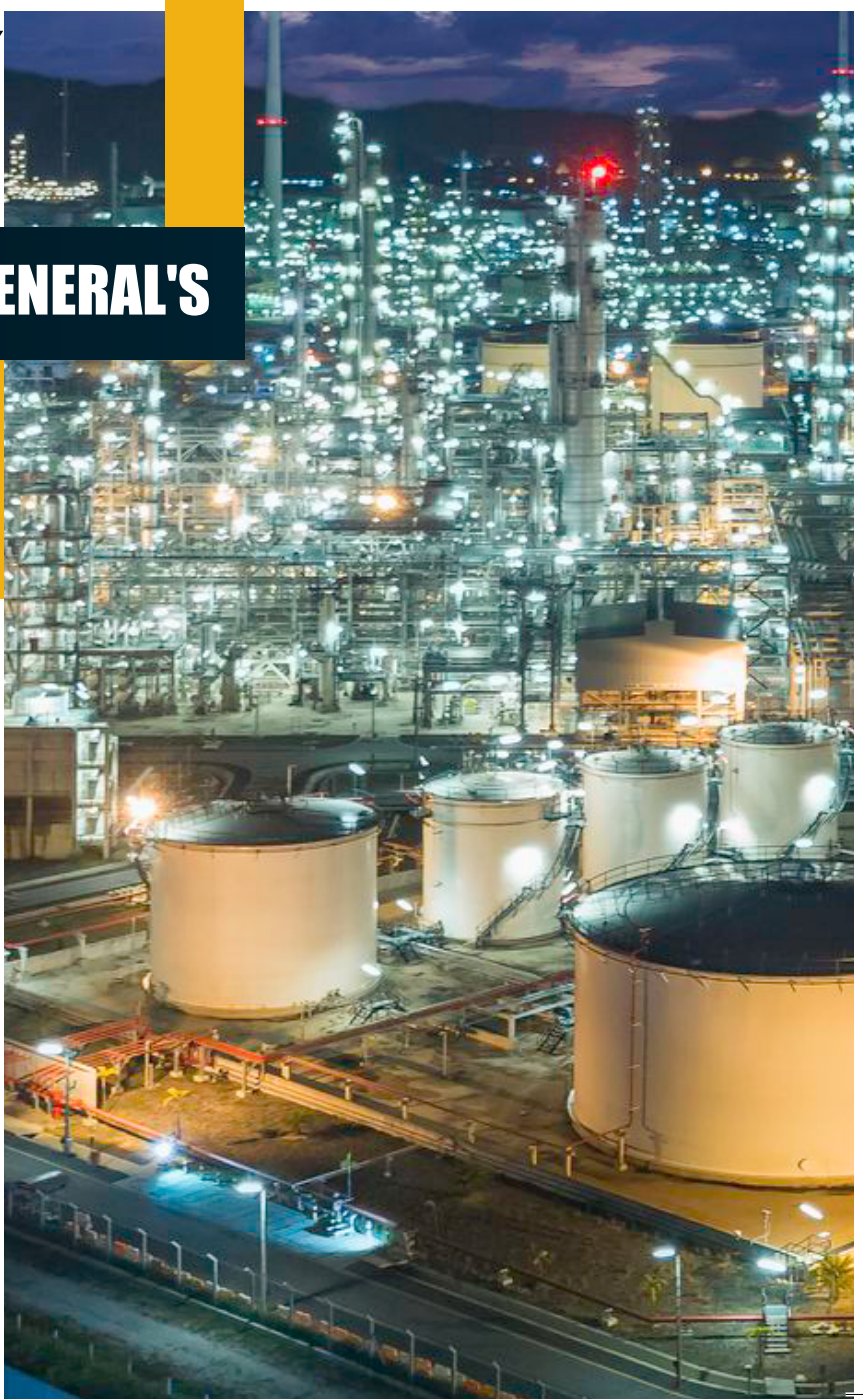
ORGANIZATION OF ARAB
PETROLEUM EXPORTING
COUNTRIES (OAPEC)

47

THE SECRETARY GENERAL'S ANNUAL REPORT 2020



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ORGANIZATION OF ARAB PETROLEUM EXPORTING COUNTRIES (OAPEC)

P.O. Box 20501 Safat, 13066 kuwait
Kuwait
Tel.: (+965) 24959000 - Fax: (+965) 24959755
E.mail: oapec@oapecorg.org
www.oapecorg.org

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OAPEC Council of Ministers
(2020)

HE Abdul Majeed Attar [1]
People's Democratic Republic of Algeria

HE Shaikh Mohammed bin Khalifa bin Ahmed Al Khalifa
Kingdom of Bahrain

HE Eng. Tarek El Molla
Arab Republic of Egypt

HE Ihsan Abdul Jabbar Isma'el [2]
Republic of Iraq

HE Dr Mohammed Al Fares [3]
State of Kuwait

HE. Eng. Saad bin Sherida Al Kaabi
State of Qatar

State of Libya

HRH Prince Abdul Aziz bin Salman
Kingdom of Saudi Arabia

HE Eng. Bassam Touma [4]
Syrian Arab Republic

HE Eng. Suhail bin Mohammed Faraj Al Mazroui
United Arab Emirates

1. In succession to HE Mohamed Arkab, as of June 2020
2. In succession to HE Thamer Abbas Al Ghadban, as of June 2020
3. In succession to HE Dr Khalid Al Fadhil, as of Dcember 2020
4. In succession to HE Eng. Ali Sulaiman Ghanim, as of August 2020

The Executive Bureau
(2020)

HE Dr Miloud Medjelled [1]
People's Democratic Republic of Algeria

HE Fayhan M. Al Fayhani
Kingdom of Bahrain

H.E. Geologist Ashraf Mahmoud Mohammad Faraj
Arab Republic of Egypt

HE Eng. Naseer Aziz Jabbar [2]
Republic of Iraq

HE Dr Sheikh Nimr Fahad Al Sabah
State of Kuwait

State of Libya

HE Sheikh Mishaal bin Jabor Al Thani
State of Qatar

HE Eng. Nasser bin Ibrahim Al Fuzan
Kingdom of Saudi Arabia

HE Dr. Eng. Mohammed Jiroudiya [3]
Syrian Arab Republic

HE Eng. Sharif Al Almaa' [4]
United Arab Emirates

(1) In succession to HE Mohammed Ras El Kaff, as of 19 April 2020
(2) In succession to HE Eng. Mahmoud Hashem, as of 17 February 2020
(3) In succession to HE Eng. Abdullah Al Khattab, as of 27 January 2020
(4) In succession to HE Dr Matar Hamed Al Neyadi, as of 14 May 2020

The Judicial Tribunal

HE Jawad Omar Al Sakka	Member
HE DR. Nabil Abdullah El Araby	Member

The Secretariat General

HE Ali Sabt Ben Sabt	Secretary General

The Arab Center for Energy Studies

Dr. Samir M. El Kareish	Director of the Technical Affairs Department
Mr. Abdul Fattah Dandi	Director of the Economic Department
Mr. Abdul Kareem Ayed	Director of the Finance and Administrative Affairs Department
Mr. Nasser Bakheet	Supervisor of the Information and Library Department

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HE Ali Sabt Ben Sabt
Secretary General

It gives me great pleasure to introduce the 47th Secretary General's Report for the year 2020. It provides an overview of the most important Arab and global developments in the oil and gas industry, as well as, a glimpse of the various developments in the global energy industry. The Report's data and statistical charts and tables will give the reader a sense of the vital status and role of OAPEC member countries in the global energy scene.

This Report is released at a time when the world is still facing the negative impacts of the COVID-19 pandemic through taking strict health- related measures. The pandemic affected all economic and industrial sectors in China and the world, including the oil industry.

In this vein, I would like to hail, proudly, the massive efforts of OAPEC member countries throughout 2020 for insisting to carry on with petroleum activities on the one hand, and to continue implementing their ambitious economic policies and programmes in order to combat the difficult

economic challenges facing the whole world on the other hand.

2020 has been characterised by continued active efforts by the member countries and the Secretariat General at international forums on oil, gas, environment, sustainable development, and the UNFCCC within the framework of their endeavours to explain the Arab countries' point of view on the various energy issues on international level.

This Report seeks to highlight the above-mentioned issues in more details and analysis to draw a clear image of the energy industry in general, with a special focus on the petroleum industry during 2020. It also sheds the light on OAPEC member countries' efforts to develop their petroleum industries through executing vital projects on the various petroleum industry's stages, as well as, through announcing mega oil and gas discoveries which give another proof of the important leading status of the Arab region in terms of the oil and gas industry now and in the future. The members have also worked on mitigating the implications of the difficult economic conditions on most of the oil and gas producing and exporting countries due to declining oil prices in the global market.

The Report also reviews OAPEC Secretariat General's efforts both on the Arab and international levels, and its continued endeavours to strengthen ties and cooperation with regional and international organisations and energy- related research centres.

On supporting research work and expertise exchange between the member countries, OAPEC Secretariat General held various activities and coordination meetings between specialists from these countries. It also worked on accentuating its presence at international forums.

This Report is divided into 5 sections tackling: OAPEC activities in 2020; main energy indicators; upstream industries; downstream industries; and appendices. The sections, supported by charts and figures, give an insight to their respective topics and latest developments with a special focus on OAPEC member countries.

The Report seeks to highlight all the above in more detail, with a special focus on OAPEC activities; its joint ventures; and its member countries activities and projects. There is a special section covering OAPEC's Arab and international efforts and its relations with the various regional and international organisations and research centres relevant to the energy industry.

You will see that various parts of the Report are dedicated to highlight OAPEC member countries' new oil and gas discoveries, as well as, new energy projects. This is in order to help draw a clearer image of the progress of the industry in our member countries.

The report dedicates 2 sections, supported by data and statistics, on international developments relevant to the energy sector and their implications for the member countries, while presenting the various factors influencing the market in terms of supply and demand, oil inventories, prices, geopolitical influence, and energy policy trends including in the major industrial countries.

In the end, I hope you find this Report helpful and contributes to broadening the readers' horizons on the current Arab and international petroleum industry supported by data and useful pieces of information. I also hope it sheds the light on OAPEC's activities and goals to make our image clearer in the mind of the reader.

OAPEC ACTIVITIES IN 2020

COUNCIL OF MINISTERS & EXECUTIVE BUREAU

OAPEC'S 104TH MINISTERIAL MEETING
(AT REPRESENTATIVES' LEVEL)

OAPEC's 104th Ministerial Meeting (at Representatives' level) was held via ZOOM Technology on 11 June 2020 and chaired by Algeria's Rep at OAPEC Executive Bureau HE Dr Medjelled Miloud, as Algeria chairs the 2020 term.

The Chair inaugurated the meeting welcoming Their Excellencies the representatives and OAPEC Secretary General. He extended thanks and appreciation to OAPEC Secretariat General for the good preparations for the meeting that was held for the first time using Zoom Technology.

OAPEC Secretary General HE Ali Sabt Bensabt followed with a speech welcoming Their Excellencies the conveners and expressing thanks and appreciation to the member countries for their continued support during the COVID-19 pandemic. He also lauded the member countries' sincere efforts to continue with the petroleum industry's activities in light of the current health conditions worldwide.

The meeting then tackled points on the agenda and issued resolution 1/104 approving OAPEC's final financial statements (Secretariat General and Judicial Tribunal) for the year 2019.

The Council reviewed a report on the Secretariat General's activities in the first half of 2020 and endorsed the Executive Bureau's recommendations in this regard, including a report on the year 2019 by OAPEC Indemnity Fund Committee. It also discussed the first meeting of Executive Bureau members on developing and activating OAPEC's role. Moreover, other recommendations were made on other issues.

The meeting discussed the 12th Arab Energy Conference recommending to add it to the next ministerial council meeting's agenda.

The Council ended the meeting with renewing thanks and appreciation to the Secretariat General for its efforts in holding this meeting via ZOOM while wishing OAPEC all success.

OAPEC'S 105TH MINISTERIAL COUNCIL MEETING

OAPEC's 105th Ministerial Council Meeting was held via videoconferencing on 13 December 2020 and chaired by Algeria's Minister of Energy HE Abdul Majeed Attar. Algeria chairs the 2020 term.

The Chair inaugurated the meeting welcoming Their Excellencies the minsters and heads of delegations wishing them success in their discussions of the set agenda. He emphasized the importance of cooperation between OAPEC members to deliver the organisation's goals. He extended thanks to his predecessor HE Mohamed Arkab, former Algerian Energy Minister, for his efforts throughout his presidency of the current term 2020.

HE Attar welcomed the Syrian Oil and Mineral Resources Minister HE Engineer Bassam Tou'ma, for taking part in the ministerial meeting for the first time, wishing him all success in his new post. He also extended thanks and appreciation to OAPEC Secretariat General for the good preparations for the meeting. He wished the meeting all success while stressing that OAPEC's ultimate mission is the collaboration of its member countries in all aspects of the petroleum industry to serve the interests of their nations.

In his speech, the Chair also reviewed current developments of the world oil market; the impacts of COVID-19 pandemic on the oil market and global demand; and OPEC and OPEC + efforts to restore stability to oil markets.

OAPEC Secretary General HE Ali Sabt Bensabt followed with a speech welcoming Their Excellencies the conveners and expressing thanks and appreciation to the member countries for their continued support for the organisation's activities. He welcomed HE Attar and HE Tou'ma, for taking part in the meeting for the first time wishing them all success in their new posts.

After endorsing the agenda, the Council discussed and approved the following:

- The Council endorsed the minutes of the 104th Ministerial Council Meeting, held in Kuwait via ZOOM technology, at representatives' level on 11/06/2020.
- OAPEC's draft projected budget for 2021 (Secretariat General and Judicial Tribunal) was approved.
- Al Ahmad & Partners (Talal Abu Ghazalah Group) have been appointed as OAPEC (Secretariat General and Judicial Tribunal) Auditors for 2021.
- Approving OAPEC activities development and role activation plan
- Approving the closure of the Secretariat General's Office in Cairo
- Postponing the 12th Arab Energy Conference to 2023

The Council reviewed the Secretariat General's report on OAPEC activities on:

- Finalized studies prepared by the Secretariat General during 2020 (6 technical and economic studies on oil and energy) under the following titles:
- Energy Consumption in the Industrial Sector in OAPEC Member Countries
- World Energy Security: Current Status, Future Prospects, & Implications for Energy Markets & OAPEC Members
- Primary Impacts of COVID-19 Pandemic on Global Energy Investments
- Plastic Waste Recycle: Investment Opportunities & Environmental Solutions
- Using LNG as Marine Fuel
- Problems Associated with Drilling
- OAPEC Report on the World's Petroleum Conditions

Following up environment and climate change issues, most importantly the 27th Coordination Meeting for Environmental Experts in OAPEC Member Countries and the meetings of the Arab Climate Change Negotiating Group that were held via videoconferencing

All activities which the Secretariat General organized or took part in during the second half of 2020 (9 events)

- The Council also reviewed OAPEC Joint Ventures Activity Report in 2019 and the first half of 2020, and took note of the outcome of the 49th Coordinating Meeting of the Joint Ventures Officials held via videoconferencing on 18/10/2020, which encouraged continued coordination and cooperation among these joint ventures. The Council has also been informed about the bilateral meetings between the Secretariat General and its JV officials.
- The Council resolved to extend the term of the Arab Maritime Petroleum Transport Company (AMPTC) for an infinite period, as of 6 January 2023, the day following the expiry of the current term.
- The chairmanship of the next round of the Ministerial Council and Executive Bureau will be assigned to the Kingdom of Saudi Arabia as of January 2021.
- It has been agreed to hold the next Ministerial Meeting in Kuwait on 09 December 2021.

156TH MEETING OF OAPEC EXECUTIVE BUREAU

OAPEC Executive Bureau held its 156th Meeting via ZOOM Technology on 11 June 2020 in Kuwait. It was chaired by Algeria's Rep at OAPEC Executive Bureau HE Dr Medjelled Miloud. Algeria chairs the 2020 term.

His Excellency the Chairman opened the meeting welcoming Their Excellencies the members of the Executive Bureau and wishing them a pleasant stay in Kuwait. His Excellency the Chairman extended thanks to OAPEC Secretary General HE Ali Sabt Bensabt and the Secretariat General's staff for the good preparations for the meeting.

On his part, OAPEC Secretary General HE Bensabt welcomed the conveners and reviewed the main points on the agenda pointing out that the meeting is allocated for discussing preparations for OAPEC's 104th Ministerial Meeting (at representatives' level).

157TH MEETING OF OAPEC EXECUTIVE BUREAU

OAPEC Executive Bureau held its 157th Meeting via ZOOM Technology on 24 October 2020. It was chaired by Algeria's Rep at OAPEC Executive Bureau HE Dr Medjelled Miloud. Algeria chairs the 2020 term.

His Excellency the Chairman opened the meeting welcoming Their Excellencies the members of the Executive Bureau and OAPEC Secretary General HE Ali Sabt Bensabt. HE Dr Miloud extended thanks to the Secretariat General for the good preparations for the meeting.

On his part, OAPEC Secretary General HE Bensabt welcomed the conveners and thanked the member countries for their continuous support for the Secretariat General. He also lauded the member countries' sincere efforts to continue with petroleum industry's businesses and operations in light of the COVID-19 pandemic measures.

Main discussion points on the agenda have been then reviewed, including OAPEC's projected budget for the year 2021 (Secretariat General and Judicial Tribunal). The budget had consensus to be submitted to the next Ministerial Meeting. The meeting also looked at the Secretariat General's proposal on developing OAPEC activities and the topic for OAPEC Scientific Award 2020. Recommendations have been agreed on these points.

The Executive Bureau concluded by thanking the Secretariat General for their efforts in organising the meeting, while wishing the organisation all success.

158TH MEETING OF OAPEC EXECUTIVE BUREAU

OAPEC Executive Bureau held its 158th Meeting via videoconferencing on 10 December 2020 in Kuwait. It was chaired by Algeria's Rep at OAPEC Executive Bureau HE Dr Medjelled Miloud. Algeria chairs the 2020 term. The meeting aimed at finalising preparations for OAPEC's 105th Ministerial Meeting.

His Excellency the Chairman opened the meeting welcoming Their Excellencies the members of the Executive Bureau. He pointed out that the meeting is held at extraordinary times via videoconferencing due to COVID-19 pandemic. His Excellency the Chairman extended thanks to OAPEC Secretary General HE Ali Sabt Bensabt and the Secretariat General's staff for the good preparations for the meeting.

