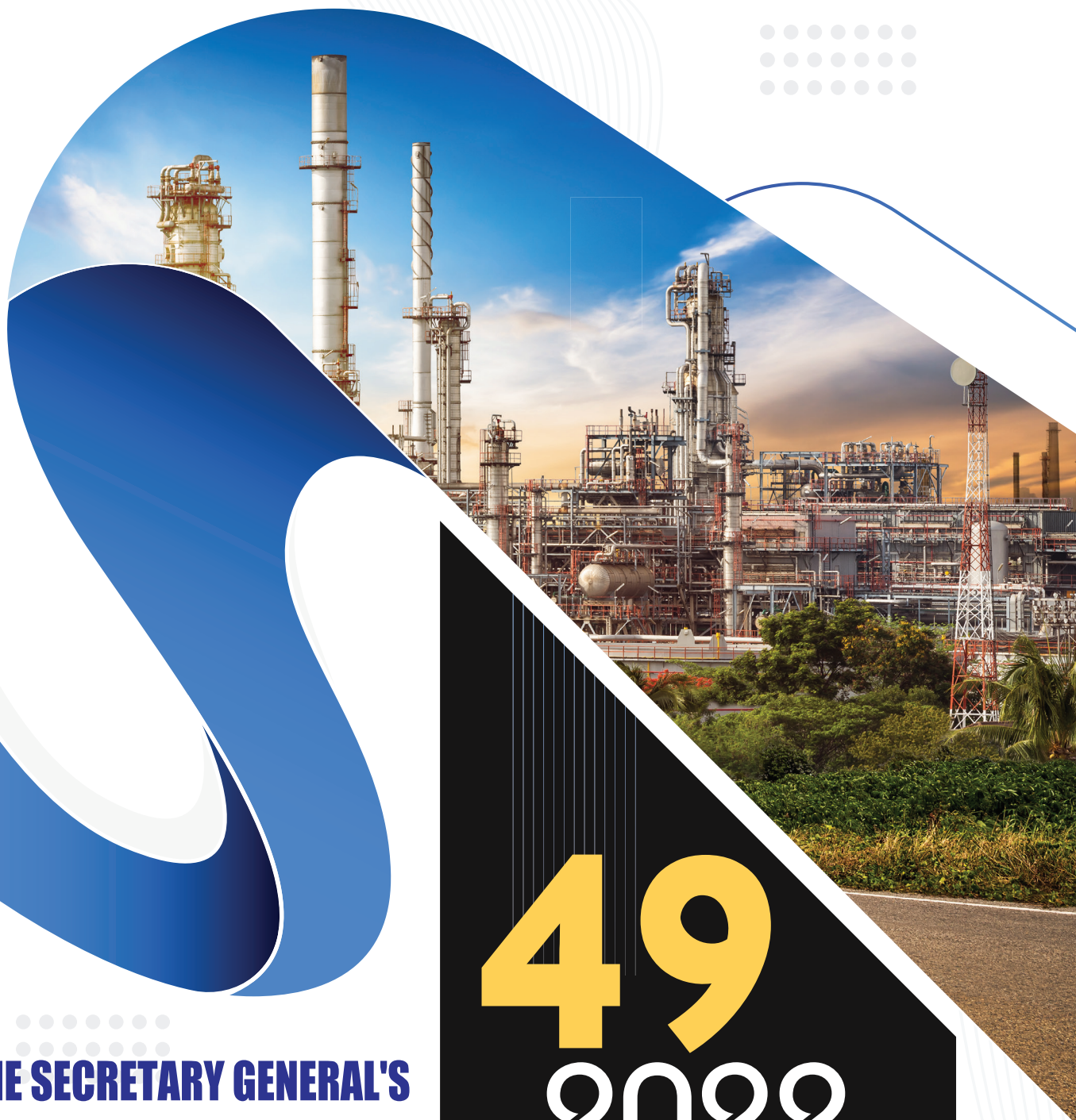


ORGANIZATION OF ARAB  
PETROLEUM EXPORTING  
COUNTRIES (OAPEC)



# THE SECRETARY GENERAL'S ANNUAL REPORT

# 49 2022

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**ORGANIZATION OF ARAB PETROLEUM EXPORTING COUNTRIES (OAPEC)**

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<b>PREFACE</b>	<b>8</b>
<b>PART ONE</b>	
<b>International Oil Market Developments &amp; their Implications for OAPC Member Countries</b>	<b>13</b>
<b>Developments in Arab &amp; International Upstream industries</b>	<b>23</b>
<b>WORLD &amp; ARAB DEVELOPMENTS IN PETROLEUM DOWNSTREAM INDUSTRIES</b>	<b>37</b>
• REFINING INDUSTRY	38
• NATURAL GAS CONSUMPTION, TRADE & PROCESSING	44
• PETROCHEMICAL INDUSTRY	50
<b>PART 2</b>	
<b>OAPC ACTIVITIES IN 2021</b>	<b>55</b>
• STUDIES	57
• REPORTS	59
• PAPERS	60
• SEMINARS & CONFERENCES ORGANIZED BY THE SECRETARIAT GENERAL	60
• CONFERENCES & MEETINGS OAPC SECRETARIAT GENERAL PARTICIPATED IN	61
• FOLLOW-UP ON ENVIRONMENT & CLIMATE CHANGE	64
• MEDIA ACTIVITY	67
• DATABANK	70
• ADMINISTRATIVE AND FINANCIAL ACTIVITIES	71
<b>OAPC Joint Ventures Activities</b>	<b>73</b>
<b>Secretariat General</b>	<b>77</b>
• COUNCIL OF MINISTERS	<b>78</b>





## Introduction

It gives me great pleasure to put in your hands the 49th Secretary-General's Annual Report for the Year 2022, which reviews the most important Arab and international developments in the various activities of the energy industry in general, with special focus on oil and gas. Through the statistics provided in this report, the reader will have a feel for the leading position of OAPEC member countries in the global oil and gas industry scene.

The release of this report comes at a time when global energy markets are witnessing severe fluctuations as a result of the Russian-Ukrainian crisis that erupted by the end of February 2022 and caused major changes



in the oil and gas trade map, in addition to slowing the growth of the global economy amid a state of uncertainty caused by the high rates of inflation in major economies that reached levels not seen in four decades, prompting central banks to tighten their monetary policies, and the US dollar to rise to its highest rate since 2002. Moreover,

repeated lockdown measures in China under the Zero-Covid policy have also negatively affected supply chains and global trade levels. Based on these data, the activity of global manufacturing industries slowed down significantly, and in light of the rise in crude oil prices, the growth rate of global oil demand declined compared to last year, to remain below its levels recorded before the Covid19 pandemic.

Here, I would like to commend the efforts made by OAPEC member countries within the framework of the OPEC+ group in order to achieve stability and balance in the global oil market, by following the successful approach of taking proactive measures to face what is expected to happen in the oil market. OPEC+ took a number of important decisions in 2022 that contributed significantly to reducing the negative impact of fluctuations on the global oil market.

The report seeks to highlight the various issues referred to above in some detail and analysis, in order to draw a clear picture of the developments in the energy industry during the year 2022. It also highlights the efforts made by our member countries to develop their petroleum industries through their execution of vital projects in various stages of the industry, as well as the announced oil and gas discoveries, which prove the significant leading position of the Arab region in terms of the oil and gas industry, now and in the future. This is in addition to clarifying our member countries' efforts to mitigate the repercussions of oil prices fluctuations in the global market on their national economies.

The report also reviews OAPEC Secretariat General's efforts at regional and international levels and its permanent endeavours to strengthen the bonds of communication and cooperation with regional and international bodies, organizations and research centres interested in the energy sector. In this

context, the Secretariat General organized several specialized training courses for its member countries, held coordination events and meetings for experts in the member countries, and carried on with its efforts to boost its presence internationally.

As for the sections of the report, the first part tackles, in an analytical manner supported by statistical data, Arab and international developments in the energy industry, and their implications for the economies of OAPEC member countries. It reviews the various factors affecting energy markets such as supply, demand, and levels of oil reserves, in addition to other factors affecting supply, demand, and price trends, such as geopolitical factors and energy policy trends in major industrial and non-industrial countries.

The second part is devoted to reviewing the activities of the organization during the year 2022, including the meetings of the Council of Ministers and the Executive Bureau of the organization, the economic and technical studies prepared by the General Secretariat, and the seminars, meetings and conferences it participated in whether regionally or internationally. This part also includes the administrative and financial results of OAPEC joint ventures, and their efforts to expand their activities in light of the great competition from other major oil companies.

In conclusion, we hope that this report will contribute to introducing our readers to the current developments in the energy industry, both on Arab and international levels. We also hope that you will find it useful and enlightening with regards to OAPEC, its role, goals and activities.

**Thank you.**

**Secretary General  
Jamal Al Loughani**







ORGANIZATION OF ARAB  
PETROLEUM EXPORTING  
COUNTRIES (OAPEC)



# PART 1

## 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 2022, the global oil market has experienced extreme fluctuations influenced by the Russian-Ukrainian crisis that has made major changes in the oil trade map, in addition to slowdown in global economic growth amidst uncertainty caused by rising inflation rates in major economies to levels not seen in four decades, prompting central banks to tighten their monetary policies. Also, the US dollar rose to its highest rates since 2002. Repeated lockdown measures in China under the Zero-Covid policy also negatively affected supply chains and levels of world trade. In this context, the activity of global manufacturing industries slowed down significantly, and the growth rate of global oil demand declined compared to last year, in light of the rise in crude oil and fuel prices, so that demand remained below its levels recorded before the COVID19 pandemic.

As part of the continued efforts towards achieving stability and balance in the global oil market, and in line with the successful approach of taking proactive measures, the OPEC+ group took a number of important decisions that contributed significantly to mitigating the negative impact of fluctuations on the global oil market. In this context, OPEC countries' crude oil and unconventional oils supplies increased in 2022 by about 2.6 million barrels / day compared to 2021, recording 34.3 million barrels / day, while supplies from non-OPEC producing countries increased by about 1.9 thousand barrels / day to reach about 65.6 million barrels / day.

In general, primary data on global crude supply and demand in 2022 showed a surplus of 300 thousand barrels /day, compared to the deficit of 1.7 million barrels/ day in 2021.

The annual average price of the OPEC basket of crudes increased during 2022 compared to the previous year, reaching its highest levels recorded since 2013, which is \$100.1 per barrel.

### **Main Developments in the Global Oil Market for 2022 and Influencing Factors:**

- **Supplies**

In 2022, total global oil supplies (crude oil and NGL) have

increased by about 4.6 million b/d, or 4.8% compared to the previous year to reach 99.9 million b/d, close to their pre-pandemic levels.

- **OPEC Supplies**

OPEC crude oil and NGL supplies have risen in 2022 by about 2.6 million b/d, or 8.4% compared to the previous year to reach about 34.3 million b/d. OPEC share of total global oil supplies has risen from 33.2% in 2021 to 34.3% in 2022.

It is worth noting that OPEC crude supplies have risen from about 26.3 million b/d in 2021 to about 28.9 million b/d in 2022. OPEC NGL and unconventional oil supplies have also risen by about 110 thousand b/d to reach about 5.39 million b/d in 2022.

OPEC member countries spared no effort to maintain the global oil market balance especially in light of the escalating Russian-Ukrainian crisis and the state of uncertainty surrounding the global economy which played a role in the fluctuations of the global oil market performance, and the industry in general.

- **Non-OPEC Supplies**

Non- OPEC total oil supplies in 2022 have reached about 65.6 million b/d with an increase of 1.9 million b/d, or 3% compared to 2021. The source of the greatest part of the rise was the increase in oil supplies from the USA, South American countries, Russia, and China. As US production increased by about 1.2 million barrels / day to reach 19 million barrels / day, coinciding with US energy companies increasing the number of operating oil rigs by about 30% during 2022, supported by high crude oil prices and the increasing demand for energy companies to raise their production rates, with the US President and the US Department of Energy asking those companies to increase crude oil production in the near term to avoid a shortage of supplies in light of the escalating Russian-Ukrainian crisis. South American countries' oil supplies have also increased during the year 2022 by about 390 thousand b/ d compared to the previous year, to reach 6.3 million b / d. The increase is attributed to an increase in oil production in Argentina supported by a rise in unconventional oil production, and a rise in oil production in Brazil coinciding with the operating of some new oil fields. Oil supplies from China rose by about 150 thousand barrels / day to reach about 4.5 million b / d, supported by the investments of Chinese national oil companies in emerging new

projects, additional wells, oil field development and enhanced oil recovery projects. Russian oil supplies increased by about 230,000 b/d, with the support of the decisions of OPEC+ countries regarding increasing production during the period (January-September) 2022, despite the repercussions of the Russian-Ukrainian crisis, which was a major cause of the sharp decline of these supplies in April 2022, of about 964 thousand b/d.

