

In 2021, the global economy witnessed a significant recovery from the slow-down experienced during the COVID-19 outbreak in 2020. However, the emergence of new COVID-19 variants in the second and fourth quarters of 2021 posed serious challenges. Fortunately, improvements in the economic situation of major economies like China and the U.S., along with the increased global oil demand, led to a rise in crude oil prices. On average, the price of crude oil per barrel was 63.0 to 73.0 percent higher than that in the previous year. An analysis of monthly and seasonal crude oil prices reveals a consistent upward trend throughout 2021. The average prices for WTI, Iran Medium, and Brent Dtd crude oil rose by 72.8, 69.9 and 69.8 percent, respectively, reaching highs of \$68.0, \$68.7, and \$70.6 per barrel. Arab Light and the OPEC reference basket were traded at \$70.5 and \$69.7 per barrel, up by about 68.5 percent compared with respective prices in 2020.

Based on the Energy Institute Statistical Review of World Energy published in 2023, total world primary energy¹ consumption amounted to 597.4 exajoules (EJ) in 2021, indicating an increase of 5.5 percent compared with the year before. Of the mentioned amount, 35.8 EJ was consumed by the OPEC member countries and 561.6 EJ was used by non-OPEC countries. Iran's primary

energy consumption amounted to 12.1 EJ in 2021, indicating a decrease of 0.5 percent compared with 2020. The main primary energies consumed by Iran include oil and natural gas, while other energies are consumed only sparingly. Furthermore, global oil production² amounted to 90.1 mb/d in 2021, indicating an increase of 1.6 percent compared with 2020. Oil production by the OPEC member countries, accounting for 35.2 percent of global oil production, increased by 2.7 percent compared with the year before, to 31.7 mb/d in 2021. Moreover, global oil consumption³ increased by 5.9 percent compared with 2020 to reach 94.4 mb/d⁴. The Energy Institute did not release figures on the volume of the proved reserves of oil for 2021, in its Statistical Review of World Energy published in 2023.

It is important to note that global natural gas production increased by 5.0 percent compared with 2020, to reach 4,053.4 billion cubic meters in 2021. Meanwhile, global natural gas consumption rose by 5.4 percent compared with the year before, to 4,067.1 billion cubic meters in 2021.

¹ Includes oil, natural gas, coal, hydroelectricity, nuclear energy, and renewables.

² Includes crude oil, shale oil, oil sands, condensates, and Natural Gas Liquids (NGLs).

³ Inland demand plus international aviation and marine bunkers and refinery fuel and loss. Consumption of bio-gasoline (such as ethanol) and biodiesel are excluded, while derivatives of coal and natural gas are included.

⁴ Based on OPEC Monthly Oil Market Report released in July 2022, total "world oil demand" and "liquids production" were respectively 96.92 and 95.22 mb/d in 2021, not matching the Energy Institute's figures on global oil consumption and production.

Figure 4.1. Shares of Major Producers in Total Global Oil Production in 2021

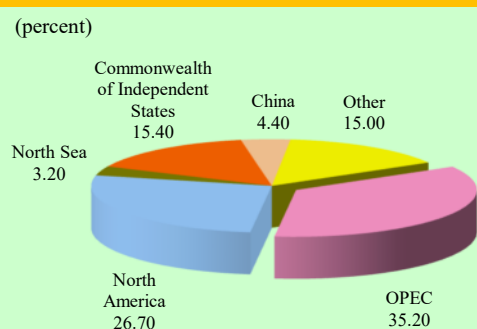
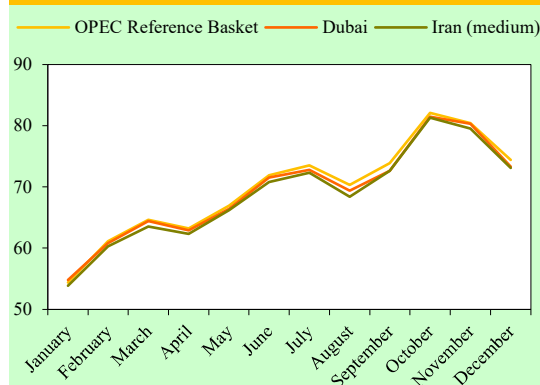


Figure 4.2. Average Spot Crude Prices during 2021



4.1. OPEC

4.1.1. Primary Energy Consumption

Primary energy consumption by OPEC members amounted to 35.88 exajoules (EJ) in 2021. Oil and natural gas are consumed by OPEC member countries largely while others are used sparingly, with the lowest consumption related to the nuclear energy and renewables. Middle East members (Saudi

Arabia, Iran, Iraq, Kuwait, and the UAE) consumed 31.15 EJ, higher than the other members (Venezuela and Algeria). Iran, with 12.1 EJ, and Saudi Arabia, with 10.76 EJ, ranked first and second among the Middle East members, respectively, in terms of primary energy consumption.