On his part, OAPEC Secretary General HE Bensabt welcomed the conveners and reviewed the main points on the agenda pointing out that the meeting is allocated for discussing preparations for OAPEC's 105th Ministerial Meeting.


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SECRETARIAT GENERAL

- STUDIES
- PAPERS
- MEETINGS & CONFERENCES
- ENVIRONMENT, CLIMATE CHANGE, AND SUSTAINABLE DEVELOPMENT
- MEDIA
- DATABANK
- ADMINISTRATIVE AND FINANCIAL ACTIVITIES

1- Studies:

1- Energy Consumption in the Industrial Sector in OAPEC Member Countries

The study seeks to identify the size of energy consumption in the industrial sector of OAPEC members due to its importance to their economies. The study concluded that special attention should be paid to energy loss due to its relatively high levels. Efforts should be intensified to improve energy consumption density indicators in the industrial sector.

2- Current & Future Global Investments in the Energy Sector

The study gives an overview on the investments executed in the past 2 decades, as well as, those forecasted until 2035. Its findings state that the MENA region's share of global petroleum investments is not compatible with the massive potentials in the region, which calls for the need to prioritise petroleum investments by the member countries, in order to maintain their position in global markets. Moreover, investments allocated for improving energy efficiency in the MENA region until 2035 represent a small rate compared to international rates.

3- Global Energy Security: Current Status & Future Prospects & their implications for Energy Markets & Member Countries

The goal of the study is to tackle the historical development of the concept of energy security, as well as, main aspects of energy security and their implications for the global petroleum market on the one hand and OAPEC member countries on the other hand. The study also explored potential scenario forecasts for energy markets and their implications for the energy security worldwide.

The study concluded by underscoring the importance of activating constructive dialogue and partnership in vision and responsibility between producing and consuming countries. The study also stressed that upstream investment needs ensuring revenues, which cannot be guaranteed without guaranteeing

demand at fair prices- a must for ensuring the continuity of oil supplies flow.

4- Potential Drilling Problems

Defining problems shapes the start of any engineering project. The nature and scale of the problems differ owing to the nature of an engineering effort. Drilling operations are considered as the cornerstone of petroleum industry, and petroleum resources are the main pillars of the modern civilization. Oil and natural gas proved reserves were estimated at 1.3 trillion barrels and 200 trillion cubic meters respectively.

Drilling costs are estimated some 25% of worldwide upstream budgets. Drilling faces many complications that are difficult to be directly observed as most of them take place under the surface. Planning drilling operations is seen as one of the biggest challenges facing engineers and field crews.

The planning stage usually includes all possible scenarios of anticipated problems and possible solutions. Many drilling problems can pose a great risk either to the life of the crew, or to the well itself, and it is -by all means- very difficult to find solutions to these problems on spot.

Drilling requires a large number of equipment, crews, transport vehicles, a lot of mechanical equipment and chemicals, thus, all steps taken in the field must proceed in harmony so that the work cycle moves in a monotonous manner. Nevertheless, problems do arise, equipment breaks down, and it is almost certain that problems will happen during drilling even in carefully planned wells. One of the reasons is that the formations and geological conditions are heterogeneous, which means a well may be drilled without any problems or difficulties, while problems may appear when drilling an adjacent well.

This study aims at explaining the most important problems associated with drill stem, mud, operations, control, casing, cementing, and directional drilling problems, either on or offshore. It examines some of the issues that emerged with the development of the directional drilling and hydraulic fracturing technologies, and it deals with the potential environmental impacts of these problems. Case studies and examples on specific problems and their related solutions were presented as part of an attempt to provide a clear reading of a problem, and to enrich the information about field solutions that were followed, as accumulated knowledge

contributes to creating a system of preventive measures and ultimately lead to sustainable operations development. Examples in the study highlighted drilling problems caused by human error and other caused by reasons beyond control. In fact, every problem encountered in any drilling location in the world opens an opportunity for preventing/ solving the same problem elsewhere. This practically means improving drilling efficiency.

5- Plastic Waste Recycling, Investment Opportunities and Environmental Solutions

It would be hard to imagine a modern society today without plastics. Plastics have found a myriad of uses in fields as diverse as household appliances, packaging, construction, medicine, electronics, automotive and aerospace components. It is widely recognized that plastics have a crucial role to play in delivering a more sustainable future.

However, challenges relating to littering and end-of-life options for certain types of plastics waste - especially packaging waste- must be addressed if the material is to achieve its fullest potential in a circular and resource efficient economy.

There is a global focus on plastics for obvious reasons: while the global recycling rate for papers is estimated at 58%, and aluminum at 69%, only 14% of all plastic packaging materials produced worldwide is collected for recycling, and 10% is actually recycled. As a result, large amounts of plastic are flowing into our natural environment, particularly our oceans, and the global economy is losing $80-120 billion (USD) of resources each year.

New processes have emerged, i.e., advanced mechanical recycling of plastic waste as virgin or second grade plastic feedstock, and thermal treatments to recycle the waste as virgin monomer, as synthetic fuel gas, or as heat source (incineration with energy recovery). These processes avoid land filling, where the non-biodegradable plastics remain a lasting environmental burden.

The study is divided into four chapters, and provides analytical data not only for the amount of plastics produced over the past years, but also for their composition, types of additives and their quantities used in the production of plastics.

The study also dealt with the identification and classification of the types of polymers «plastic materials», their properties and uses. It also included the classification of plastic waste, its effects on humans and the environment, and modern methods for safe

disposal, especially after the end of the plastic life cycle, on the other hand, the study includes a review of the experiences of some countries in plastic waste recycling , finally the study concluded with some conclusions.

6- Use of LNG as a Marine Fuel

Fuel oil is the main fuel used in the global shipping sector, representing about 75% of its total consumption. Therefore, the sector represents is responsible for about 12% of the global energy-related SO2 emissions. In addition, international maritime organization (IMO) estimates that maritime sector represents about 2.5-3% of the global CO2 emissions. Therefore, by adopting appropriate environment-friendly solutions, the global maritime sector can take an effective role in reducing global GHG in line with the global efforts to mitigate the climate change. The use of LNG as a marine fuel is one of the key substitutes/options to reduce the maritime sector dependence on high sulfur fuel oil, thanks to its environmental and economic benefits.

The study is divided into four chapters, chapter-I overviews the different types of ships used in the maritime sector. It also addresses the role played by the world fleet in the development of world maritime trade.

Chapter-II addresses different types of fuels used in the maritime sector. It also highlights the role played by the (IMO) to regulate the sector. The annex-VI of the MARPOL treaty is deeply analyzed to provide all possible solutions to meet its new regulation of global sulfur cap of 0.5% in the marine fuel.

Chapter-III is devoted to show the key advantages and barriers against the use of LNG as a maritime fuel. It provides a deep dive into the main segments of LNG-powered ships market, its key players and future outlook.

Chapter-IV addresses the future projects and plans announced by state-own companies in the Arab countries to invest in LNG bunkering facilities and tracks the progress achieved in these plans.

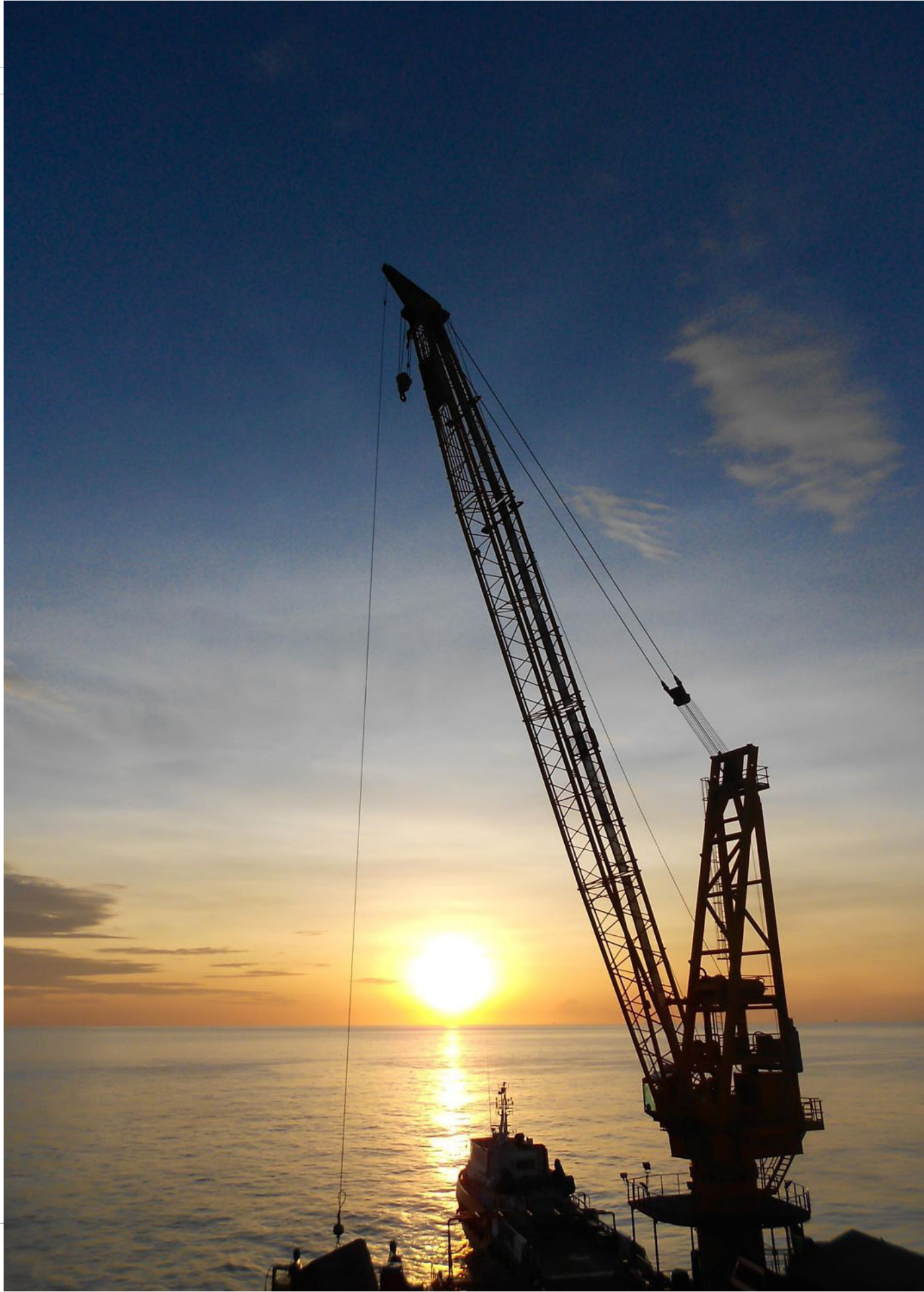
The study concluded that the international maritime sector has taken remarkable actions to adopt LNG as a marine fuel for both old and newbuild ships. In early 2020, the total number of LNG powered ships reached 178 ships representing ~ 0.2% of the world's commercial fleet.

Moreover, the number of LNG bunkering locations is growing rapidly, where various types of ships can be bunkered offshore

using bunkering vessels/barges or at small intermediate bunker terminal. By far, Northwest Europe remains the major hub for LNG bunkering locations worldwide.

Nevertheless, Arab region possesses many significant factors that could enable to establish a regional LNG bunkering hub in the region. Such factors include the existence of fully integrated gas industry, the availability of LNG export infrastructures and unique location with proximity to many international maritime lines.

As a consequence, a number of state-owned Arab companies has shown its interest to invest in LNG bunkering projects. There are four LNG bunkering terminals are planned in Qatar, Oman, UAE and Egypt. Some of them have entered the FEED phase while others are still under discussion. Doubtless, the success of the Arab companies to materialize these projects will enable region to play a key role in meeting the forecasted demand on LNG bunker fuel.



2- Papers

1- OAPEC QUARTERLY REPORT ON WORLD LNG DEVELOPMENTS

Prepared by the Technical Affairs Department, the report highlights the most significant developments and changes in the LNG industry through reviewing market dynamics; Arab LNG supplies developments; and the investment situation in new projects in light of the repercussions of the COVID-19 pandemic on the global gas sector.

The report explained that gas price recovery is attributed to demand recovery in various major consuming markets on top of which: the USA, China, India, and Europe, driven by growing demand for electricity due to hot weather. Moreover, output cuts by major LNG producers- in response to the pandemic repercussions in order to restore balance between global supply and demand- have contributed to boosting price recovery.

The report pointed out that gas prices saw recovery in Q3/2020 following a sharp drop in Q2/2020. Prices have risen in EU markets to about $4 per 1 MMBTU in August compared to $2.5 per 1 MMBTU in July according to TTF Centre, the Netherland. As for spot market in North Eastern Asia, August prices went up to $5 per 1 MMBTU. In the USA, August gas price went up to $2.3 per 1 MMBTU compared to $1.7 per 1 MMBTU last June according to Henry Centre.

The report also showed that the world market managed to absorb LNG supplies in Q1/2020 as total exports reached about 96 million tons, higher by 10.5% than the same quarter in 2019 which recorded about 86.9 million tons. However, the market's ability to absorb global supply surpluses started to shrink in Q2, which caused exports to decline to 85.8 million tons, a drop of about 10.2 million tons compared to Q1 (a drop rate of about 10.6%). Nonetheless, exports were still higher than the same quarter in 2019 which registered 85.5 million tons. The scene has changed in Q3 which witnessed the first drop on an annual basis, as total exports have dropped to 83.8 million tons compared to about 88.8 million tons against the same period in 2019 (an annual drop of 5.6%). The drop came as a natural reaction to the drop of economic activities due to the pandemic which stopped, for the first time, the growing LNG exports that have been on continuous rise for years.

The report pointed out that COVID-19 pandemic had great impact on the world's oil and gas companies. Many companies

announced cutting their capital and operational budgets for 2020 contrary to their scheduled plans. In LNG sector, the world market was ready for a new wave of final investment decision making in various mega export projects as it ended the year 2019 with breaking a record in the number of final investment decision for new projects. However, the volatile market conditions and unclarity on the exact timing of the pandemic recovery hit new investments hard. Q1/2020 saw many developing companies postponing investment decisions in 17 out of 21 proposed projects to export LNG with a total of 171.4 million tons/annum until 2021 or beyond. There was no final investment decision made in the remaining four projects except for one in Mexico at a capacity of 2.5 million tons/annum.

2- Ramifications of COVID-19 Pandemic on Global Demand for Basic Petrochemicals during H1/2020

The report tackles the double-shock the world petrochemicals industry received in H1/2020 as a result of the outbreak of the COVID-19 pandemic, which has been accompanied by a sharp drop in oil prices, the largest since the Gulf War in 1991. This situation has intensified the challenges for the industry. It also tackled other significant challenges that might affect profit margin in 2020, as with the gradual and slow reopening of economies, the petrochemicals sector is expected to witness a hike in demand for its products in some parts of the world sooner than anticipated. Petrochemicals demand growth is expected to recover during 2021.

3- Challenges Facing Petrochemicals Industry in OAPEC Member Countries

Presented at the Petrochemicals & Refining Conference, Europe 2020, 28-29 September 2020 via videoconference. The paper tackled the status of the member countries globally in terms of their petrochemicals production capacities. It highlighted the most significant challenges facing the industry both in the short-run and long-run. The paper also identified the available opportunities for the member countries to maintain their global status through integration policies and strategies between refining and petrochemicals. It tackled the potential role of modern technology to redefine competition in the global petrochemicals industry.

4- Recent Developments in the Oil Refining Industry in OAPEC Member Countries

Presented at the Operational Excellence Committee Meeting organised by the Gulf Refining Union (GRU) and held online on 29 June 2020.

5- OAPEC Paper: "Follow up on Natural Gas Industry Developments on Arab and Global Levels"

Presented at the 19th Meeting of Experts on Natural Gas Investment Cooperation Potentials in OAPEC Member Countries that took place, via ZOOM technology, on 20 October 2020.

The paper showed that by the end of 2019, natural gas global reserves reached about 7.019 trillion cubic feet, including about 1925 trillion cubic feet for Arab countries, representing about 27.4% of the world's total. Arab countries' gas exports in 2019reached 19.7 billion cubic feet/day, with a drop of one billion cubic feet/day compared to 2018. The paper explained that Arab countries' natural gas exports represent about 16% of the global natural gas trade in 2019.

The paper stated that global natural gas trade (both LNG and via pipelines) reached about 124.5 billion cubic feet/day to meet about 32.7% of the world's total gas demand in 2019. The rest is used domestically where it is produced. The paper also stated that the global LNG trade represents more than one third (47 billion cubic feet/day) with 37.7% of the world' total trade; its share is growing noticeably. Natural gas trade (via pipelines) represents less than two thirds (77.5 billion cubic feet/day) of the world's total.

The paper has also monitored the impacts of the COVID-19 pandemic on the global LNG market, as follows:

- Historic drops of LNG prices in both spot and long-term markets
- Cancellation of many ready-to-export shipments from various parts of the world, especially the USA
- Postponement of final decisions on some new projects

The paper showed that LNG exports in Arab countries have not been majorly affected by the pandemic in the first half of 2020, mainly due to the nature of contracting between the Arab national companies and their clients in the European and Asian markets. This is because the Arab countries are the key long-term suppliers for major consumers in various markets.

6- OAPEC Secretary General HE Ali Sabt Ben Sabt Delivered a Lecture on "Current Status & Future Prospects of Natural Gas Industry in the Arab World"

Within the framework of cooperation between OAPEC and the Gas Exporting Countries Forum (GECF), OAPEC Secretary General HE Ali Sabt Ben Sabt, delivered a lecture on the "Current Status & Future Prospects of Natural Gas Industry in the Arab World" via videoconferencing, on 22 November 2020, as part of monthly activities organized by the Forum.

The event was inaugurated by GECF Secretary General HE Yury Sentyurin who welcomed OAPEC Secretary General and stressed his keenness on boosting cooperation between the two organisations.

In his speech, HE Ben Sabt extended thanks to GECF Secretary General for his kind invitation to take part in this prestigious event. He then moved on to present the lecture's main points, after which he started discussing the impacts of the COVID-19 pandemic on the various aspects of the global economy, including the oil and gas sector, which is among the most affected sectors due to quarantine and lockdown measures taken by many countries to prevent the spread of the virus.