- **Global Oil Demand**

Global oil demand has risen in 2022 by about 2.5 million b/d, or at a growth rate of 2.6%, to reach 99.6 million b/d, which is still below its pre-pandemic rate of 100.2 million b/d recorded in 2019.

According to major international groups, OECD oil demand has risen in 2022, at a growth rate of 3% compared to a growth rate of 6.6% in the previous year. In other parts of the world, oil demand has risen registering a growth rate of 2.3% in 2022 compared to a growth rate of 6.2% in 2021. This is mainly attributed to a global economic recovery from COVID-19 pandemic repercussions in spite of a slowdown in the performance.

- **Crude Oil Prices**

In 2022, global crude oil prices have risen in spite of significant disturbances in their trends, especially in the futures markets, in light of the escalation of the Russian-Ukrainian crisis. The monthly rates of the price of the OPEC crude basket fluctuated within a wide range, ranging between \$79.7 and \$113.9 per barrel. The annual average of the basket recorded its highest level since 2013, which is \$100.1 a barrel, representing an increase of about \$30.2 per barrel, equivalent to a growth rate of 43.2% compared to the levels of 2021. In general, the year 2022 witnessed a widening gap in the differences between the maximum and minimum prices of the monthly OPEC basket throughout the year, which reached about \$38/barrel, compared to the differences of the previous year, which amounted to about \$27.7/barrel.

Price developments and their disparities movement pattern throughout the year 2022 have reflected on spot prices of the various Arab crudes in general, which behaved in a similar way of sharp hikes in varying degrees compared to the previous year. Arab light crude price has increased by \$31 per barrel reaching about \$101.6 per barrel in 2022; a rise of 43.9% compared to the previous year. Algeria's Sahara Blend, UAE's Murban, and Kuwait



export crudes have risen by \$33.4, \$28.8, and \$30.7 per barrel to reach \$104.2, \$98.9 and \$101.2 per barrel, i.e., an increase of 47%, 41.1%, and 43.5% respectively. As for other Arabian crudes: Libya's Es Sider rose by \$32.1 per barrel (46.4%) to reach about \$101.3 per barrel; Iraq's Basrah rose by \$28.6 per barrel (41.6%) to reach \$97.3 per barrel; and Qatar Marine Crude Oil rose by \$31.3 per barrel (44.4%) to reach \$101.8 per barrel.

- **Spot Prices of Oil Products**

The crude oil price hike has influenced the annual average price of various oil products in 2022, which in turn witnessed an increase in all major markets around the world by varying degrees according to market and product type. In 2022, premium gasoline price rate registered \$134.6 per barrel in the US Gulf market; \$136.3 per barrel in Rotterdam market; \$120 per barrel in the Mediterranean market; and \$115 per barrel in Singapore.

Gasoil average annual prices in 2022 have risen in general in all major markets compared to the previous year. In 2022, Rotterdam market accounted for the highest gasoil prices of \$142.3 per barrel, followed by the Mediterranean (\$135.9 per barrel); Singapore (\$134.9 per barrel); and the US Gulf with the lowest price of \$122.1 per barrel. Average fuel oil prices have risen in all markets in 2022: Singapore market (\$129.7 per barrel); Mediterranean (\$94.5 per barrel); Rotterdam (\$88.8 per barrel); and the US Gulf market (\$76.8 per barrel).

- **Oil Freight Rates**

In 2022, freight price rates rose significantly to their pre-pandemic rates. Crude oil tankers have had to take longer routes due to sanctions on Russian oil exports, which has limited tanker availability. It should be noted that, given the significant changes in global crude oil trade trends and shipping routes, especially with the entry into force of the ban imposed by the European Union on imports of Russian crude oil on 5 December 2022, the demand for oil tankers is expected to increase during 2023 to levels not seen in three decades.

In 2022, 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 risen to about \$12.2/ton. A rise 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 \$9.4/ton. As for the Mediterranean region for small and medium-sized tankers (80,000-85,000 dwt), freight price rates averaged about \$12.5/ton.

- **Various Oil Inventories**

2022 witnessed a rise in commercial oil inventories amidst an increase in OPEC + countries production levels during the period (January-September 2022) and the withdrawal of the main consuming countries from their strategic reserves, which in turn witnessed a decrease in their levels. In general, the total global oil stocks increased to reach 8.954 billion barrels by the end of the fourth quarter of 2022, which represent an increase of about 293 million barrels, or 3.4% compared to the same quarter of 2021. Crude oil stocks at sea have risen by about 200 million barrels compared to 2021, to about 1.548 billion barrels by the end of 2022. This is mainly attributed transiting oil via ports in light of the change in the course of trade flows, after Russian crude oil has moved away from the traditional European market and sailed longer distances to Asia, and Europe's replacement of this oil from other sources, which requires a longer shipping time.

Commercial inventories in OECD countries reached about 2.758 billion barrels by the end of Q4/2022. It is worth noting that OECD commercial inventories level of days cover has reached a level of about 59.6 days.

Strategic stocks decreased significantly at the end of the fourth quarter of 2022, amounting to 282 million barrels, compared to levels recorded at the end of the fourth quarter of the previous year, to reach 1.501 billion barrels. The US Strategic Petroleum Reserve (SPR) has decreased to about 372 million barrels in Q4/2022, the lowest since the fourth week of November 1983. In this context, it should be noted that the US Department of Energy announced the sale of 18 million barrels of strategic oil stocks during January 2022 as part of a coordinated plan with some major consuming countries, including China, India, Japan and South Korea, to withdraw from their stocks, in an attempt to reduce from rising fuel prices. This came before the United States of America announced at the beginning of March a plan to withdraw 30 million barrels of strategic crude oil stocks within the framework of the International Energy Agency's initial emergency plan to withdraw 72.7 million barrels to alleviate the growing shortage of supplies in the oil markets resulting from the Russian-Ukrainian crisis.

At the end of the same month, the United States of America

announced a record withdrawal of strategic crude oil stocks amounting to 180 million barrels (1 million b / d for a period of six months) starting from May 2022. The rest of the member states of the International Energy Agency also announced the withdrawal of 60 million barrels of their strategic stocks over a six-month period, making it the largest stockpile draw in the history of the IEA.

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

Oil price rates in 2022 and OPEC+ decisions (including 5 OAPEC member countries) were reflected on the value of oil exports, which are the main drive for social and economic development in OAPEC countries, the mainstay for their central banks' foreign currency reserves, and the main booster for their budget surplus.

It is notable that OAPEC crude oil exports value has risen from \$422.2 billion in 2021 to \$ 686.6 billion in 2022, due to sharp hikes in price levels by 43.2% against the backdrop of the Russian-Ukrainian crisis repercussions, and the OPEC+ resolutions aiming at achieving stability and balance in global oil markets. This represents a rise of about \$264.4 billion, or 62.6%, compared to 2021 levels.

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

- **Total Energy Consumption**

Energy consumption has risen in OAPEC member countries by 1.9% to reach about 13.3 million boe/d in 2022, supported by continued economic recovery from COVID19 pandemic repercussions. The member countries energy consumption depended almost entirely on oil and natural gas resources to meet their energy needs; they accounted for about 97.2% of their total energy consumption in 2022. Natural gas topped the consumption list in 2022 by 56.4%; followed by oil (40.8%); then coal (2.1%) and hydropower (0.7%). The average per capita energy consumption in the member countries has dropped from 18.1 boe/d in 2018 to 17.1 boe/d in 2022. The drop took place in all member countries except Bahrain, Kuwait and Algeria.

- **Energy Consumption by Source**

Natural gas consumption has risen in OAPEC member countries by 2% to about 7.5 million boe/d in 2022. Gas is mainly consumed in 5 countries: KSA, UAE, Egypt, Qatar and Algeria.

2022 witnessed a rise in petroleum products consumption

in OAPEC member countries by 1.9% to reach about 5.4 million boe/d. Three countries out of OAPEC members have significant consumption rates of petroleum products and crude oil: KSA, Iraq, and Egypt.

Hydropower consumption has risen in OAPEC members by 0.3% to reach 89 thousand boe/d in 2022. Egypt the biggest hydropower Arab producer and consumer. Coal's share has maintained its 2021 rate of 277.4 thousand boe/d in 2022.

- **Domestic Prices**

Eight member countries resorted to amendments to their petroleum products prices in their domestic markets in 2022; they are: UAE; Tunisia; Algeria; KSA; Syria; Iraq; Kuwait; and Egypt.

### **Oil Market: Short Term Future Prospects**

- **Global Oil Supplies**

OPEC forecasts a hike in non-OPEC oil producing countries' supplies in 2023 by about 1.5 million b/d, or 2.4% compared to 2022, to reach about 67.16 million b/d, driven mainly by USA, Brazil, Canada, Kazakhstan, and Guiana. The USA is expected to account for the largest share of this rise by about 74.7%, reaching a total supply of about 20.19 million b/d in 2023. On the contrary, Russian oil supplies are expected to drop by about 850 thousand b/d, on the backdrop of the ongoing Russian-Ukrainian crisis, to reach 10.2 million barrels/day.

- **Global Oil Demand**

Latest OPEC forecasts indicate a continued recovery in oil demand during 2023, albeit at a slower pace than the previous year, which is expected to increase by 2.2 million barrels/day, or 2.2% compared to 2022 levels, reaching about 101.8 million barrels/day. Demand is forecasted to grow by only 0.7% in OECD countries to reach about 46.5 million barrels/day; and by 3.5% in the rest of the world to reach about 55.3 million barrels/day. In this context, oil demand is expected to recover in China against the background of lifting COVID19 restrictions related to their policy to prevent the spread of the Corona virus, while other regions expect a decrease in oil demand due to economic challenges. In general, these forecasts are subject to many uncertainties, including global economic developments, and ongoing geopolitical tensions.



- **Global Investments**

Based on OPEC reference scenario, which expects global oil demand to grow by about 13 million b/d during the period (2012-2045), and given the natural decline in oil field production, the total investment required to meet global oil demand until 2045 is about \$12.1 trillion (\$9.5 trillion in exploration and production activities - Upstream, \$1 trillion in storage and transportation activities - Midstream, and \$1.6 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

In 2022, the petroleum industry went through a gradual recovery from the effects of the Covid-19 crisis, however, it was hit this time by the geopolitical crisis between Russia and Ukraine. The number of exploration licenses globally declined to its lowest level since 2019, as only 21 licensing rounds were completed until August 2022, compared to 42 licensing rounds during the first eight months of 2021. The area granted under licenses also shrank to its lowest level in 20 years, not exceeding 320,000 square km.

The number of contracts signed in the oil and gas sector has decreased globally. For example, the number of these contracts decreased in the third quarter of 2022 to 1,542 contracts, representing a decline of 7% from the number of contracts signed in the second quarter of the year, which amounted to 1,662 contracts.

However, these negative changes did not include all regions of the world equally. Asia witnessed an increase in the number of licenses in Malaysia, Indonesia, India and Pakistan compared to previous years. In South America, Guyana announced in December 2022 a licensing round for 14 new offshore blocks. The areas of licenses granted in all of Asia between January and August 2022 quadrupled compared to the same period last year, and the areas of licenses in South America increased by 140%, while the licensed areas in Africa decreased by 70% to only 46 thousand square kilometres distributed in Egypt, Morocco, Angola, and Zimbabwe.

In Europe, the United Kingdom increased its gas production in the first half of 2022 by about 26% compared to the same period in 2021, then launched a licensing round on 7 October 2022, which included 898 blocks. The UK government lifted the ban on shale gas production in England, and confirmed its support for a new round of exploration and production licenses, indicating that the United Kingdom will seek to be an energy exporting country in 2040. Norway announced that it will continue oil and gas exploration operations during the next four years, despite previously announcing its intention to reduce its greenhouse gas emissions by 55% in 2030.

The Russian-Ukrainian geopolitical crisis was also reflected in the form of potential bottlenecks in some stages of supply chains within the petroleum industry, which prompted some authorities to increase the value of their investment plans to face the possibilities of supply chains faltering, including, for example, the announcement of the “National Statistical Centre” in Norway, that Norwegian oil and gas companies increased their investments by about 12% in 2022.

