

In 2020, the global oil market and various other commodity markets were afflicted by the outbreak of the unprecedented COVID-19 pandemic, undergoing massive fluctuations. As a case in point, NYMEX WTI crude contracts experienced negative figures for the first time in their history after countries implemented strict quarantine protocols to reduce the risks of severe health problems. In addition, the Brent crude oil price faced its biggest decade-long decline in April 2020. The world average daily oil demand decreased by almost 9.7 percent compared with 2019, to 90.5 million barrels per day. Nonetheless, as of May 2020 until December, the trend was reversed and the global oil market recovered from its slump, thanks to the measures adopted through the 9th and 10th (extraordinary) OPEC and non-OPEC Ministerial Meetings, leading to production adjustments aimed at market regulation and the restoration of stability to the global oil market. Accordingly, market confidence was boosted as a result of increased cooperation between OPEC+ members, and agreements were reached on voluntary production adjustments. In 2020, the average price of various types of crude oil (per barrel) was estimated between roughly 30.8 and 35.7 percent lower than that in 2019.

Based on the Statistical Review of World Energy Journal published by British Petroleum (BP), in 2020, total world primary

energy¹ consumption amounted to 557.1 exajoules (EJ), indicating a decrease of 4.2 percent compared with the year before. Of the mentioned amount, 34.1 EJ was consumed by the OPEC member countries and 523.0 EJ was consumed by non-OPEC countries. Iran's primary energy consumption amounted to 12.0 EJ in 2020, indicating an increase of 0.5 percent compared with 2019. The main primary energies consumed by Iran include oil and natural gas, while other energies are consumed only sparingly. Global oil production² amounted to 88.4 mb/d in 2020, indicating a decrease of 6.9 percent. Oil production by the OPEC member countries, accounting for 34.7 percent of global oil production, declined by 12.3 percent to 30.6 mb/d. Moreover, global oil consumption³ decreased by 9.1 percent compared with 2019 to reach 88.7 mb/d⁴. At end-2020, world proved reserves of oil amounted to 1,732.4 billion barrels, showing a decline of 0.1 percent compared with the year before.

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 biogasoline (such as ethanol), biodiesel and derivatives of coal and natural gas are excluded. Derivatives of coal and natural gas are included.

⁴ Based on Monthly Oil Market Report released by the OPEC in April 2021, global oil supply and demand were respectively 93.7 mb/d and 90.5 mb/d in 2020, not matching the BP figures on global oil production and consumption.

OPEC members' proved reserves of oil, totaling 1,214.7 billion barrels, accounted for 70.1 percent of global reserves in 2020. World proved reserves of natural gas were 188.1 trillion cubic meters, down by 1.2

percent compared with 2019. Global natural gas production decreased by 3.1 percent to 3,853.7 billion cubic meters, and global natural gas consumption fell by 2.1 percent to 3,822.8 billion cubic meters in 2020.

Figure 4.1. Shares of Major Producers in Total Global Oil Production in 2020

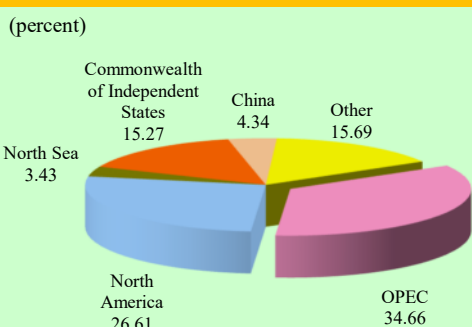
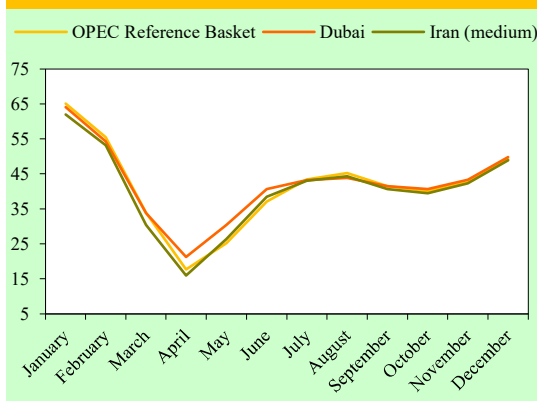


