

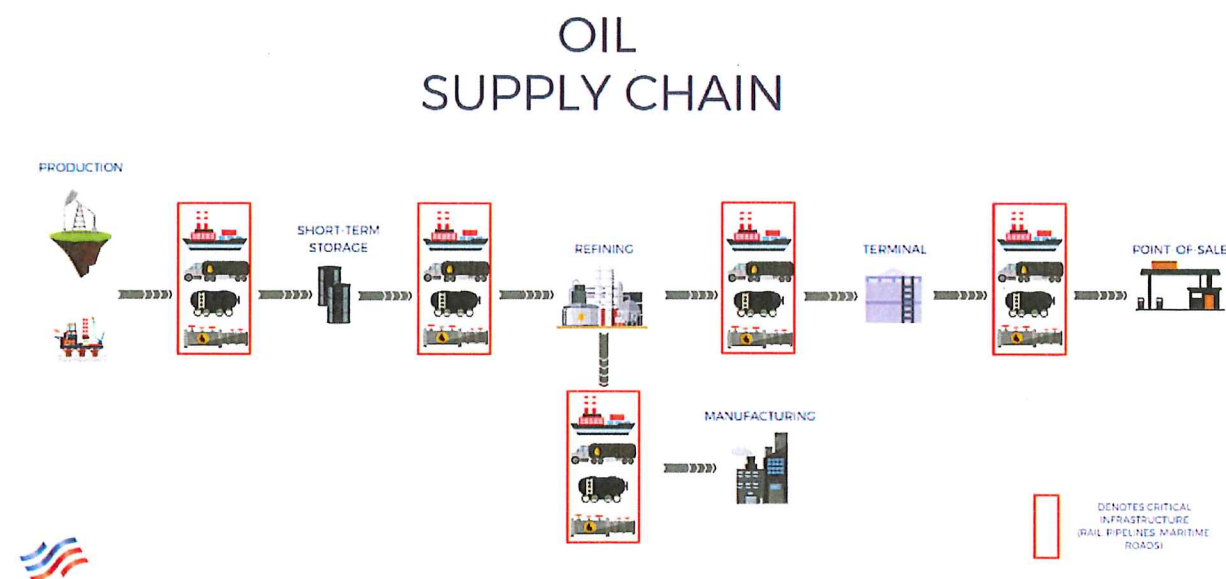
Introduction to the Fuel Industry

Oil is a major industry in the energy market and plays an influential role in the global economy as one of the world's primary fuel sources. The processes and systems involved in producing and distributing oil are highly complex, capital-intensive, and require state-of-the-art technology.

The diversity and complexity of these systems is often difficult to explain, particularly when incidents occur, and context is critical to effective decision making. The oil system models or descriptions in this document provide simple but relatable visual descriptions of these systems, their major components, and the critical customers and services which are dependent on this energy. Recognizing the critical components and their placement in the system provides the context to understand the consequences to what the industry refers to as upstream and downstream of an impacted component of the fuel supply system.

For a baseline understanding, the petroleum industry is often divided into three segments:

- upstream, the business of oil exploration and production;
- midstream, transportation and storage; and
- downstream, which includes refining and marketing.



While each of these areas has several independent companies, major oil companies are often considered integrated, meaning their businesses consist of a mix of upstream, midstream and downstream activities.

Upstream companies focus on exploration and production. Most crude oil production is controlled by National Oil Companies, which includes OPEC, or integrated international oil companies.ⁱ Kentucky has 52 counties with oil and natural gas production.ⁱⁱ

