**CRUDE OIL**

***Crude Oil Benchmarks*** used for pricing:

* Brent - Europe, Africa, and the Middle East
* WTI - North America
* Dubai - Middle East and Asia
* Urals - Russia and Europe

You have location, density, and sulfur content ( + maybe export destination look Iran) that determine the type of oil we deal with.

Prices you see are the near-month future prices, NOT the spot.

Prices of the many crude oil streams produced globally tend to move closely together, although there are persistent differentials between light-weight, low-sulfur (light-sweet) grades and heavier, higher-sulfur (heavy-sour) crudes that are lower in quality.

**SUPPLY**

Global Baseline Production: around 102.9 million bpd (barrels per day) for 2024.

**Mainly influenced by demand forecasts and political interests.**

*OPEC+ Contribution: ~ 40% of global oil production.* OPEC oil production is subject to central coordination.

*Non-OPEC Contribution: ~ 60% of global oil production.* Non-OPEC producers make independent decisions about oil production.

*2025 Average Baseline Oil Production for Top Producers (forecasts):*

1. United States: 13.54 million bpd

2. Russia: 10.1 million bpd

3. Saudi Arabia: 8.97 million bpd

4. Canada: ~4.7 million bpd

5. Iraq: 4.3 million bpd

**Capacity**

EIA defines spare capacity as the volume of production that can be brought on within 30 days and sustained for at least 90 days.

OPEC spare capacity provides an indicator of the world oil market's ability to respond to potential crises that reduce oil supplies. As a result, oil prices tend to incorporate a rising risk premium when OPEC spare capacity reaches low levels. Low spare capacity limits OPEC's ability to respond to demand and price increases, while high spare capacity indicates a withholding of production presumably for price management purposes.

Producers in non-OPEC countries generally respond to market prices rather than attempt to influence prices by managing production. As a result, non-OPEC producers tend to produce at or near full capacity and so have little spare capacity.

**DEMAND**

In short, the consumers create the demand for the byproducts. This, in turn, has a MAJOR impact on the demand of refineries for crude oil.

Countries relying on manufacturing (energy-intensive) consume more crude oil. These are non-OECD countries (e.g., China, India, Saudi Arabia, Indonesia, Brazil).

The number of refineries matters, as well as their capacity, storage, compatible crudes, and transport. They then decide their demand based on the forecasted demand for the byproducts they sell.

The forecasted demand for the byproducts is mainly influenced by the forecasted economic growth. Then you have population growth, urbanization (more), weather (seasonal demand), transition to electricity, policies/regulations, and anything that affects a consumer’s pocket (taxes, interest rate).

*Overall demand by byproduct (take crude oil = 100%):*

1. **Gasoline (26.8%)**
2. **Diesel (23.6%)**
3. **Petrochemicals (19.1%)**
4. **Jet Fuel (7.9%)**
5. **Heating Oil (5.4%)**
6. **Marine Fuel (4.7%)**
7. **Fuel Oil (4-5%)**
8. **Liquefied Petroleum Gas (3.6%)**
9. **Lubricants (3.4%)**
10. **Asphalt + Coke (2-3%)**

A supplier’s demand is subject to sanctions, supply chain problems caused by conflicts, and its efficiency in doing its business, from refining to storing to shipping. So process efficiency and product efficiency improvements change the demand, but this is likely private information.

***Refinery:***

- Capacity = how many barrels per day of a product can it produce

- Input used = the type(s) of crude oil used

- Efficiency/Technology = hydroskimming, cracking, coking

- Yield on Products (%)

- Utilization rate

- Efficiency and reach of the distribution system (pipelines, shipping, rail).

**Freight:**

By Tankers - approximately 60-70% (second cheapest)

By Pipelines - approximately 20-30% (cheapest)

By Railways - approximately 5-10% (3rd)

By Trucks - approximately 1-5% (4th)

When I look at a port, I care about:

When I look at storage, I care about:

**BALANCE/INVENTORIES (DEMAND – SUPPLY)**

Balance is the difference between demand and supply. Strategic reserves/inventories are used to offset supply shortages, similar to what Biden did, but are also used to offset demand surplus by adding oil to the reserves.

Because inventories can satisfy either current or future demand, their level is sensitive to the relationship between the current price of oil and expectations of future prices.

If market expectations indicate a change toward relatively stronger future demand or lower future supply, prices for futures contracts will tend to increase, encouraging inventory builds to satisfy the otherwise tightening future balance.

On the other hand, a sharp loss of current production or unexpected increase in current consumption will tend to push up spot prices relative to futures prices and encourage inventory draw downs to meet the current demand.

If futures prices rise relative to the current spot level, incentives to store oil (and wait to sell at the higher expected price) will strengthen. Conversely, if market participants notice an increase in crude oil storage, this increase can indicate that current production surpasses current consumption at the prevailing price. Spot prices will likely drop to rebalance demand and supply. This balancing between current and future prices and between supply and demand through inventories is one of the main connections between financial market participants and commercial companies with a physical interest in oil, both of whom engage in futures trading.

In addition, oil is often stored on ships at sea. The lack of complete information on inventories creates additional uncertainty in oil markets, which can also influence oil prices.

Inventory statistics offered by U.S. Energy Information Administration and Organization of Economic Cooperation and Development (OECD). Another source could be IEA (Int Energy agency).

**Concepts:**

*In Contango, the spot price < price agreed on a future contract (typically 6 months*).

*Backwardation* is the flip side (i.e. spot > the agreed upon price on the future contract (think 6 months case you mainly care about rolling over).

Contango happens more often the backwardation. There is a carry cost difference between the spot and the future, but you also factor in supply and demand at different time points.

*Rolling over* involves closing a position in a near-term futures contract and simultaneously opening a new position in a longer-term contract. This is often done to maintain exposure to the underlying asset without taking delivery.

One measure of activity in futures markets is *open interest* on exchanges, which indicates the number of contracts in a trading session (daily/quarterly…) that have not been settled or closed.