

BAKKEN CRUDE

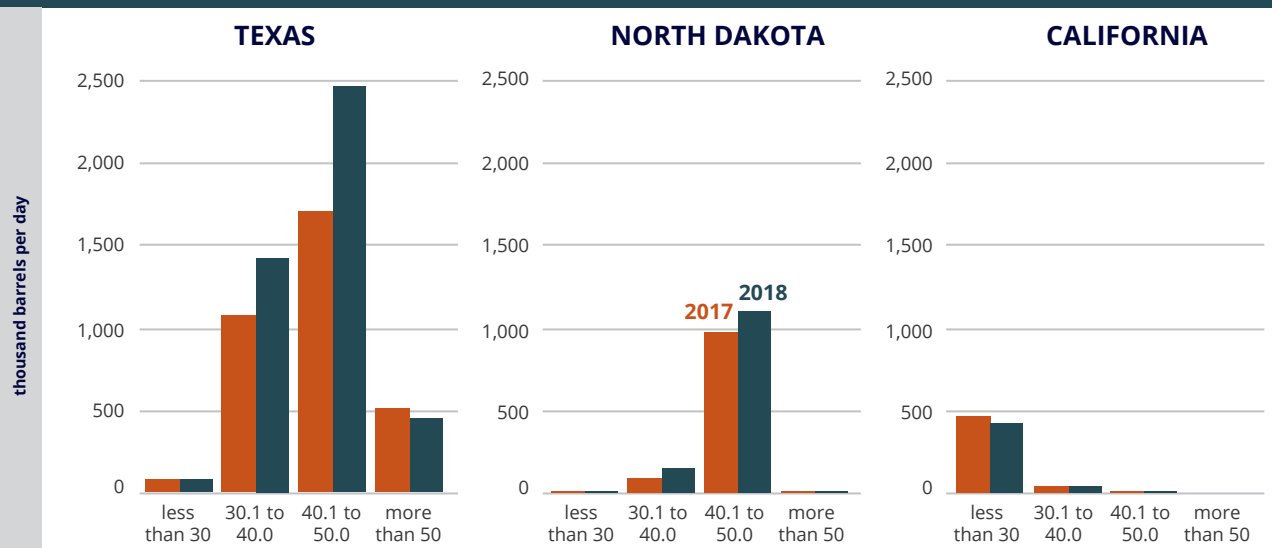
PROPERTIES REFINING & MORE

MEETING DEMAND

BAKKEN CRUDE IS NOT LIGHTER COMPARED TO DOMESTICALLY PRODUCED CRUDE OILS

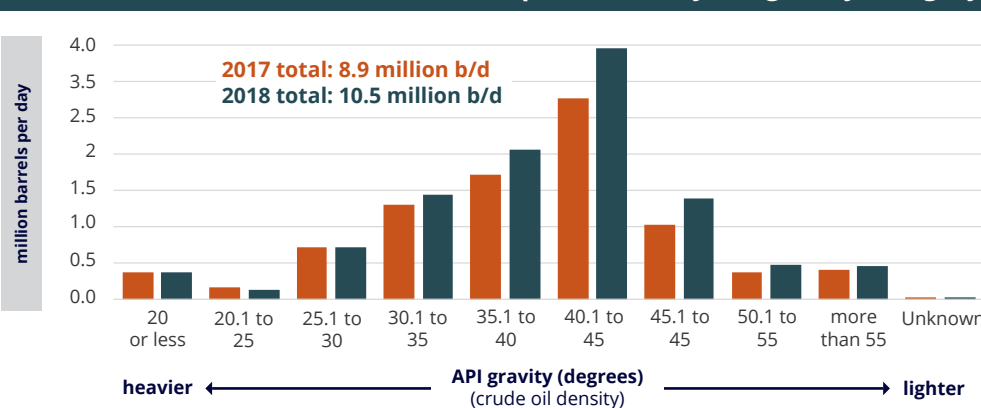
API Gravity is one of the key characteristics of that crude oil that, along with other characteristics such as sulfur content, is used by refiners when evaluating different crude streams for processing into petroleum products.

