

ORGANIZATION OF ARAB  
PETROLEUM EXPORTING  
COUNTRIES (OAPEC)



# 50

## 2023

### EXECUTIVE SUMMERY OF **THE SECRETARY GENERAL'S ANNUAL REPORT**

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## Introduction

It gives me great pleasure to place in your hands the Secretary-General's Fiftieth Annual Report for the Year 2023, which reviews the most important Arab and global developments in various activities of the energy industry in general and oil and gas in particular. Our readers will realize, through the statistics included in this report, the significant and strategic position of OAPEC member countries in the global energy industry.

The release of the 50th edition of this report comes as the organization has completed its 55th year since its founding on 9 January 1968, which was considered one of the pioneering and important achievements in the process of the joint Arab action, especially regarding Arab energy cooperation. Throughout these decades,



and with great support from its member countries, the organization sought to encourage cooperation between its members in various aspects of economic activity in the petroleum industry. OAPEC has a distinguished and active presence in most oil, natural gas and energy activities and events- whether regional or international.

This report is being issued at a time when the global oil market has witnessed noticeable fluctuations during the year 2023, affected



by many factors, including the slow and unbalanced recovery of global economies from the repercussions of the COVID19 pandemic and the Russian-Ukrainian crisis. This is in addition to the severe turmoil in the American banking sector, and the state of uncertainty associated with monetary policies, as central banks continued to tighten those policies during the first half of the year, before taking less stringent decisions, with the expectation of lowering interest rates during the year 2024, which played a role in the US dollar recording its first annual loss since 2020.

The escalation of geopolitical unrest in the Middle East region during the last quarter of 2023 also negatively affected supply chains and the global trade movement. On the positive side, the end of China's Zero Covid policy played a major role in the rise in global oil demand.

At this point, I would like to laud the efforts made by our member countries within the framework of the OPEC+ group in order to bring stability and balance to the global oil market, by following the successful approach of taking proactive measures for what is expected to happen (in the oil market). During the year 2023, OPEC+ took a number of important decisions that contributed significantly to reducing the negative impact of fluctuations on the global oil market.

This report seeks to highlight the various issues referred to above with some sober, objective analysis, to paint a clear picture of the energy industry developments during the year 2023. It also highlights OAPEC member countries' efforts to develop their petroleum industries through the vital projects they have implemented in various stages of the industry. This is in addition to the oil and gas discoveries our member countries have announced to demonstrate

the leading and important position of the Arab region in the oil and gas industry, now and in the future, while working to mitigate the impact of oil price fluctuations in the global market on their national economies.

The first part of this report, in an analytical method supported by statistical data, deals with Arab and international energy developments at the Arab and global levels, and their repercussions on the economies of the member countries. It also reviews the various factors affecting energy markets, including supply, demand, and oil reserves, in addition to other factors that affect the trends of supply, demand, and prices, such as geopolitical factors and the directions of energy policies in major industrialized and other countries. Developments in global markets for renewable energy, investments in energy transitions, and hydrogen as a fuel for the future have also been discussed, as well as providing a comprehensive review of the latest developments related to exploration and production of various energy sources, and downstream industries developments, such as the refining industry, the petrochemicals industry, and the gas industry, at both Arab and international levels.

The Report also Included a follow-up on environmental and climate change issues.

In conclusion, we hope that this report will contribute to introducing readers to the current developments in the Arab and global energy industry, and that they find it enriching in terms of the knowledge they seek, and enlightening about OAPEC, its goals and activities.

**Thank you.**

Secretary General  
**Jamal Essa Al Loughani**







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**2023**

**INTERNATIONAL  
OIL MARKET  
DEVELOPMENTS &  
THEIR IMPLICATIONS  
FOR OAPEC MEMBER  
COUNTRIES**





## Chapter 1

# INTERNATIONAL OIL MARKET DEVELOPMENTS & THEIR IMPLICATIONS FOR OAPEC MEMBER COUNTRIES



## INTERNATIONAL OIL MARKET DEVELOPMENTS & THEIR IMPLICATIONS FOR OAPEC MEMBER COUNTRIES

- **Preface**

During 2023, the global oil market went through notable fluctuations affected by many factors, including the slow and unbalanced recovery of global economies from the repercussions of the COVID19 pandemic and the Russian-Ukrainian crisis, as well as severe turmoil in the US banking sector, and uncertainty associated with monetary policies. Central banks continued to tighten these policies during the first half of the year, before taking less stringent decisions, with the expectation of lowering interest rates during 2024, which played a role in the US dollar recording its first annual loss since 2020. The escalation of geopolitical unrest in the Middle East region in the fourth quarter of 2023 also negatively affected supply chains and global trade.

On the positive side, the end of China's Zero Covid policy played a major role in the rise in global oil demand to reach a new record high of 102.1 million barrels/day.

As part of the ongoing efforts made towards achieving stability and balance in the global oil market, and in line with the successful approach of taking proactive measures, the OPEC+ alliance took a number of important decisions that contributed significantly to reducing the negative impact of fluctuations on the global oil market. In this context, it is worth noting that the OPEC countries' supplies of crude oil and unconventional oils decreased in 2023 by about 0.7 million barrels/day compared to 2022, recording 33.6 million barrels/day, while supplies from non-OPEC producing countries increased by about 2.1 million barrels/day to reach to about 67.9 million barrels/day.

In general, preliminary data for balancing global demand and supply of crude oil in 2023 show a deficit of about 640 thousand barrels/day, compared to the surplus achieved in 2022 of about 410 thousand barrels/day.

The annual rates of global crude oil prices decreased in 2023 compared to the previous year, recording their first losses since 2020, bringing the average basket of OPEC crude oils to about \$83 per barrel.

### **Main Developments in the Global Oil Market for 2023 and Influencing Factors:**

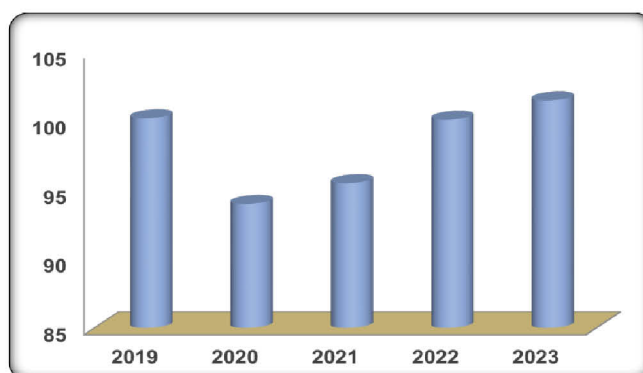
- **Supplies**

Total global oil supplies (crude oil and natural gas liquids) increased



by about 1.4 million barrels/day in 2023; that is 1.4% compared to the previous year, to reach a new record level of about 101.5 million barrels/day. As shown in the figure below:

**Total World Oil and NGLs Supply, 2019 – 2023**  
(Million b/d)



Source: OPEC, Monthly Oil Market Report (various issues).

### • OPEC Supplies

OPEC countries' oil supplies (crude oil and natural gas liquids) decreased during the year 2023 by about 700 thousand barrels/day, or by 2% compared to the previous year, to reach about 33.6 million barrels/day, thus reducing the share of OPEC countries in the total global oil supplies from about 34.2 % in 2022 to 33.1% in 2023.

It is worth noting that OPEC's supplies of crude oil decreased from about 28.9 million barrels/day in 2022 to reach about 28.12 million barrels/day in 2023. While OPEC countries' supplies of natural gas liquids and unconventional oils increased by about 50 thousand barrels/day to reach 5.44 million barrels/day in 2023.

OPEC member countries have made intense efforts to maintain the balance and stability of the global oil market and support the global economy, especially in light of the geopolitical turmoil and uncertainty surrounding the global economic outlook, which played a role in the fluctuations witnessed in the global oil market.

### • Non-OPEC Supplies

Non-OPEC producing countries' total oil supplies amounted to about 67.9 million barrels/day during the year 2023, an increase of 2.1 million barrels/day, or 3.2% compared to 2022. This increase is mainly due to the increase in oil supplies from the United States of America and other South American countries. US production increased by about 1.5

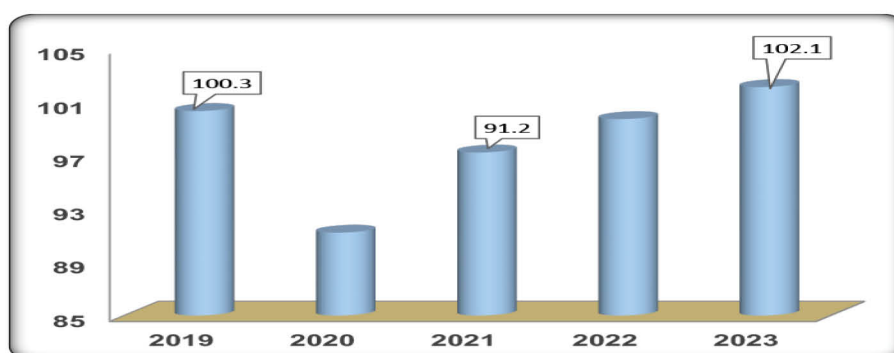
million barrels/day compared to 2022, reaching 20.8 million barrels/day, coinciding with American energy companies' tendency to raise their oil production to avoid supply shortages and the rise in local prices caused by the Russian-Ukrainian crisis over the past year. This is in addition to the noticeable increase in mergers and acquisitions between these companies due to economies of scale, which contributed to reaping more profits from oil production, as well as enhancing the efficiency of drilling operations, which played a role in reducing the negative impact of the decline in the number of operating rigs by 19.5% during 2023.

South American countries' oil supplies also increased during the year 2023 by about 590 thousand barrels/d compared to the previous year, reaching 6.9 million barrels/d. This is due to higher supplies in Brazil supported by increased production from the P-71 FPSO platform, the start of production from some new fields, a recovery in production from the pre-salt area, increased production efficiency at the platforms, and reduced maintenance operations, bringing the total supplies to a new record level of about 4.4 million barrels/day during November 2023. This comes in addition to the rise in crude oil supplies from Guyana to reach the level of 500 thousand barrels/day at the end of November, supported mainly by the start of production from the Payara project. Russian oil supplies decreased by about 250 thousand barrels / day, affected by the entry into force of the European ban on exports of Russian seaborne petroleum products in February 2023, the OPEC+ group cutting their production, in addition to Russia's decision to make an additional voluntary cut of its oil production and oil exports.

- **Global Oil Demand**

Global oil demand rose by about 2.5 million barrels/day in 2023, a growth rate of 2.5%, to reach a new record level of about 102.1 million barrels/day. As shown in the figure below:

**Total World Oil Demand, 2019 – 2023**  
(Million b/d)



Source: OPEC, Monthly Oil Market Report (various issues).

