

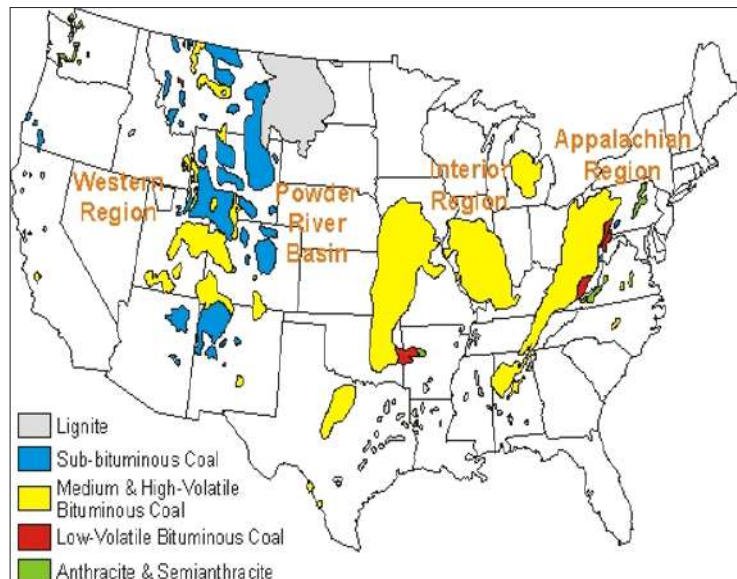
ENERGY RESOURCES

Coal Resources of World

- More than 90% of the world's total proved coal reserves are located in just ten countries.
- The US tops the list holding more than one-fifth of the total proven coal reserves.
- China, which ranks third, is the biggest producer and consumer of coal.