Table 4.1. OPEC Primary Energy Consumption in 2021 by Fuel¹

(Exajoules)

	Oil	Natural gas	Coal	Nuclear energy	Hydroelectricity	Renewables	Total
Middle East	14.10	16.50	0.20	0.10	0.10	0.10	31.15
Saudi Arabia	6.62	4.12	*	..	..	*	10.76
Iran	3.33	8.51	0.10	*	0.1	*	12.10
Iraq	1.44	0.61	..	..	*	*	2.08
Kuwait	0.78	0.71	*	..	..	*	1.50
United Arab Emirates	1.91	2.55	0.10	0.10	..	0.10	4.71
Other members²	1.30	2.73	*	..	0.70	*	4.73
Total³	15.40	19.23	0.20	0.10	0.80	0.10	35.88

Source: Energy Institute Statistical Review of World Energy 2023

¹Excludes Nigeria, Libya, Gabon, Equatorial Guinea, the Republic of Congo, and Angola.

²Includes Venezuela and Algeria.

³Components may not sum to total because of rounding.

4.1.2. Proved Reserves of Oil

The Energy Institute did not release any figures on the volume of proved reserves of oil located in OPEC member countries at

end-2021. Table 4.2. contains data on proved reserves of oil at the end of the years 2019 and 2020.

Table 4.2. OPEC Proved Reserves of Oil

(billion barrels)

	Year-end			Percentage change		Share (percent)	
	2019	2020	2021	2020	2021	2020	2021
Middle East	799.7	799.6	..	*	..	65.8	..
Saudi Arabia	297.6	297.5	..	*	..	24.5	..
Iran	157.8	157.8	..	0.0	..	13.0	..
Iraq	145.0	145.0	..	0.0	..	11.9	..
Kuwait	101.5	101.5	..	0.0	..	8.4	..
United Arab Emirates	97.8	97.8	..	0.0	..	8.1	..
Other members¹	415.0	415.0	..	0.0	..	34.2	..
Venezuela	303.8	303.8	..	0.0	..	25.0	..
Total²	1,214.7	1,214.7	..	0.0	..	100.0	..

Source: BP Statistical Review of World Energy 2021 and 2022. ¹ Includes Nigeria, Libya, Algeria, Angola, Gabon, Equatorial Guinea, and the Republic of Congo. ² Components may not sum to total because of rounding.

4.1.3. Oil Production

In 2021, the average OPEC oil production increased by 2.7 percent to reach 31.7 mb/d. This equaled a rise by 0.8 million b/d. Production by the Middle East members, with an increase of 1.5 percent (0.4 million b/d) compared with the year before, totaled 25.1 mb/d. Production by other OPEC members increased by 7.3 percent compared with 2020, to reach 6.7 mb/d in 2021. The highest amount of production was related to Saudi Arabia with 11.0 mb/d, accounting for 34.5 percent of total OPEC oil production.

Figure 4.3. Shares of OPEC Members in Total OPEC Oil Production in 2021

(percent)

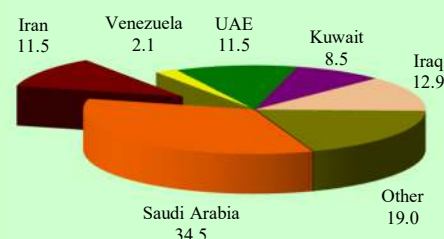


Table 4.3. OPEC Oil Production¹

(million b/d)

				Percentage change		Share (percent)	
	2019	2020	2021	2020	2021	2020	2021
Middle East	27.0	24.7	25.1	-8.5	1.5	79.8	78.9
Saudi Arabia	11.8	11.0	11.0	-6.7	-0.8	35.7	34.5
Iran	3.4	3.1	3.7	-8.4	17.1	10.1	11.5
Iraq	4.8	4.1	4.1	-13.9	-0.3	13.3	12.9
Kuwait	3.0	2.7	2.7	-8.6	-0.7	8.8	8.5
United Arab Emirates	4.0	3.7	3.6	-7.6	-1.1	11.9	11.5
Other members²	8.0	6.2	6.7	-21.8	7.3	20.2	21.1
Total³	35.0	30.9	31.7	-11.6	2.7	100.0	100.0

Source: Energy Institute Statistical Review of World Energy 2023. ¹ Includes crude oil, shale oil, oil sands, condensates (lease condensate or gas condensates that require further refining), and Natural Gas Liquids (NGLs). ² Includes Venezuela, Nigeria, Libya, Algeria, Angola, Gabon, Equatorial Guinea, and the Republic of Congo. ³ Components may not sum to total because of rounding.

