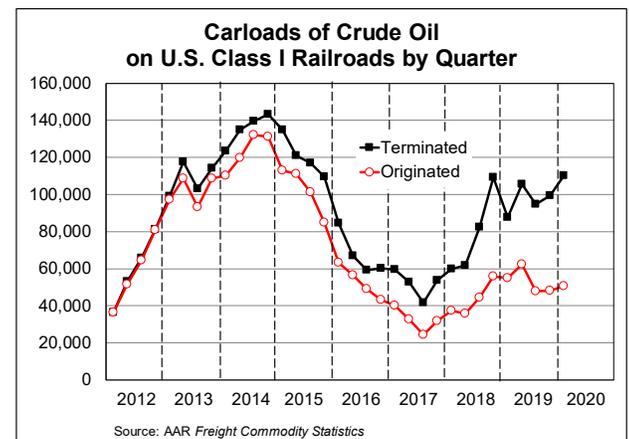
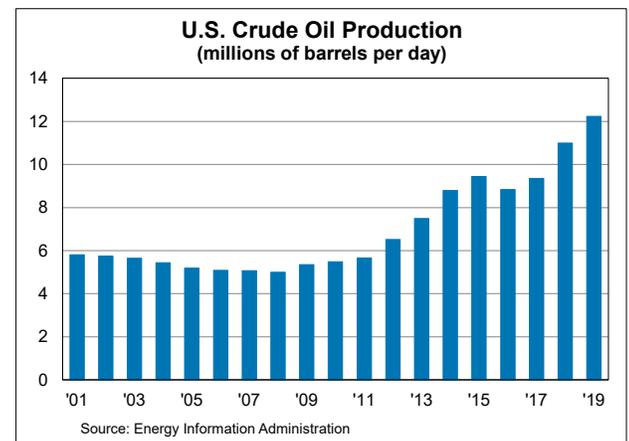
At its peak in 2014, crude oil accounted for 1.6% of total originated carloads and 1.7% of total terminated carloads. In 2019, crude oil's share was down to 0.8% for originations and 1.3% for terminations.

The amount of crude oil in a rail carload varies depending on (among other things) the source of the oil, the type of tank car used, and the season of the year. In 2019, the average carload of crude oil originated in the United States carried 678 barrels of oil. Using that, the 213,563 carloads of crude oil originated by U.S. Class I railroads in 2019 was equivalent to around 397,000 barrels per day.

According to data from the Energy Information Administration (EIA), U.S. crude oil production in 2019 averaged 12.2 million barrels per day, so the rail share was approximately 3.2% of total production. In 2014, the peak year for rail crude oil shipments, railroads accounted for around 11% of U.S. crude oil production.

Key Takeaways

- Railroads safely move crude oil, which is used to produce thousands of different products.
- In 2008, U.S. Class I railroads originated 9,500 carloads of crude oil. Thanks to the shale revolution, that grew to a peak of 493,146 carloads in 2014. Since then, rail carloads of crude oil have fluctuated.
- A variety of factors affect rail crude oil volumes, including pipeline capacity and crude oil prices.
- More than 99.99% of all hazmat moved by rail reaches its destination without a release caused by a train accident.



¹ "Originated" carloads are loaded carloads beginning a rail journey; "terminated" carloads are loaded carloads completing a rail journey. U.S. Class I originations do not equal U.S. Class I terminations because some crude oil that originates on U.S. Class I railroads is terminated by U.S. short line railroads or by railroads in Canada. Likewise, some crude oil that terminates on U.S. Class I railroads originates on railroads in Canada or on U.S. short line railroads.