In the same vein, after three years of US sanctions on Venezuela, Chevron obtained a six-month license from the US Office of Foreign Assets Control (OFAC), allowing the company to produce crude oil and petroleum products from its projects in Venezuela, and to import diluents that help produce Venezuelan extra-heavy oil, provided that all production is exported to the United States.

Among the notable events in 2022 was Cyprus's announcement of a new gas discovery in September 2022, through the Cronos-1 well, whose geological reserves were estimated at about 70 billion cubic meters. It is the second discovery after Calypso-1, which was made in 2018, whose geological reserves were estimated at about 127 billion cubic meters. In December 2022, it also announced a third giant gas discovery, whose geological reserves were estimated at 56-84 billion cubic meters. In the same context, Türkiye announced in late 2022 that it had made a new gas discovery with estimated reserves of about 58 billion cubic meters, which raises the Turkish gas reserves discovered in the Black Sea to about 710 billion cubic meters.

Also, among the notable events in 2022 was Nigeria's official announcement of the start of development drilling for the giant “Kolmani” discovery that was made back in 2019. Its reserves are estimated at about 1 billion barrels of oil and more than 14 billion cubic meters of gas. In Ivory Coast, a plan for early production from the Baline discovery, which was made in 2021, was announced. Its reserves are estimated at 2 billion barrels of oil and 98 billion cubic meters of associated gas. It is scheduled to start production in late 2023.

On the OAPEC member countries' front, there were various activities in terms of the development of the petroleum industry in general, including, for example, the awarding of a large number of contracts in the United Arab Emirates to promote growth in drilling activities, as part of the UAE's plan to increase its oil production capacity to 5 million b/d by 2030. In early December 2022, the UAE signed an agreement with Petronas,

the first of its kind in the Middle East, whereby, under the 6-year concession agreement, the company will explore and evaluate unconventional oil in onshore Block 1, which extends over an area of 2,000 square kilometres in the Al Dhafra region. Petronas estimated the recoverable unconventional resources potentials in Abu Dhabi at about 22 billion barrels of light sweet oil.

In Algeria, Sonatrach announced an investment plan in the field of exploration between 2022 and 2026 at a value of \$40 billion, indicating that it had achieved remarkable success in exploration activities during the year 2022. The Company's CEO indicated that Sonatrach's production capacity will double within four years as a result of the pace of current exploration operations. In July 2022, Algeria signed a production-sharing agreement with three international companies to develop Blocks 404 and 208 in the "Berkine" basin. In September 2022 it began producing from two gas fields in the same basin, and Sonatrach stated on its official website that the two fields will be raise the daily production rate by 1 million m<sup>3</sup>/d of gas and 4000 b/d of natural gas liquids. Production can reach 2 million m<sup>3</sup>/d of gas later.

In Bahrain, the Oil and Gas Holding Company announced the discovery of two new unconventional gas reservoirs in the "Al Juba" and "Al Jouf" layers, located under the "Al Khaf" and "Onaiza" natural gas-producing reservoirs in the Kingdom.

In Saudi Arabia, Aramco announced five new gas discoveries in the end of February 2022, which are (Shadun field) in the central region, (Shehab and Sharafah) in Al Rub' al Khali (the Empty Quarter), (Umm Khansar field) in the northern border region, and unconventional gas field (Samnah field) in the eastern region. In November 2022, it also announced two more gas discoveries (Awtad and Al Dahna).

In Syria, the "Zamlat Al Mohr-1" gas well has been put on production with a capacity of 250,000 m<sup>3</sup>/d. It is the first well to produce from this field located east of Palmyra. It was discovered in 2021.

In Iraq, The Iraqi Drilling Company has completed the drilling of a number of directed wells, including the "Gharraf 132" well, which is the fifteenth well within a contract that includes the drilling of 28 directed wells in the "Al Gharraf" oil field in the "Dhi Qar" governorate. The company also completed the drilling of the "Zubair 551" well in the "Zubair" field in the "Basra" governorate, which is the eighth well within a contract concluded to drill 37 wells in the aforementioned field.

In Qatar, within the scope of the expansion of the "North"

field, "Qatar Energy" was awarded an engineering, procurement and construction contract for marine works, which includes the construction of thirteen unmanned production platforms, in addition to pipelines linking the fields with onshore and offshore facilities, stations and control valve buildings. The project is expected to raise Qatar's LNG production capacity from 77 million tons/year to 126 million tons/year in 2025.

In Kuwait, on 21 March 2022, a document was signed to develop the "Durra" gas field, which stipulated that the Al Khafji Joint Operations Company, agree to choose a consultant for engineering work to conduct the engineering studies necessary to develop the field. The field's production is expected to reach more than 28 million m<sup>3</sup>/d of gas, in addition to 84 thousand b/d of condensates. In December 2022, a memorandum of understanding was signed, which included the formation of a specialized engineering technical team to re-evaluate and complete the engineering studies for the project.

In Libya, in the beginning of 2022, the Tahara field (within concession NC40) was put on production at an initial rate of 2,500 b/d. It is expected that the field's production rate will rise to 40,000 b/d when the development requirements are met. In February 2022, an agreement of understanding was signed between the National Oil Corporation and the Algerian company Sonatrach, according to which Sonatrach will return to complete its previous contractual obligations and develop the discovered fields.

In Egypt, in the beginning of 2022, eight exploration areas with an area of about 12.3 thousand square kilometres (two areas in the Mediterranean Sea, four areas in the Western Desert, and two areas in the Gulf of Suez) were awarded to several companies. On 27 December 2022, the Egyptian Natural Gas Holding Company (EGAS) announced a new global bid for oil and gas exploration in 12 regions in the Mediterranean Sea and the Nile Delta.

As for the non-OAPEC countries, in Oman, the Ministry of Energy and Minerals signed an agreement with Shell and its partners for exploration and production sharing in Block 11, which includes conducting geophysical surveys covering 1,400 square kilometers, in addition to drilling several exploratory wells.

In Morocco, the National Office of Hydrocarbons and Mines has signed an agreement with Chariot for the construction of a pipeline connection aimed at securing access to the main European Maghreb-European (GME) gas pipeline in Morocco, which runs from eastern Morocco to Tangiers in the north and



then to Spain. Four gas discoveries were made in Morocco within the year 2022, which opens new prospects for exploration within the northwestern regions of the country.

## 2- Exploration and Development Drilling

Monthly reports on the number of rigs operating worldwide showed that the number of rigs operating in Europe began to decline since the beginning of 2022 to 87 rigs in July 2022, but it rose after that reaching 102 rigs in November 2022. It is not possible to ignore the impact of the Russian-Ukrainian crisis on this issue, especially that the number of rigs operating in the gas sector has increased since June 2022, to double in September compared to the number of rigs working in the oil sector. As a result of exploratory drilling, OPAEC member countries made at least 75 new oil and gas discoveries in 2022. The Secretariat General tracked the achievement of more than 117 new oil and gas discoveries worldwide in 2022.

## 3. Oil and Natural Gas Reserves

### 3- 1 Oil Reserves

Estimates of oil reserves for the year increased very slightly from 1304 billion barrels in 2021 to 1335 billion barrels in 2022; only about 31 billion barrels.

#### 3- 1- 1 Oil Reserves in OPAEC Members & Other Arab Countries

OPAEC member countries' oil reserves were estimated at approximately 716 billion barrels, representing 53.6% of the total global oil reserves, while the combined reserves of the Arab countries were estimated at more than 725 billion barrels, representing 54.3% of the total oil reserves in the world.

#### 3- 1- 2 Oil Reserves in the Rest of the World

Estimates of oil reserves in OPEC countries increased between 2021 and 2022, by about 5 billion barrels, and estimates of reserves in the United States increased by about 18 billion barrels, as a result of a re-estimation of some reserves due to relative rise in oil prices during 2022.

### 3-2 Natural Gas Reserves

Estimates of natural gas reserves in the world increased from 206.6 trillion cubic meters in 2021 to 211.5 trillion cubic meters in 2022.

### **3-2-1 Natural Gas Reserves in OAPEC Members & Other Arab Countries**

Estimates of gas reserves in OAPEC member countries increased by about 1%, as a result of higher estimates in the UAE and Saudi Arabia. They amounted to about 54.7 trillion cubic meters in 2022, representing about 25.9% of the total gas reserves in the world. Combined reserves estimates in the Arab countries increased from 55.1 trillion cubic meters in 2021 to about 55.7 trillion cubic meters in 2022, representing about 26.3% of the total global gas reserves.

### **3-2-2 Natural Gas Reserves in the rest of the World**

Gas reserves in OPEC countries increased by about 0.4% between 2021 and 2022, and estimates of gas reserves in the United States increased by about 34%, to reach more than 16 trillion cubic meters in 2022.

## **4- Hydrocarbon Liquid Production**

The total world production of hydrocarbon liquids in 2022 was estimated at about 99.8 million b/d, an increase of approximately 4.3% over production rates in 2021, which amounted to about 96 million b/d.

The production of OAPEC member countries was estimated at about 29.8 million b/d of hydrocarbon liquids in 2022, compared to 26 million b/d in 2021. As for the Arab countries combined, their production of hydrocarbon liquids increased from 27 million b/d in 2021, to nearly 31 million b/d in 2022.

### **4-1 Crude Oil Production**

Crude oil production increased worldwide by 4.3% to reach about 86.5 million b/d in 2022, compared to about 83 million b/d in 2021.

#### **4-1-1 Crude Oil Production in OAPEC Members and Other Arab Countries**

Estimates indicate an increase in crude oil production rates in OAPEC member countries by about 13.4%, from 21.5 million b/d in 2021 to about 24.4 million b/d in 2022. A large part of this increase comes as a result of the increase in production rates in the UAE, Saudi Arabia, Iraq, Qatar and Kuwait. At the level of the Arab countries as a whole, production increased from 22.4

million b/d in 2021 to 25.3 million b/d in 2022. The production of OAPEC member countries represented 28.2% of the total crude oil production in the world in 2022, while the production of Arab countries combined represented about 29.3% of that total.

#### **4-1-2 Crude Oil Production in the rest of the World**

It is estimated that OPEC production increased by nearly 10% between 2021 and 2022, from about 26.3 million b/d in 2021 to more than 29 million b/d in 2022. It was noted during 2022 that the gradual improvement in energy demand, coupled with the relative improvement in oil prices, encouraged an increase in shale oil production rates in the United States of America to more than

11.7 million b/d, which represents an increase of about 620 thousand b/d compared to its production in 2021.

#### **4-2 NGL Production**

The quantities of natural gas liquids increased worldwide between 2020 and 2021 by about 3.5%, from 12.5 million b/d to about 12.9 million b/d. Official data from the Sultanate of Oman indicates an increase in the quantities of natural gas liquids there by nearly 16% between 2020 and 2021. In conclusion, the quantities of natural gas liquids in the Arab countries collectively increased from 4.4 million b/d in 2020 to about 4.6 million b/d in 2021, and the proportion of natural gas liquids produced in OAPEC member countries reached about 34% of the world's total production.

### **5- Marketed Natural Gas**

The quantities of natural gas marketed worldwide increased by 4.4% between 2020 and 2021, from 3880 billion cubic meters in 2020 to about 4051 billion cubic meters in 2021. The changes in the quantities of marketed gas varied in the OAPEC member countries, as they declined in the UAE, Qatar and Kuwait, but increased by different rates in the rest of the member countries. The quantities of marketed natural gas at the level of the Arab countries collectively increased from 592 billion cubic meters in 2020 to 626 billion cubic meters in 2021.

The percentage of marketed gas in OAPEC members and in the Arab countries collectively amounted to 14.6% and 15.5% of the world total, respectively.

## II. COAL

### 1- Reserves

Coal reserves in the world remained at the limits of 1074 billion tons in 2021, with little change from 2020, as data from the US Energy Information Administration (EIA) indicate that the only change from 2020 was the increase in Poland's reserves only by about 130 million tons, which does not mean a significant change in the world's reserves. Coal accounted for about 27% of the global energy mix in 2021.

### 2- Production

Global coal production increased by 6% between 2020-2021, from 7.7 billion tons in 2020, to 8.1 billion tons in 2021, as production increased in all coal-producing countries in the world, with the exception of Mexico and South Africa. The highest increase in production was observed in China, where its production increased in 2021 by more than 224 million tons compared to 2020. Overall, the countries of the Asia-Pacific group continued to account for the largest share in the coal production market in 2021.