HE Ben Sabt also indicated that natural gas markets have been affected on various levels including the gas spot price decline to historic levels; postponement of investment in most new projects; and a historic shock in demand.

HE Ben Sabt then gave the floor to the Director of the Technical Affairs Department at OAPEC, Dr Samir Al Kareish, who gave a presentation on OAPEC, its goals, organisational structure, and its joint ventures. He also tackled the most significant natural gas indicators in the Arab World saying its countries enjoy large natural gas reserves of about 56.3 trillion cubic metres (representing 27% of the world's total reserves). Dr Al Kareish then spoke about the development of natural gas production in the Arab countries (between 1990-2019) clarifying that it recorded a total growth of 340%, the highest in the world during that period.

On consumption, Arab countries are experiencing an increasing growth in natural gas demand due to its economic and environmental advantages compared to other types of fuel. It recorded an annual growth rate of about 5% (between 1990-2019), the highest in the world during the same period.

Engineer Wael Abdu Moati, Gas Industries Expert at the Technical Affairs Department in OAPEC, then took the floor and gave a presentation on the status of the Arab countries in global gas

markets emphasising that these countries have invested billions of dollars in gas exporting projects to make gas supplies available for key markets, which would support Arab countries' economies by their revenues.

He also underscored that Arab countries' total natural gas exports have registered about 200 billion cubic metres (about 16% of the world's total trade) in 2019. LNG domains the market with about 75%, with the gas via pipeline exports accounting for the remaining 25%. He then moved on to talk about the impacts of the COVID-19 pandemic on LNG markets, clarifying that Arab countries' exports have been slightly affected in the first 9 months of 2020 compared to the same period in 2019, as they dropped by only 1%. This is due to the nature of contracting between the Arab countries and their clients in the various markets, which is long-term. Arab countries are approved long-term LNG suppliers. He reiterated that such contracts benefit both exporters and consumers and ensure the gas sector's stability.

He indicated that in spite of the output boom in the Arab World over the past decades, the region is still rich with unexploited gas resources as it accounts for only 16% of the world's output while it accounts for 27% of the world's reserves. The Arab World is now facing various challenges, most significantly continued growth of gas demand by high rates exceeding production growth in recent years. Therefore, a number of Arab countries like the UAE, KSA, and Egypt geared towards exploiting other resources that were overlooked previously like: unconventional gas resources; gas cap reservoirs; sour gas reservoirs; as well as, taking other measures like accelerating the development of newly discovered gas fields. Total gas investments in the Arab World are estimated at about $162 billion (between 2020-2024).

Along with these measures, there are promising prospects in LNG exporting in light of new projects scheduled for execution in Qatar, Oman, and Mauritania, which would contribute to raising export capacity from 138 million tons/year in 2019 to about 200 million tons/year by 2027, with a total growth of 45%. There are also other plans to build LNG loading terminals for vessels with a total of 4 projects that would promote the Arab World as a regional LNG loading hub for ships.

3- Conferences, Seminars, & Meetings

In 2020, the Secretariat General took part in a number of events that were held remotely due COVID-19; which included:

3-1 Meeting on Joint Arab Economic Report 2020 Drafts, 21-25 June 2020

OAPEC Secretariat General took part in the meeting discussing the Joint Arab Economic Report 2020 drafts held in via Cisco Webex technology on 21-25 June 2020. Representatives from the Arab League's Secretariat General, the Arab Monetary Fund, and the Arab Fund for Economic and Social Development took part in the event.

3-2 "Our Gulf Economy & the Future of Oil Prices" Seminar, organized by the GCC Secretariat General on 24 August 2020.

3-3 The 106th Term Meetings of the Economic and Social Council, 30 August- 3 September 2020.

Upon an invitation by the Arab League Secretariat General, OAPEC participated in these meetings which discussed (among other issues) boosting Arab countries' endeavours to execute the Sustainable Development Plan 2030, especially on eradicating poverty, as well as, the Joint Arab Economic Report.

3-4 Preparatory Meeting on the Joint Arab Economic Report 2021, 15-17 December 2020.

Representatives from the Arab League Secretariat General, the Arab Monetary Fund, and the Arab Fund for Economic and Social Development took part in the event. It was agreed that the key chapter theme for 2021 report will be "Economic Reform Priorities during the COVID-19 Pandemic Crisis."

3-5 Second Coordination Meeting for Officials of Petroleum Institutes & Centres in OAPEC Member Countries

The "Second Coordination Meeting for Officials of Petroleum Institutes & Centres in OAPEC Member Countries" was held via ZOOM technology on 13 October 2020, with the participation of 20

experts from OAPEC member countries: UAE, Algeria, Iraq, KSA, Syria, Kuwait, Egypt, in addition to OAPEC Secretariat General.

OAPEC Secretary General HE Ali Sabt Ben Sabt inaugurated the meeting welcoming the participants. He pointed out that the meeting aims at discussing a framework for cooperation opportunities between the petroleum institutes and centres in OAPEC member countries, as well as, exchanging expertise on scientific research. The Secretary General underscored the importance of scientific research in facing challenges and obstacles of the petroleum industry in the member countries, which resulted from declining oil prices, aggressive competition in the world markets, and declining oil demand due to the COVID-19 pandemic. He stressed the need for collaboration to seek appropriate solutions for these challenges.

He concluded by extending thanks to their Excellencies oil and energy ministers of OAPEC member countries for supporting the meeting by nominating an elite of participants who enjoy distinguished expertise. He wished the participants all success in realizing the goals of the meeting including exchanging expertise and providing support to tackle current challenges facing the petroleum industry in a way that serves the interests of the member countries.

A paper has been presented on OAPEC activities in scientific research through the Arab Centre for Energy Studies; OAPEC's publications; and OAPEC Award for Scientific Research. He elaborated on the significance of scientific research and the most important opportunities that can contribute to developing the petroleum industry in OAPEC members.

This was followed by a number of presentations by the participants covering scientific research activities in their respective countries, most significant challenges hindering work progress and future plans to improve performance. They agreed a number of recommendations to boost cooperation between petroleum research centres and institutes in the member countries.

The Secretary General closed the meeting by appreciating the ideas presented by the participants. He also underscored that the Secretariat General will spare no effort in executing the proposed recommendations in line with the directives of OAPEC's Ministerial Council and Executive Bureau on developing the organisation's performance and activating its role on boosting joint Arab action.

3-6 The 19th Meeting of Experts on Natural Gas Investment Cooperation Potentials in OAPEC Member Countries

The 19th Meeting of Experts on Natural Gas Investment Cooperation Potentials in OAPEC Member Countries took place, via ZOOM technology, on 20 October 2020. Natural gas experts and specialists from OAPEC member countries participated in the meeting along with the Secretariat General's team.

At the opening of the meeting, OAPEC Secretary General HE Ali Ben Sabt said in his speech that this year's meeting is held under vague circumstances surrounding the global economic situation, and the severe slowdown of the economic activities worldwide due to the COVID-19 precautious measures which had their implications for the energy sector. He added "Through looking at the energy consumption pattern and future projections, it seems that a full global economic recovery to pre-pandemic levels would need a long time. It is hard to forecast."

HE Ben Sabt stressed that the Secretariat General is keen on regular follow up of the global oil and gas market. In this respect, OAPEC Secretariat General has recently launched its first periodical report on the gas and LNG industry's developments, which included a section on the impact of the COVID-19 pandemic on the LNG sector.

It is worth-mentioning that the Secretariat General has been organising the annual meeting for gas experts for over two decades. The goal is boosting cooperation, exchanging information, and strengthening ties between stakeholders in the natural gas industry in OAPEC member countries. During the meeting, the industry's developments in the span between the 18th and 19th meetings have been reviewed in order to identify the potential cooperation opportunities between the member countries in this field.

The Secretary General thanked the oil and energy ministers in the member countries for their nonstop support of OAPEC's seminars and meetings by nominating highly distinguished participants.

The meeting then commenced by presenting OAPEC's paper "Briefing on Natural Gas Industry Developments in the Arab World and Globally," which showed that by the end of 2019, natural gas global reserves reached about 7,019 trillion cubic feet, including about 1925 trillion cubic feet of Arab countries' reserves, representing about 27.4% of the world's total. Arab countries' gas exports in 2019 reached 19.7 billion cubic feet/day, with a drop of one billion cubic feet/day compared to 2018. The paper explained that Arab countries'

natural gas exports represented about 16% of the total global natural gas trade in 2019.

The paper stated that global natural gas trade (both LNG and via pipelines) reached about 124.5 billion cubic feet/day to meet about 32.7% of the world's total gas demand in 2019. The rest is consumed domestically where it is produced. The paper also stated that the global LNG trade represents more than one third (37.7% - 47 billion cubic feet/day) of the world's total trade; its share is growing noticeably. Natural gas trade (via pipelines) represents less than two thirds (62.3% - 77.5 billion cubic feet/day) of the world's total.

The paper has also introduced the impacts of the COVID-19 pandemic on the global LNG market, as follows:

- Historic drops of LNG prices in both spot and long-term markets
- Cancellation of many ready-for-export shipments from various parts of the world, especially the USA
- Postponement of final investment decisions on some new projects

The paper showed that LNG exports in Arab countries have not been majorly affected by the pandemic in the first half of 2020, mainly due to the nature of contracting between the Arab national companies and their clients in European and Asian markets. This is because the Arab countries are the key long-term suppliers for major consumers in various markets.

After that, the participants started presenting their papers on the natural gas industry developments in their respective countries, which included future plans and investments to meet the growing demand, whether domestically or for export.

APICORP then presented a paper on investment prospects in natural gas and petrochemicals in the MENA region.

The meeting concluded by discussing the outcomes and findings, most importantly:

- Stressing the importance of the natural gas sector, and continuing to inject investments in research, exploration, developing gas resources, and paying more attention to unconventional gas resources.
- Participation of the member countries in OAPEC seminars and workshops on the most important global gas developments in order to be informed about the latest developments and

policies relevant to this vital sector and their implications for the member countries.

3-7 Dialogue Forum on LNG Industry Trends & Developments & End Creative Uses, organized by the UN's Sustainable Energy Department, United Nations Economic Commission for Europe (ECE), 25 June 2020

3-8 Roundtable Meeting on "COVID-19 in the Arab World: Impacts & Response Measures," 27 July 2020

Organised online by the Arab League in collaboration with the Japanese Government and the United Nations Development Programme (UNDP).

3-9 The 7th Round for the UN Gas Experts, the UN's Sustainable Energy Department, United Nations Economic Commission for Europe (ECE), Geneva, 22-25 September 2020

The (online/in person) meeting tackled carbon and hydrogen related issues.

3-10 Seminar on "Egypt's Visions on Oil & Gas as Vital Growth Drive", 22 September 2020

3-11 Petrochemicals & Refining Conference, BGS, Europe 2020, 28-29 September 2020

4- Environment, Climate Change, and Sustainable Development: OAPEC Role

4-1 51st Session of the UNFCCC Subsidiary Bodies

The 51st session of the UNFCCC Subsidiary Body for Implementation (SBI) and Subsidiary Body for Scientific and Technological Advice (SBSTA) have been postponed to 2021. New dates will be announced later.

The UN's COP26 in Glasgow, the UK, has been also postponed until 2021 due to current health restrictions imposed around the world in response to the COVID-19 pandemic. A series of virtual meetings is scheduled to take place during November and December 2020 in this connection and in the build up for the next COP in 2021.

4-2 27th Coordination Meeting of OAPEC Environment and Climate Change Experts

The 27th Coordination Meeting of OAPEC Environment and Climate Change Experts took place (via ZOOM) on 1-2 November 2020 with the participation of experts from OAPEC member countries, in addition to representatives from Arab League and the GCC Council's Secretariat General.

The meeting aimed at tackling environment and climate change issues that require coordination between OAPEC member countries, in order to serve their interests at regional and international forums, especially during COPs.

The meeting agreed a number of recommendations including:

- organising workshops to train Arab negotiators on climate change
- organising an event on "carbon circular economy" on the side-lines of the next COP in Glasgow in 2021.
- Coordination with the "International Organization for Standardization" ISO

4-3 MEETINGS OF THE ARAB NEGOTIATING GROUP ON CLIMATE CHANGE

The Arab Negotiating Group on Climate Change held three meetings via the ZOOM technology in April, May, and July 2020 respectively. More than 40 Arab experts and negotiators

took part in these meetings that have been chaired by Saudi Arabia, to discuss regional and international developments on climate change- especially those held by the Climate Change Agreement Secretariat- to weigh their implications for the climate negotiations and to stress the Arab Group stance cautiously on disapproving of the selective approach in holding such meetings. The Arab Group underscored rejecting any official decisions taken by these selective meetings due to a lack of presence of some developing countries due to limited access to technology.

5- MEDIA ACTIVITY

The Secretariat General continued its media activities in 2020 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.

5-1 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.

5-2 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.

5-3 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.

5-4 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.

5-5 Information and Library Services

5-5-1 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.

5-5-2 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.

5-5-3 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.

5-5-4 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)

5-5-5 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.

6- Databank

6-1 Boosting cooperation between OAPEC & its Member Countries

OAPEC Secretariat General held its Ninth Coordinating Meeting for OAPEC Databank Liaison Officers on 2 December 2020. The meeting was attended by 13 participants from the UAE, Bahrain, Algeria, Syria, Iraq, Qatar, Kuwait, and Egypt.

The meeting mainly aimed at: following up and reviewing earlier recommendations issued by previous coordinating meetings; evaluating OAPEC member countries data flow mechanism; better communication between the officers; discussing the new energy data collection form and the system's technical gaps and statistical shortages; as well as, listening to remarks and future visualizations on developing the system's application to meet the member countries' needs of energy and oil-related data.

The meeting made a number of recommendations including continuing to provide the Secretariat General with oil, natural gas, and other energy resources data and statistics while working on overcoming any obstacles preventing smooth access to these statistics.

6-2 Reports

The Databank, in collaboration with the relevant departments in the Secretariat General, is working on the Annual Statistical Report 2020, covering the period 2014-2019, which will then be uploaded on the Secretariat General's website and sent to member countries on CDs by the end of December 2021.

The Energy Data publication was also prepared by the Databank, according to international groups, for the period 1980-2019, relying on the BP database. This publication is annually updated. It was uploaded on CDs. As per the agreement with BP, the distribution of this publication will remain limited to member countries.

7- ADMINISTRATIVE AND FINANCIAL ACTIVITIES

7-1 Evolution of the Administrative Structure

By the end of 2020 there were (34) employees working at the Secretariat General, (20) of whom were of the professional staff and (14) of the general staff.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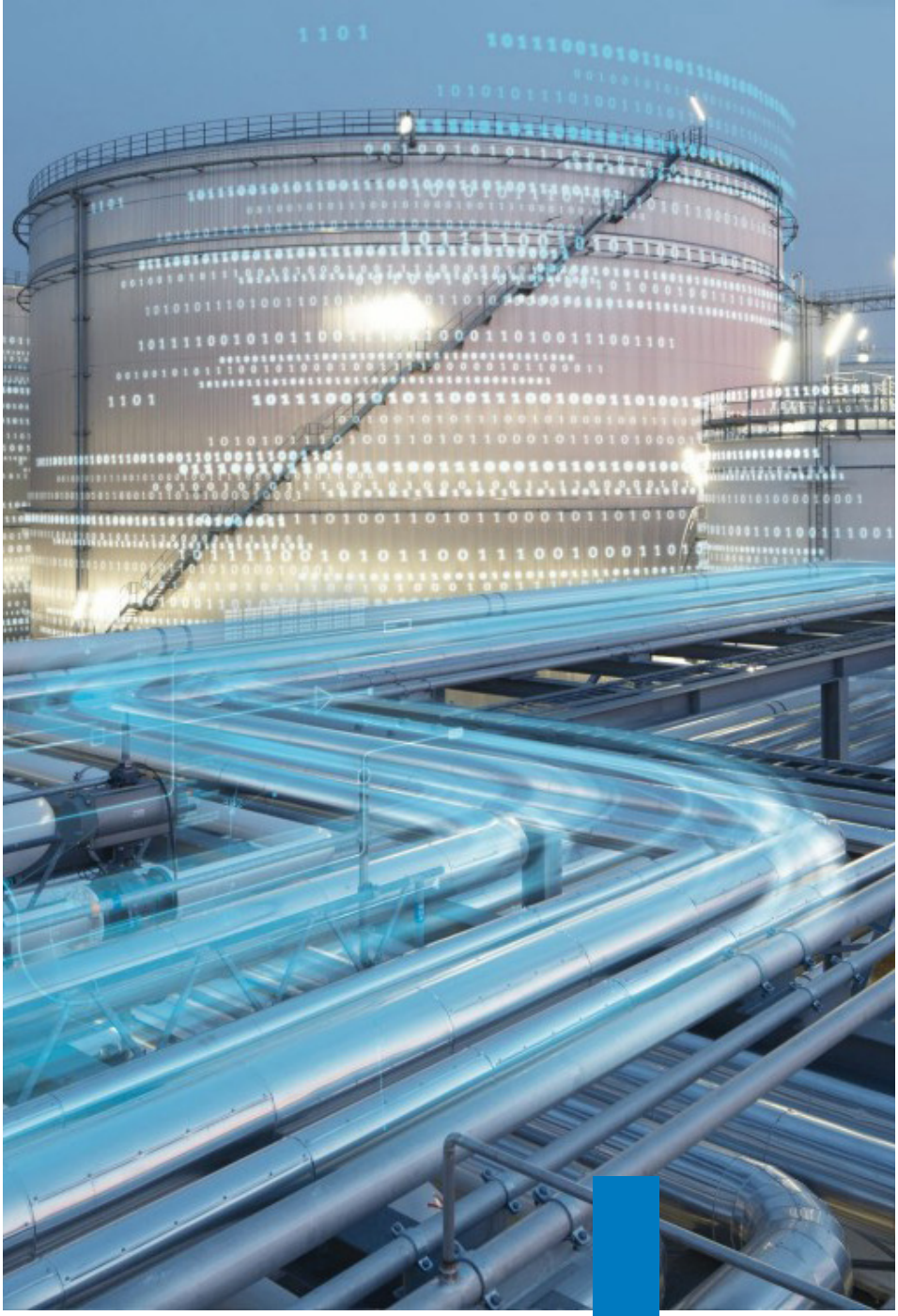
BWS
WBW



OAPEC JOINT VENTURES

- ARAB MARITIME PETROLEUM TRANSPORT COMPANY (AMPTC)
- THE ARAB SHIPBUILDING AND REPAIR YARD COMPANY (ASRY)
- THE ARAB PETROLEUM INVESTMENTS CORPORATION (APICORP)
- THE ARAB PETROLEUM SERVICESCOMPANY (APSCO)
- THE ARAB DRILLING AND WORKOVER COMPAN (ADWOC)
- THE ARAB WELL LOGGING COMPANY (AWLCO)
- THE ARAB GEOPHYSICAL EXPLORATION SERVICES COMPANY (AGESCO)
- THE ARAB DETERGENT CHEMICALS COMPANY (ARADET)
- ARAB PETROLEUM TRAINING INSTITUTE (APTI)

OAPEC Joint Ventures

In spite of the current oil market challenges and their impacts on the Arab petroleum projects, OAPEC joint ventures (JVs) have carried on with their activities during 2019 and the first half of 2020. For years, the JVs have been facing aggressive competition from international companies of similar business that are working in the region, as well as, difficulties to enter some Arab markets due to administrative and regulatory measures.