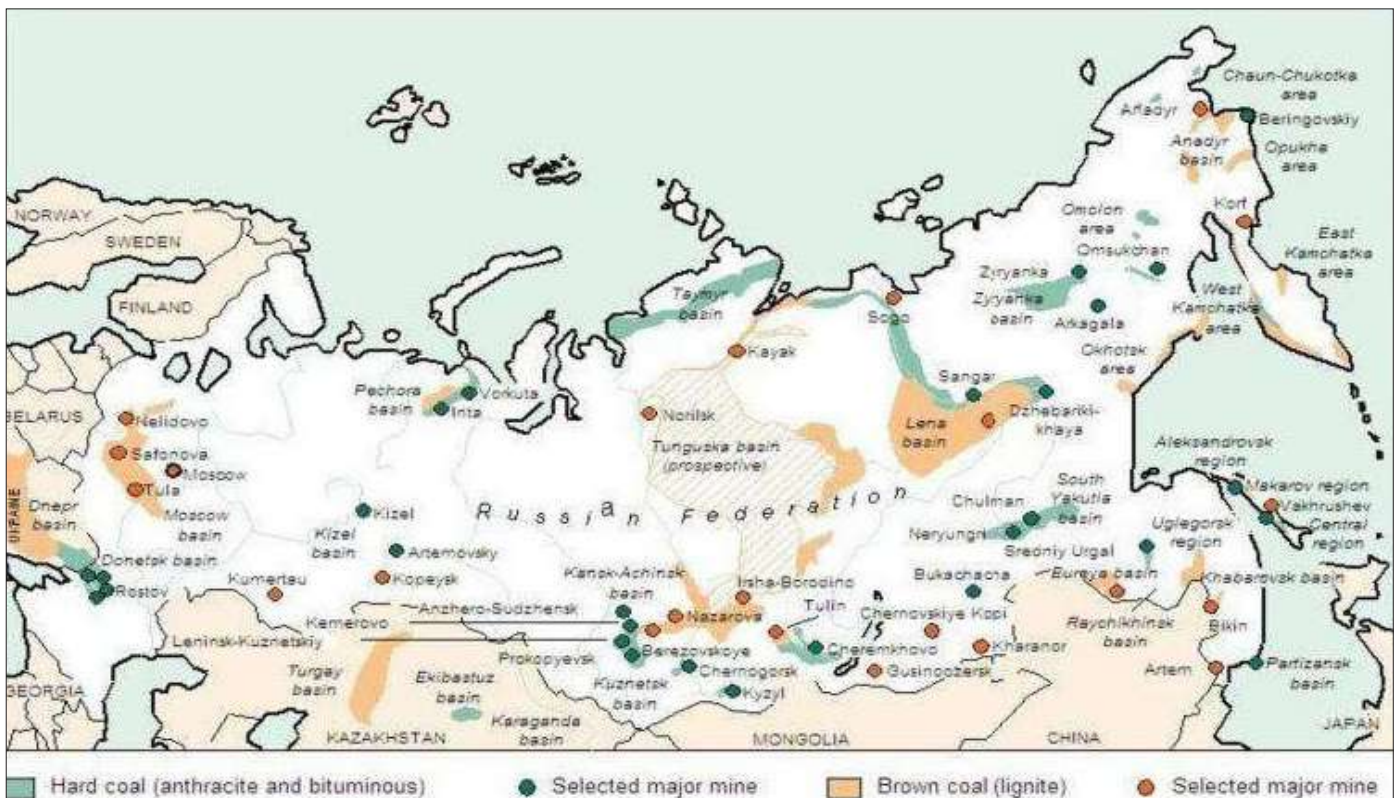
Major Coal Reserves of World

- **The United States** holds the world's biggest coal reserves. (Around 250 bn tonnes; **24% of world reserves**, 2019 data).
- widely **distributed geographically** with Montana, **Wyoming**, Illinois, West Virginia, Kentucky, and Pennsylvania hosting more than three-fourth of the total reserves.
- The **North Antelope Rochelle coal mine** in the **Powder River Basin** of Wyoming is the **world's biggest coal mine by reserves**.



Major Coal Reserves of World

- The **Russian Federation's** proven coal reserves as of December 2018 accounted for **15.2% of the world's total**. (Around 160 bn tonnes)



- Russia's **major deposits include** the **Donetskii** reserves in Moscow, the **Pechora basins** in Western Russia, and the **Kuznetski**, Kansk-Achinsk, **Irkutsk**, and **South Yakutsk** basins in Eastern Russia.
- More than two-third of the coal produced in Russia is hard coal, with **Pechora and Kuznetsk basins** being the principal hard coal deposits.

Ukraine – 34.37 billion tonnes

- Ukraine's share in the world's total proved coal reserves is 3.3%. Most of
- the country's coal reserves are located in **Donets Basin in Eastern Ukraine**. Kazakhstan has approximately 2.4% of the world's total proved coal reserves in three provinces including Karaganda Oblast in Central Kazakhstan and the Pavlodar and **Kostanay Oblasts** in North Kazakhstan.

Coal Resource

Coal – Leading Coal Producing Countries of the World

Country	Percentage of total Production 2019
China	47
India	10
USA	8.1
Indonesia	7.8
Australia	7

Coal – Leading Consumers in the World (IEA, 2019)

Country	Percentage Of total Production
China	53
India	10.8
USA	7.3
EU	5.5
Japan	3



Australia – 147.4 billion tonnes

- Australia's proven coal reserves of 147.4Bt (2018 estimate) account for approximately **14% of the total proven coal reserves in the world**. The country's black coal reserves are mostly concentrated in **New South Wales and Queensland**, which together account for more than 95% of Australia's black coal output.