## III. NUCLEAR ENERGY

### 1- Nuclear Reactors

The number of operating reactors worldwide decreased from 441 reactors in 2020 to 437 reactors in 2021, of which 93 reactors are in the United States of America, representing about 21% of the total operating reactors in the world. As for the reactors under construction in 2021, there were 56 reactors, including 16 reactors in China and 8 reactors in India, meaning that 42% of the reactors under construction in the world are concentrated in these two countries. The capacity of the reactors under construction in the world is 58 gigawatts.

## IV. RENEWABLE ENERGY RESOURCES

The contribution of renewable energy sources to electricity generation increased by about 1.1% between 2020 and 2021, as the world generated about 28,466 terawatt-hours of electricity in 2021. Renewable energy sources contributed to generating



12.8% of it, and most of the electricity generated using renewable energy sources was concentrated in Asia- Pacific countries.

### **A- Wind Energy**

The world's total installed capacity of wind energy increased in 2021 by about 13% compared to 2020, reaching 824.9 GW, about 47% of which is concentrated in Asian countries.

### **B- Wind Energy in Arab Countries**

Installed wind capacity in the Arab countries increased from 3.66 gigawatts in 2020 to more than 4 gigawatts in 2021, which represents only 0.5% of the total installed capacities in the world. Installed capacities increased in Egypt, Morocco, and Jordan. More than 40% of the Arab installed capacities are concentrated in Egypt, which ranked first among the Arab countries in this field in 2021, followed by Morocco, which owns 35.3% of the installed wind capacity in the Arab countries.

## **3- Solar Energy**

### **A- Solar Energy Worldwide**

The total installed capacity of solar energy in the world increased from 717 gigawatts in 2020 to more than 849 gigawatts in 2021, of which about 27% is concentrated in Asian countries.

### **B- Solar Energy in Arab Countries**

The installed capacities of solar energy in the Arab countries increased from 7.5 gigawatts in 2020 to 8.6 gigawatts in 2021, which represents about 10% of the total installed capacity in the world. The United Arab Emirates ranks first among Arab countries in this regard, followed by Egypt and then Jordan.

It is noteworthy that the Sultanate of Oman has approved a project to build a solar plant with a capacity of 17 megawatts to be used in a desalination plant to produce 275 thousand cubic meters of water. It is planned that the project's production will cover about 33% of the plant's energy need.

In Tunisia, as part of a project with a capacity of 20 megawatts, the "Al Qardab" plant for the production of electricity from solar energy in "Tataouine" was linked to the network of the "Tunisian Electricity and Gas Company". The plant is expected to produce about 20 gigawatt-hours of electricity annually.

## 4. Hydropower

### A. Hydropower Worldwide

The installed capacity of hydropower in the world increased from 1335 gigawatts in 2020 to about 1360 gigawatts in 2021, most of which is concentrated in Asian countries.

Among the notable projects in this field is the Zungeru Dam project in Nigeria, which is expected to produce 2.64 terawatt-hours of electricity per year upon its expected completion in 2023, which is equivalent to about 10% of the Nigerian demand for electricity. The cost of the project is estimated at about \$ 1.3 billion.

### B. Hydropower in the Arab World

The installed capacities of hydropower in the Arab countries amounted to less than 10 gigawatts, which represent only about 0.7% of the total capacities of hydropower energy in the world. Egypt occupies the leading position among the Arab countries with more than 2.8 gigawatts.

## 5. Biomass Energy

### A. Biomass Energy Worldwide

The installed capacity of biomass energy around the world increased from 133 gigawatts in 2020 to 143 gigawatts in 2021, most of which is concentrated in European and Asian countries.

### B. Biomass Energy in the Arab World

The installed capacity of biomass energy in the Arab countries reached 353 megawatts in 2021. Sudan leads in this regard.

## 6. Ocean Energy

The installed capacities of ocean energy in the world in 2021 remained unchanged from 2020, at 524 MW, about 96% of which is concentrated in European and Asian countries. This type of renewable energies has not yet been used in Arab countries.

## 7. Geothermal Energy

The installed capacity of geothermal energy in the world increased by approximately 11% between 2020 and 2021, from

14 GW to 15.6 GW. About 31% of this capacity is concentrated in North America. This type of energy has not yet been used in Arab countries.

Some countries view geothermal energy as potentially playing an important role from the perspective of security of supply in light of global geopolitical tensions. Iceland, France and Hungary were among the first countries to adopt the idea of using geothermal energy for heating, and are currently planning to increase the capacity of their facilities in this field.

Germany is also increasing its investments in the same field and is expected to spend more than \$1.5 billion on developing geothermal energy by 2030. The United Kingdom is expected to spend more than \$470 million on heating using this type of energy until the end of the current decade.







## 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 about 94.235 million b/d by the end of 2022 against 92.885 million b/d by the end of 2021; registering an increase of 1.350 million b/d (or 1.45%). The total number of operating refineries worldwide has also risen from 630 to 636.

The increase in the world's total refining capacity during 2022 came as a result of the commissioning of two new refineries in China, the first being the Jiayang refinery owned by PetroChina, with its refining capacity of 400,000 b/d, and the second is the operation of the second phase of the refining capacity expansion project of the Rongsheng Refining and Petrochemical Complex owned by Zhejiang Petrochemical Corp. with a capacity of 400 thousand b/d. this is in addition to operating the Olmeca refinery in Mexico with a refining capacity of 170,000 b/d, the Karbala refinery in the Republic of Iraq with a refining capacity of 140,000 b/d, and the Al Zour refinery in the State of Kuwait with an initial refining capacity of 205 thousand b/d, and a refinery in Iran with a capacity of 35 thousand b/d.

The oil refining industry recorded a remarkable improvement in the margin of profitability during the year 2022, affected by: the high demand for petroleum products after the receding of the COVID19 pandemic; shortage in refining capacity as a result of the closure of many refineries; delay in executing some new refineries and expansion projects during the previous years; in addition to the repercussions of the Russian-Ukrainian conflict. Oil refineries' growing interest in cutting carbon emissions has also been noted through their execution of: renewable fuel production projects in parallel with the production of petroleum products; projects on the production of blue and green hydrogen, and the installation of carbon capture and storage systems.

It has also been observed that many countries around the world, especially in Western Europe and North America, tend to convert oil refineries into refineries for the production of biofuels, or to establish new biorefineries to meet the requirements of reducing carbon emissions. For example, the International Air Transport Association (IATA) indicated that the production of sustainable jet fuel (SAF) increased during 2022 to reach 300 million litres, compared to 100 million litres in 2021.

The capacity of secondary operations (manufacturing and

conversion, hydrotreatment, and octane number improvement expected to be added in the next five years in the world) amounts to about 3.8 million b/d for manufacturing operations, 5.8 million b/d for hydrotreatment operations, and 1.8 million b/d for octane number improvement operations. Most of these projects were concentrated in Asia, the Middle East and Africa.

On another note, the world's refining industry faced a wave of oil refineries closures during the past ten years, amounting to about 9 million b/d. More than half of the closures were concentrated in North America and Western Europe due to the decline in demand for petroleum products, especially during the spread of the Corona virus, in addition to converting a number of refineries into biofuel production units. This situation is expected to continue for the next five years, as plans were announced to close the Wesseling refinery owned by Shell in Germany, the Livorno refinery owned by Eni in Italy, the Puertollano refinery owned by Repsol in Spain, and two refineries in the United States of America, the first in Houston for LyondellBasell, and the second in San Francisco for Phillips 66.

In Asia, a number of refineries are also expected to be closed in the next five years, as a result of the continued closure of small-scale refineries in China due to their low efficiency. The closure of two refineries in Japan (Negishi and Wakajama) has also been announced. In Africa, a plan was announced to close three refineries in South Africa (Sapref, Durban and Sasolburg).

## **2. Developments in the Arab World**

Developments in the refining industry in the Arab countries focused on projects to establish new refineries, upgrade and improve the operational performance of existing refineries, and enable them to produce petroleum products with specifications compatible with international standards, with the aim of enhancing their exports of petroleum products to global markets. This is in addition to improving their flexibility to refine different types of crude oil through establishing new processing units or raising the production capacity of existing ones. It was also noted that some Arab countries tended to execute projects to reduce carbon emissions resulting from refining operations through the establishment of CCS systems.

The total refining capacity in the Arab countries increased by 345 thousand b/d in 2022, as a result of the partial operation of the new Al Zour refinery in the State of Kuwait with a refining capacity of 205 thousand b/d, and the operation of the Karbala refinery in the Republic of Iraq with a refining capacity of 140 thousand b/d.

The total refining capacity of OAPEC member countries' 55 refineries had a share of 9.177 million b/d, or 91.5% of the total refining capacity of 10.03 million b/d of the Arab countries' oil refineries. The total refining capacity of the 11 non-OAPEC Arab countries' oil refineries accounted for the remaining share of 0.854 million b/d, or 8.5%.

The following are the most important developments that took place in 2022 in OAPEC member countries and other non-OAPEC Arab countries.

In the UAE, The Abu Dhabi National Oil Company "ADNOC" announced the execution of a project to recover wasted energy from existing gas turbines in the company's oil refineries, to produce electric power by about 230 megawatts and about 62.4 thousand cubic meters per day of distilled water at a cost of \$ 600 million. It is expected to start operating the first phase, which consists of two boilers and two turbines, in early 2023, and the completion of the second phase, which consists of two more boilers, in mid-2023.

On another note, work is still in progress on the Crude Flexibility Project, with a value of \$3.5 billion, where about 80% of the 177,000 b/d hydrotreatment unit for desulfurization of fuel oil has been completed. The project aims to enable the "Ruwais West" refinery to refine 420,000 b/d of the low quality Upper Zakum oil, containing 1.74% sulphur by weight, instead of the high-quality oil of the "Murban" field, which contains sulphur less than 0.74% by weight. The aim is to make "Murban" oil available for export and thus benefiting from the price difference between the two types. The engineering, procurement and construction works are carried out by a consortium of two companies: the South Korean Samsung and the US CB&I.

In 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 2023.

In 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.

In Saudi Arabia, Saudi Aramco announced the signing of an agreement with Gulf Cryo Company to establish a carbon capture, storage and utilization system in the monoethylene glycol production unit, which has a production capacity of 600 thousand tons / year, in the Petro Rabigh refining and petrochemical complex. The system aims to reduce carbon emissions from the complex and produce about 300,000 tons of pure CO<sub>2</sub> used in the food industry, and the rest will be distributed

in liquid form to neighbouring units for industrial uses. This project, which is expected to start operating in 2023, is part of the Kingdom's efforts to reduce carbon emissions to zero by 2060.

Within the framework of the Kingdom's efforts to expand its foreign investments in the refining and petrochemical industry, Saudi Aramco announced the completion of a deal to purchase a 30% stake of the Gdansk refinery in Poland, with a refining capacity of 210 thousand b / d, owned by PKN Orlen, in addition to purchasing the entire share of the site intended for wholesale business. According to the agreement, Aramco will supply 45% of the total amount of crude oil refined by the Polish company PKN Orlen in refineries with a refining capacity of about 880,000 b/d. An agreement was also signed between Aramco, the Saudi Basic Industries Corporation (SABIC) and PKN Orlen Company, to conduct a technical and economic study for the project to establish a petrochemical complex at the Gdansk refinery, consisting of a steam cracker unit and its attached units.

In Iraq, the Iraqi Ministry of Oil announced the start of commercial operations of the "Karbala" refinery, with a capacity of 140,000 b/d at a cost of \$6 billion, which will contribute to reducing the import of petroleum products by producing 56.6 thousand b/d of Euro-5 gasoline, 18.9 thousand b/d of kerosene, 13.8 thousand b/d of diesel, and 25.2 thousand b/d of fuel oil.

Work is still ongoing on the Basra refinery upgrade project, with a refining capacity of 210,000 b/d, which includes the construction of: a FCC fluid catalytic cracking unit 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>/h; a vacuum gas oil hydrotreatment unit with a capacity of 40,000 b/d; a naphtha hydrotreatment unit with a capacity of 31 thousand b / d; and a unit for the catalytic refinement of naphtha by the continuous activation method CCR, with a capacity of 17 thousand b/d. The project will contribute to converting the fuel oil produced from the refinery into high-value products, with an estimated quantity of about 19,000 b/d gasoline, 36,000 b/d diesel, 41,000 b/d high-quality fuel oil, 2,000 b/d naphtha, and 4,300 tons / d of LPG.

In the Kurdistan region, the Iraqi company Lanaz signed a contract with the US Honeywell UOP to provide technology licensing and supply basic equipment for the clean fuel project, which includes adding new units to the oil refinery, with a refining capacity of 100,000 b/d.