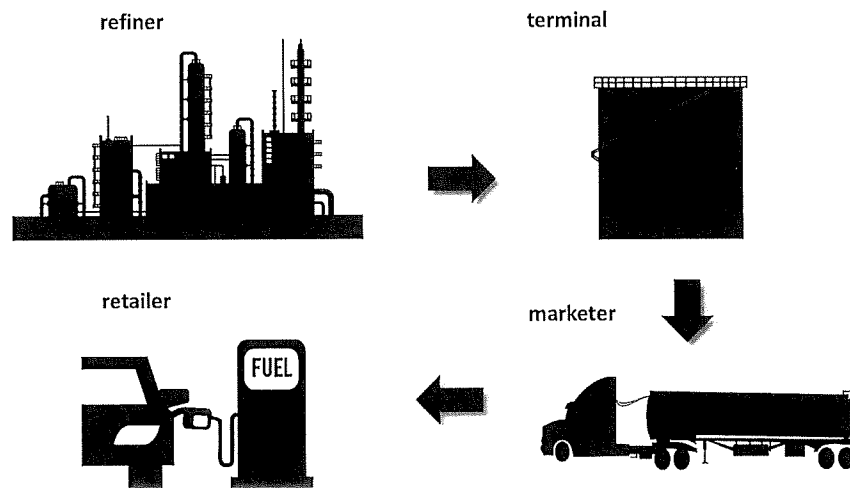
Midstream companies handle the transportation and storage of oil and gas. This segment is made up of many independent transportation operators.ⁱⁱⁱ Oil volumes are important to midstream companies because if upstream companies stop producing, midstream companies are not needed for transportation.^{iv} In Kentucky, these are represented by a variety of companies who manage oil and natural gas transportation.

Downstream companies manage the refining and marketing of oil. Downstream companies benefit when they can sell their refined products for more than the cost of acquiring the crude resources. Other metrics include the number and size of refineries.^v Most gasoline moves from refineries through pipelines to large storage terminals near consuming areas. From the storage terminals, gasoline is usually sent by truck to smaller blending terminals for processing into finished motor gasoline, which is then delivered by truck to gasoline fueling stations. In Kentucky,

there are multiple distribution terminals located principally in urban locations (Louisville, Lexington, Paducah, Owensboro, Catlettsburg, Covington, Henderson), one operating oil refinery that processes crude oil (Catlettsburg), one legacy refinery converting to biodiesel supply (Somerset), and multiple bulk plant facilities at marketer locations throughout the Commonwealth.

Petroleum marketing is the wholesale and retail distribution of refined petroleum products to business, industry, government, and public consumers. Generally crude oil and petroleum products flow to the markets that provide the highest value to the supplier, which usually means the nearest market first because of lower transportation cost and higher net revenue for the supplier. In practice, however, the trade flow may not follow this pattern due to other factors, such as refining configurations, product demand mix, and product quality specifications.

Nationally, petroleum marketers represent a vital link in the motor and heating fuels distribution chain. They own and operate approximately 60,000 retail motor fuel stations nationwide and supply heating fuel to more than 5 million homes and businesses. In Kentucky, there are approximately 2,300 wholesale distributors, fuel retailers and convenience stores across the state.



Petroleum marketers are the wholesale distributors who purchase refined products at the wholesale level and then transfer or resell the product at the retail level. The retail level sale/transfer can occur at facilities owned by the marketer, independent retailers, or commercial accounts. A petroleum marketer can be a pure wholesale distributor of fuel to a variety of retail outlets or a large fuel retailer with its own equipment for bulk fuel storage and distribution, or a company that does both.

Petroleum marketers typically supply petroleum fuel, specifically gasoline and diesel, and other refined products such as biofuels, heating fuel, jet fuel, racing fuel, lubricating oils, diesel exhaust fluid (DEF) and greases. Marketers distribute liquid fuels to their customers via tanker trucks – either company-owned trucks or contracted by a common carrier. Marketers principally purchase their products from refiners, but how and where can be very complex.

On the retail side, gasoline stations, convenience stores, truck stops, card locks and marinas – as supplied by the wholesale distributor (marketer) – handle the bulk of public consumer sales. Petroleum fuel is typically stored in underground storage tanks at the retail level, but also in above ground storage tanks depending on application and use.

ⁱ Morgan Downey, Oil 101 (Wooden Table Press, 2009), 62.