The JVs have put great efforts into boosting their activities and presence depending on their own potentials and resources, in addition to member countries' support. This has resulted in posting good financial revenues for some JVs.

OAPEC JVs enjoy full administrative and financial independence. Their General Assemblies (formed by their owning member countries) and Board of Directors draw up their strategic plans and make necessary decisions for their business development.

The Secretariat General on its part plays a coordinative role between these joint ventures by organising an annual official meeting to discuss means for boosting cooperation and to review common challenges in light of the Arab and international developments.

ARAB MARITIME PETROLEUM TRANSPORT COMPANY (AMPTC)

Arab Maritime Petroleum Transport Company (AMPTC) has completed its plan on upgrading and diversifying its fleet in 2018 to become a leading competitor in the global market. As of January 2020, AMPTC fuelled its tankers with low-sulphur in line with the new international regulations.

In reaction to the COVID-19 pandemic, most countries had to resort to lockdown due to curfews and halt of aviation, which led to higher demand for tankers to be used as floating tanks. This has caused charter prices to soar, especially for short terms (from 2 to 6 months).

Activities

Net Profit (2019)	**$54.085 million**
Net Profit (H1/2020)	**$31.792 million**

Human Resources

In 2020: the company had 81 employees, including 50 Arabs. By mid-2020: the fleet had 279 officers and engineers, including 187 Arabs.

In pursuant to the company's policy in collaboration with Arab companies, especially from the shareholding countries, commercial partnership that was signed in June 2017 with the Iraqi Oil Tankers Company (IOTC) has continued.

Challenges

- As each Arab country started having their own fleet of oil tankers, operational support has shifted from AMPTC to their national companies. AMPTC suffered financial loss as a result.
- There are operational difficulties due to aggressive competition with international petroleum companies.
- Some member countries shun chartering AMPTC tankers in spite of their favourable prices compared to global companies.

The Arab Shipbuilding and Repair Yard Company (ASRY)

By the end of 2019, ASRY witnessed core management changes as Bahrain's National Oil & Gas Authority (NOGA) assumed supervision and monitoring tasks over the company's businesses. Changes have been made to senior management too by appointing an elite of Arab expertise.

Activities

In 2019, ASRY posted total revenues of $168.914 million due to improved company conditions, putting a new work approach into practice, and oil price recovery during 2019. The largest project in 2019 has been a project on upgrading the Kingdom of Bahrain's vessels. As for commercial vessels, Spring Field was the most important client as ASRY carried out technical work for the Olympic vessels fleet. In spite of the COVID-19 pandemic challenges, only 3 projects were scrapped as most of the clients decided to postpone rather than cancel their projects.

Also, the company's debts have been rescheduled and the loan's total has been cut by $45 million out of $151 million.

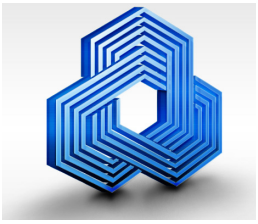
The company has posted substantial revenues with the advent of petroleum rigs to ASRY to activate and repair some of ARAMCO's businesses.

In H1/2020, rig owner favoured ASRY to other companies as the company's business flourished with many Arab and international projects.

The total number of rig repair projects whose completion has been confirmed in H2/2020 has reached 12 projects from KSA and UAE, as well as, Egyptian, Italian and Bahraini companies. 69% of ASRY's H1/2020 revenues were from international markets compared to 47% in 2019.

The company has stepped into global markets finding new clients, along with, upgrading its infrastructure, facilities, and workshops. The company has also widened its docks to embrace commercial vessels. It developed its administrative and financial systems to be on a par with global companies of the same nature.

THE Arab Petroleum Investments Corporation (APICORP)



In 2020, APICORP announced that its General Assembly ratified a landmark increase in callable capital to $8.5 billion at its Annual General Meeting (AGM), as well as a significant increase in authorized and subscribed capital. The increase, the largest in the Corporation's history, is based on the recommendation by APICORP's Board of Directors.

The Corporation's authorized capital was also increased to $20 billion and subscribed capital to $10 billion, as well as transfer $500 million from the Corporation's general reserves and retained earnings into its issued and fully paid capital.

Its credit rating has been affirmed by Moody's Investors Service at 'Aa2' with a stable outlook for 2020, reflecting the Corporation's strong capital adequacy, robust asset quality, and strong asset performance.

In 2020, APICORP has been affected by the tripartite complex crisis of: oil price volatility; economic crisis; and COVID-19 pandemic on the investment side. In spite of that, the Corporation posted a net profit of $54.8 million in H1/2020. In terms of investment, APICORP announced its first direct equity investment in a wind energy venture, the Jordan Wind Project Company (JWPC), the developer of the Tafila Wind Project in the Hashemite Kingdom of Jordan. APICORP's 20% equity stake in the project also marks its first equity investment in the country.

Human Resources

APICORP staff consist of 124 employees representing 20 nationalities, mostly from shareholding countries, in addition to Arab and non-Arab staff.

In line with its commitment to deliver on developmental goals, APICORP announced in April 2020 that it has launched a $500 million countercyclical support package aimed at supporting its clients in Member Countries and the region in the energy sector mitigate the impact resulting from the COVID-19 pandemic as well as oil price fluctuations.

THE ARAB PETROLEUM SERVICES COMPANY (APSCO)

Throughout the year, APSCO has been focused on following up and supporting specialised companies to lend a hand in the current conditions and reach out to mitigate challenges as much as possible.

By the end of 2019, the company posted profits of about $3 million. It was the first time the company compensate for its losses and post profits. The company enjoys tax exemption in Libya, which helped cutting costs.

Here is a summary of its affiliate companies in 2019:

1- THE ARAB DRILLING AND WORKOVER COMPANY (ADWOC)

During 2019, ADWOC managed to put 9 rigs online at 100% operation rate (4 of which for maintenance). The Company posted $2.404 million of profits in the fiscal year 2019, far much lower than the planned $7.5 million. This has been attributed to the non-operation and delay in putting some rigs online due to the security situation in the country of the headquarters.

2- THE ARAB WELL LOGGING COMPANY (AWLCO)

AWLCO managed to post profits of about $1.061 million in 2019 and $33.217 thousand in H1/2020.

Human Resources **72 employees.**

The Company asked for support for tax exemption in the Republic of Iraq as per its founding agreement.

3- THE ARAB GEOPHYSICAL EXPLORATION SERVICES COMPANY (AGESCO)

AGESCO posted profits pf $145 thousand in 2019. There has been no activity by its seismic team in 2020. Its loss for 2020 were estimated at about $976 thousand.

Human Resources **67 employees in 2020.**

The Company is experiencing massive challenges resulting from the security situation in the country hosting the company's headquarters on the one hand, and lack of promotion for the Company's activities inside the member countries on the other hand.

Arab Petroleum Training Institute (APTI)

APTI was established in Baghdad, Iraq, in May 1978, to prepare instructors qualified to provide training in the many technical aspects of the oil industry, and to augment the administrative and technical personnel responsible for the different fields of the industry. The other objectives of APTI include conducting research and studies related to the modern techniques of industrial organization, and the methodology and techniques of training and education, as well as the creation of a central information and documentation system.

The institute activities cover training; studies; research work; providing consultancy in all aspects; experts' secondment; seminars and conferences.

The institute does not have a fixed capital. It is funded on a yearly basis. All member countries contribute to the institute.

Institute Activities in 2019 & H1/2020

During 2019 and H1/2020, APTI carried out a group of training programmes in collaboration with a number of training institutes and centres, as well as, Arab and foreign companies, depending on the nature and type of training courses and venue.

In 2019, APTI executed 40 training courses on: technical, administrative, economic, computing, IT, safety and environmental aspects. All courses have been delivered in Erbil and Al Sulaymaniyah Governorates in Iraq upon the request of the benefitting oil companies and corporations affiliated to the Iraqi Oil Ministry.

In H1/2020, APTI executed 10 training courses until mid-March 2020, when everything has been put on hold due to the outbreak of COVID-19 pandemic worldwide.

- MAIN ENERGY INDICATORS
- UPSTREAM INDUSTRY
- DOWNSTREAM INDUSTRIES

MAIN ENERGY INDICATORS

- SUPPLY
- DEMAND
- INVENTORIES
- OIL PRICES

INTERNATIONAL OIL MARKET DEVELOPMENTS & THEIR IMPLICATIONS FOR OAPEC MEMBER COUNTRIES

- **Preface**

During 2020, the global oil market witnessed unique and unprecedented developments in decades (especially in H1/2020). The developments have been a blend of supply and demand shock due to COVID-19 pandemic. Travel restrictions and lockdown imposed by most countries around the world to face the pandemic led to economic recession, the first since the global financial crisis. Global manufacturing activities have dropped; developing markets have witnessed capital disassociation; world trade have declined; and labour market has notably deteriorated. Also, global oil demand registered sharp decline for the first time since 2009 reaching about 90 million b/d in 2020, the lowest level for 8 years.

Within their endeavours to restoring global oil market balance, OPEC+ countries, along with other oil producing countries including USA, concluded a historic agreement on a production record cut, which led global oil supplies to drop to about 93.5 million b/d in 2020, the lowest since 2014. It is worth noting that OPEC supply of crude and unconventional oils has dropped by about 4.3 million b/d compared to 2019, posting 30.8 million b/d. Non-OPEC Supplies have also dropped by about 2 million b/d reaching 62.7 million b/d.

Generally, primary data on global crude supply and demand in 2020 showed a surplus of 3.5 million b/d, compared to the balance achieved in 2019.

In light of these data, the global crude oil prices have collapsed in 2020 by 35.2% compared to the previous year, posting the fastest drop since 2015.

Main Developments in the Global Oil Market for 2020 and Influencing Factors:

- **Supplies**

In 2020, total global oil supplies (crude oil and NGL) have dropped by about 6.3 million b/d or 6.3% compared to the previous year to reach 93.5 million b/d, the lowest since 2014.

- **OPEC Supplies**

OPEC crude oil and NGL supplies have dropped in 2020 by about 4.3 million b/d compared to the previous year to reach 30.8 million b/d. OPEC share of total global oil supplies has dropped from 35.2% in 2019 to about 32.9% in 2020. It is worth noting that OPEC crude supplies have dropped from about 29.9 million b/d in 2019 to about 25.7 b/d in 2020. OPEC NGL and unconventional oil supplies have also dropped by about 130 thousand b/d to reach about 5.1 million b/d in 2020. OPEC member countries spared no effort to maintain the global oil market balance especially in light of global economic recession due to COVID-19 pandemic, which had serious impacts on the global oil market performance and the industry in general.

- **Non-OPEC Supplies**

Non- OPEC total oil supplies in 2020 have reached about 62.7 million b/d with a decline of 2 million b/d, or 3.1% compared to 2019. The source of the greatest part of the decline was the drop in oil supplies from Russia and USA, which represented 92% of the total drop in non-OPEC supplies during 2020. Russia's oil production has dropped by 1 million b/d to reach 10.4 million b/d in 2020, coinciding with OPEC+ agreement. The Unites States' unconventional oil and NGLs production has dropped by about 820 thousand b/d to reach 17.6 million b/d in 2020, in light of COVID-19 pandemic and a peak of hurricanes season.

- **Global Oil Demand**

Global oil demand has sharply dropped in 2020 by 9.8 million b/d with a decline rate of 9.8%, the first since 2009, registering about 90.0 million b/d, the lowest since 2012. According to major international groups, OECD oil demand has dropped in 2020 by about 5.5 million b/d or 11.5% compared to a drop of 0.6% in 2019, reaching 42.2 million b/d. Oil demand has also dropped in non-OECD countries during 2020 by 4.3 million b/d or 8.1% compared to a growth rate of 2.6% in 2019, reaching 47.8 million b/d. This is mainly attributed to a global economic recession that happened for the first time since 2009 and at highest rate since the 1930s Great Depression due to COVID-19 pandemic.

- **Crude Oil Prices**

In 2020 global oil prices dropped at their highest rates since 2015, which is mainly attributed to COVID-19 pandemic. Monthly OPEC oil basket rates fluctuated within a wide range between $17.7 and $65.1 per barrel. OPEC oil basket annual average registered its lowest rate since 2016 at $41.5 per barrel, with a drop of about $22.5 per barrel or 35.2% compared to 2019 rate. In general, 2020 has witnessed wider disparities between the highest and lowest OPEC oil basket prices throughout the year of about $47.7 per barrel compared to the previous year's disparity of $12.1 per barrel.

Price developments and their disparities movement pattern throughout the year have reflected on spot prices of the various Arab crudes in general, which behaved in a similar way by dropping sharply in varying degrees compared to the previous year. Arab light crude has dropped by $22.6 per barrel reaching $42.4 per barrel in 2020. Algeria's Sahara Blend, UAE's Murban, and Kuwait export crudes have dropped by $21.8, $21.1, and $22.3 per barrel to reach $42.7, $43.6 and $42 per barrel respectively. Other Arabian crudes have also dropped: Libya's Es Sider by $23.2 per barrel to reach $40.7 per barrel; Iraq's Basrah Light by $21.5 per barrel to reach $42.2 per barrel; and Qatar Marine Crude Oil by $23.5 per barrel to reach $41.7 per barrel.

- **Spot Prices of Oil Products**

The crude oil prices decline has influenced the annual average price of various oil products in 2020, which in turn witnessed a drop in all major markets around the world by varying degrees according to market and product type. Premium gasoline price rate in the US Gulf market registered $51.9 per barrel in 2020; $45.4 per barrel in the Mediterranean market; $51.3 per barrel in Rotterdam market; and $46.6 per barrel in Singapore.

Gasoil average annual prices in 2020 has dropped in general in all major markets compared to the previous year. In 2020, Rotterdam and Singapore markets accounted for the highest gasoil prices of $49.2 per barrel, followed by the Mediterranean ($48.6 per barrel); the US Gulf with the lowest price of $44.9 per barrel. Average fuel oil prices have dropped in all markets in 2020: Singapore market ($39.6 per barrel); Mediterranean ($43.6 per barrel); Rotterdam ($40.9 per barrel); and the US Gulf market ($34.7 per barrel).

- **Oil Freight Rates**

In H1/2020, freight price rates witnessed massive disparities due to COVID-19 disturbances, which led to a drop in global demand for crude oil and an unprecedented rise in demand for oil trucks in order to be used as a method of storage at a time when storage capacities in main regions have almost saturated amidst abundant global crude oil supplies.

In 2020, 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)) was about $12/ton. A decline has also been registered in average freight price rates for shipments within the Mediterranean region for small and medium-sized tankers (80,000-85,000 dwt) registering $6/ton in 2020. As for shipments from the Middle East to the West, with a capacity of 270,000-285,000 dwt, they averaged about $8.9/ton in 2020.

- **Various Oil Inventories**

H1/2020 witnessed a massive increase in total global oil inventories (commercial and strategic) amidst a surplus of oil supplies against the backdrop of the sharp decline in oil demand due to COVID-19 pandemic to reach 10.135 billion barrels by the end of Q2/2020, an increase of about 1.184 billion barrels compared to the same period in 2019. After that, the world oil inventories have dropped driven by a drop in global oil supplies and improved demand following the ease of COVID-19 restrictions to reach 9.480 billion barrels by the end of Q4/2020, registering an increase of about 607 million barrels compared to Q4/2019.

Crude oil stocks at sea totalled 1.295 billion barrels by the end of 2020. This is manly attributed to the traders seeking floating storage spaces simultaneously with running out of key storage facilities capacities.

Commercial inventories in OECD countries reached about 3.070 billion barrels by the end of Q4/2020. It is worth noting that OECD commercial inventories level of days cover has reached a level of about 70.5 days. The US Strategic Petroleum Reserve (SPR) has increased to 638 million barrels in Q4/2020. By the end of May 2020, the US Department of Energy announced plans to purchase about one million of low-sulphur crude oil to support strategic reserves, which contributed to easing pressure on capacities of Cushing storing facilities in Oklahoma.

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

Oil price rates in 2020 were reflected on the oil exports value which are the main drive for social and economic development in the Arab oil producing countries (OAPEC), the mainstay for their central banks' foreign currency reserves, and the main source for their budget surplus.

It is notable that OAPEC crude oil exports value has fallen from $426.1 billion in 2019 to $239.6 billion in 2020, due to sharp drop in price levels by 35.2% against the backdrop of the COVID-19 pandemic on the one hand, and the historic OPEC+ production cut agreement on the other hand. This represents a decline of about $186.5 billion, or 43.8%, compared to 2019 levels. The value of crude oil exports for member countries measured by real prices for the year 2005, after being adjusted according to the GDP deflator in developed economies, has declined from $348.7 billion in 2019 to $193.6 billion in 2020, representing a drop of 44.5%.

- **Developments in Oil & Energy Consumption in The Member Countries Total Energy Consumption**

Energy consumption has dropped in OAPEC member countries by 5% to reach about 12.3 million boe/d in 2020. The member countries energy consumption depended almost entirely on oil and natural gas resources to meet their energy needs; they accounted for 98.6% of their total energy consumption in 2020. Natural gas tops the consumption list in 2020 by 54.6%; followed by oil (44%); then coal (0.8%) and hydropower with a slight share of 0.6%. The average per capita energy consumption in the member countries has fallen from 18.4 boe/d in 2016 to 16.3 boe/d in 2020 in all member countries except Iraq and Tunisia.