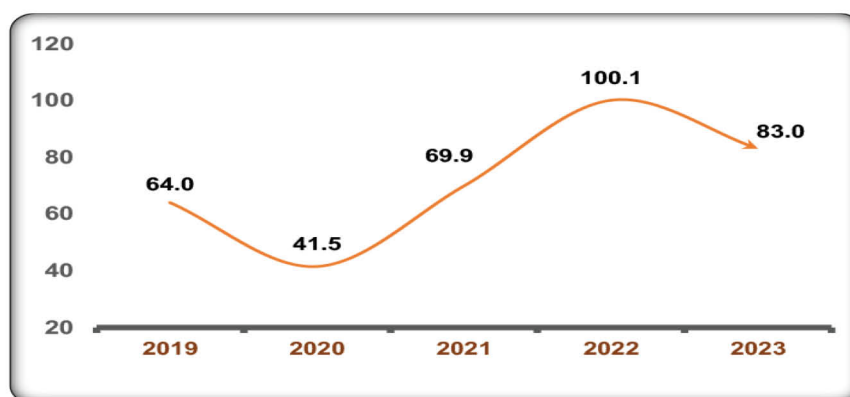
According to the major international groups, oil demand rose slightly in the OECD group, with a growth rate of only 0.2% compared to a growth rate of 1.9% in the previous year. Other countries of the world witnessed a noticeable increase in demand for oil, recording a growth rate of 4.6% compared to a growth rate of 3% in 2022. The discrepancy in the growth rate of oil demand between international groups is mainly due to the unbalanced recovery in the performance of their economies from the repercussions of the COVID19 pandemic and the Russian-Ukrainian crisis.

### • Crude Oil Prices

Global crude oil prices declined during 2023, recording their first losses since 2020, bringing the average OPEC basket of crudes to about \$83 per barrel. Prices were affected by significant fluctuations in their trends, especially in the futures markets, in light of the instability of the economic recovery, the uncertainty regarding the end date of the tightening monetary policies by the US Federal Reserve, as well as the decisions of the OPEC+ group, and the movement of US oil inventories. Monthly average prices of the OPEC basket of crudes witnessed wide-range fluctuations between \$75.2 and \$94.6 per barrel, and the annual average of the basket recorded a decline of about \$17.1/barrel, equivalent to a decline of 17.1% compared to the year 2022. As shown in the figure below:

**Spot Price of OPEC Basket of Crudes, 2019-2023**

(\$/barrel)



Source: OPEC, Monthly Oil Market Report (various issues).

Despite the aforementioned developments, the year 2023 witnessed a contraction in the differences between the maximum and minimum monthly OPEC basket prices during the year, which reached about \$19.4/barrel, compared to the differences in the previous year, which amounted to about \$38/barrel.

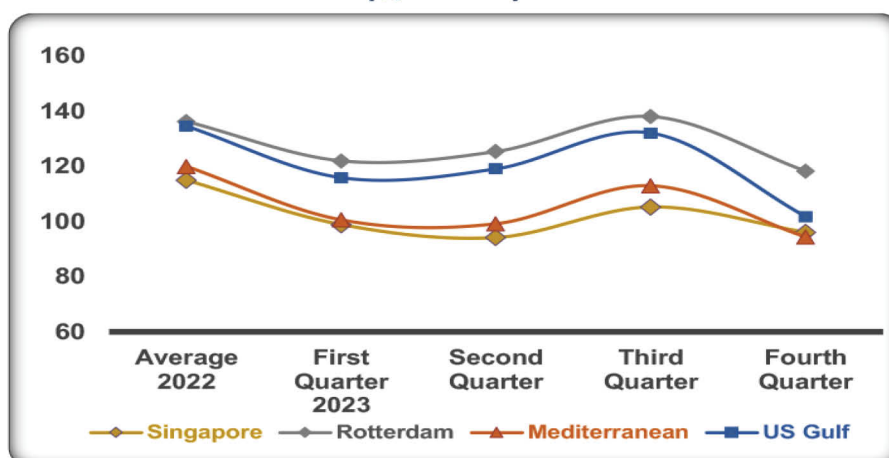
The development in prices and the pattern of movement of their disparities throughout 2023 was reflected in the levels of spot prices for various Arab crudes in general, which followed the same pattern, as they witnessed a decline compared to the previous year to varying degrees. Arab Light crude oil decreased by \$16.7/barrel to reach \$84.9/barrel during 2023, a decrease of 16.4% compared to the previous year. Algerian Sahara Blend crude, Emirati Murban crude, and Kuwaiti export crude also decreased by \$20.6, \$16, and \$16.9 per barrel, reaching \$83.6, \$82.9, and \$84.3 per barrel, i.e. a decrease of 19.8%, 16.2%, and 16.7%, respectively. Regarding other Arab crudes, Libyan Sidra crude fell by about \$19.1/barrel, or 18.8%, to reach \$82.2/barrel, Iraqi Basra crude by about \$16.7/barrel, or 17.1%, to reach \$80.7/barrel, and Qatari marine crude by approximately \$18.8/barrel, or 18.4%, reaching \$83.1/barrel during the year.

- **Spot Prices of Oil Products**

The decline in crude oil prices was reflected in the annual average prices of various petroleum products during the year 2023, which also witnessed a decline in all major world markets, in varying proportions depending on the market and type of product.

The average price of premium gasoline in the US Gulf market reached \$117.2/barrel in 2023. In Rotterdam market the average price reached \$126/barrel during the year. In the Mediterranean market the average price reached \$101.8/barrel, and as for the Singapore market, the average premium gasoline price reached \$98.6/barrel in 2023. As shown in the figure below:

**The average price of premium gasoline, 2022-2023**  
(\$/barrel)



Source: OPEC, Monthly Oil Market Report (various issues).



The year 2023 witnessed a decline in the annual average gasoil prices in general in all major markets compared to the previous year. The Rotterdam market had the highest gas oil prices, reaching \$111.2/barrel during the year 2023, followed by the Mediterranean market at an average price of \$109.1/barrel, then the Singapore market at an average price of \$106/barrel, and finally the American Gulf market with the lowest prices at \$78.6/barrel in 2023.

Fuel oil prices decreased during the year 2023 in all markets. Their average reached \$102.3/barrel in the Singapore market, \$78.8/barrel in the Mediterranean market, \$74.3/barrel in the Rotterdam market, and about \$68.1/barrel in the American market.

- **Oil Freight Rates**

Crude oil freight prices decreased during 2023 compared to the high levels recorded in 2022. The increased demand for tankers, lower fuel costs, and longer distances in light of the Russian-Ukrainian crisis were not enough to overcome the impact of the crude oil production cuts by the OPEC+ group, Russia's reduction of its oil exports, uncertainty about China's economic prospects, and the market's adaptation to the trade disruptions, as well as weak growth in the global crude oil tanker fleet during 2023 compared to the previous year.

It is worth noting that the escalation of geopolitical tensions in the Middle East at the end of 2023 caused a rise in crude oil freight prices, as many companies stopped the movement of their tankers through the Red Sea and redirected them via longer routes around Africa.

In 2023, average freight price rate for oil shipments from the Middle East ports to the East via VLCCs (230,000-280,000 dead weight tons (dwt)) has raised to about \$15.3/ton. A raise has also been registered in average freight price rates for shipments from the Middle East to the West, with a capacity of 270,000-285,000 dwt; they averaged about \$13/ton. As for shipments within the Mediterranean region for small and medium-sized tankers (80,000-85,000 dwt), freight price rates remained stable at the same previous year level averaged about \$13.8/ton.

- **Various Oil Inventories**

The year 2023 witnessed a decline in commercial oil inventories due to the decisions of the OPEC+ group regarding reducing their production levels, the Kingdom of Saudi Arabia making an additional voluntary cut in its production, and the growth in demand, in addition to the United States of America withdrawing from its strategic stocks during the first half of 2023, which led to their decline. In general, total

global oil reserves decreased to 8.971 billion barrels at the end of the fourth quarter of 2023. This represents a decrease of about 172 million barrels, or 1.9%, compared to the same quarter in 2022. It is noteworthy that oil reserves at sea amounted to 1.409 billion barrels at the end of 2023, a decrease of about 137 million barrels compared to the previous year. The change in the path of commercial flows to longer distances in light of the continuing Russian-Ukrainian crisis played a role in limiting the decrease in transit stocks in ports and floating reserves near major consumption areas.

The commercial stock in the OECD countries reached about 2.776 billion barrels at the end of the fourth quarter of 2023. It is worth noting that the adequacy of the commercial stock in those countries at the end of 2023 reached levels of 60.7 days of consumption.

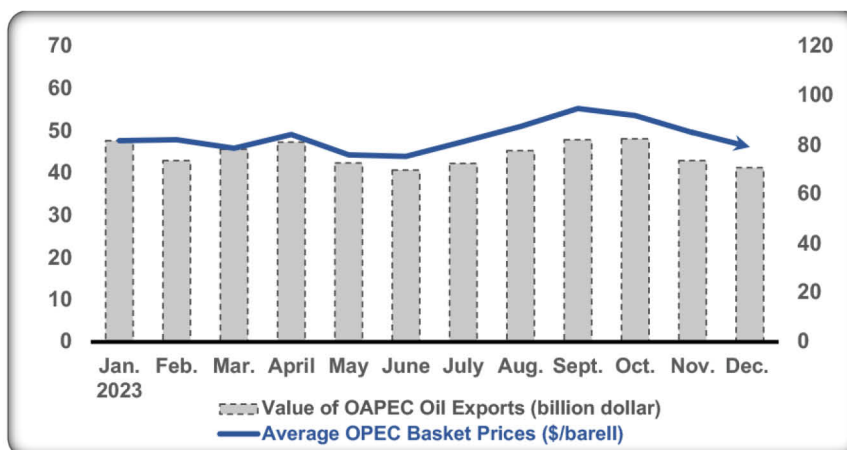
Strategic stocks decreased slightly at the end of the fourth quarter of 2023, reaching only 4 million barrels compared to their levels recorded at the end of the fourth quarter of the previous year, reaching 1.507 billion barrels. It should be noted that the US Department of Energy announced in mid-February 2023 its intention to sell 26 million barrels of its strategic oil reserves, which played a role in the decline of the US strategic oil reserve on 7 July 2023 to about 346.8 million barrels, its lowest level since mid-August 1983. This came before the US Department of Energy announced the buyback of crude oil to fill strategic stockpiles, delivered in August and September 2023 and during the period from late November until the end of the year.

- **Value of Oil Exports in OAPEC Members Countries**

Oil price rates during 2023 and the decisions of the OPEC+ group (including five member countries) were reflected in the value of oil exports, which are the main driver of economic and social development in the OAPEC member countries, the main backing of their central banks' foreign currency reserves, and the main booster of surpluses in their budgets.

It is noted that the value of crude oil exports estimated at current prices for OAPEC members has decreased from about \$ 656.4 billion in 2022 to about \$ 533.5 billion in 2023. This is mainly due to the decline in crude oil price levels by 17.1%, as well as the decisions of OPEC+ countries regarding reducing production aimed at achieving stability and balance in the global oil market. This represents a decrease of about \$122.9 billion, or 18.7% compared to 2022 levels. As shown in the figure below:



**Development of Monthly Oil Price and value of OAPEC Oil Exports, 2023**

Sources: - OPEC, Monthly Oil Market Report (various issues) and OAPEC, DataBank

## Developments in Oil & Energy Consumption in The Member Countries

### • Total Energy Consumption

Energy consumption in the member countries increased in 2023 at a lower rate compared to the previous year, amounting to 1.5% in light of the slowdown in economic recovery, to reach about 14 million boe/d. The member countries depend almost entirely on oil and natural gas to meet their energy needs, as the share of these two sources reached about 98.7% of the total energy consumption in these countries in 2023. Natural gas tops the list in terms of its share in total energy consumption, meeting 54% of energy requirements in 2023. Oil comes in second place, with its share reaching 44.8%. While coal and hydropower each contribute a small share of 0.6% and 0.6%, respectively.

