

PETROLEUM AT A GLANCE



Petroleum provided about 37 percent of all energy consumed in the United States in 2022.

WHAT IS PETROLEUM?

Petroleum is a fossil fuel. It is called a fossil fuel because it was formed from the remains of tiny sea plants and animals that died hundreds of millions of years ago, before dinosaurs lived. When the plants and animals died, they sank to the bottom of the oceans. They were buried by thousands of feet of sediment and sand that turned into rock. Over time, this organic mixture was subjected to enormous pressure and heat as the layers increased. The mixture changed chemically, breaking down into compounds made of hydrogen and carbon atoms—hydrocarbons. Finally, an oil-saturated rock—much like a wet household sponge—was formed.

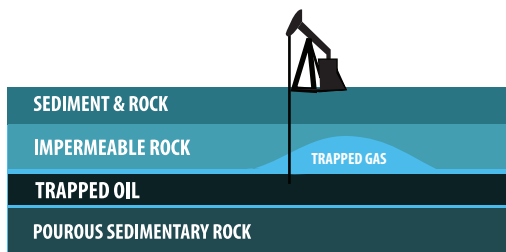
HOW PETROLEUM WAS FORMED



300 to 400 MILLION YEARS AGO



50 to 100 MILLION YEARS AGO



TODAY



FROM WELL TO MARKET

A typical petroleum reservoir is mostly sandstone or limestone in which oil is trapped. The oil in it may be as thin as gasoline or as thick as tar. It may be almost clear or black.

We cannot use crude oil exactly as it comes out of the ground. The process is a little more complicated than that. So, how does thick, black crude oil come out of the ground and eventually get into your car as a thin, amber-colored liquid called gasoline?

Oil's first stop after being pumped from a well is an oil refinery. A refinery is a plant where crude oil is processed. Sometimes, refineries are located near oil wells, but usually the crude oil has to be delivered to the refinery by ship, barge, pipeline, truck, or train.

After the crude oil has reached the refinery, huge round tanks store the oil until it is ready to be processed. Tank farms are sites with many storage tanks.

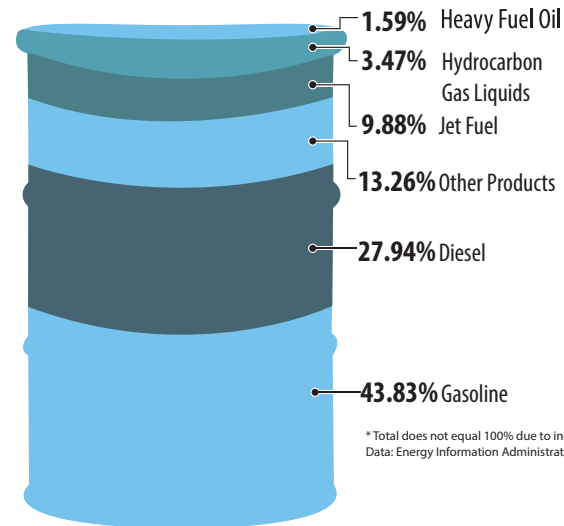
An oil refinery cleans and separates the crude oil into various fuels and by-products. The most important one is gasoline. Some other petroleum products are diesel fuel, heating oil, and jet fuel.

Refineries use many different methods to make these products. One method is a heating process called distillation. Since oil products have different boiling points, molecule sizes, and densities, the end products can be distilled, or separated. For example, asphalts have a higher boiling point than gasoline, allowing the two to be separated.

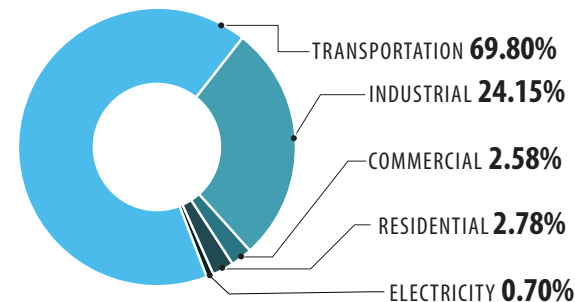
Refineries have another job. They remove contaminants from the oil. A refinery removes sulfur from gasoline, for example, to increase its efficiency and to reduce air pollution.

Not all of the crude oil sent to a refinery is turned into product. Up to ten percent of the energy in the crude oil is used to operate the refinery facility.

PRODUCTS PRODUCED FROM A BARREL OF OIL, 2023



PETROLEUM CONSUMPTION BY SECTOR, 2022



TOP PETROLEUM STATES



Data: Energy Information Administration