OAPEC members are accounted for about 5.1% of the world's total energy consumption currently; OECD countries (40%); developing countries (47.6%); Former Soviet Union (FSU) countries (6.6%); and other Arab countries (0.7%).

- **Energy Consumption by Source**

Natural gas consumption has fallen in OAPEC member countries by 4% to about 6.7 million boe/d in 2020. OAPEC member countries generally consume 10.9% of the world's total natural gas currently. OECD countries are accounted for 45.5% of the world's total natural gas consumption; followed by

developing countries (28.4%); FSU countries (14.6%); and other Arab countries (0.6%).

2020 witnessed a decline in petroleum products consumption in OAPEC member countries at 6.2% to reach 5.4 million boe/d, with about 7.4% share of the world's total petroleum products consumption currently. OECD countries accounted for 46.4% of the world's total petroleum products consumption, developing countries (40.4%), FSU countries (4.3%); and other Arab countries (1.5%).

Hydropower consumption has dropped in OAPEC members from 81.4 thousand boe/d in 2016 to 76 thousand boe/d in 2020. Egypt is the biggest Arab producer and consumer of hydropower. Generally, OAPEC countries accounted for about 0.3% of the world's total hydropower consumption currently; while developing countries consume 61%; OECD (32.7%); FSU countries (5.9%); other Arab counties (0.1%).

However, coal's share has risen in terms of total energy consumption in the OAPEC member countries from 0.5% in 2016 to 0.8% in 2020. OAPEC countries accounted for about 0.1% of the world's total coal consumption currently; while developing countries accounted for 75.8%, the OECD countries for 20.3%; the FSU countries for 3.5%; and other Arab countries for 0.3%.

- **Domestic Prices**

Five member countries resorted to amendments their petroleum products prices in their domestic markets in 2020; they are: UAE; KSA; Tunisia; Qatar; and Egypt.

OIL MARKET: SHORT TERM FUTURE PROSPECTS

- **Global Oil Supplies**

OPEC forecasts a hike in non-OPEC oil producing countries' supplies in 2021 by 1.3% compared to 2020, to reach about 63.5 million barrels/day. In this context, USA is expected to account for the largest share of this rise by about 45.2% reaching a total of about 18 million barrels/day in 2021.

- **Global Oil Demand**

Latest OPEC forecasts indicate a recovery in oil demand during 2021, which is expected to increase by 6.6% compared

to 2020 levels, reaching about 95.9 million barrels/day. Demand is forecasted to grow by 6.2% in OECD countries to reach about 44.7 million barrels/day; and by 6.9% in non-OECD countries to reach about 51.2 million barrels/day.

- **Global Investments**

The International Energy Agency (IEA) forecasts show that annual global investment rate in the oil and natural gas sector between (2020-2040) would reach $804 billion, with a rise of $23 billion compared to (2015-2019), according to a declared scenario that assumes winning the war against COVID-19 pandemic in 2021 when the global economy would have gone back to its pre- pandemic levels during the same year. The Middle East is expected to account for a 13.5% share of the combined global investments in the oil and gas sector between (2020-2040) totalling about $18.4 trillion.

- **Energy Consumption in OAPEC Members: Future Prospects Until 2040**

The outcomes of a study prepared by OAPEC Secretariat General on the development of energy consumption in OAPEC member countries and its future prospects indicate the following according to a baseline scenario:

Primary energy consumption in OAPEC member countries is forecasted to grow by 2.1% (during 2018- 2040) to reach about 21.5 million boe/d in 2040. Growth in primary energy consumption in the member countries is expected to exceed global rate and that of other international groups until 2040.

Oil and natural gas are expected to meet over 89% of the forecasted total increase in OAPEC primary energy consumption (during 2018-2040), which is estimated at about 7.8 million boe/d; renewables and nuclear energy are also expected to meet the remaining 11%.

Natural gas is expected to contribute by the largest share of all primary resources to the forecasted increase in energy consumption between 2018 and 2040, at about 50% of the forecasted increase. It would be followed by oil with a share of more than 40% of the estimated total increase; renewables by about 7.3%; and nuclear by 3.4%.

Oil and natural gas are expected to continue to dominate the consumed energy mix in the member countries until 2040:

natural gas (49.7%); oil (44.9%); renewables (3.8%); nuclear (1.3%); and coal (0.2%). Oil consumption in OAPEC member countries is expected to grow by 1.8% (between 2018-2040) to reach about 9.7 million boe in 2040. Oil consumption growth in OAPEC members is expected to exceed global rate and that in most other international groups until 2040, which takes OAPEC's share up to 9.6% of the global oil consumption in 2040.

Natural gas consumption in OAPEC member countries is expected to grow by 2.1% (between 2018-2040) to reach about 10.7 million boe/d in 2040 against 6.7 million boe/d in 2018. Natural gas consumption growth in OAPEC members is expected to exceed global rate until 2040, which takes OAPEC's share up to 11.5% of the global natural gas consumption in 2040.

Renewables consumption in OAPEC member countries is expected to register the fastest growth among all other primary resources by 5.4% (between 2018-2040) to reach about 825 thousand boe/d in 2040. Most increases in renewables consumption in OAPEC members are expected to come from Egypt; KSA; Algeria; UAE; and Kuwait, which- together- are expected to contribute by more than 87% of the estimated increase between 2018 and 2040. OAPEC member countries are expected to join the Nuclear Club when the first nuclear power plant goes online in 2018 at the UAE's BARAKAH Nuclear Power Project. Nuclear power consumption in OAPEC members is expected at about 285 thousand boe/d in 2040.

Table 1-1

Total & Annual changes in World Oil and NGLs Supply, 2016-2020

(Million b/d)

	2016	2017	2018	2019	2020*
Total Supply					
OPEC **	40.2	38.7	36.6	35.1	30.8
Non-OPEC ***	56.4	57.7	62.5	64.7	62.7
World total	96.6	96.4	99.1	99.8	93.5
Annual Change					
OPEC	2.5	(1.5)	(2.1)	(1.5)	(4.3)
Non-OPEC	(1.8)	1.3	4.8	2.2	(2.0)
World total	0.7	(0.2)	2.7	0.7	(6.3)
Percentage Change (%)					
OPEC	6.7	(3.6)	(5.4)	(4.1)	(12.3)
Non-OPEC	(3.1)	2.3	8.3	3.5	(3.0)
World total	0.7	(0.2)	2.8	0.7	(6.3)

* Estimated data.

** Jan. 2016, the basket price includes the Indonesian crude. As of July 2016 the basket price includes the Gabonese crude, As of January 2017, the basket price excludes the Indonesian crude "Minas". As of June 2017,The basket price includes the Equatorial Guinean crude "Zafiro"". As of June 2018, the basket includes the Congolese crude "Djeno", As of January 2019, the basket price excludes the Qatari crude "Qatar Marine", As of January 2020 the basket excludes Ecuador crude "Oriente" .

Notes:

- Parentheses denote negative figures.

Sources:

- OAPEC - Economics Department.
- OPEC, Monthly Oil Market Report (various issues).

Table 1-2

Economic Growth and Oil Demand Growth by Region, 2016-2020

(%)

	2016	2017	2018	2019	2020*
OECD countries**					
GDP	1.8	2.5	2.2	1.7	(4.9)
Oil demand	1.5	1.1	1.2	(0.7)	(11.61)
Rest of the World***					
GDP	4.5	4.8	4.5	3.7	(2.4)
Oil demand	2.8	2.6	1.7	2.6	(8.1)
World total					
GDP	3.3	3.8	3.5	2.8	(3.5)
Oil demand	2.1	1.9	1.6	0.9	(9.8)

* Estimated data.
** Include the newly industrialized Asian countries are Hong Kong, South Korea, Singapore, and Taiwan in terms of GDP.
*** Include Emerging markets and developing economies in terms of GDP.
Note: Parentheses denote negative figures.
Sources:
- IMF, World Economic Outlook (various issues) .
- OAPEC - Economics Department.
- OPEC, Monthly Oil Market Report (various issues).

Table 1-3
Economic Growth by Region, 2016-2020
(%)

	2016	2017	2018	2019	2020*
OECD	1.8	2.5	2.2	1.7	(4.9)
Of which: Euro Area	1.9	2.6	1.8	1.3	(7.2)
Japan	0.5	2.2	0.3	0.7	(5.1)
USA	1.7	2.3	3.0	2.2	(3.4)
Non OECD	4.5	4.8	4.5	3.7	(2.4)
Eastern and Central Europe	1.9	4.1	3.3	2.1	(2.8)
Of which: Russia	0.2	1.8	2.5	1.3	(3.6)
Asian developing countries**	6.8	6.7	6.3	5.5	(1.1)
Of which: China	6.8	6.9	6.8	6.1	2.3
India	8.3	7.0	6.1	4.2	(8.0)
Latin America and the Caribbean	(0.6)	1.4	1.1	0.03	(7.4)
Of which: Brazil	(3.3)	1.3	1.3	1.1	(4.5)
Mexico	2.6	2.1	2.2	(0.3)	(8.5)
Middle East and North Africa	4.5	2.6	2.1	1.4	(3.2)
Sub-Saharan African countries	1.5	3.1	3.3	3.2	(2.6)
World	**3.3**	**3.8**	**3.5**	**2.8**	**(3.5)**

* Estimated data.
** Excludes Pakistan and Afghanistan.
Note: Parentheses denote negative figures.
Source:
- IMF, World Economic Outlook, January 2021.

Table 1-4
Total & Annual Change in World Oil Demand, 2016-2020
(Million b/d)

	2016	2017	2018	2019	2020*
World total demand	95.5	97.3	98.8	99.8	90.0
Annual Change in World Oil Demand (Million b/d)	2.0	1.8	1.5	0.9	(9.8)
Change (%)	2.1	1.9	1.6	0.9	(9.8)

* Estimated data.
Sources:
- IEA, Oil Market Report (various issues).
- OAPEC - Economics Department.
- OPEC, Monthly Oil Market Report (various issues).

Table 1-5
World Oil Demand by Region, 2016-2020
(Million b/d)

	2016	2017	2018	2019	2020*
OECD countries	46.9	47.4	48.0	47.7	42.2
Rest of the World**	48.6	49.9	50.8	52.1	47.8
World total	**95.5**	**97.3**	**98.8**	**99.8**	**90.0**

* Estimated data.
** Includes all of the developing countries and transition countries.
Sources:
- IEA, Oil Market Report (various issues).
- OAPEC - Economics Department.
- OPEC, Monthly Oil Market Report (various issues).

Table 1-6
Total & Annual Change in Oil Demand in OECD Countries, 2016-2020
(Million b/d)

	2016	2017	2018	2019	2020*
Americas	24.7	25.1	25.6	25.7	22.8
Europe	14.0	14.3	14.3	14.3	12.3
Asia Pacific	8.1	8.1	8.1	7.8	7.1
Total OECD	**46.9**	**47.4**	**48.0**	**47.7**	**42.2**
Annual Change in demand	**0.7**	**0.5**	**0.6**	**(0.3)**	**(5.5)**
Change (%)	**1.5**	**1.1**	**1.2**	**(0.7)**	**(11.6)**

* Estimated data.
Note: Parentheses denote negative figures.
Sources:
- IEA, Oil Market Report (various issues).
- OAPEC - Economics Department.
- OPEC, Monthly Oil Market Report (various issues).

Table 1-7

Total & Annual Change in Rest of the World Oil Demand (Excluding countries that joined the OECD), 2016-2020

(Million b/d)

	2016	2017	2018	2019	2020*
Developing countries	43.2	44.48	45.49	46.41	42.8
Arab countries	7.3	7.1	7.1	6.9	6.5
Of which: Member countries	6.1	6.0	6.0	5.8	5.4
Other Arab countries	1.1	1.1	1.1	1.1	1.1
Other countries in the Middle East and Africa	5.1	5.3	5.6	5.6	4.7
Total Middle East and Africa	12.4	12.4	12.7	12.5	11.2
Asian developing countries	24.7	25.5	26.4	27.2	25.3
Of which: China	11.8	12.3	12.7	13.3	12.9
India	4.4	4.5	4.7	4.8	4.2
Other countries	8.5	8.7	8.9	9.0	8.2
Latin America	6.5	6.5	6.5	6.6	6.0
Eurasia	5.3	5.4	5.5	5.6	5.0
Of which: Russia	3.4	3.5	3.6	3.6	3.3
Total Rest of the World	**48.6**	**49.9**	**50.8**	**52.1**	**47.8**
Annual Change in demand of Rest of the World	48.6	1.3	0.9	1.3	(4.3)
Change (%)	2.8	2.6	1.7	2.6	(8.3)

* Estimated data.

Sources:

- OAPEC - Economics Department.
- OPEC, Monthly Oil Market Report (various issues).

Table 1-8
Spot Price of OPEC Basket of Crudes, 2016-2020
($/barrel)

	2016	2017	2018	2019	2020
January	26.5	52.4	66.9	58.7	65.1
February	28.7	53.4	63.5	63.8	55.5
March	34.7	50.3	63.8	66.4	33.9
April	37.9	51.4	68.4	70.8	17.7
May	43.2	49.2	74.1	70.0	25.2
June	45.8	45.2	73.2	62.9	37.1
July	42.7	46.9	73.3	64.7	43.4
August	43.1	49.6	72.3	59.6	45.2
September	42.9	53.4	77.2	62.4	41.5
October	47.9	55.5	79.4	59.9	40.1
November	43.2	60.7	65.3	62.9	42.6
December	51.7	62.1	56.9	66.5	49.2
First quarter	**30.0**	**52.0**	**64.7**	**63.0**	**51.5**
Second quarter	**42.3**	**48.6**	**71.9**	**67.9**	**26.6**
Third quarter	**42.9**	**50.0**	**74.2**	**62.2**	**43.4**
Fourth quarter	**47.6**	**59.4**	**67.2**	**63.1**	**44.0**
Annual average	**40.8**	**52.4**	**69.8**	**64.0**	**41.5**

Sources:
- OAPEC - Economics Department.
- OPEC, Monthly Oil Market Report (various issues).

Table 1-9
Average Spot Prices of OPEC Basket,Brent,WTI and Selected Arab Crudes, 2016-2020
($/barrel)

Crudes	2016	2017	2018	2019	2020	The Change in 2020
OPEC Basket	**40.8**	**52.4**	**69.8**	**64.0**	**41.5**	**(22.6)**
Of which:						
Algeria - Sahara Blend	44.2	54.2	71.4	64.5	42.7	(21.8)
Arabian Light	40.9	52.7	70.6	65.0	42.4	(22.6)
UAE- Murban	44.8	54.9	72.2	64.7	43.6	(21.1)
Kuwait - Export	39.2	51.7	68.9	64.3	42.0	(22.3)
Libya - Es Sider	42.6	52.9	69.8	63.8	40.7	(23.2)
Iraq-Basrah Light	39.4	51.9	68.6	63.6	42.2	(21.5)
Other crudes						
UAE - Dubai	41.3	53.2	69.7	63.5	42.2	(21.2)
Qatar-Marine*	41.4	52.9	69.2	65.2	41.7	(23.5)
Brent	43.7	54.2	71.2	64.2	41.6	(22.6)
WTI	43.2	50.9	65.2	57.0	39.4	(17.7)

* Qatar has suspended its membership in OPEC, as of January 2019.
Sources:
- OAPEC - Economics Department.
- OPEC, Monthly Oil Market Report (various issues).

Table 1-10
Nominal and Real Prices of Crude Oil, 2005-2020
($/barrel)

	Nominal Price	Index* 2005=100	Real 2005 Prices
2005	50.6	100.0	50.6
2006	61.0	102.1	59.7
2007	69.1	104.4	66.2
2008	94.4	106.4	88.7
2009	61.0	107.2	56.9
2010	77.4	108.1	71.6
2011	107.5	109.6	98.1
2012	109.5	111.0	98.6
2013	105.9	112.5	94.2
2014	96.3	114.1	84.4
2015	49.5	115.5	42.8
2016	40.8	116.7	35.0
2017	52.4	118.4	44.3
2018	69.8	120.4	58.0
2019	64.0	122.2	52.4
2020**	41.5	123.8	33.5

* The index represents the GDP Deflator of industrial countries as published by the IMF.
** Estimated data.
Sources:
-IMF, World Economic Outlook , October 2020.
- OAPEC - Economics Department.
- OPEC, Monthly Oil Market Report (various issues).

Table 1-11
Average Monthly Market Spot Prices of Petroleum Products, 2019-2020
($/barrel)

	Market	Premium Gasoline	Gasoil	Fuel Oil
Average 2019	Singapore	72.5	77.8	57.3
	Rotterdam	79.6	79.5	60.2
	Mediterranean	71.4	79.1	63.4
	US Gulf	79.7	74.6	52.6
Average 2020	Singapore	46.6	49.2	39.6
	Rotterdam	51.3	49.2	40.9
	Mediterranean	45.4	48.6	43.6
	US Gulf	51.9	44.9	34.7
First quarter 2020	Singapore	57.3	62.4	42.4
	Rotterdam	62.1	63.0	51.0
	Mediterranean	55.2	61.9	54.6
	US Gulf	61.2	57.8	36.4
Second quarter	Singapore	33.0	37.8	28.3
	Rotterdam	38.4	37.3	28.0
	Mediterranean	31.5	35.8	30.9
	US Gulf	40.2	31.0	24.6
Third quarter	Singapore	47.3	47.8	39.4
	Rotterdam	53.0	47.5	39.5
	Mediterranean	47.5	47.4	42.0
	US Gulf	52.9	43.2	37.7
Fourth quarter	Singapore	48.7	48.8	48.2
	Rotterdam	51.9	48.9	45.0
	Mediterranean	47.5	49.0	46.7
	US Gulf	53.3	47.7	40.3

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

Table 1-12
Spot Tanker Freight Rates, 2019-2020
(World scale)

	Arabian Gulf - East *	Arabian Gulf - West **	Mediterranean - Mediterranean ***
Average 2019	**66**	**35**	**117**
January 2019	56	24	131
February	52	26	95
March	60	30	95
April	40	21	80
May	39	19	103
June	44	20	89
July	44	20	88
August	57	27	76
September	62	30	110
October	135	83	176
November	92	56	156
December	113	63	199
Average 2020	**60**	**40**	**88**
January 2020	93	53	151
February	43	30	80
March	127	100	142
April	156	103	156
May	60	35	106
June	52	30	63
July	40	25	63
August	33	23	60
September	30	21	57
October	28	18	60
November	26	17	62
December	35	20	60

* Vessels of 230-280 dwt.
** Vessels of 270-285 dwt.
*** Vessels of 80-85 dwt.
Source:
- **OPEC, Monthly Oil Market Report** (various issues).

