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Oil Energy Profile: The Long Farewell

Oil will remain the world's top energy source for decades to come, but an imminent decline in oil production could send prices soaring. What sounds like a dream come true for climate activists - the slow end of the Oil Age - could be a time wrought with tensions.



A man rinses soot from his face at the scene of a gas pipeline explosion in Nigeria. Despite the country's large oil reserves, most of Nigeria's population suffers from fuel shortages. People therefore tap into pipelines that cross the country, looking for fuel for resale or cooking (Photo: Reuters)

Investors in 2030 might look back on today and think we had it easy. "The 100-dollar barrel of oil," one might recall. "Those were the good old days." For the time being, however, oil is still cheap enough to remain the fuel of choice for most of the world's ever-growing fleets of cars, trucks, ships, and airplanes.

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Worldwide Importance and Future Trends

Oil accounts for around 35 percent of global primary energy consumption, making it the biggest single energy source in the world. The world consumes about 83 million barrels of oil every day, two-thirds of which is used in transportation fuels. According to most forecasts, oil will remain the top global energy source for the next few decades, even with the ongoing development of natural gas, nuclear, and renewable resources. The US Department of Energy predicts that global consumption will increase to 118 million barrels a day by the year 2030 – a surge driven by consumption in rapidly developing nations like China and India.

Along with consumption, costs of exploring and extracting new oil reserves are also increasing. Although oil resources are not expected to run out completely, conventional oil production is expected to peak and then decline sometime in the next few decades. This could initiate the shift to "unconventional" oil resources, such as oil shale, sedimentary rocks containing hydrocarbons, and oil sands. The oil sands in the Canadian north contain an estimated 1.3 trillion barrels of heavy crude

oil, but the costs of extracting it are several times higher than conventional oil production in the Middle East.



Venezuelan oil workers take part in celebrations at a refinery complex as the state-run oil company PDVSA takes control of oil fields in the Orinoco Belt. Venezuela stripped the world's biggest oil companies of operational control over the region's massive crude projects (photo: Reuters)

Global Resources and Producers

Various estimates put proved crude oil reserves at somewhere between 1.2 and 1.3 trillion barrels. The vast majority of these reserves are in the Middle East, though there have been major discoveries in the Gulf of Mexico and off the coast of Brazil.

The top producing countries are Saudi Arabia (514 million tons), Russia (480), the United States (311), Iran (209), China (183), and Mexico (183). Huge resources exist also in Kuwait, Iraq, Venezuela, Nigeria, and Libya. The twelve countries that make up the Organization of Petroleum Exporting Countries (OPEC) – a cartel of oil-producing nations, including Saudi Arabia and Iran - represents 41 percent of oil production and around 76 percent of oil reserves.

Environmental Impact and Drawbacks

Global dependence on oil for energy and transportation fuels is a primary driver of carbon dioxide emissions, the most important greenhouse gas. Of the 3.5 billion tons of greenhouse gases that the global transportation sector emits each year, most come from petroleum-fueled automobiles, trucks, ships, and airplanes. Oil spills kill wildlife, destroy habitats, and contaminate water.

The environmental impacts of extracting oil from the Canadian tar sands may be quite high. Not only does the process emit more greenhouse gas emissions than conventional oil extraction, but it also requires massive amounts of water, which is taken from rivers that sustain local species and human communities.

Major industrialized countries are largely dependent on oil. According to the World Energy Council, a transition to a period of declining oil production threatens to be "an age of great economic and geopolitical tensions." This is because the cost of oil affects everything from travel, heating, agriculture, trade, and consumer goods.

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