The general average per capita energy consumption in member countries decreased from about 18.5 boe/d in 2019 to about 18 boe/d in 2023. This decrease occurred in all member countries except Qatar, Kuwait, the UAE, and Algeria.

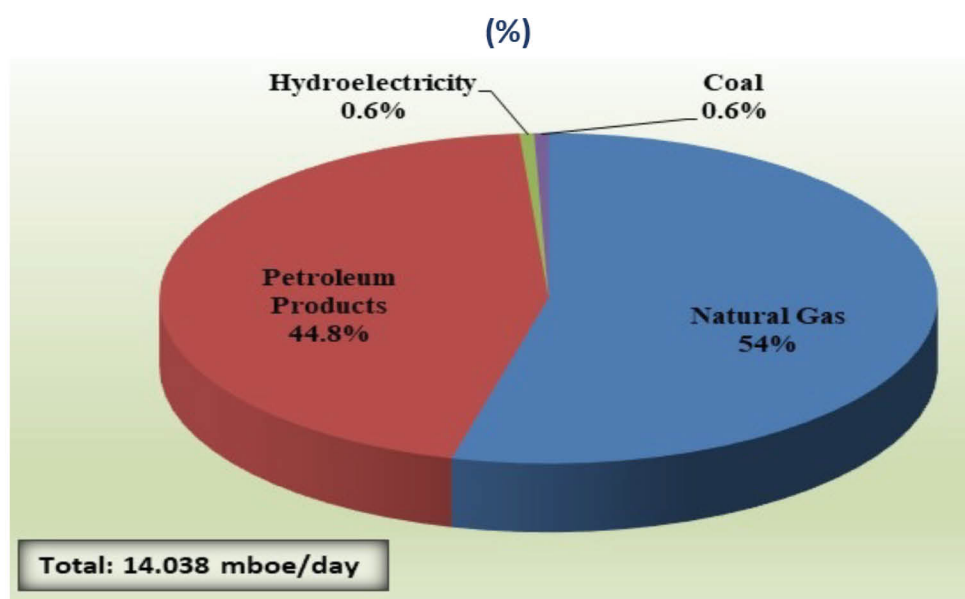
### • Energy Consumption by Source

Natural gas consumption in the member countries increased by 1.7% in 2023 to reach about 7.6 million boe/d. It is worth noting that natural gas consumption occurs mainly in five countries: Saudi Arabia, the UAE, Egypt, Algeria, and Qatar.

The consumption of petroleum products in the member countries increased by 1.4% in 2023 to reach about 6.3 million boe/d. There are three member countries with significant consumption of petroleum products and crude oil: Saudi Arabia, Iraq, and Egypt.

The volume of hydropower consumption in the member countries during 2023 stabilized at the same level of the previous year, which is 89.7 thousand boe/d. Coal consumption in the member countries also stabilized at the same level as the previous year, which was 85.1 thousand boe/d. As shown in the figure below:

**OAPEC Energy mix, 2023**



Source: - OAPEC, DataBank.

- **Domestic Prices**

Five member countries resorted to amendments to their petroleum products prices in their domestic markets in 2023 at varying rates; they are: UAE; KSA; Syria; Kuwait; and Egypt. While prices stabilized in the rest of the countries.

It is worth noting that some member countries have liberalized fuel prices in recent years by linking them to global prices, as fuel price standards are determined according to the average global prices of crude oil, whether high or low, which has had a positive impact on the economic aspect of these countries.

### **Oil Market: Short Term Outlook**

- **Global Oil Supplies**

OPEC forecasts indicate that the total oil supplies of the group of Non-DoC producing countries in 2024 will increase by 2.4% compared to 2023, to reach about 53 million barrels/day. The main drivers of this rise will be the United States of America, Canada, Brazil, and Norway. In this context, it is expected that the United States of America will

account for the largest part of this increase, at an estimated rate of 35.8%, bringing its total oil supplies to about 21.3 million barrels/day in 2024.

- **Global Oil Demand**

OPEC's forecasts indicate a continued recovery in global oil demand growth in 2024, albeit at a slower pace than the previous year, rising by 2.2% compared to levels recorded in 2023 and reaching a new record level of about 104.5 million barrels/day. Demand from OECD countries is expected to rise by only 0.5% to reach about 46 million barrels/day, while demand from countries outside the OECD is expected to rise by 3.6% to reach about 58.5 million barrels/day. The expected growth in global oil demand is mainly due to strong demand for gasoline, motor fuel and diesel in light of increasing road traffic, air travel and trucking. This is in addition to the improvement in industrial, construction and agricultural activities in non-OECD countries, and capacity additions and petrochemical margins, most of which are expected to be concentrated in China and the Middle East. However, these forecasts are subject to many uncertainties, including global economic developments.

- **Global Investments**

Based on OPEC reference scenario, which expects global oil demand to grow by about 15.4 million b/d during the period (2022-2045), and given the natural decline in current oil field production, the total accumulative investment needs required to meet global oil demand until 2045 is about \$14 trillion- an annual rate of \$610 billion, including (\$11.1 trillion in exploration and production activities - Upstream, \$1.2 trillion in storage and transportation activities - Midstream, and \$1.7 trillion in refining, distribution and export activities - Downstream).





## Chapter 2

### DEVELOPMENTS IN ARAB & INTERNATIONAL UPSTREAM INDUSTRIES







# Arab & International Energy Exploration & Production Developments

## I- OIL & GAS

### 1-1 Overview on Exploration & Production in Arab Countries & the World

The market shock caused by the Russian-Ukrainian geopolitical crisis cast a shadow on the world's policies regarding the petroleum industry, as the year 2023 witnessed a clear effort by many countries around the world towards accelerating exploration and production and various related activities. This was evident in several aspects, the most prominent of which was attempts to accelerate the process of granting exploratory licenses. In Norway, for example, on 11 January 2023, 47 exploration licenses were awarded. These licences had been announced on 14 June 2022, and the deadline for submitting offers was set on 12 September 2022. That is, the award occurred within less than four months from the end of the application, which is a record time for the large number of licenses offered, especially since the award was made to 25 companies. In early May 2023, the Norwegian Ministry of Petroleum and Energy asked companies - directly and explicitly - to do everything they can to find more oil and gas sources in the Norwegian part of the North Sea. In July 2023, Britain announced its commitment to granting hundreds of exploration licenses in the North Sea, as part of a step it considers important to preserve its energy independence. It is noteworthy that Britain is among the countries that have committed to reaching net-zero emissions in 2050, but the British Prime Minister justified the step of granting licenses by saying that even if Britain achieves its plan to reach net-zero, at least 25% of its energy will be from oil and gas. The Ministry of Energy, Climate and Utilities in Denmark also announced in July 2023 the launch of a bidding round to obtain licenses for exploration and production in the North Sea, within areas where gas had previously been discovered. The deadline for submitting bids was set on 15 October 2023, that is, within 4 months from advertising. This is also a record time that is not very common in the petroleum industry. It is noteworthy that Denmark had announced on 4 December 2020 the cancellation of all future licenses for exploration!

It was noted during the year 2023 that many giant companies have modified their previous steps that aimed at reducing their production of fossil fuels in favour of energy transition and reducing carbon dioxide emissions, including, for example, BP, which increased its stake in the Browse LNG project in Australia, from 17.3% to 44.3% in May 2023.

It was also noted during the first half of 2023 that the discoveries made reached reserves estimated at approximately 2.6 billion barrels of oil equivalent (BoE), which is equivalent to 58% of the reserves that were discovered in the first half of 2022. Most of these discoveries (95%) were offshore. Offshore reserves constituted about 66% of the total reserves discovered.

## 2- Exploration and Development Drilling

The number of operating rigs worldwide has increased to 1813. It has been noted during the past five years that the number of rigs is constantly increasing, but it has not yet reached the pre-2020 levels.

As a result of exploratory drilling operations, OAPEC member countries have made at least 25 new oil and gas discoveries. The Secretariat General has tracked the achievement of more than 122 new oil and gas discoveries globally in 2023.

## 3. Oil and Natural Gas Reserves

### 3- 1 Oil Reserves

The world's oil reserves were estimated at about 1335 billion barrels in 2023, a slight increase from 2022. The oil reserves of the OAPEC member countries were estimated at approximately 717.4 billion barrels, representing 53.7% of the total global oil reserves, while the combined reserves of the Arab countries were estimated at more than 726 billion barrels, representing 54.4% of the total oil reserves in the world. Arab oil reserves increased by more than 1.1% between 2021 and 2023 as a result of rising reserve estimates in the United Arab Emirates and Saudi Arabia.

### 3-2 Natural Gas Reserves

Estimates of the world's natural gas reserves increased from 212.2 trillion cubic meters in 2022, to approximately 212.7 trillion cubic meters in 2023. Estimates of gas reserves in OAPEC member countries increased between 2021 and 2023 by about 2%, as a result of rising estimates in the UAE and Saudi Arabia, and reached about 55.7 trillion cubic meters in 2023, representing about 26.2% of the total gas reserves in the world. Reserve estimates in the Arab countries combined rose from 55.6 trillion cubic meters in 2021, to about 56.7 trillion cubic meters in 2023. The combined reserves of the Arab countries represented about 26.7% of the total global gas reserves in 2023.

## 4- Hydrocarbon Liquid Production

The world's total production of hydrocarbon liquids in 2023 was estimated at 102 million b/d, an increase of approximately 1% from production rates in 2022, which amounted to about 101 million b/d.

### 4-1 Crude Oil Production

Crude oil production rates in OAPEC member countries declined by nearly 5%, from 24 million b/d in 2022 to about 22.8 million b/d in 2023. Crude production from Arab countries combined decreased as well by 5%, from 25 million b/d in 2022 to 23.7 million b/d in 2023.

As for total hydrocarbon liquids, the production of OAPEC members decreased by 4.7% from 28.8 million b/d in 2022 to about 27.5 million b/d in 2023, while the total production of hydrocarbon liquids in the Arabic countries combined declined by about 4.5%, from 30 million b/d in 2022, to 28.7 million b/d in 2023. This is of course due to the commitment of the Arab OPEC member countries to cut production as part of the OPEC+ group's efforts to maintain market stability.

### 4-2 NGL Production

The volumes of natural gas liquids worldwide increased between 2022 and 2023 by approximately 4%, from 13.3 million b/d to about 13.8 million b/d. Natural gas liquids volumes in the Arab countries combined decreased from 4.93 million b/d in 2022 to about 4.9 million b/d in 2023. The percentage of natural gas liquids produced in OAPEC member countries reached about 34% of the world's total production.