Figure 4.2. Average Spot Crude Prices during 2020



4.1. OPEC

4.1.1. Primary Energy Consumption

Primary energy consumption by OPEC members decreased from almost 35.5 exajoules (EJ) in 2019 to 34.1 EJ in 2020. Oil and natural gas are consumed by member countries largely while others are used sparingly, with the lowest related to the nuclear energy and renewables. Middle East

members (Saudi Arabia, Iran, Iraq, Kuwait, and the UAE) consumed 30.4 EJ, higher than other members (Venezuela and Algeria). Iran, with 12.0 EJ, and Saudi Arabia, with 10.6 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 2020 by Fuel¹

(Exajoules)

	Oil	Natural gas	Coal	Nuclear energy	Hydroelectricity	Renewables	Total
Middle East	13.4	16.4	0.2	0.1	0.2	0.1	30.4
Saudi Arabia	6.5	4.0	*	0.0	0.0	0.0	10.6
Iran	3.3	8.4	0.1	0.1	0.2	0.0	12.0
Iraq	1.3	0.8	0.0	0.0	0.0	*	2.1
Kuwait	0.8	0.7	*	0.0	0.0	*	1.5
United Arab Emirates	1.5	2.5	0.1	0.0	0.0	0.1	4.2
Other members²	1.2	2.3	0.0	0.0	0.3	0.0	3.7
Total³	14.6	18.7	0.2	0.1	0.5	0.1	34.1

Source: BP Statistical Review of World Energy 2021.

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

² Includes Venezuela and Algeria.

³ Components may not sum to total because of rounding.

4.1.2. Proved Reserves of Oil

At end-2020, proved reserves of oil located in OPEC member countries remained unchanged, compared with end-2019, at 1,214.7 billion barrels. Among the OPEC member countries, the largest reserves by

303.8 billion barrels belonged to Venezuela, followed by Saudi Arabia with 297.5 billion barrels. Iran, with proved reserves of oil at 157.8 billion barrels, ranked third among OPEC member countries.

Table 4.2. OPEC Proved Reserves of Oil

(billion barrels)

	Year-end			Percentage change		Share (percent)	
	2018	2019	2020	2019	2020	2019	2020
Middle East	797.6	799.7	799.6	0.3	*	65.8	65.8
Saudi Arabia	297.7	297.6	297.5	*	*	24.5	24.5
Iran	155.6	157.8	157.8	1.4	0.0	13.0	13.0
Iraq	145.0	145.0	145.0	0.0	0.0	11.9	11.9
Kuwait	101.5	101.5	101.5	0.0	0.0	8.4	8.4
United Arab Emirates	97.8	97.8	97.8	0.0	0.0	8.1	8.1
Other members¹	415.6	415.0	415.0	-0.1	0.0	34.2	34.2
Venezuela	303.8	303.8	303.8	0.0	0.0	25.0	25.0
Total ²	1,213.2	1,214.7	1,214.7	0.1	0.0	100.0	100.0

Source: BP Statistical Review of World Energy 2021. 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 2020, the average OPEC oil production decreased by 12.3 percent to reach 30.6 mb/d. This equaled a reduction by 4.3 million b/d. Production by the Middle East members, with a decline of 8.9 percent (2.4 million b/d) compared with the year before, totaled 24.6 mb/d. Production by other OPEC members decreased by 23.8 percent compared with 2019, to reach 6.1 mb/d in 2020. The highest amount of production was related to Saudi Arabia with 11.0 mb/d, accounting for 36.0 percent of total OPEC oil production.

Figure 4.3. Shares of OPEC Members in Total OPEC Oil Production in 2020

(percent)

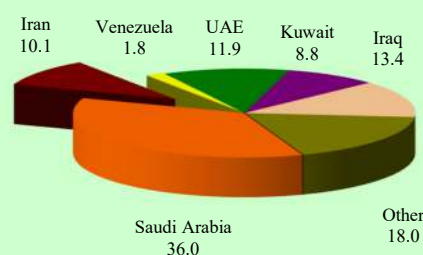


Table 4.3. OPEC Oil Production¹

(million b/d)