Table 1-13
OECD Oil Inventories at Quarter End, 2019 & 2020
(million barrel)

	First quarter		Second quarter		Third quarter		Fourth quarter	
	2019	2020	2019	2020	2019	2020	2019	2020*
Americas	1509	1590	1561	1711	1558	1691	1538	1611
Of which: USA	1223	1281	1303	1452	1292	1421	1261	1342
Europe	979	1029	981	1098	979	1079	972	1061
Asia	380	369	388	402	399	414	391	398
Total OECD	2868	2988	2930	3211	2936	3184	2902	3070
Rest of the World	2910	3295	3049	3582	2977	3299	2989	3269
Total Commercial**	5778	6283	5979	6793	5913	6483	5890	6339
Oil at sea	1160	1333	1142	1476	1159	1320	1158	1295
Strategic :	1832	1827	1830	1866	1827	1856	1825	1845
US Strategic Petroleum Reserves	649	635	645	655	645	643	635	638
Tota World Inventories	**8770**	**9443**	**8951**	**10135**	**8899**	**9659**	**8873**	**9480**
OECD Commercial (days supply)	**60.7**	**79.0**	**60.2**	**75.2**	**61.2**	**74.2**	**63.3**	**70.5**

* Estimated data.
** Excludes Oil at sea.
Sources:
- Oil Market Intelligence (various issues).

Table 1-14
Value of Oil Exports in OAPEC Member Countries, 2016-2020
($ Million)

	2016	2017	2018	2019	2020*
Algeria	11812	12755	15901	13638	7326
Bahrain	2518	3219	4239	3941	2572
Egypt	1774	2280	3021	2782	1367
Iraq ***	28095	46513	72924	78527	41756
Kuwait	37008	43946	59106	53648	30965
Libya	2813	11686	18504	20378	3980
Qatar	6199	6658	8644	9665	6325
Saudi Arabia	136195	170241	194358	178617	106367
Syria	**	**	**	**	**
Tunisia	**	**	**	**	**
UAE	43087	48987	65815	64937	38967
Total	**269501**	**346285**	**442512**	**426133**	**239627**

* Estimated data.
** Preliminary data indicate that oil consumption exceeds oil production.
*** Official sources.
Sources:
- OAPEC - Economics Department.
- OPEC, Monthly Oil Market Report (various issues).

Table 1-15
Value of OAPEC Oil Exports in Current and Real Prices, 2005-2020
($ Billion)

Year	At Current Prices	Expressed in 2005 Real Prices
2005	305.8	305.8
2006	375.1	367.4
2007	410.2	392.8
2008	585.3	550.0
2009	352.8	329.2
2010	450.9	417.0
2011	624.8	570.1
2012	702.6	632.9
2013	654.3	581.8
2014	592.9	519.6
2015	319.9	276.9
2016	269.5	231.0
2017	346.3	292.5
2018	442.5	367.7
2019	426.1	348.7
2020*	239.6	193.6

* Estimated data.
Note: Real revenues are obtained by deflating current prices by the GDP Deflator of industrial countries as published by the IMF.
Source:
- OAPEC - Economics Department.

Table 1-16
Energy Consumption in the Arab Countries, 2016-2020
(Thousand boe/d)

	2016	2017	2018	2019	2020*	Growth Rate (2016-2020)
Natural gas						
Member countries	6567.8	6492.6	6803.8	6977.6	6700.0	0.5
Other Arab countries	470.5	439.4	477.3	507.0	486.0	0.8
Total Arab countries	7038.3	6932.0	7281.1	7484.6	7186.0	0.5
Petroleum products						
Member countries	6052.3	5960.5	6002.7	5758.2	5400.0	(2.8)
Other Arab countries	1087.6	1091.3	1111.8	1130.0	1050.0	(0.9)
Total Arab countries	**7139.9**	**7051.7**	**7114.5**	**6888.2**	**6450.0**	**(2.5)**
Hydropower						
Member countries	81.4	74.1	73.4	76.1	76.0	(1.7)
Other Arab countries	26.6	26.4	28.6	30.0	30.0	3.1
Total Arab countries	**107.9**	**100.5**	**101.9**	**106.1**	**106.0**	**(0.5)**
Coal						
Member countries	69.3	76.5	107.6	105.1	99.0	9.3
Other Arab countries	98.4	101.5	116.3	123.0	123.0	5.7
Total Arab countries	167.7	178.0	223.8	228.1	222.0	7.3
Total Energy						
Member countries	12770.9	12603.7	12987.4	12917.0	12275.0	(1.0)
Other Arab countries	1683.0	1658.6	1733.9	1790.0	1689.0	0.1
Total Arab countries	**14453.9**	**14262.3**	**14721.4**	**14707.0**	**13964.0**	**(0.9)**

* Estimated data.
Note : The total may not add up due to rounding.
Sources:
- OAPEC - Databank.

Table 1-17
Per Capita Energy Consumption in the Arab Countries, 2016 and 2020
(Boe/year)

	2016	2020*
Algeria	10.1	10.0
Bahrain	75.2	69.7
Egypt	7.4	6.5
Iraq	8.9	10.6
Kuwait	58.7	50.9
Libya	22.8	18.4
Qatar	134.2	112.7
Saudi Arabia	49.6	41.2
Syria	4.6	4.1
Tunisia	5.5	6.5
UAE	74.5	56.0
OAPEC member countries	18.4	16.3
Other Arab countries	4.2	3.9
Total Arab countries	**13.2**	**11.7**

* Estimated data.
Sources:
- OAPEC - Economics Department.

Table 1-18
Energy Consumption in OAPEC Member Countries, 2016-2020
(Thousand boe/d)

	2016	2017	2018	2019	2020*	Growth Rate (2016-2020)
Algeria	1125.1	1153.5	1233.3	1274.0	1220.3	2.1
Bahrain	293.4	294.4	300.9	326.9	315.0	1.8
Egypt	1838.4	1897.1	1936.4	1874.1	1817.1	(0.3)
Iraq	882.3	982.6	1163.7	1235.1	1160.6	7.1
Kuwait	695.9	681.8	711.8	713.0	668.0	(1.0)
Libya	404.9	386.5	390.5	374.4	345.0	(3.9)
Qatar	962.3	915.9	964.6	940.3	910.0	(1.4)
Saudi Arabia	4313.2	4213.6	4316.9	4212.1	3962.0	(2.1)
Syria	218.0	226.2	219.5	200.7	187.0	(3.8)
Tunisia	175.1	189.7	205.6	230.6	211.0	4.8
UAE	1862.2	1662.2	1544.2	1535.7	1479.0	(5.6)
Total	**12770.9**	**12603.7**	**12987.4**	**12917.0**	**12275.0**	**(1.0)**

* Estimated data.
Note : The total may not add up due to rounding.
Sources:
- OAPEC - Databank.

Table 1-19
Energy Consumption in OAPEC Member Countries by Source, 2016-2020
(Thousand boe/d)

	2016	2017	2018	2019	2020*	Growth Rate (2016-2020)
Natural gas	6567.8	6492.6	6803.8	6977.6	6700.0	0.5
Petroleum products	6052.3	5960.5	6002.7	5758.2	5400.0	(2.8)
Hydroelectricity	81.4	74.1	73.4	76.1	76.0	(1.7)
Coal	69.3	76.5	107.6	105.1	99.0	9.3
Total energy	**12770.9**	**12603.7**	**12987.4**	**12917.0**	**12275.0**	**(1.0)**

* Estimated data.
Note : The total may not add up due to rounding.
Sources:
- OAPEC - Databank.

Table 1-20
Natural Gas Consumption in OAPEC Member Countries, 2016-2020
(Thousand boe/d)

	2016	2017	2018	2019	2020*	Growth Rate (2016-2020)
Algeria	706.3	734.0	790.4	819.8	790.0	2.8
Bahrain	262.4	262.8	266.1	295.5	285.0	2.1
Egypt	886.2	1005.0	1061.3	1046.8	1005.0	3.2
Iraq	188.6	223.1	258.5	305.8	290.0	11.4
Kuwait	311.4	303.2	315.8	318.1	305.0	(0.5)
Libya	187.9	169.6	165.9	151.0	140.0	(7.1)
Qatar	714.0	660.8	704.9	746.9	730.0	0.6
Saudi Arabia	1817.7	1904.8	1941.6	1940.4	1860.0	0.6
Syria	66.7	58.6	62.0	63.8	60.0	(2.6)
Tunisia	80.5	85.8	91.3	112.2	105.0	6.9
UAE	1346.1	1084.8	1145.7	1177.3	1130.0	(4.3)
Total	**6567.8**	**6492.6**	**6803.8**	**6977.6**	**6700.0**	**0.5**

* Estimated data.
Note : The total may not add up due to rounding.
Sources:
- OAPEC - Databank.

Table 1-21
Petroleum Products' Consumption in OAPEC Member Countries, 2016-2020
(Thousand boe/d)

	2016	2017	2018	2019	2020*	Growth Rate (2016-2020)
Algeria	417.7	415.7	432.6	443.9	420.0	0.1
Bahrain	31.1	31.6	34.8	31.4	30.0	(0.9)
Egypt	868.5	811.3	774.5	730.1	720.0	(4.6)
Iraq	679.1	750.1	897.3	918.6	860.0	6.1
Kuwait	380.0	375.1	392.1	391.2	360.0	(1.3)
Libya	217.0	217.0	224.5	223.5	205.0	(1.4)
Qatar	248.3	255.1	259.7	193.4	180.0	(7.7)
Saudi Arabia	2493.7	2306.4	2373.3	2269.7	2100.0	(4.2)
Syria	144.3	160.7	150.4	130.0	120.0	(4.5)
Tunisia	93.6	102.9	113.3	117.4	105.0	2.9
UAE	479.1	534.7	350.2	309.0	300.0	(11.0)
Total	**6052.3**	**5960.5**	**6002.7**	**5758.2**	**5400.0**	**(2.8)**

* Estimated data.
Note : The total may not add up due to rounding.
Sources:
- OAPEC - Databank.

Table 1-22
Hydropower Consumption in OAPEC Member Countries, 2016-2020
(Thousand boe/d)

	2016	2017	2018	2019	2020*	Growth Rate (2016-2020)
Algeria	0.1	0.1	0.2	0.3	0.3	25.7
Egypt	58.6	56.6	57.4	57.3	57.1	(0.7)
Iraq	14.6	9.4	7.8	10.6	10.6	(7.8)
Syria	7.0	7.0	7.0	7.0	7.0	0.0
Tunisia	1.0	1.0	1.0	1.0	1.0	0.0
Total	**81.4**	**74.1**	**73.4**	**76.1**	**76.0**	**(1.7)**

* Estimated data.
Sources:
- OAPEC - Databank.

Table 1-23
Coal Consumption in OAPEC Member Countries, 2016-2020
(Thousand boe/d)

	2016	2017	2018	2019	2020*	Growth Rate (2016-2020)
Algeria	1.0	3.7	10.0	10.0	10.0	78.5
Egypt	25.1	24.2	43.2	39.9	35.0	8.7
Kuwait	4.5	3.4	3.8	3.6	3.0	(9.5)
Saudi Arabia	1.8	2.4	2.1	2.1	2.0	3.0
UAE	37.0	42.8	48.4	49.4	49.0	7.3
Total	**69.3**	**76.5**	**107.6**	**105.1**	**99.0**	**9.3**

* Estimated data.
Sources:
- OAPEC - Databank.

Table 1-24
Energy Intisity in OAPEC member Countries, 2016 and 2019
(Boe/$million GDP,2010 prices)

	2016	2019
Algeria	2097	2298
Bahrain	3373	3477
Egypt	2572	2264
Iraq	1484	2052
Kuwait	1789	1891
Libya	4015	2483
Qatar	1969	1915
Saudi Arabia	2281	2184
Syria	n/a	n/a
Tunisia	1312	1634
UAE	1769	1385
OAPEC member countries	**2133**	**2058**

* Estimated data.
Sources:
- OAPEC - Economics Department.

Table 1-25

Domestic Prices of Petroleum Products in Arab Countries, 2020

(Local currency/liter)

Country and Last Date for which Data is Available			Currency	Gasoline		Household Kerosene	Gas oil/ Diesel	LPG*
	Month	Year		Premium	Regular			
Algeria	Jan.	2020	Dinar	45.62	45.97	21.30	29.01	103.20
Bahrain	Jan.	2019	Dinar	0.235	0.200		0.180	1.200
Egypt	July	2020	Pound	8.50	6.25	5.50	6.75	65.0
Iraq	Dec.	2020	Dinar	850	450	150	450	5000
Jordan	Jan.	2021	Dinar	1.041	0.672	0.484	0.487	7000
Kuwait	Jan.	2019	Dinar	0.165	0.085	0.115	0.095	0.750
Lebanon	Dec.	2020	Lira	26800	25900		18100	26625
Libya	Nov.	2015	Dinar	0.150		0.090	0.090	1.500
Mauritania	July	2014	Ouguiya		401	384.6	384.6	3146
Morocco	Apr.	2020	Dirham	8.50			7.50	
Oman	Jan.	2021	Riyal	0.260	0.180		0.209	
palestine	Jan.	2021	Shekels	6.24	5.42	4.97	4.97	65
Qatar	Jan.	2021	Riyal	1.35	1.30		1.30	15
Saudi Arabia	Dec.	2020	Riyal	1.55	1.42	0.70	0.52	
Sudan	Dec.	2020	Pound	121	46	4.1	4.9	75
Syria	June	2019	Lira	550	425	150	180	2500
Tunisia	Nov.	2020	Dinar	1.915	1.470			7.700
UAE	Jan.	2021	Dirham	1.91	1.72		2.06	36.75
Yemen	April	2020	Riyal		165		220	

* Per cylinder.

Sources:

- OAPEC - Databank.

UPSTREAM INDUSTRY

- RESOURCES
- EXPLORATION
- RESERVES
- PRODUCTION

UPSTREAM INDUSTRY
RESOURCES, EXPLORATION, RESERVES, & PRODUCTION

I- OIL & GAS

1. Overview on Exploration & Production in Arab Countries & the World

The world witnessed the outbreak of COVID-19 pandemic in the beginning of 2020, which caused petroleum market disturbances and industrial and commercial activities disruption and halt. This has led to a drop in oil and petroleum products consumption, declining oil demand especially in H1/2020, and over 30% plunge in exploration and production investments.

In spite of the concerns that worried the whole world over the COVID-19 pandemic, the petroleum industry in the Arab World had various activities in 2020:

In the UAE, Abu Dhabi National Company (ADNOC) signed an exploration concession agreement for 3D seismic survey with Occidental Petroleum Corp for onshore block 5, south east Abu Dhabi. Occidental will be investing up to $140 million, to explore and appraise oil and gas opportunities in the block.

Algeria's Sonatrach signed a $400-million-agreement to develop Bir el Saba oil project southern the country.

In Bahrain, Petrofac has been awarded a contract as part of the Awali gas field development plan. It also covers bringing various wells on stream including all required pipelines and additional connections.

In Tunisia, the 2008-discovery "Nawwarah" gas field started production. Gas filed output is estimated at 2.7 million scmd of gas, 7000 b/d of oil, and 3200 b/d of LPG.

In Qatar, Qatar Petroleum (QP) has begun development drilling on its North Field project, which targets increasing Qatar's LNG production capacity from 77 million tons/year to 110 million tons/year in 2025 and 126 million tons/year in 2027.

In Libya, "Sinawin MN 100" has gone online to produce 10 thousand b/d in phase 1. Its production is expected to reach 50 thousand b/d after phase 2.

In Egypt, 2 new exploration agreements in the Mediterranean have been signed: North El Amriya offshore concession and North Marakia offshore concession.

In Saudi Arabia, Aramco announced launching the largest shale gas upgrade project outside the USA, trough the development of Al Jafurah oilfield at a cost of about $110 billion.

In Kuwait, Kuwait Oil Company (KOC) announced on 25/02/2020 that operations started at its heavy oil project north the country. It is the company's largest oil project. Phase one of the project targets a production rate of 60 thousand b/d of heavy oil. With upgrade operations, its output is expected to hit about 270 thousand b/d of heavy oil by 2023.

In Oman, Gharir gas field went online as part of phase 2 of the development of Block 61. The block's total output is estimated at more than 42 million scmd of gas in the next few years, in addition to 65 thousand b/d of condensates.

In Morocco, a 2-year exploration agreement has been signed to launch a 2D seismic survey for MESORIF northern the country. The agreement covers conducting geological and geophysical studies along with a 2D seismic survey of the area.

In Somalia, a round of bids to explore 7 offshore blocks have been announced in May 2020, the first of its kind in the country's history.

2- Exploration and Development Drilling:

The average number of operating rigs worldwide has dropped by about 37% compared to 2019. OAPEC has figured out more than 85 new oil and gas discoveries worldwide in 2020, 62% of which were oil discoveries. In the Arab world, UAE's Sharjah National Oil Corporation (SNOC) has made a new gas discovery at Mahani-1 gas well, which when tested, produced at a rate of 1.4 million cmd. Also in the UAE, Abu Dhabi National Oil Co (ADNOC) announced a new gas discovery located between Jebel Ali/Dubai and Seih Al Sedira/Abu Dhabi, covering an area of 5000 sq. km. The discovery reserves estimated at about 2.3 trillion cubic metres.

In Iraq, the new development well Taq Taq-34 has produced at a rate of 1500-2000 b/d of oil, to hit 13650 b/d in total. Iraq also announced a new oil discovery "Baashiqa-2", which when tested, produced at a rate of 3500 b/d of oil and 510 thousand sq. m/d of gas.

3. Oil and Natural Gas Reserves

3- 1 Oil Reserves

Global oil reserve estimates have risen by 2.6% from 1252 bb in 2019 to 1285 bb in 2020.