China – 138.8 billion tonnes

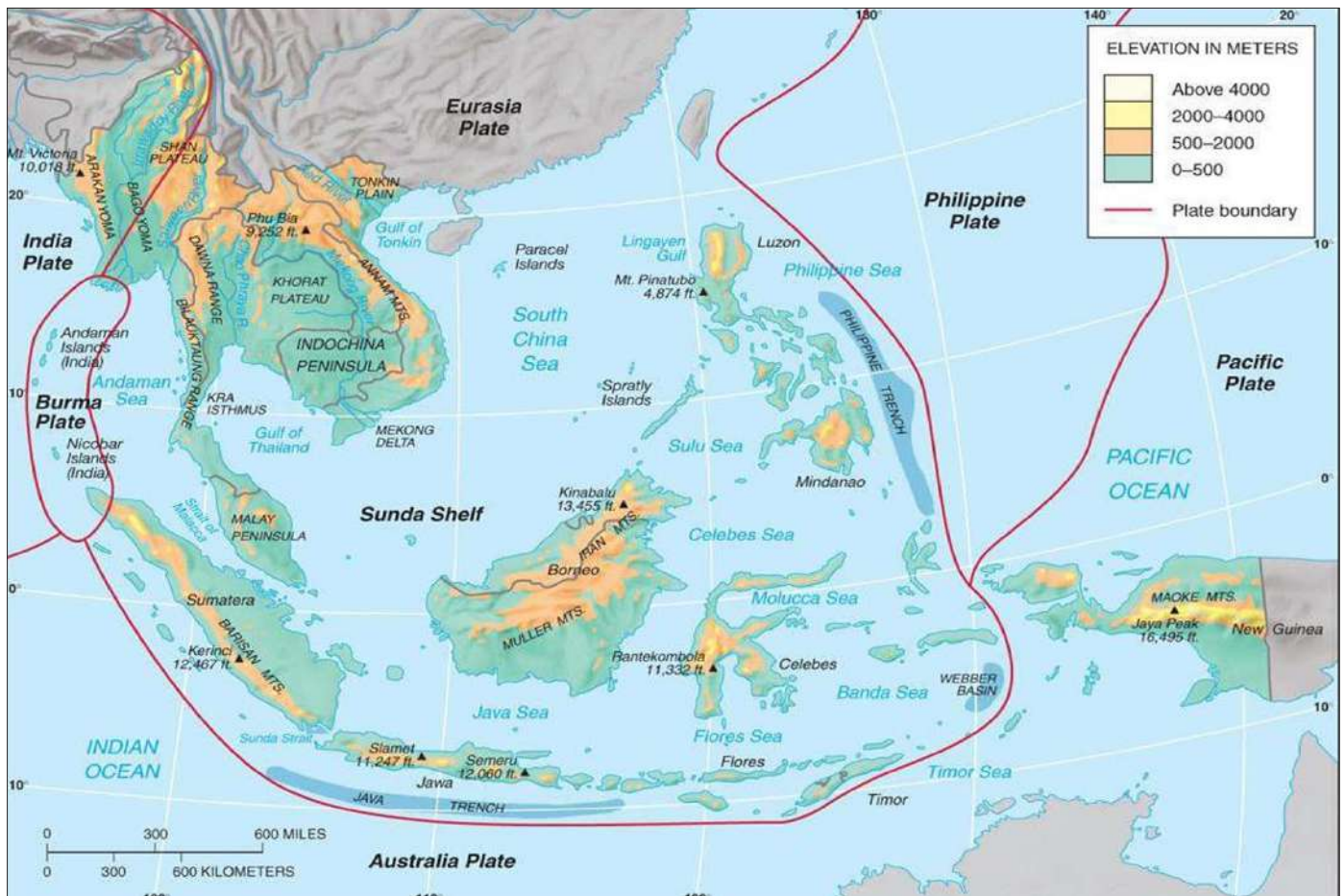
- China's proven coal reserves constitute **13% of the world's total**. More than 70% of China's proved recoverable coal reserves are located in the **north and north-west** parts of the country.
- **Shanxi** and the **Inner Mongolia provinces** host a major chunk of accessible coal reserves in the country.
- **China is also the world's biggest producer and consumer of coal**. It produced 3.55Bt of coal (46.7% of the world's total coal production), while its coal consumption accounted for more than 50% of the world's total in 2018.

India – 101.3 billion tonnes

Germany – 36.1 billion tonnes

- Holding the **biggest coal reserves in Europe**, Germany hosts **3.4% of the world's total proved coal reserves**.
- The **Ruhr Coal Basin in the North Rhine-Westphalia state** and the **Saar Basin** in the south-west Germany account for more than 75% of the country's hard coal production.