				Percentage change		Share (percent)	
	2018	2019	2020	2019	2020	2019	2020
Middle East	28.5	27.0	24.6	-5.2	-8.9	77.2	80.2
Saudi Arabia	12.3	11.8	11.0	-3.5	-6.7	33.9	36.0
Iran ²	4.6	3.4	3.1	-26.2	-9.3	9.7	10.1
Iraq	4.6	4.8	4.1	3.2	-13.9	13.7	13.4
Kuwait	3.0	3.0	2.7	-2.4	-9.7	8.5	8.8
United Arab Emirates	3.9	4.0	3.7	2.2	-8.6	11.4	11.9
Other members³	8.4	7.9	6.1	-5.1	-23.8	22.8	19.8
Total ⁴	36.8	34.9	30.6	-5.2	-12.3	100.0	100.0

Source: BP Statistical Review of World Energy 2021. ¹ Includes crude oil, shale oil, oil sands, condensates, and Natural Gas Liquids (NGLs). ² BP data on Iran's oil production are overestimated. ³ Includes Venezuela, Nigeria, Libya, Algeria, Angola, Gabon, Equatorial Guinea, and the Republic of Congo. ⁴ Components may not sum to total because of rounding.

4.1.4. Oil Consumption

In 2020, the consumption of oil by OPEC members¹ decreased by 7.6 percent to 7.7 mb/d. The highest amount of consumption by 3.5 mb/d was related to Saudi Arabia. Venezuela, with 241.6 thousand barrels a day, accounted for the lowest consumption. Iran's consumption totaled 1.7 mb/d, constituting 22.3 percent of total².

4.1.5. Proved Reserves of Natural Gas

OPEC proved reserves of natural gas reached 64.7 trillion cubic meters at the end of 2020, indicating a decrease of 3.0 percent compared with the end of 2019. Iran and Saudi Arabia, with 32.1 and 6.0 trillion cubic meters, were the holders of the largest reserves among member countries in the year under review.

Table 4.4. OPEC Oil Consumption¹

(million b/d)

	2018	2019	2020	Percentage change		Share (percent)	
				2019	2020	2019	2020
Middle East	7.5	7.6	7.1	1.1	-6.7	91.3	92.1
Saudi Arabia	3.6	3.6	3.5	0.5	-2.5	43.6	46.0
Iran ²	1.7	1.8	1.7	7.2	-6.8	22.1	22.3
Iraq	0.7	0.7	0.6	1.7	-12.4	8.6	8.1
Kuwait	0.5	0.5	0.4	-4.6	-7.8	5.4	5.3
United Arab Emirates	1.0	1.0	0.8	-4.5	-17.7	11.6	10.4
Other members³	0.8	0.7	0.6	-12.1	-16.3	8.7	7.9
Total^{4,5}	8.3	8.3	7.7	-0.2	-7.6	100.0	100.0

Source: BP Statistical Review of World Energy 2021. ¹ Inland demand plus international aviation and marine bunkers and refinery fuel and loss. Consumption of biogasoline (such as ethanol), biodiesel and derivatives of coal and natural gas are excluded. Derivatives of coal and natural gas are included. ² Data related to Iran are overestimated. ³ Includes Venezuela and Algeria. ⁴ Excludes Nigeria, Libya, Angola, Gabon, Equatorial Guinea, and the Republic of Congo. ⁵ 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)	
	2018	2019	2020	2019	2020	2019	2020
Middle East	49.1	49.2	49.3	0.3	0.1	73.8	76.1
Saudi Arabia	5.9	6.0	6.0	1.6	0.6	9.0	9.3
Iran	32.0	32.1	32.1	0.3	0.0	48.1	49.6
Iraq	3.5	3.5	3.5	-0.4	0.0	5.3	5.5
Kuwait	1.7	1.7	1.7	0.0	0.0	2.5	2.6
United Arab Emirates	5.9	5.9	5.9	0.0	0.0	8.9	9.2
Other members¹	17.5	17.5	15.4	0.3	-11.7	26.2	23.9
Total^{2,3}	66.5	66.7	64.7	0.3	-3.0	100.0	100.0

Source: BP Statistical Review of World Energy 2021

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.

² Estimates released by the BP are higher than the figures published by Iran's Ministry of Petroleum.