In Kuwait, it was announced that the new Al Zour refinery would start operating with an initial refining capacity of 205,000 b/d. It is expected to complete operation at its full design capacity of 615,000



b/d in 2023, making it the largest refinery in the region in terms of refining capacity.

The operation of the Al Zour refinery comes within the framework of the clean fuel project, which consists of upgrading the existing "Mina Al Ahmadi" and "Mina Abdullah" refineries, to enable them to produce derivatives with specifications compatible with the latest international standards, and the closure of the "Shuaiba Port" refinery, with a refining capacity of 200 thousand b / d. The total refining capacity of oil refineries in the State of Kuwait, after the completion of the project, will reach 1.4 million b/d.

In Libya, construction work is still ongoing on the new refinery project to process oil produced from the "Sharara" field, with a refining capacity of 30,000 b/d. The project aims to secure the needs of the southern region for petroleum products that were transported over long distances from the north of the country. The refinery will produce about 8,600 b/d gasoline, 6,600 b/d diesel fuel, and 7,200 b/d fuel oil.

In Egypt, the Ministry of Petroleum and Mineral Resources signed a long-term agreement with Saudi Aramco for supplies to the refining and petrochemical complex project to be established in Ain Sukhna, at an investment cost of \$7.5 billion. The agreement includes Aramco supplying Arab crude oil for the project, which consists of an oil refinery with a refining capacity of 100,000 b/d, and petrochemical production units. Bechtel Engineering will carry out the engineering, procurement and construction works. The project is expected to be operational at the end of 2024. This project comes within the framework of the Petroleum Sector Development Program announced by the Ministry to transform the Arab Republic of Egypt into a global hub for oil and gas distribution and trade.

On the other hand, work is still underway on the project to develop the Middle East Oil Refining Company in Alexandria "MIDOR"; expected to be completed in 2023. The project includes raising the refining capacity from 115 thousand b / d to 175 thousand b / d, and establishing a diesel fuel hydrotreatment unit with a capacity of 45 thousand b/d, a solvent-deasphalting unit with a capacity of 14,000 b/d, and a hydrogen production unit with a capacity of 60,000 cubic meters per hour. The project cost is estimated at about \$2.2 billion.

Also, work is still ongoing on the project to develop the Assiut refinery with its refining capacity of 90,000 b/d, which includes the

construction of a vacuum distillation unit, a delayed coking unit, a hydrocracking unit with a capacity of 47.7 thousand b/d, a CCR unit with a capacity of 14.9 thousand b/d, a hydrogen production unit and a hydrogen treatment unit for middle distillates.

The project cost is estimated at about \$2.8 billion. The project will contribute to raising the refinery's production by about 32.7 thousand b/d of diesel, 19.2 thousand b/d of gasoline, 300 thousand tons per year of petroleum coke, and 66 thousand tons per year of sulfur. The project is expected to be operational in 2024.

In the Suez Oil Processing Company's refinery, the existing delayed coking unit is currently being rehabilitated and upgraded, and a new delayed coking unit with a capacity of 95.5 thousand b/d, at a cost of \$3.5 billion, is being established, in addition to a lubricating oils production unit with a capacity of 2300 b/d.

On the non-OAPEC countries' front, Ras Medrika Petroleum Industry Company, an Omani company owned by the private sector, signed a contract with the Chinese governmental Yanchang Company to conduct an economic feasibility study for a joint project consisting of the construction of a new oil refinery with a refining capacity of 200 thousand b / d in the economic zone in the port of Duqm, after receipt of the technical study prepared by Genoil, which includes the components of the project. However, the cost of the project or the date of its completion have not been revealed.

It is noteworthy that the state-owned Oman Oil Company (OOC) is currently executing a project to establish the joint "Duqm" refinery, which is being built in the Sultanate of Oman, to refine a mixture of Kuwaiti and Omani oil, with a refining capacity of 230,000 b/d integrated with petrochemical production units, at a total cost of \$6 billion, and is expected to be operational in 2023.

## 2- NATURAL GAS CONSUMPTION, TRADE & PROCESSING

### 1. World Developments

#### 1-1 Natural Gas Consumption

The year 2021 witnessed a remarkable growth in the consumption of natural gas, after the decline in 2020 due to the Covid19 pandemic. It exceeded pre-pandemic levels, as global consumption in 2021 reached about 4037.5 billion cubic meters, compared to 3845.6 billion cubic meters in 2020, with a high growth rate of 5%.

Most regions of the world maintained high shares of natural gas in the primary energy balance in 2021. The Middle East scored the highest percentage in the energy balance, amounting to 57.7% compared to 57.8% in 2020, while this contribution in Europe and Eurasia amounted to about 34.7% compared to 33.8% in 2020. In North America, the percentage jumped to 34%, compared to 32.7% in 2020.

The contribution of natural gas to the energy balance in Africa increased to 29.6% in 2021 compared to 29.3% in 2020, while it increased in Central and South America to 20.7% in 2021 compared to 19.9% in 2020. As for the Asia and Pacific region, the contribution of gas declined slightly in the energy balance to 12.1% in 2021 compared to 12.2% in 2020, which is the lowest share compared to the rest of the world, as coal still dominates the energy balance in that region. In light of these developments, the share of natural gas in the global energy balance in 2021 amounted to about 24.4%, compared to 24.5% in 2020.

#### 1-2 Natural Gas Trade

Natural gas trade has fallen in 2021 by 2% registering total global exports of about 1220.6 billion cubic metres against about 1245.8 billion cubic metres in 2020. These figures cover gas exports via both pipelines and as liquefied natural gas (LNG) on board of tankers. The total amount of both claims about 30.2% of the total natural gas consumption worldwide, the rest is consumed domestically where it is produced.

The volume of natural gas exports by pipelines has significantly dropped to 755.8 billion cubic metres in 2020 from 801.5 billion cubic metres in 2019. Gas exports via pipelines have dropped from Russia to European markets, in light of the drop in demand due to dropping economic activities as a result of the pandemic.

The quantities of natural gas exported through pipelines declined during 2021, reaching about 704.4 billion cubic meters, compared to

about 755.7 billion cubic meters in 2020, a decline of 7.3%. Liquefied natural gas (LNG) trade, however, continued to flourish in 2021, achieving an annual growth of 5.1%, with total exports reaching about 516.2 billion cubic meters, compared to about 490.1 billion cubic meters in 2020, an increase of 26 billion cubic meters. The rise of LNG exports from the United States contributed the largest share to this global increase, and compensated for the decline in exports from other regions, especially from the LNG-exporting countries in the Atlantic region.

In general, the share of liquefied natural gas exports from total global gas exports increased in 2021 to record 42.29%, compared to 39.34% in 2020, while natural gas exports by pipelines reached 57.71%, with a noticeable decline from the 60.66% in 2020.

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

Natural gas prices, for both pipeline and LNG sales, have rocketed sharply in all global markets in 2021 compared to their 2020 rates, registering historical hikes for decades. The price of natural gas has risen by 93.1% in the USA (to reach an annual average of \$3.84 per a million BTU); 74.1% in Canada, the EU- according to the Dutch TTF index- by 421.7% to reach \$16.02 per a million BTU; 362% in the UK (to reach \$15.80 per a million BTU) in light of restrictions on Russian supplies via pipelines. Moreover, prices of LNG arriving in Japan have risen by 29.4% to reach \$10.07 per a million BTU.

### **1-4 Nominal Capacity for LNG Exporting & Receiving Terminals**

By the end of 2022, the global nominal production capacity of liquefied natural gas was approximately 473 million tons/year. The year 2022 witnessed the operation of four new projects in the United States of America, the Russian Federation, and Mozambique. Australia leads the world with a capacity of 87.2 million tons/year, with a share of 18.4%, 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 18.4% of the global production capacity, then the State of Qatar with a capacity of 77 million tons/ year, with a share of 16.3%, and thus the three countries collectively account for about 53.1% of the total global liquefied natural gas production capacity by the end of 2022.

The total design capacity of LNG receiving terminals at the beginning of 2022 amounted to about 999.2 million tons / year, more than double the nominal production capacity of LNG globally. The number of countries importing liquefied natural gas has risen to 45, after Germany joined importing countries in late 2022.

## 2- Arab World Developments

Total natural gas exports in 2021 amounted to about 219.1 billion cubic meters, a growth rate of 11.1%, due to the significant growth in gas exports from Algeria via pipelines, which amounted to 38.9 billion cubic meters, compared to 26.1 billion cubic meters in 2020. Egypt's LNG exports have also increased to record 9 billion cubic meters, compared to 1.8 billion cubic meters in 2020. In total, the exports of Arab countries combined in 2021 accounted for a share of 16.2% of the world's total natural gas exports.

### Natural gas industry and trade developments in 2022 by country:

- **UAE**

The Abu Dhabi National Oil Company (ADNOC) awarded the engineering, procurement and construction contract to the National Petroleum Construction Company in September 2022 at a value of \$548 million, with the aim of building a new pipeline to raise the production capacity of associated gas from the offshore "Lower Zakum" field from 430 million to 700 million cubic feet/day. The new line is scheduled to operate by 2025.

In another context, ADNOC announced in September 2022 the conclusion of an agreement with the German company RWE to supply a shipment of liquefied natural gas to be used in the trial operation of a new LNG receiving terminal, scheduled to start operations in Germany in late 2022. The agreement also included the possibility of providing Germany with additional shipments of liquefied natural gas during the year 2023.

- **Bahrain**

Operations at Bahrain's liquefied natural gas (LNG) terminal in the industrial area "Hidd" have been stopped. Its FSU has been re-chartered as a tanker in global LNG market.

- **Algeria**

In October 2022, the National Hydrocarbons Company "Sonatrach" announced the entry into production of two gas fields in the "Berkine" basin, according to a contract it concluded with the Italian company Eni in December 2021. According to Sonatrach, the two gas fields were developed using the Fast Track system. Production reached 1 million cubic meters / day of natural gas, in addition to

4,000 barrels/day of associated liquids. Production from the new project is planned to increase to 2 million cubic meters / day before the end of 2022, which will contribute to increasing gas exports from



Algeria to European markets.

In December 2022, the start-up of gas production operations were completed in the “Tennerhart” field, and gas was transferred to the neighbouring gas processing facilities in the “Ohant”. According to the company’s statement, production from “Tennerhart” began in July 2022, and after completing and operating the surface installations for treatment, it reached a production rate of 4.5 million cubic meters / day, in addition to 500 tons / day of liquefied petroleum gas, and 800 tons / day of condensates, thus exceeding project expectations.

- **Saudi Arabia**

Saudi Aramco announced that the Hawiyah gas station expansion project, which is part of the Haradh Gas Increment Program, has begun the trial (Pre-commissioning) operation phase. It is scheduled to take off in 2023. Al Hawiyah project, with a processing capacity of 1.07 billion cubic feet / day, is being executed by the Italian company Saipem, and will contribute to raising the processing capacity inside the Kingdom within the plan set by the company to reach a processing capacity of 22 billion cubic feet/day by 2025 compared to 18.4 billion cubic feet/day in 2022. In a related context, the two gas compression projects in the Haradh and Hawiyah fields began the initial operation phase, and it is planned that the actual operation of the two projects will start by the end of 2022, to reach full production capacity in 2023.

- **Iraq**

In February 2022, the Ministry of Oil announced the completion of 51% of the associated gas investment project in the Halfaya field, with a capacity of 300 million cubic feet / day. According to the project plan, the period of execution and construction of the facilities is 30 months, in addition to another 30 months to complete the operation and maintenance process. Project completion and pilot operations are scheduled for mid-2023.

- **Qatar**

QatarEnergy has selected partners for the expansion of the North Field South (NFS), who are allocated a 25% share of the project. In September 2022, it announced the selection of TotalEnergies with a 9.375% stake, Shell with a 9.375% stake, and the American company ConocoPhillips with a 6.25% stake, to complete the 25% stake allocated to international partners, while Qatar Energy will retain the remaining 75% stake of the project. It is worth noting that the North Field South (NFS) expansion project aims to build two giant liquefaction units with a total capacity of 16 million tons/year. In addition to the Northeast Field Expansion Project, it will contribute to raising the liquefaction capacity in the State of Qatar from 77 to 126 tons/year by 2027.