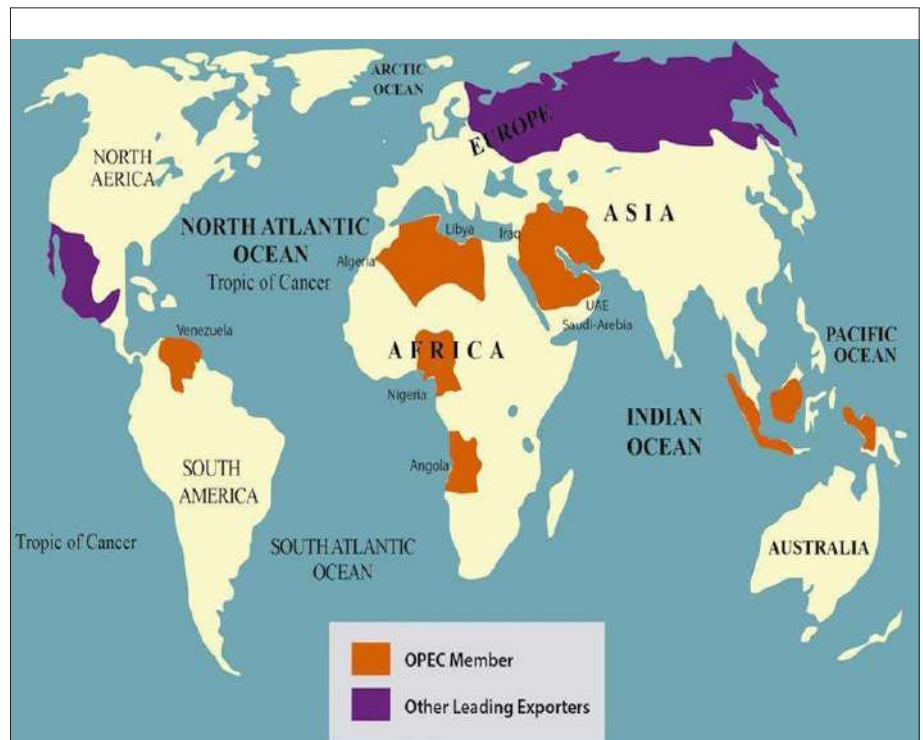




Petroleum Resources

Crude Oil

- Oil is a natural resource formed by the decay of organic matter over millions of years.
- Crude oil is the world's main source of fuel and largest overall source of primary energy. In 2020, the world used approximately 88.6 million barrels per day of oil, which amounted to 30.1% of the world's primary energy.
- Crude oil creates gasoline, jet fuel, diesel, asphalt, tar, and lubrication oils.
- The United States is the world's foremost producer of oil, as well as the world's largest consumer of oil.



Leading Oil-producing countries (OPEC and OPEC+)