3- 1- 1 Oil Reserves in OAPEC Members & Other Arab Countries

Oil reserves in the Arab countries have not changed between

2019 and 2020. They remained at about 716 billion barrels (55.7% of the world's total oil reserves), of which about 707 billion barrels in OAPEC member countries (55% of the world's total oil reserves).

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

Oil reserves estimates in the OPEC member countries have risen due to a rise in Iran's oil reserves estimates from 155.6 billion barrels in 2019 to 208.6 billion barrels in 2020. The same applies to Venezuela, whose oil reserves estimates have risen by about 1 billion barrels.

3-2 Natural Gas Reserves

World natural gas reserves estimates have risen by no more than 0.1% from 205.02 trillion cubic meters in 2019 to 205.24 trillion cubic meters in 2020.

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

Natural gas reserves in OAPEC members remained unchanged between 2019 and 2020. They remained at about 53.3 trillion cubic metres (about 26% of the world's total gas reserves). Arab countries gas reserves estimates combined remained unchanged at 54.4 trillion cubic metres (about 26.5% of the world's total gas reserves).

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

World natural gas reserves in OPEC countries have risen between 2019 and 2020 due to a rise in Iran's gas reserves estimates. A drop in gas reserves estimates has been noted between 2018 and 2019 due to Qatar's withdrawal from OPEC in the beginning of 2019.

4. Hydrocarbon Liquids and Natural Gas Production

4-1 Hydrocarbon Liquid Production

Th world's total hydrocarbon liquids in 2020 has been estimated at about 92 million b/d, with a drop of about 25 million b/d against 2019 output of 98.5 million b/d. OAPEC member countries output has been estimated at about 25 million b/d in 2020, compared to 28 million b/d in 2019. Combined Arab countries hydrocarbon liquids output has declined from 29 million b/d in 2019 to 26 million b/d in 2020.

4-1-1 Crude Oil Production

Estimates show that the daily average of the world crude oil production was about 81.3 million b/d in 2020 compared to 87 million b/d in 2019.

4-1-2 OAPEC Members and Other Arab Countries

Crude oil production estimates in OAPEC member countries have dropped by more than 11% from 23.6 million b/d in 2019 to 20.9 million b/d in 2020 (representing 25.7% of the world's total production in 2020).

Arab countries' combined production has declined from 24.6 million b/d in 2019 to 21.8 million b/d in 2020 (representing 26.8% of the world's total production).

4-1-3 Crude Oil Production in the rest of the World

OPEC crude oil output estimates dropped by about 15.5% between 2019 and 2020, from about 30 million b/d in 2019 to 25.3 million b/d in 2020. Part of this decline is attributed to OPEC's output cut plan, in addition to deducting Ecuador's output from OPEC's total production following the former's withdrawal in 2020.

4-2 NGL Production

Estimates indicated a rise in the world's natural gas liquids production (between 2018 and 2019) by 7% to reach about 11.7 million b/d in 2019. Total NGL production in OAPEC member countries was estimated at about 4.9 million b/d in 2019 (equal to about 42.5% of the world's total output).

In spite of the repercussions of the COVID-19 pandemic on the petroleum industry, many projects have been completed in 2020, of which 23 projects that went online in 2020 and have been monitored by OAPEC.

5. Marketed Natural Gas

The quantities of marketed natural gas worldwide have increased by 3.4% between 2018 and 2019, from 3842 billion cubic meters in 2018 to 3974 billion cubic meters in 2019.

Marketed natural gas quantities have dropped in Tunisia, Algeria, and KSA but increased in the rest of the member countries, especially the UAE which witnessed a rise of about 1.9 billion cubic metres between 2018 and 2019. Combined Arab countries marketed natural gas quantities have risen from 591

billion cubic metres in 2018, to 597 billion cubic metres in 2019. The rate of marketed natural gas of OAPEC members and other Arab countries combined have registered 14.2% and 15% of the world's total respectively.

II. COAL

Reserves

The world's coal reserves estimates have risen from 1055 billion tons in 2018 to 1070 tons in 2019, driven mainly by a hike in reserves in Asia and the Pacific countries by about 12 billion tons.

Production

World coal production has risen by 1.5% between 2018 and 2019, from 8013 million tons in 2018, to 8129 million tons in 2019. Asia and the Pacific have contributed significantly in this rise, as their output went up by about 256 million tons, making up for a drop in output in other international groups. Asia and the Pacific topped other international groups by about 73% of the world's total coal production.

III. NUCLEAR ENERGY

The number of operating nuclear power reactors worldwide has risen from 448 in 2017 to 451 in 2018, of which 98 based in the USA and representing about 22% of the world's total. The rise can mainly be attributed to a rise in the number of reactors in China (+7), Russia (+1). The number dropped in the USA (-1) and Taiwan (-1). The number of reactors under construction is 55, of which 11 in China. The world's operating reactors design capacity reached more than 391 TW, and 60 TW for those under construction. The amount of nuclear- generated electricity has bordered 2563 TWH. France tops the world in this aspect with 71.7% of its electricity has been generated by nuclear energy in 2018.

IV. RENEWABLE ENERGY RESOURCES

The world's installed renewable capacities have risen from 1168 GW in 2018 to about 1332 GW in 2019: wind (47%); solar (44%); oceans and biomass together (less than 10%). New grid-linked-capacities reached about 191 GW, with a rise of 7% against 2018 rates.

1- Wind Energy

A- Wind Energy Worldwide

Total wind installed capacity worldwide has risen in 2019 to 622 GW, of which 43% in Asia and the Pacific countries.

B- Wind Energy in the Arab World

Arab countries installed capacity represents a meagre rate of no more than 0.4% in total out of the world's installed capacities, mainly based in Egypt and Morocco.

2- Solar Energy

A- Solar Energy Worldwide

Total installed photovoltaic capacity increased worldwide to 584.8 GW in 2019, of which 59% in Asia and the Pacific countries.

B- Solar Energy in the Arab World

Total installed photovoltaic capacity in the Arab world represented about 1.2% of the world's total in 2019, with the UAE on top of the Arab countries in this field.

3. Hydropower

A- Hydropower in the World

The world's total installed hydropower capacity amounted to about 1308 GW in 2019, mostly in the Asian countries group.

B- Hydropower in the Arab World

The Arab countries' total installed hydropower capacity remained unchanged between 2018 and 2019 at about 11 GW. Egypt tops the Arab countries with more than 2.8 GW.

4. Biomass Energy

A. Biomass Energy Worldwide

Global biomass installed capacity was 124 GW in 2019, mostly in Europe and Asia.

B. Biomass Energy in the Arab World

Arab countries' biomass installed capacity represented about 0.3% of the World's total in 2019; Sudan comes on top of the other countries.

5. Ocean Energy

The world's ocean installed capacity has risen to 531 MW in 2019, of which about 96% in the EU and Asia. Arab countries have not used this type of renewables yet.

6. Geothermal Energy

The world's geothermal installed capacity has meagrely risen at a rate of no more than 0.1% between 2018 and 2019, from 132.5 GW to 139 GW, of which 40% is in Asia and the Pacific countries. This type of energy has not been used in the Arab countries yet.


SAFETY FIRST
NO SMOKING

DOWNSTREAM INDUSTRY

- REFINING
- PETROCHEMICALS
- NATURAL GAS CONSUMPTION, TRADE & PROCESSING

ARAB AND WORLD DEVELOPMENTS IN PETROLEUM DOWNSTREAM INDUSTRIES

I. REFINING INDUSTRY

1. World Developments

The world's total refining capacity reached about 92.88 million b/d by the end of 2020 against 93.27 million b/d by the end of 2019; registering a net drop of 386 thousand b/d (or 0.41%) compared to 2019. The total number of operating refineries has also dropped from 637 to 631.

The drop in the world's total refining capacity in 2020 was a result to shutting down 10 refineries: 6 in the USA; 1 in western Europe; and 3 in Asia Pacific, in spite of the fact that 4 new refineries went online: 3 in Asia Pacific and 1 in Africa, in addition to upgrading the refining capacity of other existing refineries. Details as follows:

- Shutting down of Dalian Refinery in China (refining capacity: 410 thousand b/d)
- Shutting down of Marsden Point Refinery in New Zealand (refining capacity: 110 thousand b/d)
- Closure of Kwinana Refinery in Australia (refining capacity: 140 thousand b/d)
- Shutting down of Cheyenne Refinery in Wyoming, USA (refining capacity: 32 thousand b/d)
- Closure of Somerset Refinery in Kentucky, USA (refining capacity: 5500 b/d)
- Shutting down of Convent Refinery in Louisiana, USA (refining capacity: 227 thousand b/d)
- Shutting down of Rodeo Refinery in California, USA (refining capacity: 120 thousand b/d)
- Shutting down of Martinez Refinery in California, USA (refining capacity: 161 thousand b/d)
- Shutting down of Dickenson Refinery in North Dakota, USA (refining capacity: 19 thousand b/d)
- Shutting down of Grandpuit Refinery in France (refining capacity: 100 thousand b/d)
- Zhanjiang Refinery in China went online (refining capacity: 200 thousand b/d)
- Pengerang Refinery in Malaysia went online (refining capacity: 300 thousand b/d)
- Phase 1 of Saysettha Refinery project in Laos started operations (refining capacity: 20 thousand b/d)

- Mobile Otien Refinery in Nigeria went online (refining capacity: 5000 b/d)
- Upgrading refining capacity of Sweeny Refinery in Texas, USA, by 130 thousand b/d
- Upgrading refining capacity of SATORP Refinery in KSA, by 20 thousand b/d
- New distillation unit in Mina Abdallah in the State of Kuwait went online (refining capacity: 264 thousand b/d)

During 2020, the oil refining industry faced unprecedented challenges in most parts of the world due to the COVID-19 pandemic. The repercussions of the pandemic on oil refineries varied from one area to another according to many different factors and circumstances. Impacts were limited on some, while others had to reduce their refining capacities. Many refineries have been shut down completely while others were converted to biofuel production units.

The pandemic impacts have cast their shadow on the execution of refining capacities upgrading and expansion plans in many countries around the world due to uncertainty of future demand for petroleum products, as well as, difficulties in securing the transport of labour to project locations.

2. Developments in the Arab World

The total refining capacity of the Arab countries recorded an increase of 284 thousand b/d in 2020, as a result of bringing the new atmospheric distillation unit on stream in Mina Abdullah in the State of Kuwait with a capacity of 264 thousand b/d, in addition to upgrading the refining capacity of SATORP Refinery in KSA, from 440 thousand b/d to 460 thousand b/d.

Total refining capacities of the 52 oil refineries in OAPEC member countries accounted for 8.6 million b/d, or 91% of the total refining capacity of the Arab countries of 9.4 million b/d. Total refining capacity of the 11 oil refineries in other non-OAPEC Arab countries accounted for the remaining 0.853 million b/d, or 9%, of the Arab total.

Table (3-2) shows the evolution of refining capacity in the Arab countries from 2016 to 2020.

Table 3-2
Installed Refining Capacity in the Arab Countries, 2016 - 2020
(Thousand b/d)

	Number of Refineries in 2020	2016	2017	2018	2019	2020
Algeria	6	657.0	657.0	657.0	657.0	663.0
Bahrain	1	267.0	267.0	267.0	267.0	267.0
Egypt	8	769.8	784.8	784.8	784.8	784.8
Iraq	12	520.0	740.0	815.0	824.0	824.0
Kuwait	2	936.0	736.0	736.0	724.0	800.0
Libya	5	380.0	380.0	380.0	380.0	380.0
Qatar	2	433.0	433.0	433.0	433.0	433.0
Saudi Arabia	8	2934.0	2921.0	2856.0	2896.0	2906.0
Syria	2	240.1	240.1	240.1	240.1	240.1
Tunisia	1	34.0	34.0	34.0	34.0	34.0
UAE	5	1124.0	1124.0	1127.0	1127.0	1227.0
Total OAPEC	52	8294.9	8316.9	8329.9	8366.9	8558.9
Jordan	1	90.4	90.4	90.4	90.4	90.4
Sudan	3	140.0	140.0	140.0	140.0	140.0
Oman	2	222.0	222.0	222.0	303.0	303.0
Morocco	2	154.7	154.7	154.7	154.7	154.7
Mauritania	1	25.0	25.0	25.0	25.0	25.0
Yemen	2	140.0	140.0	140.0	140.0	140.0
Total other Arab Countries	**11**	**772.1**	**772.1**	**772.1**	**853.1**	**853.1**
Total ArabCountries	**63**	**9067.0**	**9089.0**	**9102.0**	**9220.0**	**9412.0**

Source:
- OAPEC Refining Industry Database

In the UAE, Abu Dhabi National Oil Company (Adnoc) has announced making notable progress in Crude Flexibility Project (CFP) at a value of $3.5 billion. 80% of the work on installing a hydrogen processor unit for the hydrodesulfurization (HDS) of fuel at a capacity of 177 thousand b/d. the project targets enabling Ruwais- West refinery to process 420 thousand b/d of the low-quality Upper Zakum oil instead of the high-quality Murban oil. This is in order to export Murban and make profit out of the price difference.

As part of the UAE's plan to expand foreign investment, the UAE's Mubadala Investment Co. announced plans to buy shares in Brazil's Refinaria Landulpho Alves Refinery, with a refining capacity of 323 thousand b/d.

In Bahrain, construction continued at the upgrading and modernisation project at the Sitra oil refinery of Bahrain Petroleum Company (Bapco). The upgrading scheme will raise the Sitra refinery's capacity to 360 thousand b/d from the current 260 thousand b/d, at a cost of about $6-8 billion.

In Algeria, it was announced that the Arab Petroleum Investments Corporation (APICORP) agreed a loan of $250 million for Sonatrach (Société Nationale pour la Recherche, la Production, le Transport, la Transformation, et la Commercialisation des Hydrocarbures). The loan will be used to fund maintenance work and for the purchase of Saudi Aramco crude oil to be processed at Augusta Refinery in Sonatrach Raffineria Italiana complex in Sicily, Italy, which Sonatrach acquired in 2018.

On another note, Sonatrach announced progress in mechanical work at Hassi Messaoud Refinery Project, at a capacity of 100 thousand b/d in spite of the repercussions of the COVID-19 pandemic. It is due to be completed in 2024. The project comes as a part of a plan to expand the Algeria's refining capacity through upgrading its existing refineries and building 3 new ones in Biskra, Ghardaia, and Hassi Messaoud Refinery Project, at a capacity of 100 thousand b/d each.

In Saudi Arabia, Aramco announced upgrading refining capacity of SATORP Refinery from 440 thousand b/d to 460 thousand b/d.

Also, work is ongoing in upgrading existing refineries, including Al Riyadh Refinery (capacity: 124 thousand b/d); Ras Tanura Refinery (capacity: 550 thousand b/d); and Petro Rabigh Refinery and petrochemicals complex (capacity: 400 thousand b/d.)

On another note, KSA plans to increase its external projects'

refining capacity to ensure the sustainability of selling contracts for its crude oil output. Saudi Aramco's total refining capacity around the world has reached 6.4 million b/d by the end of 2019 against 4.9 million b/d in 2018. Its net refining capacity reached 3.6 million b/d. The increase came as a result of bringing its joint ventures online, including: its share worth $319 million in China's Zhoushan Refinery (refining capacity 400 thousand b/d), to the east of Zhejiang Province in China; Pengerang Refinery going online in Malaysia (Aramco is in 50/50 partnership with the Malaysian Government.)

Saudi Aramco also announced ongoing negotiations to buy a 35% share in Panjin refining and petrochemical complex (refining capacity: 300 thousand b/d) worth $3.5 billion of the total value of the project of $10 billion, to be established North East Liaoning, China.

In Iraq, the Iraqi Oil Ministry announced that work is progressing in Basra Refinery upgrading project and Baiji Refinery reconstruction project to restore the latter's refining capacity to 280 thousand b/d after being destroyed. Work also goes on at the new Karbala Refinery (at a capacity of 140 thousand b/d) at a cost of $6 billion. The Ministry has also re-invited tenders to establish a new refinery in Al Faw at the Arabian Gulf coast at a capacity of 300 thousand b/d.

In Qatar, Qatar Petroleum (QP) has announced that its diesel hydro-treating units started operations at a refining capacity of 23 thousand b/d from its refinery in Mesaieed.

In Kuwait, a new 264 thousand b/d crude distillation unit (CDU) went online at Mina Abdullah refinery, as part of a clean fuels project by upgrading the existing Mina Al Ahmadi and Mina Abdullah refineries to produce products conforming to the latest international standards. This is in addition to installing the new Al Zour refinery at a refining capacity of 615 thousand b/d.

On another note, Kuwait National Petroleum Company (KNPC) announced plans to increase total refining capacity from 1.4 million to 2 million b/d by 2035, but then had to lower it to 1.6 million b/d by 2025 due to declining global demand for petroleum products.

In Egypt, Egyptian Petrochemicals Holding Co. (ECHEM) announced a project on the construction of a new refining and petrochemicals complex in the Suez Canal Economic Zone at a cost of $6.7 billion and estimated refining capacity of 60-70 thousand b/d.

On another note, work is progressing at the revamping project of the MIDOR refinery in Alexandria and at the 90 thousand b/d Assiut oil refinery, as well as, the revamping and upgrading of the the Suez Oil Processing Co. Refinery.

On the non-OAPEC countries' front, work is progressing at Duqm Refinery Oman, a joint venture with Kuwait Petroleum International Ltd. (KPI) at a 50/50 partnership worth $6 billion, to process 230 thousand b/d of Kuwaiti and Omani oil mix. The project is due for completion in 2023.

II. PETROCHEMICALS INDUSTRY

World Developments

Global production of petrochemicals reduced by 1.8% between January and September 2020 reaching approximately 2200 million tons. According to Grand View Research Corporation, the global petrochemicals market size was about $480 billion. Total chemicals trade has shrunk by 7% in 2020 to reach about $220.8 billion.

In spite of the average decline in petrochemical prices by about 1.8% during the second quarter of the year 2020, they are expected to recover by the end of 2021 to reach about $240 billion.