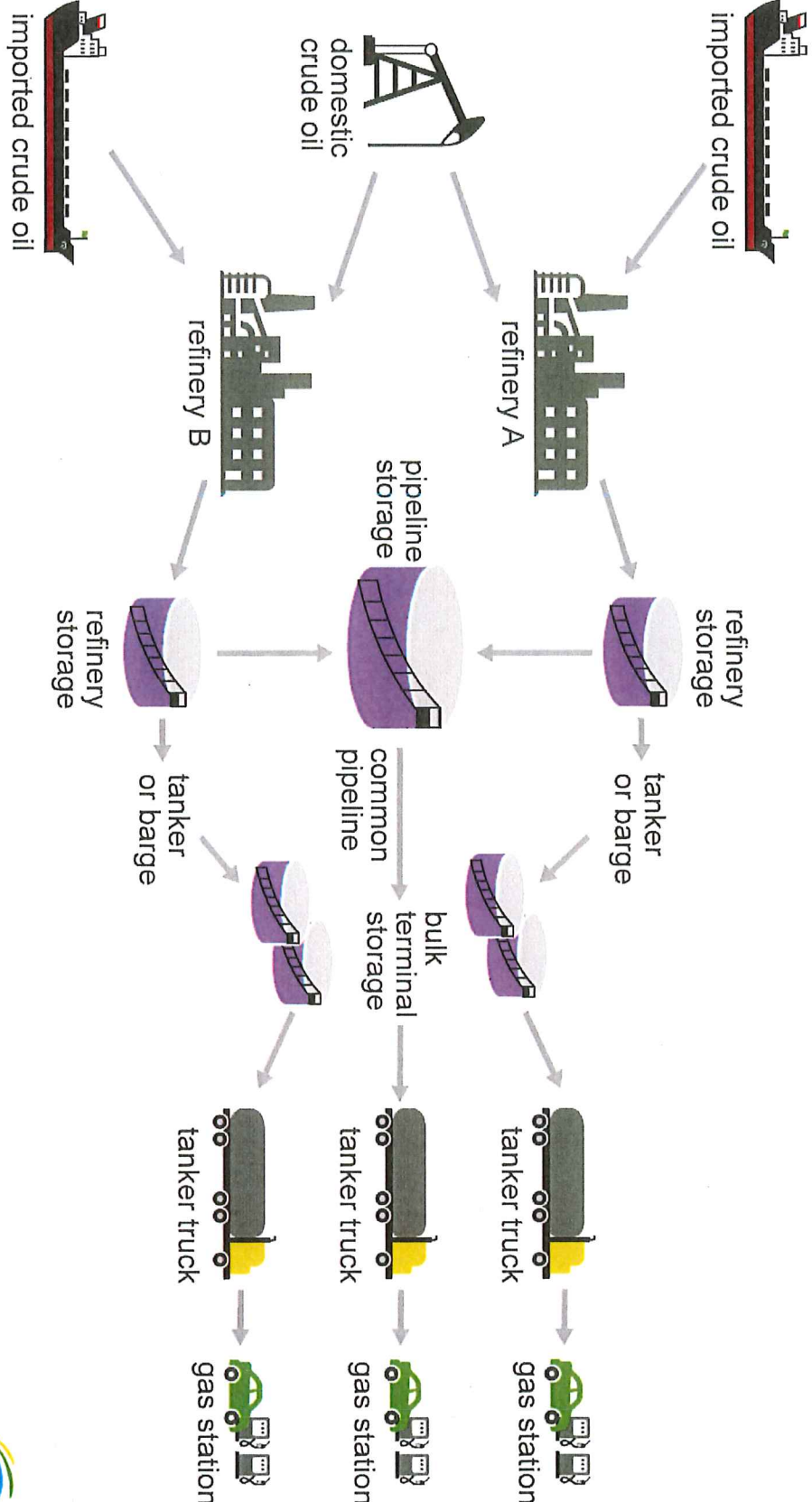
ⁱⁱ IPAA, 2015-2016 Oil & Gas Producing Industry in Your State, 66.

ⁱⁱⁱ Morgan Downey, Oil 101 (Wooden Table Press, 2009), 74.

^{iv} Stewart Glickman and Shang Yang Chuah, Midstream Oil & Gas Industry Surveys, (New York: CFRA, 2019).