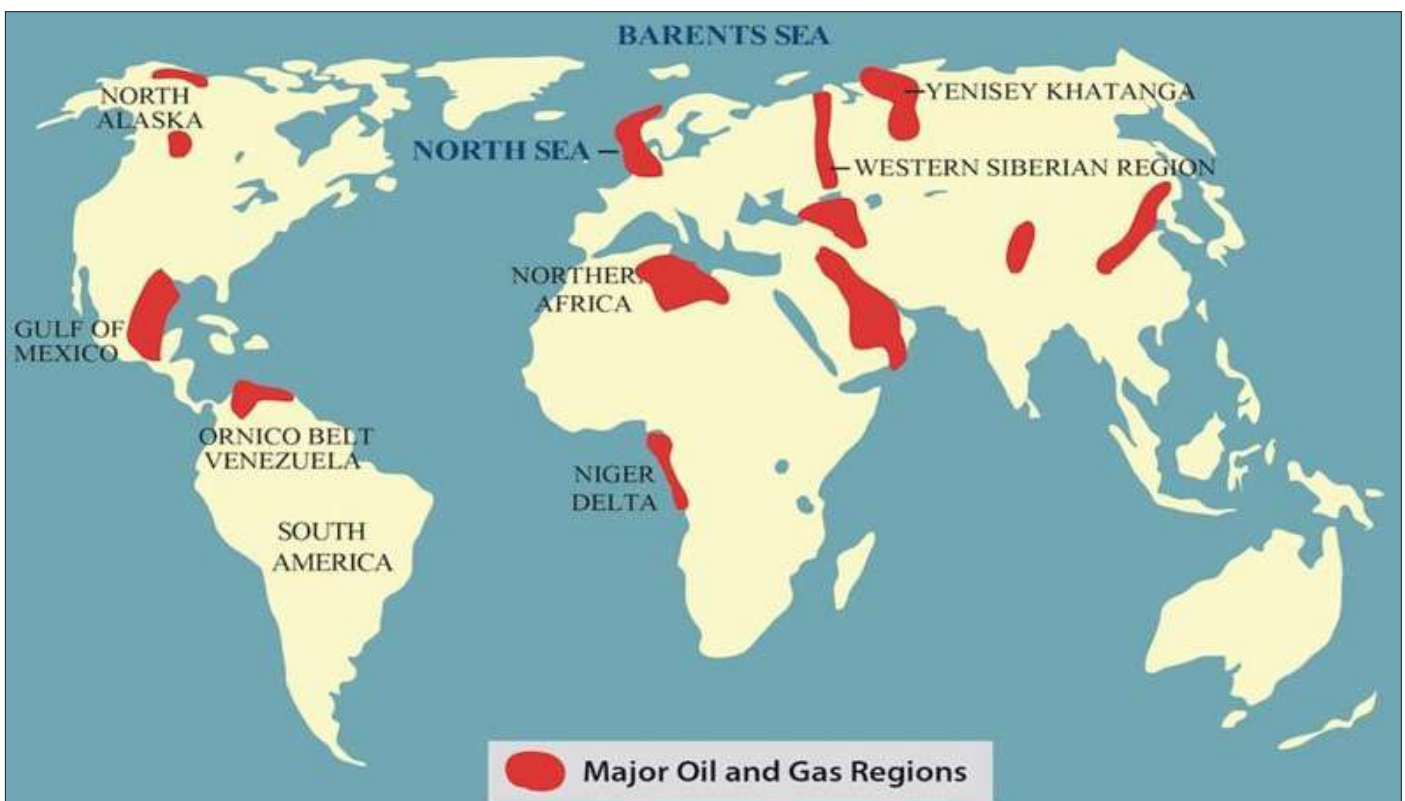
Top 10 Countries with the Largest Oil Reserves (in thousand million barrels)

Rank	Country	Reserves	% of World Total
1.	Venezuela	303.8	17.5%
2.	Saudi Arabia	297.1	17.2%
3.	Canada	168.1	9.7%
4.	Iran	157.8	9.1%
5.	Iraq	145.0	8.4%
6.	Russia	107.5	6.2%
7.	Kuwait	101.5	5.9%
8.	United Arab Emirates	97.8	5.6%
9.	United States	68.8	4.0%
10	Libya	48.4	2.8%

Oil Resource

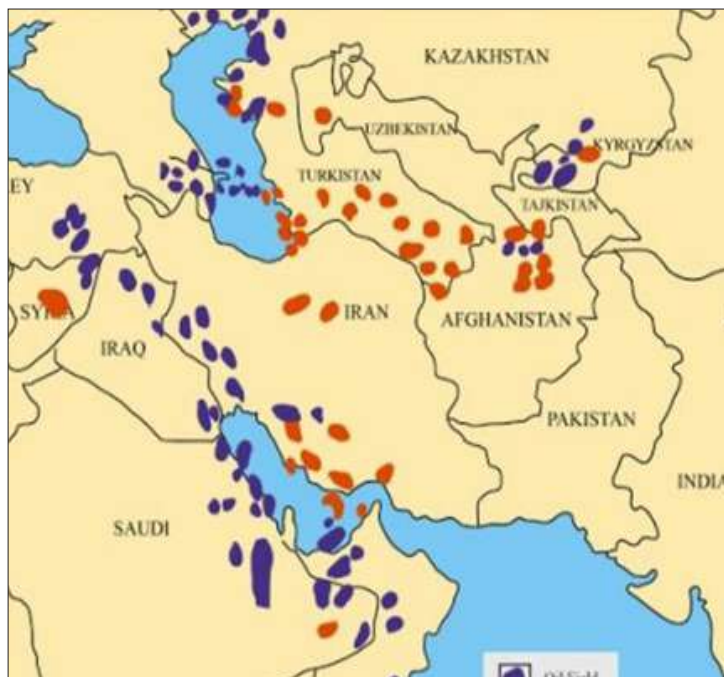
PETROLEUM – Leading Petroleum Producing Countries of the World