4.1.4. Oil Consumption

The consumption of oil by OPEC members¹ rose by 5.3 percent compared with 2020, to reach 8.1 mb/d in 2021. The highest amount of consumption by 3.6 mb/d was related to Saudi Arabia. Venezuela, with 226.3 thousand barrels a day, accounted for the lowest consumption. Iran's consumption totaled 1.7 mb/d, constituting a share of 21.5 percent of total.

4.1.5. Proved Reserves of Natural Gas

In 2021, the Energy Institute released no data on the proved reserves of natural gas located in OPEC member states. Based on BP data, these reserves reached 64.7 trillion cubic meters at end-2020, down by 3.0 percent compared with end-2019. Iran and Saudi Arabia, with 32.1 trillion and 6.0 trillion cubic meters, were the holders of the largest reserves among member countries.

Table 4.4. OPEC Oil Consumption¹

(million b/d)

	2019	2020	2021	Percentage change		Share (percent)	
				2020	2021	2020	2021
Middle East	7.6	7.1	7.5	-6.5	5.1	92.3	92.2
Saudi Arabia	3.6	3.4	3.6	-5.4	4.8	44.8	44.6
Iran	1.8	1.7	1.7	-4.5	2.1	22.1	21.5
Iraq	0.8	0.6	0.7	-17.7	12.5	8.1	8.7
Kuwait	0.5	0.4	0.4	-6.0	-0.6	5.5	5.2
United Arab Emirates	1.0	0.9	1.0	-5.8	9.5	11.8	12.2
Other members²	0.8	0.6	0.6	-23.6	7.4	7.7	7.8
Total^{3, 4}	8.4	7.7	8.1	-8.1	5.3	100.0	100.0

Source: Energy Institute Statistical Review of World Energy 2023

¹ Inland demand plus international aviation and marine bunkers and refinery fuel and loss. Consumption of biogasoline (such as ethanol) and biodiesel are excluded, while derivatives of coal and natural gas are included.

² Includes Venezuela and Algeria.

³ Excludes Nigeria, Libya, Angola, Gabon, Equatorial Guinea, and the Republic of Congo.

⁴ Components may not sum to total because of rounding.

Table 4.5. OPEC Proved Reserves of Natural Gas

(trillion cubic meters)

	Year-end			Percentage change		Share (percent)	
	2019	2020	2021	2020	2021	2020	2021
Middle East	49.2	49.3	..	0.1	..	76.1	..
Saudi Arabia	6.0	6.0	..	0.6	..	9.3	..
Iran	32.1	32.1	..	0.0	..	49.6	..
Iraq	3.5	3.5	..	0.0	..	5.5	..
Kuwait	1.7	1.7	..	0.0	..	2.6	..
United Arab Emirates	5.9	5.9	..	0.0	..	9.2	..
Other members¹	17.5	15.4	..	-11.7	..	23.9	..
Total^{2, 3}	66.7	64.7	..	-3.0	..	100.0	..

Source: BP Statistical Review of World Energy 2021 and 2022

¹ Includes Venezuela, Nigeria, Libya, and Algeria.

² Excludes Angola, Gabon, Equatorial Guinea, and the Republic of Congo.

³ Components may not sum to total because of rounding.

¹ Excludes Nigeria, Libya, Angola, Gabon, Equatorial Guinea, and the Republic of Congo.

4.1.6. Natural Gas Production

Natural gas production¹ by OPEC Middle East members amounted to 450.7 billion cubic meters in 2021, up by 4.2 percent. Iran, with a production of 256.7 billion cubic meters, enjoyed the highest share by 40.1 percent. Saudi Arabia, with a production of 114.5 billion cubic meters and a share of 17.9 percent, ranked second. Total OPEC natural gas production increased by 7.1 percent to 639.5 billion cubic meters.