## 5- Marketed Natural Gas

The volumes of marketed natural gas globally raised by a 3% between 2022 and 2023, from 4,052 billion cubic meters in 2022 to about 4,173 billion cubic meters in 2023.

The percentage of marketed gas in the OAPEC member countries and in the Arab countries combined reached 14% and 15% of the world's total, respectively.



## II. COAL

### 1- Reserves

Coal reserves in the world remained at the limits of 1075 billion tons in 2023. Represented about 26.5% of global energy mix.

### 2- Production

Coal production in the world increased by 3.1% between 2022 and 2023, from 8.8 billion tons in 2022, to 9 billion tons in 2023, the countries of the Asia-Pacific group remained representing the largest share of the coal production market in 2023.

## III. NUCLEAR ENERGY

Uranium production in 2022 reached more than 48.8 thousand tons, more than 43% of which was produced in Kazakhstan, which possesses about 13% of the world's uranium reserves. As for Australia, which has the world's largest uranium reserves, it produced only 8.4% of the total production in 2022. The cumulative production of uranium until the beginning of 2022 reached more than 3 million tons.

In practice, uranium is not traded on in an open market like other commodities, as buyers and sellers negotiate contracts privately, but some authorities estimate that uranium prices rose in late 2023 to reach \$74/libra, which represented about a 50% increase in prices compared to 2022.

### 1- Nuclear Reactors

The number of nuclear reactors operating in various countries of the world reached 411. 82% of the world's operating nuclear reactors are located in only 10 countries, while the rest are distributed among 23 countries. The capacity of the operating reactors reached more than 374 gigawatts, and together they generated more than 2,487 terawatt-hours of electricity in 2022.

As for the reactors under construction worldwide until July 2023, there were 59 reactors, including 23 reactors in China and 8 reactors in India, meaning that 52% of the reactors under construction in the world are concentrated in these two countries. The capacity of the reactors under construction worldwide reaches 56 gigawatts.

The United Arab Emirates has three operating reactors: Al Baraka 1, Al Baraka 2, and Al Baraka 3, which reached the electrical grid in 2020, 2021, and 2022, respectively, and each has a capacity of 1,417 megawatts of electricity. Work is currently underway to build the

Baraka 4 reactor, which has an estimated capacity of 1,310 megawatts.

The Arab Republic of Egypt is working to build three reactors west of the city of Alexandria, including El-Dabaa 1 and El-Dabaa 2, which began construction in 2022, in addition to El-Dabaa 3, which began construction in 2023. The capacity of each of these reactors is 1,200 megawatts of electricity.

## IV. RENEWABLE ENERGY RESOURCES

The contribution of renewable energy sources to electricity generation increased by about 1.5% between 2022 and 2023, as the world generated about 29.9 terawatt hours of electricity in 2023. Renewable energy sources contributed to the generation of 15.9%. Most of the electricity generated using renewable energy sources was concentrated in the Asia and the Pacific countries.

### 1- Wind Energy

The world's total installed capacities of wind energy increased in 2023 to 1017 gigawatts, compared to about 901 gigawatts in 2022, about 50% of which was concentrated in Asian countries, and 25% in Europe.

The installed wind capacity in the Arab countries increased from about 4.2 gigawatts in 2022, to about 5.2 gigawatts in 2023. This represents only 0.5% of the total installed capacity in the world. About 36.5% of the Arab installed capacity is concentrated in Egypt, which ranked first among the Arab countries in this field in 2023, followed by Morocco, which possesses about 36% of the installed wind capacity in the Arab countries. The rest of the installed capacity is distributed among 7 countries.

### 2- Solar Energy

The total installed capacities of solar energy in the world reached 1418 gigawatts in 2023. About 59% of total installed capacities of solar energy was concentrated in Asian countries. The installed capacities of solar energy in the Arab countries increased from 11.5 gigawatts in 2022, to more than 17 gigawatts in 2023, which represents about 1.1% of the total installed capacities in the world. The United Arab Emirates ranks first among Arab countries in this regard.

### **3. Hydropower**

The world's installed capacity of hydropower increased from 1,261 gigawatts in 2022 to about 1,268 gigawatts in 2023, most of which was concentrated in the Asian of countries group. The installed capacities of hydropower in the Arab countries amounted to less than 10 gigawatts, representing only about 0.5% of the world's total capacities of hydropower. Egypt leads the Arab countries with more than 2.8 gigawatts.

### **4. Biomass Energy**

The global installed capacity of biomass energy reached 150.2 gigawatts in 2023, most of which was concentrated in Asian and European countries. The installed capacity of biomass energy in the Arab countries reached 408 megawatts in 2023, and Sudan is at the forefront in this regard.

### **5. Ocean Energy**

The installed capacities of ocean energy in the world in 2023 reached about 526 megawatts, about 96% of which is concentrated in European countries (France, Spain, England) and Asian countries (Korea, China). This type of renewable energies has not been used in Arab countries yet.

### **6. Geothermal Energy**

The installed capacity of geothermal energy in the world Reached 14.8 gigawatts in 2023. About 33% of this capacity is concentrated in Asian countries. This type of energy has not been used in Arab countries yet.







50

2023

## Chapter 3

### WORLD & ARAB DEVELOPMENTS IN PETROLEUM DOWNSTREAM INDUSTRIES





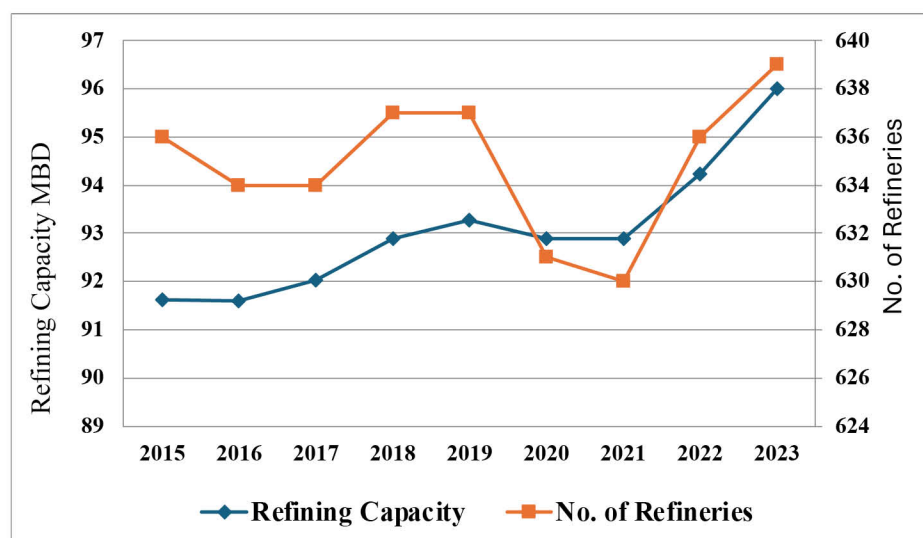
## WORLD & ARAB DEVELOPMENTS IN PETROLEUM DOWNSTREAM INDUSTRIES

### I. REFINING INDUSTRY

#### 1. World Developments

The world's total refining capacity has risen to 96.010 million b/d by the end of 2023, compared to 94.235 million b/d at the end of 2022, recording an increase of 1.775 million b/d, or 1.88%. The total number of operating oil refineries worldwide has also risen from 636 to 639. The Figure below shows the development of the total refining capacity and the number of refineries in the world during the period 2015-2023.

**Development of the total refining capacity and number of refineries in the world**



The increase in the world's total refining capacity during the year 2023 came as a result of increasing the refining capacity of the Beaumont refinery in Texas in the United States of America, by 250 thousand barrels per day. This is in addition to launching operations in: the first phase of the Olmeca refinery project in Mexico with a refining capacity of 170 thousand b/d; the new Lekki refinery in Nigeria with a refining capacity of 650 thousand b/d; and a group of mobile refineries in the Nigerian state of Edo with a total capacity of 60 thousand b/d. Moreover, operations at Al-Zour refinery in the State of Kuwait have been completed by adding 410 thousand b/d, reaching its design capacity of 615 thousand b/d, as well as the operation of the Duqm refinery in the Sultanate of Oman with a refining capacity of 230 thousand b/d.



The world's oil refining industry continued executing development projects during 2023, in the context of growing interest in reducing carbon emissions and transitioning to low-carbon energy by 2050. This is done by converting many oil refineries into refineries to produce all types of biofuels, especially sustainable aviation fuel (SAF), in parallel with the production of petroleum products, low-carbon hydrogen production projects, and the installation of carbon capture and storage systems.

As for the energy of secondary processes (manufacturing, hydrogen processing, and improving the octane number) expected to be added in the next five years worldwide, they amount to about 4.5 million b/d for manufacturing, 5.8 million b/d for hydrogen processing, and 1.7 million b/d /j for octane number improvement processes. Most of these projects were concentrated in Asia, the Middle East and Africa.

## 2. Developments in the Arab World

Refining industry developments in the Arab countries have seen projects to establish new refineries, develop and upgrade the operational performance of existing refineries, and enable them to produce petroleum products with specifications compatible with international standards. This is done with the aim of boosting these countries' exports of petroleum products to global markets, improving their resilience to refine different types of crude oil, by establishing new conversion units or raising the production capacity of existing units.

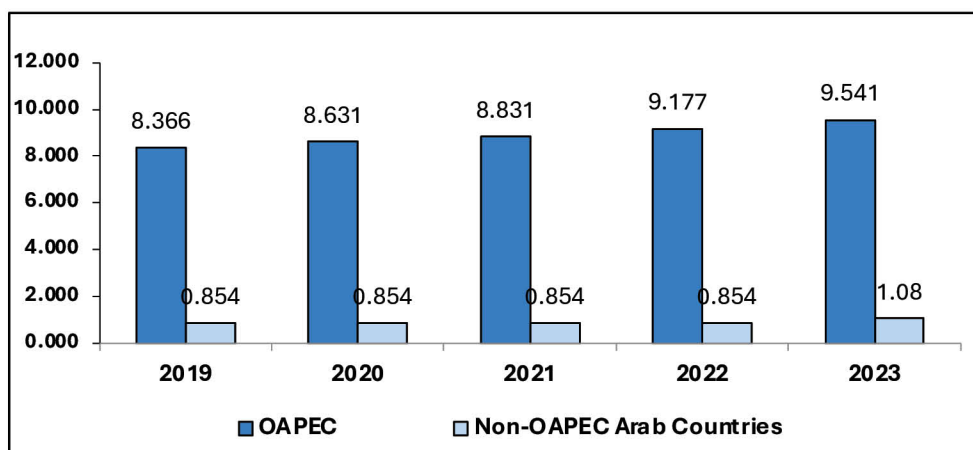
The total refining capacity in the Arab countries recorded an increase of 630 thousand b/d in the year 2023, as a result of raising the refining capacity of the new Al-Zour refinery in the State of Kuwait to the design capacity of 615 thousand b/d, and operating the Duqm refinery in the Sultanate of Oman with a refining capacity of 230 thousand b/d.

The total refining capacity of the 54 oil refineries in OAPEC member countries accounted for a share of 9.541 million b/d, representing 89.8% of the total refining capacity in oil refineries in Arab countries, which amounted to 10.626 million b/d. The total refining capacity of the 12 non-OAPEC Arab countries' refineries accounted for the remaining share of 1.084 million b/d, or 10.2%.

