ENERGY

UNDERSTANDING OUR OIL SUPPLY CHAIN
• Our goal is to raise the level of awareness around the oil supply chain among key stakeholders in order to facilitate positive working relationships and more informed decision making.

• We’ve built resiliency and rapid response capabilities into our supply chain to prevent incidents and to ensure that, if events occur, they produce the least possible impact.
Legend:
S.P.R.: Strategic Petroleum Reserve

RESOURCES: PEOPLE (HUMAN BEHAVIOR, SKILLED/TRAINED PERSONNEL) POWER (ELECTRICITY) WATER IT (TELECOM, CYBER, ACCESS CONTROL)
PRODUCTION

OVERVIEW

The first step in the oil supply chain is production. During production, crude oil is produced on both land and at sea. Oil production includes drilling, extraction, and recovery of oil from underground.

STATISTICS

- U.S. production reached more than 4 billion barrels annually in 2018.
- Crude oil production has increased since 2008, reversing a decline that began in 1986.
- From 5.0 million barrels per day in 2008, U.S. crude oil production doubled to nearly 11 million barrels per day in 2018.

KEY TAKEAWAY

Improvements in advanced crude oil production technologies continues to lift domestic supply. The growth results largely from a significant increase in onshore crude oil production, particularly from shale and other tight formations, which has been spurred by technological advances.
OVERVIEW

Short term storage serves as the staging area for crude distribution throughout the entire supply chain. Without storage facilities, the ability to adjust to supply and demand would be debilitated.

STATISTICS

- The U.S. has 700 million barrels of storage capacity at refineries.
- The U.S. has 1.2 million barrels of storage capacity at bulk terminals.
- Over 100 million barrels can be in storage in the product pipeline system, in rail cars and on the waterway system.

KEY TAKEAWAY

Underground moisture can corrode steel tanks. New fiberglass tanks and steel tanks lined with fiberglass or other durable coatings help prevent corrosion. The same high-tech coatings and linings also protect the Nation’s pipelines and above-ground storage tanks.
OVERVIEW

Ports of call represent the major entrance and exit points of crude oil prior to short term storage and, later, refining. Ports serve as central gathering facilities for entrance into the U.S.

Shipping channels are the most travelled and commonly used source to move foreign oil to domestic refineries. Large tankers contain thousands of barrels of crude oil to be refined into fuel and other by-products.

STATISTICS

- In 2018, the U.S. exported 731 million barrels of crude oil.
- In 2018, the U.S. imported 792 million barrels of petroleum products.
- Of the $4.2 trillion in total trade (which includes imports and exports), maritime transportation, including ports, is a large part of this, responsible for roughly $1.8 trillion.

KEY TAKEAWAY

One tanker can carry 320,000 barrels of gasoline. This is approximately the equivalent capacity of 12 tank barges, 552 rail cars, or 1,728 trucks, and would keep about 30,000 cars running for around a year.
Gathering pipelines are the main transportation modes for movement of crude oil into short term storage. Gathering pipelines travel shorter distances than long haul pipelines, varying in size, frequency, and flow levels.

Delivery lines act as a major transportation module of crude oil to the refining process. Delivery lines are smaller in diameter and travel shorter distances than gathering lines.

**STATISTICS**
- There are approximately 55,000 miles of crude oil trunk lines in the U.S.
- Pipelines move three-fourths of the oil and petroleum products transported annually.
- Replacing even a modest-sized pipeline, which might transport 150,000 barrels per day, would require 750 tanker truck loads per day, a load delivered every two minutes around the clock.

**KEY TAKEAWAY**
US pipelines deliver over 2.1 billion barrels of petroleum each year. (There are 42 gallons in a barrel.) About 52% of the petroleum transported by pipelines is crude oil and 48% is in the form of refined petroleum products.
OVERVIEW

Refineries act as the main transformation point for all crude oil into its various consumable products and are mainly located domestically. After receiving oil from storage facilities, refineries use various chemical separation and reaction processes to transform crude oil into usable products such as: fuel oil, diesel oil, jet fuel, and multiple essential manufacturing feedstocks.

STATISTICS

- 135 refineries in the United States
- In 2018, U.S. refineries produced over 3.6 billion barrels of finished motor gasoline.

KEY TAKEAWAY

Even though no new refineries have been built since the 1970s, industry advancements have vastly boosted refining capacity—adding the capacity of 20 average-size facilities to existing refineries.
Refined fuel that is ready for use is transported to terminals. Terminals are located closer to transportation hubs and are the final staging point for the refined fuel before the point of sale. After entering the terminal, ethanols and additives are added to the final refined product before fuel is transported.

**OVERVIEW**

**STATISTICS**
- Over 1300 petroleum product terminals in the U.S.

**KEY TAKEAWAY**
Terminals are owned by individual petroleum marketers, by common carrier pipeline/terminal companies or by integrated oil companies. As a result, fuels supplies that are available in excess of that needed to meet contractual obligations are treated as a surplus and sold at a discount. In a shortage, contractual needs are served first and there is little or no surplus. Hence, vendors who rely solely on the spot market may be unable to supply critical needs customers during a shortage.
OVERVIEW

Once the refined fuel leaves the terminal, it is transported to its final point of sale, which includes fuel stations and airports. The trucking, shipping and delivery lines provide the final finished product which can be delivered across the country.

STATISTICS

- America's 150,000 retail service stations, with the 120,000 convenience stores selling nearly 80% of gasoline.
- A typical gasoline station has a storage capacity of 30,000 to 40,000 gallons.

KEY TAKEAWAY

Major integrated oil companies only own about 3 percent of retail stations. A little known fact is that the vast majority of branded stations are owned and operated by independent retailers who are licensed to represent that brand.
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For more information on the visual depiction of this supply chain model, please contact:

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