4.1.7. Natural Gas Consumption

OPEC natural gas consumption amounted to 534.1 billion cubic meters in 2021, indicating an increase of 3.5 percent compared with 2020. Consumption of natural gas by the Middle East members reached 458.3 billion cubic meters, constituting a share of 85.8 percent of total natural gas consumption, which was 1.6 percentage points higher than the figure of the year before (87.4 percent).

Table 4.6. OPEC Natural Gas Production

(billion cubic meters)

	2019	2020	2021	Percentage change		Share (percent)	
				2020	2021	2020	2021
Middle East	424.5	432.4	450.7	1.9	4.2	72.4	70.5
Saudi Arabia	111.2	113.1	114.5	1.7	1.2	18.9	17.9
Iran	232.9	249.5	256.7	7.1	2.9	41.8	40.1
Iraq	11.0	7.0	9.1	-36.1	30.0	1.2	1.4
Kuwait	13.3	12.2	12.1	-7.7	-1.2	2.0	1.9
United Arab Emirates	56.2	50.6	58.3	-10.0	15.4	8.5	9.1
Other members¹	175.3	164.8	188.8	-6.0	14.6	27.6	29.5
Total^{2,3}	599.8	597.1	639.5	-0.4	7.1	100.0	100.0

Source: Energy Institute Statistical Review of World Energy 2023

¹ Includes Venezuela, Nigeria, Libya, and Algeria.

² Excludes Angola, Gabon, Equatorial Guinea, and the Republic of Congo.

³ Components may not sum to total because of rounding.

Table 4.7. OPEC Natural Gas Consumption

(billion cubic meters)

	2019	2020	2021	Percentage change		Share (percent)	
				2020	2021	2020	2021
Middle East	437.1	450.9	458.3	3.2	1.6	87.4	85.8
Saudi Arabia	111.2	113.1	114.5	1.7	1.2	21.9	21.4
Iran	218.4	236.8	236.5	8.4	-0.1	45.9	44.3
Iraq	19.5	18.5	16.8	-5.2	-8.9	3.6	3.2
Kuwait	18.4	17.9	19.8	-2.5	10.3	3.5	3.7
United Arab Emirates	69.7	64.7	70.8	-7.1	9.3	12.5	13.3
Other members¹	70.6	64.9	75.8	-8.1	16.7	12.6	14.2
Total^{2,3}	507.7	515.9	534.1	1.6	3.5	100.0	100.0

Source: BP Statistical Review of World Energy 2023

¹ Includes Venezuela and Algeria.

² Excludes Nigeria, Libya, Angola, Gabon, Equatorial Guinea, and the Republic of Congo.

³ Components may not sum to total because of rounding.

¹ Excludes gas flared or recycled. Includes natural gas produced for gas-to-liquids transformation.

4.2. Iran**4.2.1. Natural Gas**

Domestic consumption of natural gas rose 2.2 percent compared with 2020/21 to reach 237.8 billion cubic meters in 2021/22. The shares of "residential, commercial, and industrial sectors", "power plants", and "major industries" in total consumption were 50.8, 30.0 and 19.2 percent, respectively.

4.2.2. Electricity

In 2021/22, Iran's electricity generation increased by 4.0 percent to 355.9 billion kWh. Of total generated electricity, 222.4 billion kWh (62.5 percent) was related to the private sector's power plants, 126.9 billion kWh (35.7 percent) belonged to the Ministry of Energy, and 6.6 billion kWh (1.9 percent) was related to large industries.

The highest amount of the generated electricity by 145.8 billion kWh was related to the combined cycle power plants affiliated to the private sector, followed by steam power plants affiliated to the Ministry of Energy (59.9 billion kWh), constituting 41.0 and 16.8 percent of total electricity

generation by power plants, respectively. The amount of electricity generated by the private sector increased by 12.8 percent, while the amount of electricity generated by power plants affiliated to the Ministry of Energy experienced a decrease of 8.7 percent compared with the year before. The decrease in electricity generation by the power plants affiliated to the Ministry of Energy was mainly due to a fall of 44.7 percent in electricity generation by "hydro-electric" and a decline of 10.1 percent in generation by "gas" power plants. Meanwhile, the electricity consumption amounted to 306.6 billion kWh in 2021/22, indicating a rise of 5.4 percent compared with the year before. The commercial and public sectors experienced the highest increases in consumption by 13.4 percent and 7.8 percent, respectively. Residential, agriculture, street lighting, and industrial sectors indicated growth rates of 6.7, 6.5, 3.5 and 2.0 percent, respectively. Industrial and residential sectors enjoyed the highest shares in the consumption of electricity by respectively 35.9 and 32.1 percent.