The figure below shows the development of refining capacity in existing oil refineries in the member countries and other Arab countries, during the period 2019-2023. The table also shows the development of refining capacity in Arab countries during the period 2019-2023, and the number of operating refineries in 2023.



**Development of refining capacity in existing oil refineries in the  
Member Countries and other Arab Countries (million b/d)**



**Development of Refining Capacity in Arab Countries 2019-2023  
(Thousand Barrel /day)**

	Number of operating refineries in 2023	2019	2020	2021	2022	2023
UAE	5	1127.0	1272.0	1272.0	1272.0	1227.0
Bahrain	1	267.0	267.0	267.0	267.0	267.0
Tunisia	1	34.0	34.0	34.0	34.0	34.0
Algeria	6	657.0	669.9	669.9	669.9	669.9
Saudi Arabia	9	2896.0	2927.0	3127.0	3127.0	3127.0
Syria	2	240.1	240.1	240.1	240.1	240.1
Iraq	12	824.0	824.0	824.0	964.0	964.0
Qatar	2	433.0	433.0	433.0	433.0	433.0
Kuwait	3	724.0	800.0	800.0	1005.0	1415.0
Libya	5	380.0	380.0	380.0	380.0	380.0
Egypt	8	784.8	784.8	784.8	784.8	784.8
<b>Total OAPEC</b>	<b>54</b>	<b>8366.9</b>	<b>8631.8</b>	<b>8831.8</b>	<b>9176.8</b>	<b>9541.8</b>
Jordan	1	90.4	90.4	90.4	90.4	90.4
Sudan	3	140.0	140.0	140.0	140.0	140.0
Oman	3	304.0	304.0	304.0	304.0	534.0
Morocco	2	154.7	154.7	154.7	154.7	154.7
Mauritania	1	25.0	25.0	25.0	25.0	25.0
Yemen	2	140.0	140.0	140.0	140.0	140.0
Other Arab countries	12	854.1	854.1	854.1	854.1	1084.1
<b>Total Arab countries</b>	<b>66</b>	<b>9221.0</b>	<b>9485.9</b>	<b>9685.9</b>	<b>10030.9</b>	<b>10625.9</b>

Source: OAPEC Databank.

The following are the most important developments that took place in 2023 in OAPEC member countries and other non-OAPEC Arab countries.

## **2-1 UAE**

Abu Dhabi National Oil Company (ADNOC) announced the implementation of the Crude Flexibility Project, worth \$3.5 billion. The project targets enabling the "Ruwais West" refinery to process 420 thousand b/d of low-quality Upper Zakum oil, with the aim of making "Murban" oil available for export and benefiting from the price difference between the two types.

## **2-2 Kingdom of Bahrain**

Work is still ongoing on the project to develop the Sitra refinery and raise the refinery's capacity from 267 thousand b/d to 360 thousand b / d. The project is expected to be completed by the end of 2024.

## **2-3 Republic of Algeria**

The Algerian National Petroleum Company "Sonatrach" announced progress in the implementation of the "Hassi Messaoud" refinery project, with a capacity of 100,000 b/d. The project is expected to be completed in 2024.

## **2-4 KSA**

Saudi Aramco and its partner Total Energies were awarded contracts to implement the engineering design, procurement and construction works for the Amiral Petrochemical Complex project attached to the Saudi Aramco and Total Refining and Petrochemicals (SATORP) refining complex at an investment cost of \$11 billion.

## **2-5 Republic of Iraq**

The Iraqi government signed an agreement with the Japanese "JICA" agency to obtain a loan to finance the "Basra" refinery development project, with a refining capacity of 210 thousand b/d. It includes the establishment of a fluid catalytic cracking unit (FCC) with a capacity of 34,000 b/d, a vacuum distillation unit with a capacity of 55,000 b/d, a hydrogen production unit with a capacity of 5,500 m<sup>3</sup>/hour, a vacuum gas oil hydrotreatment unit with a capacity of 40,000 b/d, and a processing unit, naphtha hydrotreating unit with a capacity of 31

thousand b/d, and a Continuous catalyst regeneration (CCR) unit with a capacity of 17 thousand b/d.

## **2-6 State of Kuwait**

The Kuwait Integrated Petroleum Industries Company announced the completion of operation of the new Al-Zour refinery at its full design capacity of 615 thousand b/d, making it the largest refinery in terms of refining capacity in the region. It will raise the total refining capacity of the State of Kuwait from 800 thousand b/d to 1415 thousand b/d.

## **2-7 State of Libya**

The Libyan government's National Oil Corporation announced that it had signed a contract with the American company Honeywell to carry out engineering work for an oil refinery project in the south of the country at a cost of \$700 million. The refinery's refining capacity is 30 thousand b/d of oil produced from the "Sharara" field. The project aims to meet the southern region's need for petroleum products that were transported long distances from the north of the country. The refinery will produce about 8,600 b/d of gasoline, 6,600 b/d of diesel, and 7,200 b/d of fuel oil.

## **2-8 Arab Republic of Egypt**

Qalaa Holdings, ECARU (Egyptian Company for Solid Waste Recycling), and Axens signed a cooperation protocol to carry out technical and economic studies for a project of second-generation biofuel (advanced bioethanol) and Sustainable Aviation Fuel (SAF) production.

In another vein, work is still ongoing on the project to develop the Middle East Oil Refining Company's refinery in Alexandria, "Midor," and is expected to be completed in 2023. Other development projects for oil refineries are also being implemented, such as the "Assiut" refinery, with a refining capacity of 90 thousand b/d, and Suez Oil Processing Company's refinery.

As for the non-member Arab countries, the state-owned Oman Oil Company (OOC) announced the start of exporting the products of the "Duqm" refinery after completing the initial operating trials, with a refining capacity of 230 thousand b/d. It is a joint project between the Sultanate of Oman and the State of Kuwait, to refine a mixture of Kuwaiti and Omani oil, at an investment cost of \$6 billion.



## THIRD: NATURAL GAS CONSUMPTION, TRADE & PROCESSING

### 1. World Developments

#### 1-1 Natural Gas Consumption

Global demand for natural gas stabilized in 2023, reaching about 4010.2 billion cubic meters, compared to 4008.7 billion cubic meters in 2022, a slight increase of less than 2 billion cubic meters. The share of natural gas in the world's total primary energy consumption also declined to about 23.3% in 2023, compared to 23.8% in 2022.

Some major regions of the world witnessed a decline in natural gas consumption at varying rates during the year 2023. In Europe and Eurasia (including Europe, the Commonwealth of Independent States, and Turkey), gas consumption recorded the world's largest decline in 2023 of about 2.9%. This is due to the continued decline in European demand, which fell by 7% during the year under study, and the measures taken by Europe to rationalize gas consumption in light of the decline in gas supplies from Russia via pipelines, bringing demand in Europe to its lowest level since 1994. In general, the total gas consumption in Europe and Eurasia during the year 2023 amounted to about 1059.4 billion cubic meters, compared to 1090.8 billion cubic meters in 2022, i.e. a volumetric decrease of 31.4 billion cubic meters.

Natural gas consumption in Central and South Americas also declined in 2023 to reach about 161.7 billion cubic meters, compared to 162.4 billion cubic meters in 2022, i.e. a decline of 0.4%. Gas consumption also declined in the African region, reaching about 171.2 billion cubic meters in 2023, compared to about 174.7 billion cubic meters in 2022, an annual decline of 2%.

However, gas consumption witnessed growth in other regions, such as North America, where consumption increased by 1%, reaching about 1104.8 billion cubic meters in 2023, compared to 1094.3 billion cubic meters in 2022. Gas consumption in the Middle East region also increased in 2023, reaching about 577.7 billion cubic meters, compared to 566.1 billion cubic meters in 2022, with an annual growth rate of 2%. Gas consumption in the Asia-Pacific region increased by 1.6% in 2023 to record 935.4 billion cubic meters, supported by growth in demand in China, which alone recorded a growth in consumption of 7.2%, compared to 920.3 billion cubic meters in 2022.

Global production of natural gas witnessed a slight growth of 0.3% during the year 2023, as global production reached about 4059.2 billion cubic meters, compared to 4048.6 billion cubic meters in 2022.

Some major regions of the world witnessed growth in natural gas

production during the year 2023, but at varying rates. North America recorded a growth rate of 4.1%, which is the highest in the world, as its gas production increased during the year 2023 to 1261.1 billion cubic meters, compared to 1211.9 billion cubic metres in 2022.

The Middle East region also recorded a growth of 1.6%, as gas production increased to 712.7 billion cubic meters in 2023, compared to 701.7 billion cubic meters in 2022. As for the Asia-Pacific region, gas production achieved a growth of 0.6%, after rising to 691.8 billion cubic meters in 2023, compared to 687.8 billion cubic meters in 2022.

In contrast to these noticeable increases in natural gas production in most regions of the world, gas production declined by 0.8% in Africa, as a result of the decline in production in Egypt and Nigeria, which are among the major gas producing countries in the region. Overall, Africa's gas production reached about 253.6 billion cubic meters in 2023, compared to 255.8 billion cubic meters in 2022. Gas production also declined in the Central and South American region to record 162 billion cubic meters in 2023, compared to 163.6 billion cubic meters in 2022, i.e. an annual decline of 1%, as a result of the decline in gas production in both Bolivia and Peru.

Europe and Eurasia (which include Europe, the Commonwealth of Independent States, and Turkey) recorded the highest decline compared to the rest of the regions, amounting to 4.9%. Production dropped to 977.9 billion cubic meters in 2023, compared to 1027.8 billion cubic meters in 2022, as a result of the decline in production in several European countries, including Norway, the United Kingdom, and the Netherlands, as well as a decline in production in Russia, which amounted to about 586.4 billion cubic meters in 2023, compared to 618.4 billion cubic meters in 2022.

## 1-2 Natural Gas Trade

Global natural gas trade declined notably in 2023, amounting to 2.5%, as total global natural gas exports reached about 1226.2 billion cubic meters, compared to about 1257.8 billion cubic meters in 2022. Global trade includes both total exports by pipelines and in the form of liquefied natural gas via tankers.

The volume of natural gas trade, whether via pipelines or liquefied, constituted about 30.6% of the total global natural gas consumption, while the rest is consumed locally in its production areas.

As for the distribution of natural gas exports across the world in 2023, North America comes in first place with 23.05% of total exports. It is followed by Europe, led by Norway, with 19.5%, then followed by the former Soviet Union region, led by Russia, in third place, with 17%

of total exports, then the Asia/Pacific region, with 15.95%, and the Middle East, with 14.4%. Africa contributed by 8% of the total world exports. South America comes in last place with 2.1% of the total global natural gas exports during the year 2023.

As for gas exporting countries, the United States of America came in the world's first place in 2023, with its share reaching about 16.6% of total global exports thanks to the growing exports of liquefied natural gas. It is followed by the Russian Federation, in second place with a share of 11.3%, as a result of the decline in its exports of natural gas via pipelines to European markets due to the continued cessation of the Nordstream-1 and Yamal-Europe lines. The State of Qatar came in third place with a share of 10.4%.

