Oil: From Underground to Plastic

Oil is a mineral oil composed essentially of hydrocarbons, an assembly of hydrogen and carbon molecules. It results from the decomposition and transformation, over tens to hundreds of millions of years, of marine organisms (plankton, plants, animals) buried under sediments. The formation of oil is estimated to take between 20 and 350 million years.

1. From Antiquity to the Modern Era: A Millennial Resource

Natural forms of oil (bitumen) were used from Antiquity: for waterproofing, construction, lighting, military uses (Greek fire), and distillation for lamps appears in medieval texts.

The industrial shift occurred in 1859, when Edwin Drake drilled the first commercially productive well in Titusville (Pennsylvania); this event is considered the start of the modern oil industry.

2. From Rock to Refinery: The Oil Journey

Main stages of the exploitation chain:

- Exploration: geological and seismic studies.
- Drilling: vertical/horizontal wells to reach reservoirs.
- Extraction: natural pressure or assisted techniques (water injection, gas lift, steam, hydraulic fracturing for unconventional reservoirs).
- Transport: pipelines, ships, lorries, trains.
- Refining: transformation into fuels (petrol, diesel), petrochemical products and plastics.

With the relative depletion of 'easy' deposits, the industry is resorting to more costly techniques: oil sands (Canada), deep offshore, horizontal drilling and fracking (shale).

3. The Role of Oil in the World Economy (Usage Distribution)

The uses of oil remain very diverse; recent estimates indicate that the transport sector accounts for the majority of oil consumption (around 60–62%), with road transport representing the largest share within transport. Furthermore, chemicals/petrochemicals (plastic products, etc.) have been the main driver of demand growth in recent years.

Examples of allocation (order of magnitude):

- Transport (road, aviation, marine): ~60–62% of final oil consumption.
- Petrochemicals & plastics (feedstock): significant share of recent demand growth (contributes strongly to the increase in volumetric demand).
- Agriculture (derived fertilisers, uses) + various industries: residual but non-negligible share.

4. Major Global Producers (Observed Data - 2025)

The values below are orders of magnitude established by public databases (monthly/annual 2025 values, rounded):

United States
~13.8 M b/d (Sept. 2025 monthly/annual data).

Saudi Arabia
~10.0 M b/d (Oct. 2025).

Russia
~9.8 M b/d (2025 average).

Canada
~5.1 M b/d.

China
~4.3 M b/d.

Iraq
~4.0 M b/d.

Brazil
~3.9 M b/d.

UAE
~3.3 M b/d.

Iran
~3.2 M b/d.

Kuwait
~2.5 M b/d.

5. OPEC+: Role and Influence

OPEC+ brings together 22 countries (the 12 OPEC members and 10 partners, including Russia) and coordinates production measures: cuts, increases, or quota mechanisms to stabilise the market and limit volatility. According to the IEA, OPEC+ represents nearly half of the world's oil supply in 2025.

In 2025, the group adopted new mechanisms (annual audit of capacities / "maximum sustainable capacity") and has, according to recent meetings, maintained or adjusted supply levels (between limited increases and pauses), which has a direct effect on Brent and WTI prices.

6. Recent Market Situation (2025 Highlights)

- Spot prices: over the autumn-early December 2025 period, crude oil traded around ~58–62 $/barrel depending on the benchmark (WTI around 58–60 $/b and Brent around 61–66 $/b depending on the day).
- Geopolitical tensions: conflicts (notably Ukraine-Russia and regional incidents) and sanctions contributed to maintaining risk premiums on prices in 2025.
- Disruption of Caspian exports: a drone attack damaged facilities at the Caspian Pipeline Consortium (CPC) terminal in late November 2025; export capacity was temporarily reduced, forcing Kazakhstan to redirect some volumes (e.g., transfers to China via Atasu-Alashankou / BTC in the immediate term). These events created temporary supply pressures.
- Immediate outlook: several analyses (Trafigura, IEA, analytical firms) warn of a possible glut in 2026 if supply continues to increase faster than demand, a factor likely to increase volatility and weigh on prices.

Conclusion (Impacts & Vigilance Points)

Oil remains an industrial and strategic pillar: it primarily fuels transport and provides essential inputs for petrochemicals/plastics.

Elements to monitor for an institutional investor/reader:

- OPEC+ decisions (quotas, new capacity mechanisms)
- Logistical disruptions (attacks, infrastructure failures, accidents)
  - Example: CPC / Caspian terminal in Nov. 2025
- Supply/demand dynamics 2025 → 2026 (glut risk)
- Energy transition & substitution (EVs, efficiency) reducing road demand growth, but petrochemicals still supporting demand.

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