4.1.6. Natural Gas Production

Natural gas production¹ by OPEC Middle East members amounted to 443.8 billion cubic meters in 2020, up by 1.0 percent. Iran, with a production of 250.8 billion cubic meters, enjoyed the highest share by 41.3 percent. Saudi Arabia, with a production of 112.1 billion cubic meters and a share of 18.5 percent, ranked second. Total OPEC natural gas production decreased by 1.5 percent to 606.7 billion cubic meters.

4.1.7. Natural Gas Consumption

OPEC natural gas consumption amounted to 518.1 billion cubic meters in 2020, indicating a decrease of 0.2 percent compared with 2019. Consumption of natural gas by the Middle East members reached 456.3 billion cubic meters, constituting a share of 88.1 percent of total natural gas consumption, which was 1.7 percentage points higher than the figure of the year before (86.4 percent).

Table 4.6. OPEC Natural Gas Production

(billion cubic meters)

	2018	2019	2020	Percentage change		Share (percent)	
				2019	2020	2019	2020
Middle East	429.6	439.5	443.8	2.3	1.0	71.4	73.1
Saudi Arabia	112.1	111.2	112.1	-0.8	0.9	18.0	18.5
Iran	232.0	241.4	250.8	4.1	3.9	39.2	41.3
Iraq	10.6	11.0	10.5	3.7	-4.3	1.8	1.7
Kuwait	16.9	17.9	15.0	6.4	-16.5	2.9	2.5
United Arab Emirates	58.0	58.0	55.4	0.0	-4.5	9.4	9.1
Other members¹	186.9	176.3	162.9	-5.7	-7.6	28.6	26.9
Total^{2,3}	616.5	615.8	606.7	-0.1	-1.5	100.0	100.0

Source: BP Statistical Review of World Energy 2021.

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)

	2018	2019	2020	Percentage change		Share (percent)	
				2019	2020	2019	2020
Middle East	438.6	448.6	456.3	2.3	1.7	86.4	88.1
Saudi Arabia	112.1	111.2	112.1	-0.8	0.9	21.4	21.6
Iran	219.6	223.4	233.1	1.7	4.3	43.0	45.0
Iraq	14.6	19.5	20.8	33.5	6.7	3.8	4.0
Kuwait	21.2	23.0	20.6	8.9	-10.4	4.4	4.0
United Arab Emirates	71.2	71.5	69.6	0.5	-2.6	13.8	13.4
Other members¹	75.0	70.7	61.8	-5.7	-12.6	13.6	11.9
Total^{2,3}	513.7	519.3	518.1	1.1	-0.2	100.0	100.0

Source: BP Statistical Review of World Energy 2021.

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 8.1 percent compared with 2019/20 to reach 232.8 billion cubic meters in 2020/21. The shares of "residential, commercial, and industrial sectors", "power plants", and "major industries" in total consumption were 52.2, 28.3 and 19.5 percent, respectively.

4.2.2. Electricity

In 2020/21, Iran's electricity generation increased by 4.9 percent to 342.4 billion kWh. Of total generated electricity, 197.2 billion kWh (57.6 percent) was related to the private sector's power plants, 139.1 billion kWh (40.6 percent) belonged to the Ministry of Energy, and 6.1 billion kWh (1.8 percent) was related to large industries.

The highest amount of generated electricity by 131.1 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 (60.0 billion kWh), constituting 38.3 and 17.5 percent of total electricity

generation by power plants, respectively. The amount of electricity generated by the private sector increased by 11.7 percent, while the amount of electricity generated by power plants affiliated to the Ministry of Energy experienced a decrease of 3.5 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 decreases of 28.6 and 19.5 percent in electricity generation by "hydroelectric" and "nuclear" power plants, respectively. Meanwhile, electricity consumption amounted to 290.8 billion kWh in 2020/21, indicating an increase of 6.2 percent compared with the year before. The industrial and agriculture sectors experienced the highest increases in consumption by 12.9 and 6.5 percent, respectively. Public, street lighting, residential, and commercial sectors indicated growth rates of -3.9, -2.8, 4.3 and -2.0 percent, respectively, compared with 2019/20. Industrial and residential sectors enjoyed the highest shares in consumption of electricity by respectively 37.2 and 31.7 percent.