Selected States' crude oil production by API gravity category (2017 and 2018)



Source: U.S. Energy Information Administration, *Monthly Crude Oil and Natural Gas Production Report*

Lower 48 states distribution of oil production by API gravity category (2015 and 2016)

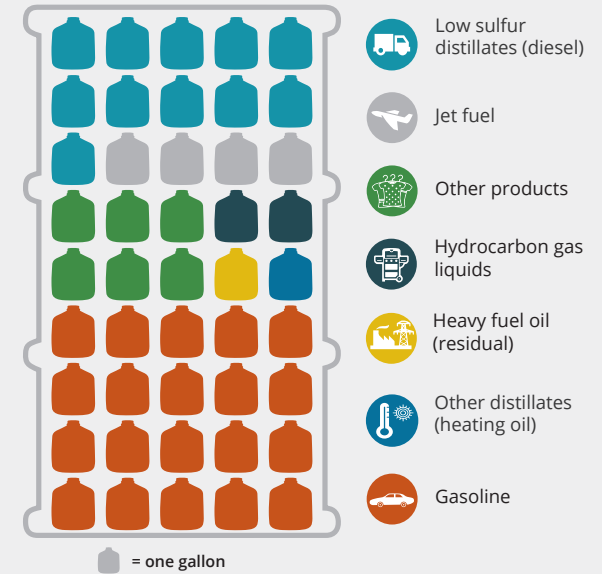


In 2018, more than half of the 10.5 million barrels per day (b/d) of crude oil produced in the Lower 48 states was light oil (or less dense) with an API gravity of 40.1 or above.

Source: U.S. Energy Information Administration, *Monthly Crude Oil and Natural Gas Production Report*

PETROLEUM PRODUCTS EXTEND BEYOND GASOLINE

A 42-gallon barrel of oil will yield 45 gallons of petroleum products through the refining process.



80.2% OF ENERGY COMES FROM FOSSIL FUELS

36.5%	Petroleum	<i>Transportation, manufacturing</i>
30.6%	Natural Gas	<i>Electricity, heating, manufacturing</i>
13.1%	Coal	<i>Electricity, manufacturing</i>
8.6%	Uranium	<i>Electricity</i>
5.1%	Biomass	<i>Electricity, heating, transportation</i>
2.7%	Hydro-power	<i>Electricity</i>
2.5%	Wind	<i>Electricity</i>
1.0%	Solar & other	<i>Light, heating, electricity</i>
0.2%	Geothermal	<i>Heating, electricity</i>

Source: U.S. Energy Information Administration, *What is Energy? Sources of energy*: <https://www.eia.gov/energyexplained/what-is-energy/sources-of-energy.php>.