- **Kuwait**

The Kuwait Gulf Oil Company and Aramco Gulf Operations Company signed a memorandum of understanding with the aim of developing the joint offshore “Durra” field in the area divided between the Kingdom of Saudi Arabia and the State of Kuwait. The memorandum of understanding aims to re-evaluate and complete the engineering studies for the “Durra” field project, and to form a specialized technical taskforce to execute it. It is worth noting that the “Durra” field development project aims to produce non-associated gas in total quantities of 1 billion cubic feet/day, and 84 thousand barrels/day of condensates.

- **Libya**

The National Oil Corporation announced that the Mellitah Oil and Gas Company has succeeded in re- operating four wells in the Bahr Al Salam field that were closed for technical reasons. The production of the four wells reaches about 80 million cubic feet/day, in addition to 3,000 barrels/day of condensates.

- **Egypt**

The year 2022 witnessed the completion of the execution of 4 projects for the development and production of gas from the discovered fields, with the aim of producing natural gas amounting to about 185 million cubic feet / day, in addition to 1,000 barrels / day of condensates, with a total investment of \$ 183 million. More than 77,000 vehicles were converted during 2022, an increase of 16% compared to 2021, bringing the total number of vehicles converted from the start of the activity until the end of 2022 to about 483,000 vehicles, which are supplied with gas through 862 stations spread across the Republic. For the fourth year in a row, gas is delivered to 1.1 million housing units, bringing the total number of housing units to which natural gas has been connected since the beginning of the activity until the end of 2022 to 14 million units.

- **Oman**

The Oman LNG Company signed three new agreements with the Japanese companies (JERA, Mitsui and Itchu) to supply a total of 2.35 million/year of LNG for a period of 10 years, provided that the new agreements will come into force starting in 2025. These agreements reinforce Oman's position as a major long-term supplier of LNG in the Asian market.

- **Jordan**

The Ministry of Energy and Mineral Resources indicated that it is working to increase production from the “Risha” field, the only field for

gas production in Jordan, with the aim to raise production from

31 million cubic feet/day to 50 million cubic feet/day by 2024 and then 200 million cubic feet/day by 2030, in order to reduce dependence on imports and boost gas supplies security.

- **Morocco**

British Chariot Oil & Gas company and the National Office of Hydrocarbons and Minerals in Morocco announced that they had reached an agreement on basic principles with the National Office of Electricity and Water regarding the sale of gas from the “Anchois” field, which is located 40 km in the “Lexus” sector off the coast of Morocco.

The agreement provides for the delivery of gas produced from the field to the “Tahdart” gas power station with an installed capacity of 384 megawatts, through a pipeline that connects with the “European Maghreb” gas pipeline, at a rate of 0.6 billion cubic meters / year for a period of at least 10 years, and by applying a condition of principle take or pay. It is worth noting that the field includes gas reserves estimated at about 1 trillion cubic feet. First gas volumes are planned to flow from the field by 2024-2025.

- **Mauritania**

The Mauritanian Ministry of Energy signed a production-sharing agreement with the American Kosmos company and the British BP company to start preparing a plan to develop the “Bir Allah” gas field, which is located 100 km off the coast of Mauritania, and includes gas reserves estimated at 50 trillion cubic feet. According to the agreement, a period of 30 months will be allocated to prepare engineering studies and draw up a development plan for the field, followed by a final investment decision in the first half of 2025. Both, BP and Kosmos, are considering the possibility of executing the field development project in stages with the aim of producing 10 million tons / year from the field to take advantage of its huge reserves.

US Kosmos, British BP project partner in developing “Torto-Ahmeim” field off the coast of Mauritania and Senegal, announced that it is in advanced discussions with BP to agree on implementing a second expansion phase in the project by adding a floating unit to produce liquefied natural gas with a capacity of 2.5 million tons / year, provided that the final investment decision is taken during the year 2023.

It is worth noting that the first phase is progressing well, and it aims to place four wells on the production map with a capacity of 200 million cubic feet/day for each, to feed a floating liquefied natural gas station with a capacity of 2.5 million tons/year. It is expected to come into operation during 2023.

### 3- Petrochemicals Industry

#### 1. Global Developments

During 2022, the petrochemicals industry around the world went through many challenges and difficulties that directly affected production capacities and product prices. These challenges were represented in the lack of flexibility of supply chains as a result of geopolitical events, transportation problems, as well as some weather factors such as hurricanes and cold weather waves, which caused a reduction in production rates in a large number of facilities around the world, or even their closure. The prices of raw materials, as well as primary, intermediate, and final chemicals also fluctuated to reach their highest values recorded in recent years as a result of the increase of oil prices during the first quarter of 2022 to more than \$110 a barrel. However, this has changed during the year as a result of the above-mentioned factors and events. Following are the most important developments in the international and Arab petrochemical markets.

#### Ethylene and Polyethylene Markets

The global production capacity of ethylene in 2022 was about 214 million tons. It is expected to reach about 320 million tons annually by 2030, with the start of scheduled operating of a number of planned and previously announced factories, especially in Asia and the Middle East. On the other hand, the average price of ethylene increased during 2022 to \$1,235 per ton, an increase of 23% compared to 2021, which amounted to about \$1,000 per ton.

On another note, the growth rate of global demand for polyethylene in its various degrees decreased during the year 2022, as a result of economic inflation in most countries of the world, which rose to unprecedented levels due to geopolitical events, and a decline in profit margins, which forced a large number of leading companies to reduce or stop their production totally. In terms of prices, polyethylene prices have dropped since late May 2022: high-density polyethylene prices in the United States of America declined by 33.3%, compared to the same period in 2021, to reach \$1036 per ton, while its prices in the European Union dropped by 23.4% to reach \$1373 per ton in the same period. Data issued by S&P Global Data showed that prices in Turkey dropped by 20.4% to reach about \$1130 per ton. Prices also dropped in the Asian region by a rate ranging between 10-

16% during the same period, to reach about \$950 per ton in the Far East, and about \$1000 a ton in Southeast Asia.

### **Propylene and Polypropylene Markets**

The global production capacity of propylene in 2022 amounted to about 140 million tons annually, while global consumption amounted to about 125 million tons annually. With regard to the polypropylene product, new production capacities amounting to about 7 million tons were added during the year 2022.

### **Methanol and “Bio” Green Methanol**

The global production capacity of methanol reached about 161 million tons in 2022. The Middle East is one of the largest exporters of methanol around the world. China is its largest importer. South Korea comes as the second largest importer of methanol from the countries of the Middle East.

Green methanol is gaining increasing importance, with the growing global interest in its use in the petrochemical industry through conversion and promotion of polyolefins production, as well as its adoption as a potential alternative marine fuel, to meet the goals of the International Maritime Organization on cutting CO<sub>2</sub> emissions resulting from maritime transport by 40% by 2030, and 50% by 2050.

### **Monoethylene Glycol**

The global markets witnessed an increase in the quantities of monoethylene glycol (MEG) supply, coinciding with the start-up of some projects worldwide.

### **Ammonia, Urea and Nitrogen Fertilizers**

The prices of ammonia, urea, and nitrogen fertilizers witnessed sharp hikes during 2022, especially in the European Union countries due to the rise in natural gas prices, as a result of the Russian-Ukrainian war, which prompted European manufacturers to reduce operating rates or close production units, which contributed to reducing total production by more than 70%. With the lack of supply quantities and the high global prices, some companies have already started looking for alternatives outside their countries to produce fertilizers due to the difficulty of securing their natural gas needs.



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

A number of international companies have announced their new projects for the production of blue and green ammonia, in light of the growing global interest in reducing carbon emissions resulting from the petrochemicals industry.

### **Plastic Waste Recycling**

With increasing global interest in expanding the application of the concept of the circular economy in the activities of the plastics industry, more than 80 international companies in the field of packaging and retail trade have pledged to reach a level of recycled plastic at rates ranging between 15-50% in the production of their new packaging by 2025, by 2025, depending on advanced plastic recycling technologies, such as pyrolysis, gasification, and solvolysis, which are complementary to mechanical recycling technologies.

Advanced recycling processes are expected to produce 20-40 million tons of recycled polymers by 2030, which will meet about 4-8% of the total demand for new polymers. This requires providing capital investments of about \$40 billion by 2030, and about \$90 billion by 2050.

### **Decarbonization Projects**

The petrochemical industry is taking a number of initiatives to achieve its goals towards reaching zero carbon by 2050. According to a report issued by BloombergNEF research company, the global petrochemicals industry needs financial investments amounting to about \$759 billion, out of the total investments needed for all sectors, estimated at about \$172 trillion by 2050 to achieve carbon neutrality goals. These initiatives included the use of electricity produced from renewable sources to operate its units instead of fossil fuels, and the expansion of the application of carbon capture techniques and its use in enhancing the production of some petrochemical products.

## **2. Developments in the Arab Countries**

The Arab countries are working on developing their production capacities and expanding petrochemical production projects, in addition to their plans on developing green and blue hydrogen production projects and enhancing their uses in the

petrochemical sector. The Kingdom of Saudi Arabia continues to expand its industrial base of basic petrochemicals by diversifying the primary raw materials used, increasing the added value, and investing in the production of complementary final chemicals. Meanwhile, the United Arab Emirates, the State of Qatar, and the State of Kuwait are considering the establishment of world-class petrochemical complexes. Also, the Arab Republic of Egypt is taking measures to become an exporter of polymers and fertilizers in the short term.



ORGANIZATION OF ARAB  
PETROLEUM EXPORTING  
COUNTRIES (OAPEC)



## PART 2

# OAPEC ACTIVITIES IN 2022







## 1: Studies & Reports

### 1- Studies:

#### 1-1 The Repercussions of the Covid-19 Pandemic on Global Natural Gas Sector and Future Prospects

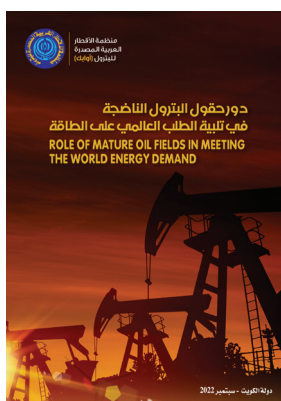
The study aimed at reviewing the fundamentals of the global gas market and the repercussions of the Covid-19 pandemic on it, in addition to exploring future prospects for the global gas sector in light of air quality policies, carbon neutrality and the rise of energy security issues to the forefront, with reference to the most prominent future liquefied natural gas plans and projects in the Arab countries. The most prominent finding of the study is that the natural gas sector still needs to inject more investments to ensure provision of necessary supplies to meet growing gas demand, maintain global market stability, and avoid future energy crises.



#### 1-2 The Role of Renewable Chemicals & Biofuels in the Petrochemicals Industry

The study examined the role of biotechnology in the production of environmentally friendly materials, and the conversion of biomass into bio-oil, coal, and gases. The study also focused on the petrochemical industry's orientation towards the use of chemicals from renewable raw materials, and environmentally friendly technologies in production activities. The study tackled several axes, including an overview of the petrochemical products markets, competitiveness of chemical products from renewables versus traditional petrochemicals, models of some biotechnologies for the production of green petrochemicals, and the role of biotechnology in reducing gas emissions.





### 1-3 The Role of Mature Oilfields in Meeting Global Energy Demand

The study tackled the importance of mature fields whose production constitutes the main part of the current world oil production, and the role of modern technologies in increasing their production rate, by presenting examples and case studies from different countries of the world on this subject.

The study dealt with the definition of mature fields, the most important such fields worldwide, with an overview of their production history, their current role in meeting the global demand for energy, the most important problems related to the development of these fields after a long period of their investment (with examples), and an indication of the future role they can play in light of these techniques.



### 1-4 Integration between Conventional Oil Refineries & Biofuel Refineries

The study reviewed integration opportunities between conventional oil refineries and biofuel refineries, and their implications for the economic and environmental performance of the oil refining industry in OAPEC member countries. The study covered the definition of biofuel refineries and their components, a comparison between them and conventional oil refineries, opportunities for integration between conventional oil refineries and biofuel refineries, and the implications of integration between conventional oil refineries and biofuel refineries on the economic and environmental performance of the oil refining industry in OAPEC member countries and around the world (with examples and actual practical cases of biofuel projects in OAPEC member countries and the world).

## 2- Reports

### 2-1 Quarterly Reports on Global Petroleum Developments

OAPEC Secretariat has prepared and released four quarterly reports on Global Petroleum Developments, which were presented to energy policy makers and those working in the petroleum sector in OAPEC member countries.