Norway came in fourth place with 9.5%, followed by Australia, which increased its global market share thanks to the growth in its exports of liquefied natural gas, which reached 107.4 billion cubic meters, with a share of 8.8%, then Canada 6.4%, and Algeria 4.4%. The exports of the mentioned countries together accounted for 67.3% of total global exports.

The total volumes of natural gas exported via pipelines during the year 2023 amounted to about 677 billion cubic meters, compared to about 718.5 billion cubic meters in 2022, a decline of 5.8%, as a result of the decline in gas exports from Russia to Europe.

Liquefied natural gas trade continued to grow in 2023, partially compensating for the decline in gas trade via pipelines, achieving annual growth of 1.8%, with total exports reaching about 549.2 billion cubic meters, compared to about 539.3 billion cubic meters in the year 2022, i.e. an increase of 10 billion cubic metres. The rise in US exports contributed the largest share to this global increase, which now ranks first in global liquefied natural gas exports, surpassing both Australia and the State of Qatar.

In general, the share of liquefied natural gas exports in total global gas exports increased in 2023 to record about 44.8%, compared to 42.9% in 2022. Natural gas exports via pipelines amounted to about 55.2%, a decrease from the percentage in 2022, which amounted to 57.1%.

On an Arab level, total natural gas exports in 2023 reached about 212.3 billion cubic meters. In total, the combined exports of the Arab countries in 2023 constituted a share of 17.3% of the total global natural gas exports.

The State of Qatar maintained its position as the largest exporter of natural gas in the Arab countries in 2023, as its exports amounted to about 127.9 billion cubic meters, or 60.2% of the total exports of the Arab countries. It is followed by the Republic of Algeria in second place, with its total exports reaching about 53.5 billion cubic meters, with a share of 25.2% of the total exports of Arab countries, then the Sultanate of Oman



in third place with 7.2%, the United Arab Emirates with 3.6%, then the Arab Republic of Egypt with 2.6%, and finally the State of Libya with 1.1%.

### **1-3 Global Natural Gas Prices**

Global natural gas prices, whether via pipelines or liquefied natural gas, witnessed a significant decline in all global markets during the year 2023, compared to their rates in 2022, after the European market passed the peak of the gas supply shortage crisis following the Russian gas outage.

In the United States of America, the price of natural gas fell by 60.3% according to the Henry Hub, bringing the annual average in 2023 to \$2.53/million British thermal units (BTU). The price of natural gas in European Union markets, according to the TTF index in the Netherlands, also declined by 65.3%, bringing the annual average during 2023 to \$12.87/million British thermal units. It also declined in the UK markets (NBP) by 49.9%, bringing the average in 2023 to \$12.30/million British thermal units. LNG prices in Japan, according to the S&P Global Commodity Insights Index, also fell by 22.2% in 2023, reaching \$13.22/million British thermal units.

### **1-4 Most Important LNG Developments Worldwide**

#### **1-4-1 LNG Production Capacity**

By the end of 2023, the global nominal production capacity of liquefied natural gas has risen to 476.7 million tons/year, a slight increase compared to 2022's total of approximately 473 million tons/year. The year 2022 witnessed the operation of just one project, which is the third liquefaction unit in the Tangguh LNG project in Indonesia, after the successful completion of its pilot operations. With the operation of the third unit, the total production capacity of the Tangguh LNG project increased to 11.4 million tons/year.

At the level of exporting countries, Australia tops the list with a capacity of 87.2 million tons/year and a share of 18.3%, followed by the United States of America with a total of 86.9 million tons/year (without the liquefaction plant in Alaska, which has been suspended for years) representing 18.2% of global production capacity. Then comes the State of Qatar with a capacity of 77 million tons/ year, with a share of 16.1%, and thus the three countries collectively accounted for about 52.7% of the total global liquefied natural gas production capacity by the end of 2023.

The total design capacity of LNG receiving terminals at the beginning of 2023 amounted to about 1100 million tons / year, more than double the global nominal production capacity of LNG. The number of countries importing liquefied natural gas is 45, as Germany has joined importing countries in late 2022.

### **2- Arab World Developments**



At the Arab level, the total nominal production capacity of liquefied natural gas in the Arab countries at the end of 2023 reached about 138.5 million tons/year, with a share of 29% of the global production capacity. At the level of Arab countries, the State of Qatar ranks first with a share of 55.6% of the total production capacity in the Arab countries, followed by the Republic of Algeria in second place with 18.3%, then the Arab Republic of Egypt in third place with 8.8%, then the Sultanate of Oman with 8.3%, then Yemen by 4.8% and finally the United Arab Emirates by 4.2%.

### **Natural gas industry and trade developments in 2023 by country:**

- **UAE**

The Abu Dhabi National Oil Company (ADNOC) has awarded a contract to supply compression systems for liquefying natural gas to NP, a subsidiary of Baker Hughes, worth \$400 million, for use in the Ruwais LNG terminal project, which aims to build a plant that includes two units for liquefying natural gas with a total capacity of 9.6 million tons / year. According to the contract, the compression systems will operate with electricity generated from clean energy sources, making the "Ruwais" project the first project of its kind in the Middle East and North Africa to operate with clean electricity, and one of the lowest carbon emission projects in the world. It is scheduled to start operations by 2028.

- **Bahrain**

The Ministry of Oil and Environment is executing projects aimed at improving the gas transportation network to increase its capacity. The Ministry is also working on formulating a new energy strategy at the national level to secure the Kingdom's future energy needs.

- **Algeria**

The National Hydrocarbons Company "Sonatrach" delivered the first LNG load to the new floating receiving, storing, and regasification terminal in Piombino, Italy. It is the first commercial shipment received by the terminal after success pilot operations. The shipment was loaded onto a tanker belonging to Highbrook, a subsidiary of Sonatrach, and its load reached about 90 million cubic metres. Algeria is scheduled to export more liquefied natural gas shipments to the new terminal on a regular basis, to provide gas supplies to the European market, especially Italy.

In a related context, Sonatrach announced in July 2023 the extension of contractual obligations with the French company TotalEnergies in the field of buying and selling liquefied natural gas, in order to strengthen the commercial partnership between the two sides and contribute to achieving energy security for the French market and the rest of the European

markets. In December 2023, Sonatrach announced the extension of the LNG sale and purchase agreement concluded with the Turkish company Botas for an additional 3 years until October 2027, according to which Sonatrach will supply up to 3.2 million tons/year of LNG to Botas. It is worth noting that this agreement was previously renewed in 2014 for a period of 10 years to end in 2024, then the latest extension came for an additional period of 3 years.

- **Saudi Arabia**

In November 2023, Saudi Aramco announced the first tight gas production from the “South Ghawar” region, about two months ahead of schedule. The processing capacity of the facilities that started operations in “South Ghawar” is about 300 million cubic feet/day of crude gas and 38 thousand barrels/day of condensates. It is planned to increase the total processing capacity to more than double, to reach the strategic production goal of about 750 million cubic feet/day of crude gas, to meet the increasing demand for gas in the Kingdom.

- **Iraq**

The Ministry of Oil has developed an integrated strategy to implement several gas projects based on investing in gas associated with oil production, and implementing projects to develop free gas fields, with the aim of investing additional volumes of gas amounting to 2.7 billion cubic feet/day by 2027. In this regard, the Basrah Gas Company inaugurated in June 2023 the first unit of the Basrah Natural Gas Liquefaction Plant with a capacity of 200 million cubic feet/day. It is planned that the plant will include a second unit with a capacity of 200 million cubic feet/day, provided that it enters into operation within 6 months from the date of operation of the first unit.

- **Qatar**

Over the course of 2023, QatarEnergy completed the process of selecting partners for the giant North Field expansion project, which will be implemented in two phases (the eastern sector and the southern sector), with the aim of raising the liquefaction capacity in the State of Qatar from 77 to 126 tons/year by 2027. QatarEnergy also succeeded in concluding several long-term agreements to sell liquefied natural gas from the North Field Expansion Project in its two phases (eastern and southern), including a long-term sale and purchase agreement with the Chinese company CNPC in June 2023, to supply up to 4 million tons/ Year of liquefied natural gas from the expansion of the “Northeast” field for 27 years. QatarEnergy also concluded several agreements with European companies, including two long-term sale and purchase agreements with TotalEnergies to supply up to 3.5 million tons/year from the expansion of

the North East field to France for a period of 27 years, and a long-term sale and purchase agreement with Shell to supply up to 3.5 million tons/year from the North East field expansion to the Netherlands for 27 years. This is in addition to a long-term sale and purchase agreement with the Italian company Eni to supply up to 1 million tons/year from the expansion of the “Northeast” field to Italy for a period of 27 years.

- **Kuwait**

The Kuwait Petroleum Corporation explained in October 2023 that work is underway in coordination with the Saudi side to prepare preliminary engineering designs for the development of the joint offshore “Durra” field located in the area divided between the Kingdom of Saudi Arabia and the State of Kuwait, to be completed during the year 2024. It is worth noting that the “Durra” field development project aims to produce non-associated gas in total of 1 billion cubic feet/day, and 84 thousand barrels/day of condensates.

- **Libya**

The National Oil Corporation announced in April 2023 the complete shutdown of the Mellitah Industrial Complex in preparation for comprehensive maintenance operations, in addition to carrying out maintenance for the Bahr Al Salam and Al Wafa fields starting from 1 May, after this procedure had been postponed several times for various reasons. This affected gas exports from Libya to Italy during the maintenance pause, as the Green Stream pipeline is fed from the Mellitah Industrial Complex after processing the gas produced from the Bahr Al Salam and Al Wafa fields.

- **Egypt**

The year 2022 witnessed the completion of the execution of 4 projects for the development and production of gas from the discovered fields, which contributed to adding about 144 million cubic feet/day of natural gas. Among the most prominent projects that launched operations during the year 2023 is the “North El Amriya and North Idku” project, whose production is estimated at approximately 80-90 million cubic feet/day of gas and approximately 1,200 barrels/day of condensates, at an investment cost of \$234 million. Production has begun in March.

In addition to production and development projects, the full operation of the first phase of linking the gases of the Raven field, to the gas complex in the Western Desert, which is operated by the Egyptian Natural Gas Company (GASCO), has been completed.

- **Oman**

During the year 2023, The Oman LNG Company signed about 14 new agreements to buy and sell liquefied natural gas from its “Qalhat” plant



in the province of Sur, which is the only plant of its kind in the Sultanate of Oman. The new agreements came to replace the historical agreements that the company concluded with Japanese and Korean companies at the beginning of the implementation of the project, which dates back to the year 2000, and will be completed in late 2024 and 2025.

- **Morocco**

In March 2023, British Chariot Oil & Gas company announced the completion of preliminary engineering designs (FEED) for the development of the “Anchois” field, off the coast of Morocco. According to the initial plan, the field will be developed by drilling three wells under the sea at a depth of 390 meters, and connecting them to a marine pipeline to transfer gas production to a processing plant with a capacity of 105 million cubic feet/day. After processing, the processed gas will be connected to the Maghreb-European gas pipeline to feed power plants. The plan aims to maintain a rate of 105 million cubic feet/day for at least 15 years, which can be covered by the reserves of the Anchois field, which are estimated at about one trillion cubic feet.