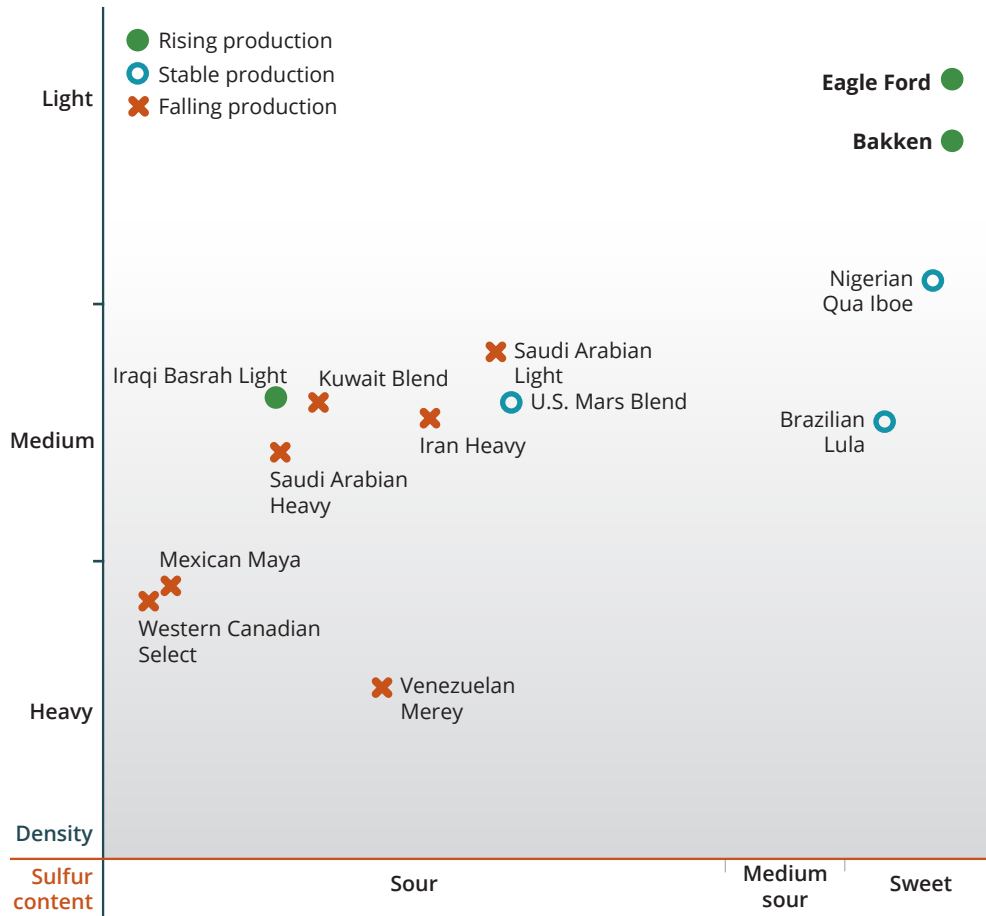
SUPERIOR QUALITY

LIGHT AND SWEET

BAKKEN CRUDE IS SUPERIOR QUALITY FOR REFINERS

Quality is measured by two key characteristics, API Gravity and sulfur content. Bakken has very low sulfur important for today's EPA mandated transportation fuels. In addition, Bakken Shale is helping meet demands and has played an integral role in strengthening our nation's energy security. Production of key heavy grades is in decline, while most of the growth is very light crude from shale.

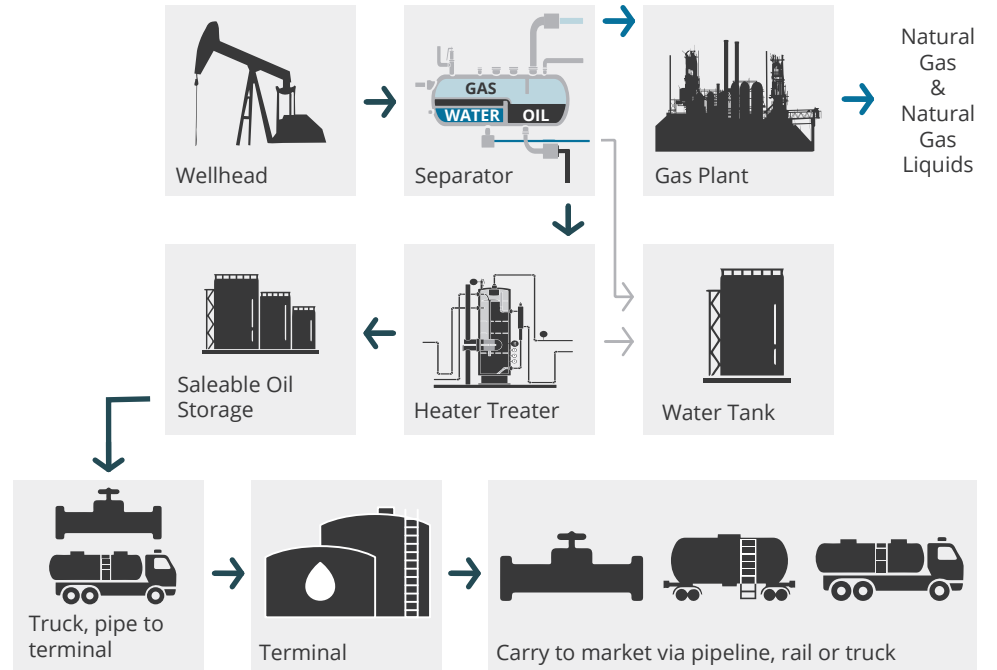
Not all alike



PREPARING FOR MARKET

CRUDE OIL UNDERGOES SIGNIFICANT CONDITIONING IN THE FIELD

The process of refining petroleum resources starts in the field with the conditioning process.



Getting to 9 psi means more trucks, more product pipelines and no added safety benefit.

To reach 9 psi, crude would undergo additional steps, including transport and treating which results in even more trucks, rail cars and pipelines needed to transport processed fuels at a cost of hundreds of millions of dollars.