However, in spite of declining global GDP growth rates global ethylene demand has increased by 1% in 2020 according to HIS Markit Report. The Global total ethylene production has reached about 165 million tons, while Reportlinker estimated it around 158 million tons and its forecasts show it will reach up to 207 million tons by 2027, at a compound annual growth rate of 4% between 2020 and 2027. On the other hand, low-density polyethylene is expected to record a compound annual rate of 4.5% with a production up to 100 million tons. While high-density polyethylene growth rates are expected to grow by 3.9% until 2027.

World Chemicals Market Challenges

The sharp decline of oil prices and its direct impact on naphtha feedstock during the COVID-19 pandemic have led it to be more competitive to ethane as a primary raw marerial for the production of Ethylene in Asia, Europe, and South America. Oil prices showed slow recovery, while Ethane recovered by June 2020, especially in North America. As a result, ethylene production units powered by ethane steam cracking and LPG have shown meagre profit margins in H1/2020 due to declining naphtha prices.

Global Ethylene demand growth in 2020 reached about 1.5 million tons, and is expected to rise to about 4 million tons in 2021, and more than 6 million tons/annum between 2022-2025. HIS Markit pointed out that global operating rates of Ethylene production projects have decreased from about 89% in 2019 to about 85% in 2020. It is expected that these projects would fluctuate later between 80-89% until 2025. Newly added global

operational capacities are expected to exceed global demand growth in the short run. Prices have enormously recovered in North East Asia to reach $805 per ton following relaxing restrictions and lockdowns in China and India. Prices reached about $755 per ton in South East Asia.

Polyethylene demand has been more flexible due to being connected to non-durable consumer goods. Growing demand for packaging and falling naphtha prices have contributed to maintaining polymers markets and making profits in Europe, however, polymer products gains are short-lived. As naphtha prices went up temporarily in H2/2020, profits dropped relatively.

China is a key market for polyethylene products. Its total polyethylene (PE) imports in 2021 are expected to be about 19.8 million tons or 16.8 million tons depending on various scenarios according to growth rates of domestic demand and operation rates. This massive difference of about 3 million tons is expected to have a great impact on global supply and demand balances. Singapore's chemicals output has dropped in October by 0.8% on annual basis, in light of shutting down of plants due to regular maintenance work.

On another note, polypropylene demand has grown driven by the need for non-woven fabrics used in producing medical masks and special pre-emptive clothes, in addition to the production of fast food containers. Other polypropylene products, however, especially those used in feeding the vehicles sector, could not challenge the sharp decline in demand. In H2/2020, propylene demand started rising with partial resumption of activities in vehicles manufacturing, building, and construction sectors, as well as, ending COVID-19 lockdowns. The production of hundreds of millions of COVID-19 vaccine shots might lead to a rise in demand for polypropylene (PP) but not it would not be large enough to cover the losses in other end-user markets.

According to S&P Global Report, polyvinyl chloride construction materials prices have dropped to their lowest since the global financial crisis in 2008-2009 due to a halt in construction activities.

In November, Cefic commercial group has announced that the EU chemicals output has dropped by 10.6% on the first three quarters of 2020 as the pandemic caused a delay in industrial activities, especially lockdowns imposed in Q2/2020.

China is the main market for the Middle East polyethylene products; it is also the largest trade partner for the chemicals industry in the GCC countries.

China's imports from KSA and the UAE represent about 24% of its total imports. According to data provided by the Gulf Chemical and petrochemicals Association (GPCA) in August 2020, China's imports of the linear low-density polyethylene (LLDPE) have dropped to 5.1 million tons in 2020, compared to about 5.7 million tons in 2019, which caused its LLDPE imports from KSA to drop to about 1.19 million tons compared to about 1.32 million tons in 2019.

As for aromatics markets, global demand has dropped due to total and partial lockdowns worldwide, which led to a drop in their price. Profit margins have dropped to unprecedented levels for all types of aromatics produced by naphtha.

Recycled plastic waste markets have gone through pressure in terms of declining prices. Low prices of new "virgin" olefins encouraged buyers to avoid recycled plastic and opt for alternatives of the relatively cheaper new plastic.

COVID-19 Pandemic Impact on New Polyethylene Projects

In spite of some delay in executing petrochemicals projects due to COVID-19 pandemic, most new ethylene production projects are progressing especially in Asia. Around 22 million tons of new capacities are expected to be added during 2020-2022.

The USA has registered the highest number of project delay announcements, followed by China. Construction work has been affected in Shell Beaver County Complex and in Formosa St. James Parish Complex.

New Projects in MENA Region

The International Energy Agency (IEA) and the Arab Petroleum Investments Corporation (APICORP) share the same view on the growth of petrochemicals in the MENA region in connection to gas and petrochemicals projects forecasts during 2020-2024, which was published in October 2020.

Arab World Developments

The private sector in Jordan works on developing a refinery project at a capacity of 150 thousand b/d costing about $3 billion, as well as, a plant for polyethylene and aromatics production at

an estimated cost of about $3 billion to go online in 2024.

In the UAE, AquaChemie Middle East is due to complete the execution of an integrated logistic distribution station for liquid and packed chemicals. The company targets $400 million in revenues of the petrochemicals station business until 2027.

In Bahrain, Saipem has signed a Memorandum of Understanding (MoU) with Gulf Petrochemical Industries Company (GPIC) in February, to study the expansion of a number of projects, including increasing ammonia, urea, and methanol production of existing projects by 15%.

In Algeria, Turkey's Rönesans Holding partnered with Algeria's Sonatrach company to develop a petrochemicals project in Adhana Province, south Turkey, with a $1.4 billion investment. Production is due in H2/2022.

In KSA, Saudi Arabia's Advanced Petrochemical will start building a new propane dehydrogenation (PDH) unit and a polypropylene (PP) plant in Al Jubail in 2021 at a capacity of about 84 thousand tons/year, and to produce about 80 thousand tons/year of polypropylene.

Also, Saudi Aramco and Saudi Basic Industries have decided are re-evaluating a $20 billion complex to convert crude oil to chemicals project and are now looking at integrating existing Aramco refineries in Ynabu' with a mixed feed steam cracker and downstream olefin derivative units instead.

On another note, Advanced Global Investment Co. (AGIC) has signed a long-term marketing contract to sell up to 620 thousand tons per annum of polypropylene (PP) until 2028.

On Saudi foreign investments, Saudi Aramco is planning to acquire a 20% stake in Reliance Industries' oil-to-chemicals (O2C) business in India for $15 billion. The deal is due to be sealed in the beginning of 2021 following a delay since March 2020.

Furthermore, Aramco and Abu Dhabi National Oil Co (Adnoc) are still working with a consortium of Indian companies (Indian Oil Corp. (IOC), Bharat Petroleum, and Hindustan Petroleum) on a plan to build an integrated refining and petrochemicals complex in Rigad at the western Indian coast.

In terms of new projects, Iraq plans to construct Nibras Petrochemical and Refining Complex, in collaboration with Royal Dutch Shell, at a capacity of 1.8 million tons per annum. The project's investment cost is estimated at around $8 billion.

In Oman, OQ energy company announced in December that it is considering building a new petrochemicals plant in Duqm at a cost of about $7 billion to produce around 480 thousand tons per annum of high-density polyethylene and linear low-density polyethylene.

In Kuwait, COVID-19 pandemic contributed to the delay in executing some scheduled projects under the Al Zour refining and petrochemicals development plan, which led in turn to not being granted the required permissions to complete work according to the projects' timeframe.

According to the latest IMF Reports, Egypt is the only country in the MENA region that has recorded positive GDP growth in 2020. The Egyptian Petroleum Ministry's long-term national plan (2020-2035) includes a number of projects under execution at a total cost of up to $19 billion, as follows:

- Refining and Petrochemicals Complex at the Economic Zone in Suez Canal region at a capacity of 2.2 million tons/ year of petrochemical products
- Refining and Petrochemicals Complex at the new El Alamein City with $8.5 billion of investments for the production of one million tons/ year of petrochemicals products
- Butadiene production project at a capacity of 36 thousand tons/year in Ethydco, Alexandria
- Methanol production project in Damietta, at a cost of about $117 million
- Project on production of medium-density fibreboard (MDF) in Beheira Governorate, at investment cost of $217 million
- Project on bioethanol production from sugar beet molasses, at investment cost of $110 million
- Petrochemicals Logistic Services Project in Alexandria to build a marine dock for the handling of petroleum and petrochemical products, at investment cost of about $350 million

Project	Country	Investment cost, in USD Bn
Duqm Refinery - Duqm Petrochemical Complex	Oman	8.67
ECHEM - Alamein Petrochemical Complex	Egypt	8.34
SIS - Sur Refinery And Petrochemicals Complex	Oman	6.73
Oil Refining and Petrochemical Complex in Suez Canal Economic Zone	Egypt	6.5
SATORP – Amiral Complex: Ethylene & Propylene Plant	KSA	4.7
Q-Chem - Ras Laffan Petrochemical Complex	Qatar	4.6
CHL - Tahrir Petrochemicals Complex	Egypt	4.5
Borouge - Borouge 4 Petrochemical Complex	UAE	3.75
CHL - Tahrir Petrochemicals Complex: Ethylene Cracker	Egypt	3.5
KIPIC - Al Zour Petrochemical Complex: Package 2	Kuwait	3.24
KIPIC - Al Zour Petrochemical Complex: Package 1	Kuwait	3.22
Egypt Ministry of Petroleum - Petrochemical complex in Suez	Egypt	3.0
Private Developer - Maan Petrochemical Complex	Jordan	2.99
Indian Oil Corporation – Iran Petrochemical Plant	Iran	2.92
Mingyuan Holdings Group - SEZAD: Methanol to Olefins (MTO) Plant	Oman	2.8
ADNOC Refining - Gasoline & Aromatics Project (GAP)	UAE	2.5
ECHEM - Aromatics Complex	Egypt	1.99
APC - Propane Dehydrogenation (PDH) & Polypropylene (PP) Complex	KSA	1.98
SATORP/INEOS - Amiral Complex: Jubail 2 Complex	KSA	1.86

III NATURAL GAS CONSUMPTION, TRADE & PROCESSING

World Developments

- **Natural Gas Consumption**

World natural gas demand has grown slightly in 2019 by only 2%, a significant drop compared to the record growth of 5.3% in 2018. It is also lower that the average growth rate registered over the past 10 years. Consumption registered about 3929.2 billion cubic metres in 2019 against about 3851.7 billion cubic metres in 2018. The share of natural gas in the world's total primary energy consumption in 2019 has increased to 24.2% compared to 24.1% in 2018.

In 2019, most parts of the world have maintained natural gas contribution to the primary energy balance, with slight ups and downs compared to the previous year. The Middle East has registered the highest rate with 51.8% against 52.3% in 2018. Europe and Eurasia registered about 33.1% against 32.9% in 2018. Natural gas contribution jumped in North America to 32.7% compared to 31.4% in 2018. However, it has declined in Africa to 27.2% in 2019 compared to 27.6% in 2018. In Central and South Americas, natural gas contribution has also declined to 20.8% in 2019 compared to 21.4% in 2018, in line with drop in demand. Asia- Pacific recorded a slight increase to 12.2% against 12% in 2018, the lowest worldwide due to the dominance of coal in that region.

- **Natural Gas Trade**

Natural gas trade has grown significantly in 2019 by 4.1% registering total global exports of about 1286.6 billion cubic metres against about 1236 billion cubic metres in 2018. These figures cover gas exports via both pipelines and as liquefied natural gas (LNG). The total amount of both claims about 32.7% 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 slightly dropped to 801.5 billion cubic metres in 2019 from 805.4 billion cubic metres in 2018. Gas exports via pipelines have dropped from Russia to European markets, in light of abundant global LNG supplies at competitive prices.

LNG trade has grown significantly by about 12.7% in 2019. Total

exports registered about 485.1 billion cubic metres compared to about 430.6 billion cubic metres in 2018, an increase of 55 billion cubic metres due to growing exports from USA, Russia, and Australia as new liquefaction units went online in these countries. In general, LNG exports have grown in 2019; they accounted for about 37.7% of the world total gas exports compared to 34.84% in 2018. Pipeline gas exports accounted for about 62.3%, with a notable decline against 2018 rates that registered 65.16%.

- **Global Natural Gas Prices**

Natural gas prices, for both pipeline and LNG sales, have dropped in many major markets in 2019 compared to its 2018 rates due to abundant global supplies. The price of natural gas has dropped by 19.1% in the USA; 20.7% in the EU; 44.5% in the UK; and 1.1% in Japan. However, in Canada, gas prices rose by 13.9%.

- **LNG Production Capacity**

By the end of 2020, the world's nominal LNG production capacity reached about 447.1 million, posting an increase of over 21 million tons/year compared to 2019. This is because 5 new liquefaction units were added to major liquefaction projects in the USA: Chorpus Christi (with a capacity of 4.5 million tons/year); Cameron LNG (with a capacity of 8 million tons/year); Freeport LNG (with a capacity of 9.2 million tons/year).

Australia tops the world in terms of total natural gas liquefaction capacity a total of 87.2 tons/year with a share of 19.5% of the world's total production capacity. Qatar followed on the list with a capacity of 77 million tons/year with a share of 17.2%. The USA strengthened its third ranking on the list with a total capacity of 71.5 million tons/year (including Alaska) and a share of 15.8% of the world's total. The three countries combined accounted for about 52.5% of the world total LNG production capacity by the end of 2020.

Arab World Developments

Total natural gas exports have been stable compared to 2018 posting about 204.4 billion cubic metres against a slight decline of 0.3 billion cubic metres from 2018. Arab countries' exports are expected to grow in coming years, with the forecasts on Egyptian LNG exports growth. Arab countries natural gas exports

combined have dropped in 2019 to 15.9% of the total global natural gas exports. Qatar has maintained its leading position on top of the Arab gas exporting countries in 2019 with about 128.6 billion cubic metres (62.9% of the total Arab countries' exports), followed by Algeria with about 43.3 billion cubic metres (21.2%); Oman (6.9%), UAE (3.8%), Libya (2.6%), and Egypt (2.6%).

Natural gas industry and trade developments in 2020 by country:

- **UAE**

The UAE announced a massive discovery of 80 trillion cubic feet of shallow gas reserves in an area between Abu Dhabi and Dubai. Following the discovery, a strategic cooperation agreement has been signed between Abu Dhabi National Oil Company (ADNOC) and Dubai Supply Authority (DUSUP) aiming to develop the new find.

- **Bahrain**

Bahrain's liquefied natural gas (LNG) terminal in the industrial area "Hidd" started commercial operations, following operational tests at the pilot sage and pumping an appraisal LNG cargo into the domestic gas grid (beginning of November 2019- mid-February 2020).

- **Tunisia**

Production has officially begun from the Nawara field in the south of Tunisia, with an investment of some $1.2 billion. The project's production capacity is about 95 million cubic feet/day, representing about 50% of Tunisia's natural gas output. Once put fully online, the project will contribute by producing about 3200 b/d of Liquid Petroleum Gas. It is expected that the project would reduce Tunisia's energy deficit by 20%. The development project includes a Central Processing Facility at the Nawara well site and a 370 km pipeline from Nawara to Gabes where a Gas Treatment Plant will be installed with a design capacity up to 370 million cubic feet/day.

- **Algeria**

Sonatrach announced its GR-7 pipeline was connected to the domestic gas grid with an initial capacity of 4bcm/y. The 377km GR-7 is part of the second phase of Sonatrach's South West Gas Project (SWGP), which will see output from a group of fields in southwest Algeria piped to the Hassi R'Mel gas hub. The development project (of the wells feeding the new pipeline) is expected to complete by mid-2022.

- **Saudi Arabia**

Saudi Aramco announced the proximity of Al Fadhili gas processing plant going online following the completion of operating all processing units as planned. The plant's total capacity is estimated at about 2.5 2bn ft³/d; it will process 2bn ft³/d of non- associated gas from the offshore Hisbah field, and 500mn ft³/d from the onshore Kharsaniya gas field.

Aramco also signed a heads of agreement (HOA) with Sempra Energy that anticipates the negotiation and finalization of a definitive 20-year liquefied natural gas (LNG) sale-and-purchase agreement (SPA) for five million tons per annum (Mtpa) of LNG offtake from Phase 1 of the Port Arthur LNG export-project under development in Texas, USA.

- **Iraq**

Iraq's Oil Ministry is carrying out various gas projects to add about 1.2 billion scfd to meet domestic market needs, particularly in the electricity sector. On top of these projects, a new project to add 2 new units at a total capacity of about 400 million scfd in Basra Gas Complex in Artawi southern oilfield, Basra, Iraq. Final investment decision has been taken in 2019, the 2 units are due to be completed and go online by the end of 2023; which would take the total capacity of the complex up to 1.4 billion scfd.

- **Qatar**

Qatar Petroleum (QP) has signed agreements with South Korea's "Big 3" shipyards to secure more than 100 LNG tankers by 2027 at a total cost of $19 billion, the largest in the industry's history. Once in operation, QP would secure approximately 60% of the global LNG shipbuilding capacity through 2027. QP has reiterated carrying out its north field expansion plans in spite of the repercussions of the COVID-19 pandemic.

- **Kuwait**

Kuwait Integrated Petroleum Industries Company (Kipic) has awarded a contract for the operation and maintenance of the liquefied natural gas (LNG) terminal under construction in Kuwait's Al Zour region at a cost of $1.6 million over 6 years, which is expected to start operating in 2021. Al Zour terminal design capacity can receive about 22 million tons/year of LNG. It consists of two piers and 8 storage tanks with a capacity of 225 thousand cubic metres each.

- **Libya**

Mellitah Oil & Gas Co announced taking measures to execute mega gas projects, most importantly gas structures (A & E) in Sabratha Platform offshore Tripoli, at a production capacity up to 760 million scfd. National Oil Corporation and Eni granted initial approvals to the project back in 2019. The project's total cost is estimated at about $5.6 billion, and production from structures A and E is due by 2022 and 2024 respectively.

- **Egypt**

LNG exports resumed from the liquefaction plant in Edco in Q4/2020 following LNG price recovery in global markets. 14 shipments were scheduled for loading November and December, double the number of shipments exported in the first 9 months of 2020 which were 7.

Also, Eni signed a series of agreements with the Egyptian General Petroleum Corporation (EGPC), the Egyptian Natural Gas Holding Company (EGAS) and the Spanish company Naturgy, which pave the way for the restart the Damietta liquefaction plant in Egypt in Q1/2021 following an 8-year-stop.