- **Mauritania**

The Mauritanian Ministry of Petroleum, Mines and Energy stated in November 2023 that the start of liquefied natural gas production from the Tortue-Ahmim field development project off the coast of Mauritania and Senegal will be during the first half of 2024, after it was planned for late 2023. It is worth noting that the first phase of the project aims to place four wells on the production map with a capacity of 200 million cubic feet per day for each well, to feed a floating liquefied natural gas terminal with a capacity of 2.5 million tons per year, with its entire production allocated for export. In addition, the project includes allocating an amount of 35 million cubic feet/day of gas to be directed to the domestic market for use in generating electricity. In a related context, the British company BP announced a change in the development concept to implement the second phase of the project, which was planned to be implemented by raising the floating production and storage unit capacity under implementation in the first phase to 5 million tons/year of liquefied natural gas.

According to the amended plan, a fixed concrete structure (Gravity Based Structure) will be built and fixed to the seabed floor. Accordingly, liquefied natural gas tanks and gas liquefaction units can be built, and gas wells can be connected. BP, the developer of the project, has decided to proceed with the implementation of preliminary engineering studies and designs for this concept.



### III- Petrochemicals Industry

The annual growth rate of the global petrochemical sector during the year 2023 was about 1.6%. It is expected to rise to reach about 2.8% during the year 2024. Despite a relative improvement in demand growth rates in 2023, compared to 2022, for polyethylene, polypropylene, ethylene glycol, and other major petrochemical products in Asia, especially China, which is one of the most important global markets consuming petrochemicals (about 45% of total global demand), this improvement will not absorb the global surplus production of the six basic chemicals, which are the building blocks of production during the period 2023-2025, the volume of which is estimated at about 218 million tons, which is a record level since 1990.

#### Ethylene Markets

Global ethylene markets ended 2023 at lower demand levels as demand for final products continued to slow, especially in the packaging sector. This was accompanied by expectations of an increase in the volumes supplied, with operations starting in 123 planned and announced projects by 2027, bringing the total production capacity to about 310 million tons annually, compared to about 228 million tons in 2023. This may mean a glut of ethylene in global markets. Most of the new projects and excess production capacities come from countries in the Asian and Middle East regions. Asian countries alone will add about 40 new planned and announced projects, with a total capacity of about 43.7 million tons annually, in addition to planned and announced expansions of nine existing projects, with a capacity of about 2.63 million tons annually.

The Middle East came in second place in terms of the number of new and announced projects, which amounted to about 16 projects, with a production capacity of about 18.20 million tons annually. The most prominent of which is the Qatar Chemical Company project - Ras Laffan Ethylene Plant, with a production capacity of about 2 million tons annually, and is expected to begin operation in 2026. This is in addition to expansions with a capacity of about 2 million tons annually in four existing projects in a number of countries in the Middle East.

In contrast, European countries faced many challenges in producing ethylene, due to the fluctuation in prices of naphtha, which they depend on as a primary material for the petrochemical industry. This has negatively affected the profit margins of petrochemical companies.

### **Polyethylene Markets**

The year 2023 witnessed a decline in the growth rates of global demand for polyethylene products as a result of the continued recession in both Asian and European countries, in addition to the economic slowdown in the United States of America. This was accompanied by new production capacities added to a number of projects in the Asian and North American regions, bringing the global production capacity of polyethylene to about 157 million tons annually, which contributed to lower prices and profit margins for some polyethylene producers, and some losses for small producers.

### **Propylene Markets**

The year 2023 witnessed the addition of huge production capacities of propylene, driven by China's huge investments in establishing and operating propane dehydrogenation (PDH) units, which added about 13 million tons annually in just one year. This will cast a shadow on factory operation rates in 2024, which are expected to witness a sharp decline to reach about 74%, compared to about 78%, in 2023. Producers are working to reduce operation rates in an attempt to strike a balance in the markets, especially with the weak demand for propylene products, including polypropylene (the largest consumer of propylene products), as well as, acrylonitrile (ACN), propylene oxide (PO), and a number of alcohols, cumene, and acrylic acid.

### **Polypropylene Markets**

The profit margins of companies producing polypropylene (PP) declined globally in 2023, as a result of weak demand growth and lower global economic growth rates. On the other hand, it is expected that the global production capacity of polypropylene will witness significant growth over the next five years, with the completion of the operation of 159 planned and announced polypropylene projects, most of which are located in Asian countries, followed by the Middle East region. The total global capacity of polypropylene will rise to about 159 million tons annually in 2027, compared to about 110 million tons annually in 2023, an increase of about 44%.

Asian countries are at the forefront of countries that announced their new projects to produce polypropylene with a capacity of about 43 million tons annually. The Middle East region comes in

second place, with 20 new announced and planned projects, at a capacity of about 8 million tons annually. The "Jubail Propylene Plant 2" project, with a capacity of 850 thousand tons annually, affiliated with the Advanced Petrochemical Company, in the Kingdom of Saudi Arabia, is one of the largest projects scheduled to operate in 2024. Also, about 0.07 million tons annually are expected to be added from the expansions of the "Yanbu Polypropylene" plant of the "Lujain" Company in the Kingdom of Saudi Arabia. It is expected to be operational in 2026.

### **Methanol Markets**

Global methanol markets are expected to witness the addition of new production capacities during the next five years, driven by the expansion of activity in the automotive industry and the manufacture of polymers and resins, bringing the total global production capacity to about 302 million tons annually by 2027, instead of about 172 million tons annually in 2023.

The Asia and the Middle East are the two main regions in terms of added methanol production capacities. The number of announced and planned projects in the countries of Asia reached about 26 new projects, with a capacity estimated at about 33 million tons annually. As for the countries of the Middle East, the number of announced and planned projects is about 27 new projects, with a total production capacity of about 32.7 million tons annually. North American countries come next with 15 announced and planned projects, at a total capacity estimated at about 15.20 million tons annually.

### **Green Methanol Markets - Bio-Electricity**

Green methanol production is expanding due to the growing interest in moving towards decarbonization and reducing emissions, especially when used as engine fuel in the automotive, aviation, and marine sectors. Its combustion as fuel for marine engines results in lower emissions of carbon dioxide by up to 95%, nitrogen oxide by 80%, and sulfur oxide and fine particulates by 100%, compared to methanol produced from fossil sources.

In light of OAPEC member countries' efforts in the field of electro-methanol production, Saudi Aramco and the energy and water company affiliated with NEOM, ENOWA, signed an agreement to establish a pilot facility for the production of synthetic fuels (electro-fuel/ E-fuel). The facility will produce



12 tons per day of electrolytic methanol produced from green hydrogen and captured carbon dioxide, using special technologies developed by ThyssenKrupp. The synthetic methanol will then be converted into low-carbon gasoline using ExxonMobil technology.

In the Arab Republic of Egypt, the Alexandria National Refining and Petrochemicals Company (ANRPC) and the Norwegian company Scatec signed an agreement to produce electrolytic methanol in the city of Damietta with a capacity of up to 40 thousand tons annually, which can be increased to 200 thousand tons annually, with investments amounting to about 450 million dollars. On the other hand, the Suez Canal Economic Zone announced its plans to expand the activity of the international ship bunkering company OCI to include gas and e-methanol, to benefit from the transit of about 30% of container transport ships in the world through the Suez Canal.

### **Blue Ammonia and Green Ammonia Markets**

Techniques for converting carbon dioxide into methanol are one of the well-known and proven techniques for reducing carbon emissions. The cost of producing methanol with this technology is relatively high, compared to the cost of producing methanol from fossil sources. Therefore, developing companies are working to develop these technologies to reduce their cost. In this regard, a number of companies worked to operate experimental units to make the necessary improvements.

### **Plastic Waste Recycling**

Some recycled plastic waste products markets witnessed lower demand rates during 2023, especially PET waste, as a result of several factors, including geopolitical issues in Europe, which is one of its main consuming markets. This has also coincided with a drop in Asian demand.



## 2. Developments in the Arab Countries

The Arab countries witnessed developments in the petrochemicals industry during the year 2023, the most important of which were:

### United Arab Emirates

Abu Dhabi National Oil Company (ADNOC) has signed two agreements with Japanese companies to expand the low-carbon hydrogen value chain.

### People's Democratic Republic of Algeria

In July 2023, STEP Polymers SPA, a wholly-owned subsidiary of Sonatrach, was awarded the engineering, procurement and construction (EPC) contract for executing propane dehydrogenation (PDH) and polypropylene (PP) production units, with a capacity of 550 thousand tons per year. The project is expected to be completed within two years. In another vein, the Ministry of Energy and Mines of the Republic of Algeria announced plans to cooperate in petrochemical production projects with the State of Qatar, with the aim of starting a partnership with the state oil company Sonatrach.

### Kingdom of Saudi Arabia

Petrochemical projects in the Kingdom of Saudi Arabia, expected to operate during the period 2023-2027, continue to gain prominence as part of its strategy to convert hydrocarbon liquids into chemicals. There are 44 petrochemical projects, including 36 new projects and 8 expansions of existing projects, followed by midstream projects for processing, storing, transporting and marketing oil, natural gas and natural gas liquids with 13 projects, then upstream projects with 11 projects, and 4 refineries.

As for the scope of foreign projects for the Kingdom of Saudi Arabia during the year 2023, the Saudi Basic Industries Corporation (SABIC) announced the operation of the a polycarbonate production project, in cooperation with the Chinese company Sinopec. Meanwhile, Saudi Aramco concluded a framework agreement for cooperation with Jiangsu Shenghong Petrochemical Industry Group Co. to launch talks on Aramco's potential acquisition of a 10% stake in Jiangsu Shenghong Petrochemical Industry Group Co., Ltd. Moreover, Saudi Aramco, Norinco Group, and Panjin Xincheng Indus Trial Group Co. Ltd announced the start of construction work for a refining and petrochemical complex in Panjin, Liaoning Province, China. The South Korean company DL E&C

announced its acquisition of 26% of the work of the first package to build the “Shaheen” project, in the Ulsan Onsan National Industrial Complex. While Nanshan Holdings Co. Ltd, owner of Shandong Yulong, announced its contract with Scientific Design Co. Inc, owned by the Saudi Basic Industries Corporation, and Clariant Ltd, to license the designs of ethylene oxide and ethylene glycol production technologies, to produce about one million tons of monoethylene glycol in the first phase of the project’s operation.

### **The Republic of Iraq**

The Republic of Iraq announced its plans to implement the “Nebras Petrochemical Industries Complex” project in Basra, the implementation of which has been delayed since 2015. The project includes a refinery with a refining capacity of about 300 thousand barrels per day, and a polyethylene production complex with a capacity of about 2 million tons annually. The project is the first and largest petrochemical project in Iraq since the early 1990s.

### **Sultanate of Oman**

Duqm Refinery and Petrochemical Industries Company (OQ8) has begun the pilot operation of the crude oil distillation unit at Duqm Refinery. This step paves the way for the operation of all Duqm Refinery units. The next phase of the project will be the Duqm Petrochemical Project, with a capacity of 1.6 million tons of ethylene annually. In another vein, the Sultanate of Oman’s exports of polypropylene increased by 14.4% in July/June 2023, compared to the same period in 2022, to reach 166 thousand tons.

