



Energy and Development

Global Energy Scene

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The Impact of the Covid-19

- **Global GDP fell by 3.5% in 2020**
- **Primary Energy consumption fell by 4.5% the largest decline since 1945**
- **Carbon Emissions fell by 6.3% to the lowest level since 2011, the largest decline since 1945**
- **The total Global Investment on Energy dropped by around 30%**

The Collapse of Demand for Oil due to Pandemic and Lockdown

- **The 2020 pandemic crisis was worse than Suez Canal crisis in 1956
Oil Embargo of 1973
Iranian Revolution of 1979
Fukushima Nuclear Disaster in Japan**
- **Global Oil consumption fell by 9.3%
price of oil dropped to \$20 per barrel in April and averaged \$41.8 in 2020, the lowest since 2004 and 35% below 2019.**

Natural Gas, Coal and Nuclear Energy Declines were also Significant

- Natural Gas Consumption dropped by 2.3% but the share of Natural Gas in primary Energy demand reached record 24.7%
The price of gas in US averaged \$1.99 for the year lowest since 1995 and Asian LNG price hit \$4.4 per million BTU
- **Coal Consumption dropped by 4.2% and OECD Coal Consumption was the lowest since 1965.**
- Nuclear energy was dropped by 4.1% mostly in France

Renewables Grow despite the Pandemic in 2020

- Renewable Energy Grow by 9.7% slower than the average 13.4% of the last ten years
- **Solar energy growth was 20% contributed most to this growth**
- Hydroelectricity Grow by 1% led by China
- The share of renewables in power generation increased from 10.3% to 11.7%
- **Coal's share fell 1.3 percentage points to 35.1%.**

The Future of Energy Trends

- Two major forces that have contributed to recent changes and can impact policies in 2021-2025 are
Climate Change
Pandemics
- These together will contribute to change the pattern of future Consumption and Investment in Energy

The Impact of UN Climate Change policies and Pandemics on energy

- **Moving towards zero Carbon Emission leads to reduce demand for Hydrocarbons**
- Lockdowns and change of habit of movement for work travelling and holidays
- Coal and Oil will be the first to be impacted
- Natural Gas will be less effected
- **Renewables will replace Coal & Oil in production of Electricity**

The Dilemma facing the world Energy Industry

- **Climate Change policies forces the reduction of use and investment in hydrocarbons**
- **The renewables, despite their healthy growth, have a long way to replace the energy needs of most countries.**
- **If the world economic growth is back to normal oil and gas will still have a big share of the primary energy for many years to come**

Where are the world oil and Gas Reserves Located

- **2/3 of the world oil Reserves are situated in 9 Countries; (Venezuela, Saudi Arabia, Canada, Iran, Iraq, Kazakhstan, Kuwait, UAE and US)**
- **70% of the world gas reserves are also in 9 countries; (Russia, Iran, Qatar, Turkmenistan, US, Saudi Arabia, UAE and Nigeria)**

Source: British Petroleum Review of World Energy Statistics June 2021

Countries with more than 300 billion barrels of Oil & Gas Reserves (**CLUB of 300**)

FOUR countries are in this CLUB

Combined Oil and Gas Reserves in Billion barrels of oil equivalent

- | | |
|----------------------|-----|
| ○ Iran | 347 |
| ○ Venezuela | 341 |
| ○ Saudi Arabia | 333 |
| ○ Russian Federation | 328 |
- (Based on heat value, 170 Cubic Meters of Natural Gas equals to one Barrel of Oil)

Source: British Petroleum Review of World Energy Statistics June 2021

Which countries produce most of the oil and gas around the world

- Nearly **68%** of the world oil production is in 9 countries;
(US, Saudi Arabia, Russia, Canada, Iraq, UAE, Iran, Brazil and Kuwait)
- **More than 67% of world gas production is in 9 countries**
(US, Russia, Iran, China, Qatar, Canada, Australia, Saudi Arabia and Norway)

Source: British Petroleum Review of World Energy Statistics June 2021

Future Investments in Hydrocarbons

- Social and Political pressure on major investors to stop investing in Coal business and reduce investment on oil has been on since 2015 Climate Change Summit.
- Collapse of Demand and prices for oil due to Covid-19 have stopped most of the planned investments on oil with the cost of production of over \$40 per barrel
- There has been no investment for oil development in Venezuela Iraq and Iran with in over one third of the world oil reserves

Short Term Shortage of Oil Supply

- Oil fields production decline around the world is more than 5 percent yearly. In 2019 world oil production was 95Mb/d. In 2025 we need to compensate for around 30Mb/d of last production. But there are not enough investment committed to compensate for this loss.
- **As the economic growth post covid began in 2021, we are witnessing shortages and price of oil and gas has more than dabbled from average prices of 2020.**

US World Position in Oil Reserves and Production compared to Venezuela & Iran

	Percent of the World	
	US	Iran and Venezuela
Reserves	4%	26.6%
Production	18.6%	4.1%

US with 4% of the world oil reserves Produces 18.6% of the world oil production

Iran and Venezuela together with 26.6% of the world reserves (6.6 times US reserves) produces 4.1% of the world oil (less than one fourth of the US)

Source: British Petroleum Review of World Energy Statistics June 2021

US World Position in Gas Reserves and Production compared to Qatar & Iran

	Percent of the World	
	US	Iran and Qatar
Reserves	6.7%	30.2%
Production	23.7%	10.9%

US with 6.7% of the world gas reserves Produces 23.7% of the world gas

US with 6.7% of the world Gas reserves (nearly one 22% of Qatar and Iran's gas reserves) produces 23.7% of the world gas (more than 2 times production of Qatar and Iran)

Source: British Petroleum Review of World Energy Statistics June 2021

The imbalance will be gradually adjusted in the coming years

- The countries with large oil and gas reserves and cheaper cost of production will increase their share of oil production. Venezuela and Iran due to sanctions with 27% of the world reserves of oil has not been able to attract any investment in oil and gas sector.
- **If lack of investment in oil and gas continues, price increases are going to be with us soon.**
- **Low oil prices will slow down the development of the renewable energy and moving away from oil.**

Conclusion

- **Covid-19 in addition to Climate Change Policies have changed the Supply and Demand pattern of Energy in the past two years.**
- **The uncertainty of the future demand and prices of oil has curtailed investment in oil and gas industry worldwide.**
- **Unless a prudent global policy on investment for energy is formed, the future of world economic growth and the success of controlling climate change will face difficulty.**
- **Political considerations, sanctions and imbalance between production from different regions have contributed to high and volatile price of oil and will hinder smooth transition from hydrocarbons to renewable form of energy in future.**



Thank You

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