The reports dealt with global economic developments according to: the main international economic blocs, developments in the global oil markets - in particular the prices of crude oil and petroleum products - and the factors affecting them such as supply and demand, levels of oil stocks, petroleum trade movement in the main markets, and global oil refining industry's developments. This is in addition to following up on the latest developments in: global renewable energy markets, hydrogen as a fuel for the future, most important economic and geopolitical events and other factors in the global oil market that have direct or indirect repercussions on oil prices, as well as developments in the Paris Agreement on climate change and related matters. The reports also monitor possible repercussions of the oil market developments on OAPEC member countries' economies, and the future prospects for the global oil markets in the near term.

### 2-2 Quarterly Reports on LNG & Hydrogen Developments

OAPEC Secretariat has prepared four quarterly reports on "Global LNG Sector Developments and International Developments on the Role of Hydrogen in the Energy Transition."

The reports dealt with the most prominent developments and changes in the liquefied natural gas industry, the development of liquefied natural gas exports, and the position of Arab countries in the global market. This is in addition to the development of liquefied natural gas prices in global markets and the investment position in the planned liquefied natural gas projects according to the latest developments. The reports also dealt with the analysis of hydrogen developments, which has become one of the most prominent international solutions proposed to reach a carbon-free system, as a fuel that does not result in any emissions from burning, and can be produced from renewable energy sources. The reports also covered developments in national policies and strategies in the field of hydrogen at both Arab and international levels, and the most prominent announced projects in blue and green hydrogen and green and blue ammonia production.

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### 3- Papers

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1. Carbon Uses in Petrochemical Industry
2. Current Role & Future Prospects of the Arab Region in Meeting Europe's Gas Needs
3. LNG & Hydrogen Developments during 2021
4. Natural Gas Industry Fundamentals & Principles
5. Gas Leakage from the Nord Stream Pipeline Network & its Economic & Environmental Repercussions
6. Most Prominent Arab & International Developments in Gas Industry
7. European Gas Market Developments in light of Global Changes

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### 4: Seminars & Conferences organized by the Secretariat General

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1. The 3rd Meeting of Petroleum Training Institutes Officials in OAPEC Member Countries (via Videoconferencing), 6 September 2022
2. Seminar entitled "The Role of the Petrochemical Industry in the Development of Small and Medium- sized Industries" (via Videoconferencing), 25 October 2022
3. The 21st Meeting of Experts on Cooperation Potentials in Natural Gas Investment in OAPEC Member Countries (via Videoconferencing), 15 November 2022
4. Symposium entitled "Natural Gas Markets Developments in Light of Global Developments" (via Videoconferencing), 16 November 2022

## 5: Conferences & Meetings OAPEC Secretariat General Participated In

1. The 20th Joint Kuwaiti-Japanese Symposium entitled “Developments in the Petroleum Refining Industry” (via Videoconferencing), 7-8 February 2022
2. Attaqa.Net Platform Panel discussion entitled “Global Gas Markets Developments in light of the Russian-Ukrainian crisis”, 8 February 2023
3. First Virtual Conference on Evaluation (via Videoconferencing), 7 March 2022
4. Seminar entitled “Hydrogen in the State of Kuwait” (via Videoconferencing), 8 March 2022
5. The Ninth Session of the Group of Gas Experts at the United Nations, 23-25 March 2022
6. Petrochemicals and Refining Conference - Europe 2022, 30-31 May 2022
7. Panel discussion on the report “LNG & Hydrogen Developments during Q4/2021” (via Videoconferencing), 31 May 2022
8. Attaqa.net Panel discussion entitled “Hydrogen & the Future of Global Energy: Role of Arab Countries”, 14 June 2022
9. The seventh session of the GPCA Research and Innovation Conference, 26-27 September 2022
10. LNG Shipping Forum, (via Videoconferencing), 21 September 2022
11. The Third Arab Safety Conference (via Videoconferencing), 22-24 September 2022
12. Kuwait’s Oil Ministry’s panel discussion entitled “Gas Leakage from The Nord Stream Pipeline Network: Economic & Environmental Repercussions”, 1 November 2022
13. Virtual seminar on the Sixth Edition of the Arab Development Report, “Arab Economic Growth in light of Crises: The Covid-19 Pandemic and Beyond”



## **B- Training Courses organized by the Secretariat General**

During the year 2022, the Secretariat General organized five training courses in collaboration with oil training institutes in the member countries. There was also coordination with the Arab Planning Institute to nominate trainees from the member countries to take part in the courses organized by the institute. The number of participants in the courses of the Arab Planning Institute and the courses organized by the General Secretariat reached about 3154 trainees, as follows:

### **1. "Interpretation of Seismic Data", 10-17 and 19 January 2022**

The course aimed at reviewing the method of experimental analysis of seismic profiles, which is a technique that allows the identification of small hydrocarbon traps that are difficult to infer by conventional techniques. It was organized in coordination with the Algerian Institute of Petroleum, which is affiliated with the National Corporation for Research, Production, Transport, Transformation and Marketing of Oil and Gas (Sonatrach) in Algeria, over a period of four days, with the participation of 149 trainees from member countries.

### **2. Gas Turbine Control Course, 23-25 May 2022**

The course aimed at providing a perspective that helps the trainees to gain broad knowledge about gas turbine control allowing them to continue their learning journey in some of the required skills. It was organized in coordination with the Algerian Institute of Petroleum, which is affiliated with the National Corporation for Research, Production, Transport, Transformation and Marketing of Oil and Gas (Sonatrach), over a period of three days, with the participation of 185 trainees from member countries.

### **3. Natural Gas Statistics Course**

The course aimed at explaining the principles of the natural gas industry data and statistics process. It was organized by the Secretariat experts over a period of two days, with the participation of 110 trainees from member countries.

**4. Rig Inspection Course: 19 June and 3-4 July 2022**

The course aimed at introducing the inspection and maintenance procedures required to ensure the safety of equipment in land rigs, drilling rigs and crane platforms. It was organized in cooperation with the Global Centre for Training and Development in the United Arab Emirates, over a period of three days, with the participation of 37 trainees.

**5. The Role of Effective Project Management: 6-8 November 2022**

The course aimed at developing the trainees' skills in the field of project management in the business world in general, with a special focus on the petroleum industry. It was organized in cooperation with the Engineering for the Petroleum and Process Industries (Enppi) in Egypt over a period of three days, with the participation of 517 trainees.

## 6: Follow-up on Environment & Climate Change

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

The fifty-sixth meeting of the Subsidiary Body for Scientific and Technological Advice (SBSTA) and the Subsidiary Body for Implementation (SBI) of the United Nations Framework Convention on Climate Change (UNFCCC) Meetings during the period 6-16 June 2022 with the presence of more than 5,000 participants. OAPEC Secretariat General participated as Observer in the session. In this session, the rule book of the Paris Agreement was completed, indicating that cooperative approaches are necessary to achieve the goals of Paris. The rules of Article VI (6) will remain subject to continuous uncertainties as a measure for non-greenhouse gases in the Nationally Determined Contributions and Transferable Units as the Carbon Capture and Storage Mechanism under Article VI (6). Negotiations under Article VI can play a facilitating role in the implementation of the Carbon Storage Unit through the inclusion of multiple measures based on the Nationally Determined Contributions.

The 29th Coordination Meeting of Environment and Climate Change Experts in Member Countries, held by the Secretariat General on 10 October 2022 (via ZOOM). Representatives of: Bahrain, Egypt, Kuwait, KSA, Iraq, Algeria, Syria, as well as Arab League and OAPEC Secretariat participated in the meeting.

After listening to speeches and extensive discussions on climate change-related topics, the participants emphasized the agreed elements within the Arab negotiating position, the most important of which are:

1. Compliance with the basic elements of the agreement, particularly the historical responsibility and national circumstances of each member country.
2. The importance, complexity and scale of climate change that the world around us is witnessing. We believe

that all applicable mitigation or adaptation measures are necessary and that technologies, including carbon capture and sequestration techniques, enhanced investment in access to energy, and improvement of energy efficiency is part of the solution, and the oil industry must be part of the solution to the effects of climate change.

3. The energy transition must be comprehensive, just and fair in accordance with the principle of the United Nations Framework Convention on Climate Change, especially with regard to the common but differentiated responsibilities and capabilities of each member country of the agreement.
4. Taking into account greenhouse gases other than carbon, not only in terms of warming, but also in cumulative emissions.
5. We realize that energy plays a major role in contributing significantly to achieving the goals of sustainable development, especially the seventh goal, at a time when many people around the world in developing countries are deprived of access to modern, reliable and affordable means of energy.
6. Recognizing that climate change is one of the biggest challenges in the modern era and has affected all countries equally, as the continued implementation of response measures to address climate change disproportionately affects the economies of developing countries, especially energy-exporting countries.
7. Developed countries' commitment to mobilize \$ 100 billion must be met annually, climate-related financing should be increased, and the United Nations Framework Convention on Climate Change, whereby state-parties must agree on a new total quantitative target for financial support.
8. Striving through the agreement to achieve sustainable development and eradicate poverty, including energy poverty, taking into account the national conditions and capabilities of developing countries.
9. Providing technical and negotiating support to both the Arab Republic of Egypt and the United Arab Emirates for hosting the next summit conferences (COP27) and (COP28).
10. Preparatory meetings for the Arab Development Report (Seventh Edition) entitled "Climate Change and its Impact on Growth and Development"

11. Based on the invitation extended by the Arab Planning Institute (State of Kuwait), the Secretariat General participated in the preparatory meetings for the Arab Development Report (Seventh Edition) entitled Climate Change and its Impact on Growth and Development. It was held in the Lebanon on 24-25 August 2022, and in El Alamein City on 1-2 October 2022, in addition to a virtual meeting at the headquarters of the Arab Academy for Science, Technology and Maritime Transport and on 11 October 2022. Representatives of the National Planning Institute (Cairo), the Arab Association for Economic Research, the Arab Planning Institute and the Secretariat General of the Organization of Arab Petroleum Exporting Countries (OAPEC) participated in the meetings.
12. It was agreed to form the editorial board for the seventh edition, "Climate Change Challenges to Growth and Development in Arab Countries, Green Transformation to Advance the Sustainable Development Process". OAPEC Secretariat was assigned to cover the sections on the Climate Change Agreement, the future of the petroleum industry and the efforts of Arab countries to implement international climate change agreements to cut Co2 emissions, Green Middle East Initiative and Circular Carbon Economy. The report will be issued during the activities of the twenty-eighth Conference of the Parties (COP 28), to be held, God willing, in the United Arab Emirates during November 2023.



## 7: MEDIA ACTIVITY

The Secretariat General continued its media activities in 2022 on both Arab and international levels through the Information and Library Department. The department supervises all publications and periodicals prepared by the Secretariat General in collaboration with other concerned departments. It follows up the Arab and international petroleum industry's developments, energy affairs, and their economics. The department keeps a close eye on whatever published in this connection in the media. It is also in charge of documentation, bibliography, current affairs reporting, and providing references and journals to researchers from inside and outside the organization.

### 7-1 Editing, Printing, Publishing and Distribution

The Secretariat General continued to issue all OAPEC publications, including books and periodicals. This action involved all matters relating to editing, proofreading, translation, designing, printing, publishing and distribution.

### 7-2 Press and Media Activity

A number of press releases were issued by the Secretariat General, covering the various activities of the organization, such as the meetings of OAPEC Council of Ministers, and the meetings of the Executive Bureau. On the other hand, local and Arab newspapers highlighted OAPEC activities, its role in coordinating between its member countries, and its efforts towards supporting the joint Arab action. The Secretariat General continued to monitor the contents published by local, Arab and foreign newspapers on energy affairs, and collected and archived the top oil, economic and environmental stories, as well as, other topics that are relevant to member countries in general.

### 7-3 Website

The Secretariat General's electronic website continued usual activities by covering the latest OAPEC and its member countries' news and activities. It also provides the latest data on the oil and gas industry in the member countries and other Arab countries through a link to the organisation's databank and book lists at the library.

A summary of the organisation's latest economic and technical studies is also provided. Some editorial modifications have been made to the website in order to keep pace with the latest trends.

#### **7-4 Social Media**

In order to facilitate direct communication with its audience, OAPEC Secretariat General has continued to improve its Twitter and Facebook accounts, where the latest news and activities are highlighted. There has been good feedback and interaction so far from followers and those interested in the energy and petroleum industry.

#### **7-5 Information and Library Services**

The library continues to provide information services to OAPEC members by providing them with sources of information of all kinds (books, periodicals, reports...) in various forms, whether printed or electronic, in addition to responding to inquiries and providing reference service to researchers. It also gives opportunity to visitors from outside the organization to read the references inside the library, or copy some parts of the information resources in a limited way, or through e-mail.