^v Standard & Poor's, Key Credit Factors: Criteria for Rating the Global Oil Refining Industry [PDF] External (Standard & Poors Financial Services LLC, 2011).

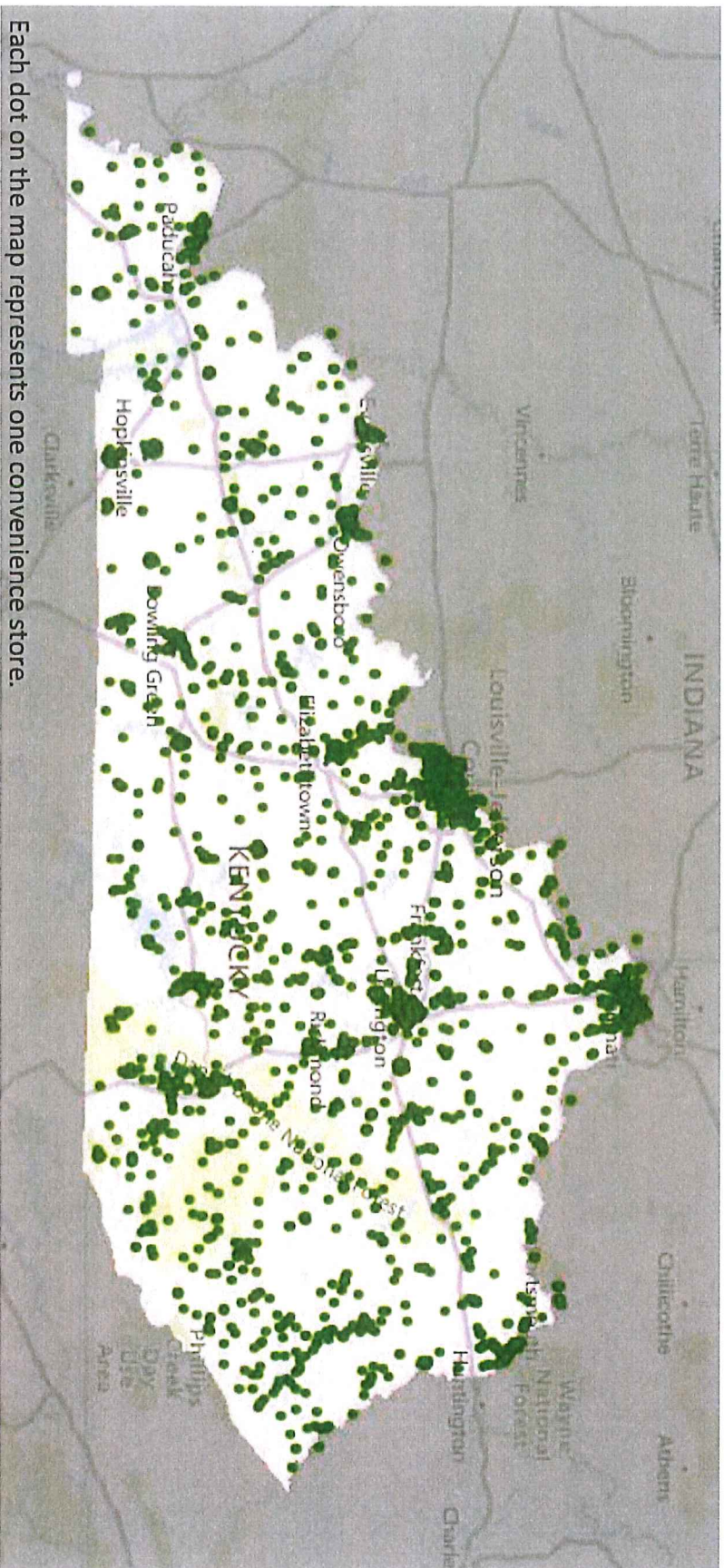
Flow of crude oil and gasoline to your local gas station



Source: U.S. Energy Information Administration



Businesses In Kentucky: Fuel Marketers and Retailers



Each dot on the map represents one convenience store.

Source: NACS State of the Industry Report of 2020 Data; Nielsen TDLinX Store Count (December 31, 2020)