Country	Percentage of total Production 2019
United States	18
Saudi Arabia	12.4
Russia	12
Canada	6
Iraq	5



Top 6 Petroleum Reserves

- Despite **Venezuela's** massive supply of natural resources, the country still struggles
- economically. Although Venezuela has the most oil reserves in the **world (nearly 18% of global reserves)**, most of its oil is offshore or far underground and is considered to be dense.
- There are 266.2 billion barrels worth of oil in **Saudi Arabia (nearly 15% of global**
- reserves), by far the most of any OPEC nation and the second most of any country in the world.
- The second largest country in the world by landmass, **Canada** controls the equivalent of 168.9 billion barrels of **oil (nearly 10% of global reserves)**, the most of any country in North American and the third most of any country in the world.
- A founding member of OPEC, **Iran** is one of only four countries in the world that controls **over 150 billion barrels of oil (nearly 9% of global reserves)**.
- **Iraq** is sitting on the equivalent of 148.8 billion barrels of proven oil reserves, or nearly **9%** of the known global oil supply. **Iraq is heavily dependent on oil revenue**, more so than most of its OPEC partners.
- **Russian Federation** : Proven oil reserves: 106.2 billion barrels (6.3% of world total)



Natural Gas Resources

- A handful of countries dominate the world's largest reserves of natural gas.
- It is used mostly in heating and electricity generation, having grown in popularity over recent years as a cleaner-burning fossil fuel than coal, and a cheaper alternative to oil.
- It accounts for around 23% of the world's primary energy demand.
- In the context of the low-carbon energy transition, natural gas is often discussed as a "transitional fuel" that can bridge the gap between more carbon-intensive fossil fuels – coal and oil – and renewable technologies that are gathering momentum but not yet deployed at a scale that can meet overall energy demand.

Natural Gas Resource

Leading Natural Gas Producing Countries of the World

Country	Percentage of total Production 2019
United States	23
Russia	17
Iran	6
Qatar	4.5

Leading Natural Gas Consuming Countries of the World

Country	Percentage of total Consumption 2019
United States	21
EU	12
Russia	11
China	7.8

Top 6 Petroleum Reserves

1. Russia – Russia is home to the world's largest natural gas reserves, with a total proved resource of 38 trillion cubic metre (That is equivalent to around 19% of the world's total reserves.)
2. Iran – Iran accounts for around 16% of the world's share of natural gas resources, with an overall reserve of 32 tcm. Iran shares ownership of the world's largest gasfield – South Pars/North Dome – with neighbouring Qatar. The field is located offshore in the Persian Gulf.
3. Qatar – Qatar has proven natural gas reserves of 24.7 tcm, which is slightly more than 12% of the global total.
4. Turkmenistan – The Central Asian country of Turkmenistan has the fourth-largest natural gas reserves in the world, totalling 19.5 tcm . That is equivalent to a 9.8% share of the of the overall global resource. (located in large fields in the Amu Darya basin in the southeast, the Murgab Basin in the south, and the South Caspian basin in the western part of the country.)
5. United States – The US holds a 6.5% share of global natural gas reserves, with proven resources of 12.9 tcm. Texas and Pennsylvania are the two highest-producing regions in the country.