#### **7-6 Information and Documentation**

Work in progress to update and digitise paper index cards containing information on Arabic and non-Arabic publications and references available at the library.

#### **7-7 Indexing and Classification**

The Library continued to provide technical services related to indexing and classifying and fed the data of all books and documents into the Library's Oracle database. Entries for old books and documents have also been made into the Library's e-database.

The number of references increased from 31000 to 31500 books; and from 5750 to 5850 documents.

#### **7-8 Acquisition**

The Library's acquisition focuses on:

- Providing the Library with new books as proposed by the Secretary General's Office and relevant departments.
- Following up on the subscriptions and renewal of Arabic and foreign periodicals.
- Monitoring official publications of the governmental authorities and departments, as well as oil companies
- Monitoring and downloading the electronic periodicals and studies received on the Secretariat General's intranet and make them available on the Secretariat General's e-Library.

### **7-9 Public Services**

The Library continued to provide in-house services for the Secretariat General's researchers, visitors, and external delegates through the following:

- In-house borrowing (e-borrowing made available to facilitate the process)
- Responses to researchers' inquiries
- Readers' guiding
- Reference services
- Photocopying (limited)

### **7-10 E-Library**

The library works continuously on expanding its collection of electronic references, especially on energy, petroleum, petrochemicals, environment, and other relevant topics; in order for the e-library to integrate with the paper library.

E- copies of printed references are downloaded whenever available; a step towards full digitalising of the library in the future.

In coordination with the IT manager, the library works on developing Oracle used in classifying references to better serve the researcher.

## 8- Databank

Within the framework of developing the databank and activating its role within the OAPEC's comprehensive plan to activate and develop the organization's role, the following steps have been taken:

- A coordination videoconference meeting was held between the Secretariat and a liaison officer of the United Arab Emirates on 29 June 2022. Another coordination videoconference meeting was held with the KSA liaison officer was held on 29 September 2022. During the meeting, the rules of the energy data collection form that is filled out by the liaison officers have been discussed.
- Organizing a training course entitled "Building National Capacities in Member Countries on Preparing Oil and Energy Statistics- Natural Gas Statistics", 1-2 June 2021
- The 11th Coordination Meeting of Member Countries' Liaison Officers was held remotely, 9-10 November 2022. During the meeting, energy data collection forms, whose data had been completed by member countries' liaison officers, were discussed.
- The databank has prepared a publication of energy data according to international groups for the period (1980 - 2021) based on the database of the British Petroleum Company. This publication is updated annually, and the report has been forwarded to the member countries of the organization
- The databank has prepared the annual statistical report for the year 2022, which covers the period (2017-2021)
- The databank prepares a series of separate reports on oil and energy statistics for each member country. The report covers the period (1985-2020), and includes data and statistics related to reserves, production, consumption and trade, as well as some other indicators related to oil and natural gas.
- The Data Bank participated in the launch of the fifty-seventh edition of the annual statistical report of the Organization of Petroleum Exporting Countries "OPEC" for the year 2022, which was held at their headquarters in Vienna - Austria on 28 June 2022 via videoconferencing.
- The Data Bank participated in the activities of the Fourth Forum for Industrial Information and Statistics in the Arab

Countries, which was held at the headquarters of the Arab Organization for Industrial Development, Standardization and Mining in Rabat - Kingdom of Morocco- 6 December 2022.

- The Data Bank participated in the activities of the meeting of the International Energy Statistics Team (InterEnerStat) via videoconferencing, which was held under the auspices and cooperation of the United Nations Statistics Department (UNSD) and the International Energy Agency (IEA) - 8 December 2022. The meeting aimed at informing the members of the energy statistics team about the progress made and the new revisions to the “International Standard Classification of Energy Products”, which was prepared by the United Nations Committee of Experts on International Statistical Classifications (SIEC).

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## 9- ADMINISTRATIVE AND FINANCIAL ACTIVITIES

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### Evolution of the Administrative Structure

By the end of 2022 there were (32) employees working at the Secretariat General, (19) of whom were of the professional staff and (13) of the general staff.







# OAPEC JOINT VENTURES' ACTIVITES



(AMPTC)



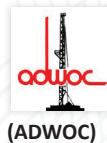
(ASRY)



(APICORP)



(APSCO)



(ADWOC)



(AWLCO)



(AGESCO)

### OAPEC Joint Ventures: Net Profits (and Losses) & Number of Employees by the End of 2021 and H1/2022, according to their activities reports & the 51st Annual Coordination Meeting

	Joint Venture	Financial Results for 2021 Profits/ (Losses)	Financial Results for H1/2022 Profits/ (losses)	Currency Unit	Number of employees in 2021			Number of employees in H1/2022		
					Arabs	Expats	Total	Arabs	Expats	Total
1	ARAB MARITIME PETROLEUM TRANSPORT COMPANY (AMPTC)	(19,743,000)	<sup>1</sup> 21,713,000	US Dollar	51	28	79	51	27	78
2	THE ARAB SHIPBUILDING AND REPAIR YARD COMPANY (ASRY)	(2,200,000)	<sup>2</sup> 2,300,000	US Dollar	586	1375	1961	586	1375	1961
3	THE ARAB PETROLEUM INVESTMENTS CORPORATION (APICORP)	99,600,000	52,000,000	US Dollar	90	32	122	90	32	122
4	THE ARAB PETROLEUM SERVICES COMPANY (APSCO) <sup>3</sup>	(313,302)	(285,105)	US Dollar	7	-	7	7	-	7
5	THE ARAB DRILLING AND WORKOVER COMPANY (ADWOC) <sup>4</sup>	459,432	1,727,985	US Dollar	247	17	264	247	17	264
6	THE ARAB WELL LOGGING COMPANY (AWLCO)	(987,534)	(226,356)	US Dollar	81	-	81	80	-	80
7	THE ARAB GEOPHYSICAL EXPLORATION SERVICES COMPANY (AGESCO)	22,431,000	4,797,000	US Dollar	56	2	58	57	2	59

1) The net profit achieved by the company until the end of September 2022, according to what was stated in the statement attached to its annual report, and thus the company has compensated for the losses of the first half of 2022, which amounted to \$ 1.117 million, and achieved net profits thanks to the improvement in operating rates

2) The net profit achieved by the company, which makes 2022 a promising year, and the cash flow from operating activities reached \$12.5 million

3) The profits and losses mentioned in the company's report have been converted into US dollars (one dollar equals 4.5962 Libyan dinars)

4) Profits are estimated in Libyan dinars and converted into US dollars using a variable of (one dollar equals 4.5962 Libyan dinars) as stated in the company's annual report

# The Capital of OAPEC Joint Ventures (Authorized, Subscribed, Paid) & Countries of Company's Headquarters

	Joint Venture	Company's Capital			Country of Company's Headquarters
		Authorized	Subscribed	Paid	
1	ARAB MARITIME PETROLEUM TRANSPORT COMPANY (AMPTC)	500	500	500	State of Kuwait
2	THE ARAB SHIPBUILDING AND REPAIR YARD COMPANY (ASRY)	170	53	53	Kingdom of Bahrain
3	THE ARAB PETROLEUM INVESTMENTS CORPORATION (APICORP)	20 <sup>1</sup>	10 <sup>1</sup>	1.5 <sup>1</sup>	KSA
4	THE ARAB PETROLEUM SERVICESCOMPANY (APSCO) <sup>3</sup>	100	60	60	State of Libya
5	THE ARAB DRILLING AND WORKOVER COMPANY (ADWOC) <sup>4</sup>	60	60	60	State of Libya
6	THE ARAB WELL LOGGING COMPANY (AWLCO)	35	35	35	Republic of Iraq
7	THE ARAB GEOPHYSICAL EXPLORATION SERVICES COMPANY (AGESCO)	35	35	35	State of Libya

1) During April 2020, the General Assembly approved the Board of Directors' proposal to increase the authorized capital from \$2.4 billion to \$20 billion, the subscribed capital from \$2 billion to \$10 billion, and the paid-up capital from \$1 billion. to \$1.5 billion by transferring \$500 million from the General Reserve







## **MINISTERIAL COUNCIL & EXECUTIVE BUREAU MEETINGS**



## Council of Ministers

### Communiqué of the 109th Meeting of the Council of Ministers of the Organization of Arab Petroleum Exporting Countries (OAPEC)

The Council of Ministers of the Organization of Arab Petroleum Exporting Countries (OAPEC) held its 109th meeting in the State of Kuwait on 12 December 2022, chaired by His Excellency Eng. Bassam Radwan Tohme, Minister of Oil and Mineral Resources of the Syrian Arab Republic, in the presence of the Council of Ministers' members. Syria has the presidency for the year 2022 term.

The Chair opened the meeting by welcoming their Highnesses and Excellencies the Ministers and members, wishing them success in deliberating the issues on the agenda of the meeting, and stressing the importance of cooperation among the member countries in achieving the objectives of the Organization.

His Excellency Tohme welcomed His Excellency Dr Badr Hamid Yousef Al Mulla, Deputy Prime Minister and Minister of Oil of the State of Kuwait, and His Excellency Hayyan Abdul Ghani Al Sawad, Deputy Prime Minister for Energy Affairs and Minister of Oil of the Republic of Iraq, who are participating in the Organization's Council of Ministers meetings for the first time, wishing them success in their new duties. The Chair also thanked the members of the Executive Bureau, the Secretariat General and OAPEC Secretary-General for the efforts they made over a whole year, wishing the meeting success.

HE Ali Sabt Ben Sabt, OAPEC Secretary General, followed by welcoming their Highnesses and Excellencies the Ministers and members of the Executive Bureau, saying he was looking forward to continuing their support for the organization's activities.

The Secretary-General also welcomed His Excellency Dr. Al Mulla, and His Excellency Al Sawad, who are participating in the meeting of the Organization's Council of Ministers for the first time, wishing them good luck and success in their new posts.

His Excellency the Secretary-General pointed out to the challenges facing the petroleum industry, as it requires more cooperation and coordination from member countries to bolster joint Arab action. He indicated that the most important challenges included: energy security and the growing interest in renewable energies, climate change issues, and geopolitical challenges.

**After approving the agenda, the Council deliberated and discussed the topics listed below, and thus endorsed them:**

- Approval of the minutes of the 108th meeting of the Council of Ministers of the Organization, which was held at the level of representatives in the

State of Kuwait, on 18/05/2022.

- Approval of the estimated draft budget of the organization (the Secretariat General and the judicial tribunal) for the year 2023.
- Being informed of the Secretariat General report on the progress of implementing the plan to develop and activate the organization's role. In this regard, the Council expressed its appreciation for the tireless efforts made by the Secretariat in the framework of implementing the plan, calling for the continuity of the Secretariat's efforts in this aspect.
- Being informed about the fifty-first annual report, which reviewed the activity of OAEPC joint ventures during the year 2022. The meeting was also informed of the results of the fifty-first annual coordination meeting of those companies, which was held on 22/10/2022 in Cairo, the Arab Republic of Egypt, in which the continuation of coordination and cooperation between these companies in areas related to their activities has been stressed. Moreover, some recommendations were communicated to promote the companies and solve some of the difficulties faced by some companies.
- o The meeting reviewed the progress made in terms of implementing the plan to activate and develop the organization's role approved by the organization's Council of Ministers, especially on training, coordinating the positions of member and non-OAEPC countries on climate change negotiations and the obligations arising from them, as well as, developing OAEPC databank and activating its role.
- o The meeting reviewed the report on the preparations for the Twelfth Arab Energy Conference, to be held in the State of Qatar during the last quarter of 2023. Also, the activities and seminars, which were organized or attended by the Secretariat General during the year 2022 were reviewed.
- The meeting discussed the follow-up on the Council of Ministers' decision "4/107" regarding assigning OAEPC Executive Bureau, in coordination with the Kingdom of Saudi Arabia, to activate the Green Middle East initiative and adopt the implementation of the concept of the circular carbon economy.
- The Council reviewed the economic and technical studies carried out by the Secretariat, in addition to its reports, including the quarterly report on "Global Petroleum Situation", the quarterly report on "Developments in Liquefied Natural Gas and Hydrogen" and other documents.
- The Republic of Iraq will assume presidency of the next term of OAEPC Council of Ministers and the Executive Bureau, for a period of one year, starting from the beginning of January 2023.
- It was agreed to hold the next OAEPC Council of Ministers meeting in the State of Kuwait in December 2023.

ORGANIZATION OF ARAB  
PETROLEUM EXPORTING  
COUNTRIES (OAPEC)