### **The State of Qatar**

QatarEnergy Company and Chevron Phillips Chemical Company (CPChem) announced that a final decision has been made regarding the Ras Laffan Petrochemical Complex Project (RLPP) in Ras Laffan Industrial City, with a capacity of about 2.08 million tons per year of ethylene.

### **The State of Kuwait**

The Kuwait Integrated Petroleum Industries Company (KIPIC) announced the list of companies eligible to submit bids for the three main packages of the “Al Zour Petrochemical Complex” project, at an investment cost of approximately \$10 billion.

### **The Arab Republic of Egypt**

The Emirati company “Fertiglobe” announced the delivery of the first shipment of green ammonia produced from renewable energy sources in the world in accordance with the international certification standard for sustainability and carbon, which was produced at the company’s facilities in the Arab Republic of Egypt.

In another vein, Egypt’s Ministry of Petroleum and Mineral Resources announced the establishment of a number of projects aimed at maximizing the added value of the natural resources available in Egypt by producing high-value products instead of importing them. This included the “Silicon Complex” project in New Alamein City, with investments amounting to about \$172 million. It was also announced in January 2023, the establishment of the Egyptian Soda Ash Company, with a capacity of about 600 thousand tons annually, at an investment cost of about \$500 million.



## Chapter 4

### **FOLLOW UP ON ENVIRONMENTAL AND CLIMATE CHANGE ISSUES**







## Follow up on Environmental and Climate Change Issues

The Secretariat General followed the developments of the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol and the 2015 Paris Agreement, the coordination meeting of environmental experts in member countries, and sustainable development meetings.

**The following is a brief review of matters related to this topic during the year 2023:**

### 4-1 Developments at the UNFCCC level, the main deliverables of the Subsidiary Body for Scientific and Technological Advice (SBSTA) and the Subsidiary Body on Implementation (SBI):

**Mitigation:** The question remains about phasing out fossil fuels while countries' economies depend on them through a just transition.

**Financing:** A new post-2025 climate finance target is being worked on to provide developing countries with the necessary financing to reduce their emissions and increase their ability to cope with the effects of climate change.

**Global inventory:** the most important topics of COP28 that must be implemented by 2030.

**Loss and Damage:** A Loss and Damage Fund was established at COP27 and the States Parties were unable to decide on hosting the Santiago Network, leaving it to the next round (COP28) to be discussed.

**Adaptation:** There are four main areas for negotiation:

(Global Goal for Adaptation - Adaptation Commission - Nairobi Action Program - National Adaptation Plans).

### 4-2 The sixteenth regional training workshop to develop the capabilities of Arab negotiators on climate change issues:

The workshop was jointly organized by the Secretariat General of the Organization of Arab Petroleum Exporting Countries (OAPEC) in cooperation with a group of international and Arab organizations (the League of Arab States, the United Nations Economic and Social Commission for Western Asia (ESCWA), and the United Nations Educational, Scientific and Cultural Organization - United Nations Environment Program), at the headquarters of the Secretariat in the State of Kuwait during the period 16-18 July 2023. This workshop is

considered one of the main events in preparing and qualifying Arab negotiators on climate change issues. Over the course of three days, the workshop discussed various issues, including developing the skills of Arab officials in negotiating issues arising in climate change negotiations and preparing for the next session, COP28, in Dubai, United Arab Emirates. The most important recommendations and results of the Arab Negotiating Group were also discussed, and a unified vision was developed on various issues for the upcoming Conference of the Parties.

#### **4-3 Developments at the level of the Arab Negotiating Group for Climate Change Negotiations:**

The negotiating group held several meetings via ZOOM technology during the first half of this year. The group also held a meeting on the sidelines of the Middle East Climate Week in Riyadh on 7 October 2023. The Arab Negotiating Group discussed its perceptions and visions regarding various issues of common interest and the required Arab negotiating position on the topics of the agreement, such as Article 6 of the Paris Agreement, which relates to carbon markets, losses and damages to developing countries, response measures, and other important topics.

#### **4-4 Climate Week in the Middle East and North Africa, held in Riyadh, Saudi Arabia, 8-12 October 2023:**

During Climate Week, several issues were emphasized, the most important of which is joint financing, which should be the primary goal from which the world starts, and the necessity of developed countries work on projects that will reduce carbon emissions, accelerate climate action, in addition to underscoring comprehensive approaches to dealing with climate change and praising the four pillars of the upcoming Conference of the Parties COP28. Climate Week also launched several initiatives, the most important of which are the market mechanism to compensate and balance greenhouse gases in the Kingdom of Saudi Arabia, and the road map for the goal of the Saudi Green Initiative.

#### **4-5 Meetings of the Arab Development Report Authority for the year 2023 and preparation for the Arab Development Report, eighth edition, 2024:**

Several virtual editorial board meetings were held to prepare for the Arab Development Report for the year 2023. This is for the first time that the OAPEC Secretariat General, in cooperation with the National

Planning Institute of the Arab Republic of Egypt, the Arab Planning Institute in the State of Kuwait, and the Economic Association of the Arab Republic of Egypt, for the seventh edition of the Arab Development Report on 9 September 2023. The Secretariat General participated in a paper on (Climate Change Negotiations and Potential Repercussions on Energy) within the Seventh Development Issue for the year 2023 entitled Climate Change and Sustainable Development in the Arab Countries. It will be distributed at the activities of the upcoming Conference of the Parties in Dubai COP28, as well as the preparatory meeting for the Arab Development Report's eighth edition, 2024.

#### **4-6 The Thirtieth Coordination Meeting of Environmental Experts in the Member Countries:**

In implementation of the work plan of the Secretariat General of the Organization of Arab Petroleum Exporting Countries (OAPEC) for the year 2023, the thirtieth coordination meeting of environment and climate change experts in member countries was held in-person, and via video call, in the State of Kuwait on Monday, 13 November 2023.

Representatives of the following member countries of the organization participated in the meeting: the Kingdom of Saudi Arabia, the State of Kuwait, the Arab Republic of Egypt, the Republic of Iraq, in addition to a representative of the League of Arab States and the Secretariat General delegation.

After listening to the speeches and papers presented at the meeting and the extensive discussions on the various topics raised related to climate change, the participants emphasized the elements agreed upon within the Arab negotiating position and approved by the competent authorities of the League of Arab States, the most important of which are:

- Adherence to the basic elements of the Convention, especially the historical responsibility and national circumstances of each member country.
- Fully supporting the UAE's hosting of the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP 28) and praising the four pillars of the conference:
- Accelerating the process of just, equitable and responsible energy transition, and reducing emissions before 2020.
- Transforming climate finance path.
- Mobilizing efforts with everyone's involvement.
- Ensuring that the outcomes of COP 28 are consistent with the



principles of the Convention and the Paris Agreement.

The UNFCCC gives priority to the economic development of developing countries, especially those whose economies depend on a single source of income. It also stressed that developing countries' implementation of their obligations depends on the extent of the commitment of developed countries (Annex I countries) by providing technology and financial resources, building capabilities, and compensating them. However, it included flexible legal obligations, which allowed some Annex I countries to interpret it to serve their economic interests.

Emphasizing the principle of common but differentiated responsibility, differentiated capabilities and equity is the basis for implementing the United Nations Framework Convention on Climate Change and the Paris Agreement.

Arab countries should pay attention to updating their list of Nationally Determined Contributions (NDCS) regarding the oil and gas sector under the Paris Agreement and notify the Agreement Secretariat based on the following:

- Reducing CO<sub>2</sub> emissions by recycling within the circular carbon economy.
- Benefiting from the flexibility of Article 6 of the Paris Agreement.
- Demand carbon capture and storage technologies in accordance with the provisions of the agreement.
- Expedite the submission of national communications and reports to the Agreement Secretariat.

#### **4-7 COP 28:**

The twenty-eighth Conference of the Parties, COP28, was held for the second time in a row in an Arab country that is a member of OAPEC, which is the United Arab Emirates, during the period from 29/11/2023 to 13/12/2023. The importance of this session of the Conference of the Parties to the United Nations Framework Convention on Climate Change comes because it is the first time that an agreement has been reached in 28 years. It included a commitment to the first global assessment of how countries can accelerate action to achieve the goals of the historic Paris Agreement (2015). Over a period of two negotiating weeks, the first event of the conference was the Global Climate Action Summit, which included 154 heads of state and government. During this difficult negotiating round, the States Parties reached the historic UAE agreement on a set of issues, the most important of which are:

- In response to the results of the global inventory, there was a call on States Parties to gradually reduce the use of fossil fuels in an orderly, fair and responsible manner, triple the production capacity of renewable energy, and double energy efficiency globally by 2030. Therefore, international recognition of the possibility of using low-emission petroleum is an opportunity that must be seized by the Arab countries that are members of OAPEC.
- Agreeing the UAE's framework for global climate resilience to support adaptation to the repercussions of climate change at the global level through topics necessary for sustainable development (water - food - agriculture - health - ecosystems and biodiversity, infrastructure and human settlements, eradicating poverty, enhancing livelihoods and cultural heritage).
- Raising the financing ceiling and the Loss and Damage Fund:
  - The Global Climate Fund and addressing its repercussions, which is hosted by the World Bank for a period of 4 years, with a specific percentage allocated to support the least developed countries and small island and developing states. The United Arab Emirates announced that it will be the first to pay a contribution of \$100 million, as well as Germany, \$100 million.
  - The Green Climate Fund received an increase in financial contributions, as 6 countries pledged to provide additional funding, with the funds provided amounting to \$12.8 billion, provided by 31 countries.
  - Eight donor governments also announced their commitment to provide additional funding to the Least Developed Countries Fund and the Climate Change Fund, bringing the total contributions to more than \$174 million. Some countries also announced additional funding to the Adaptation Fund, where those contributions amounted to more than \$174 million.

Deliberations at COP28 concluded with the need to set a new collective target on climate finance in 2024. This goal will include the cornerstone of the national climate plans required to be submitted by 2025, noting that the minimum for this goal is \$100 billion per year.

The Just Transition Action Program includes labor rights and social protection as part of the adaptation process, for the first time in the history of the Conference of the Parties.

Mitigation Action Programme, highlights the available opportunities

and obstacles facing meeting implementation targets, raising the ceiling of ambition, and addressing gaps in the issue of emissions mitigation through holding global dialogue sessions at least once every year, and investment events in this field during the year 2024.

More than ten new pledges have been launched that will help develop the global economic system, the most important of which are:

- 133 countries pledged to triple the production capacity of renewable energy sources and double energy efficiency.
- 52 companies, representing 40% of global oil production, signed the oil and gas sector emissions reduction charter, 35 companies and 6 industrial associations joined an accelerator on cooling industrial transition, and 66 countries announced their joining of the sustainable pledge related to climate change.
- The States Parties also agreed that the Republic of Azerbaijan is to host the twenty-ninth session of the conference during 11- 22 November 2024, and Brazil to host the thirtieth session of the conference during 10-21 November 2025.





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