

OAPEC

www.oapecorg.org



SPECIAL ISSUE



THE 24TH FORUM ON THE FUNDAMENTALS OF OIL AND GAS INDUSTRY

**CURRENT DEVELOPMENTS IN THE WORLD
AND ARAB PETROLEUM INDUSTRY REVIEWED**

ORGANIZATION OF ARAB PETROLEUM EXPORTING COUNTRIES (OAPEC)



The Organization of Arab Petroleum Exporting Countries (OAPEC) was founded on the basis of the agreement signed in Beirut, Lebanon on 9 January 1968 between the governments of Kingdom of Saudi Arabia, the State of Kuwait and the (then) Kingdom of Libya. The agreement stipulates that the Organization shall be domiciled in the City of Kuwait.

The principal objective of the Organization is the cooperation of the members in various forms of economic activity in the petroleum industry, the determination of ways and means of safeguarding the legitimate interests of its member countries in this industry, individually and collectively, the unification of efforts to ensure the flow of petroleum to its markets on equitable and reasonable terms, and providing appropriate environment for investment in the petroleum industry in member countries.

In 1970 the United Arab Emirates, the State of Qatar, the Kingdom of Bahrain and the Republic of Algeria joined the Organization, followed by the Syrian Arab Republic and the Republic of Iraq in 1972, Arab Republic of Egypt in 1973, then the Republic of Tunisia in 1982 (its membership was suspended in 1986). Any Arab country which derives a significant share of its national income from petroleum is eligible for membership in OAPEC upon the approval of three-quarters of the member countries, including all three founding members.

- **OAPEC-Sponsored Ventures:** OAPEC has sponsored the creation of four companies: The Arab Maritime Petroleum Transport Company (AMPTC), established in 1972 with headquarters in Kuwait City, the Arab Shipbuilding and Repair Yard Company (ASRY) established in 1973 with headquarters in Bahrain, the Arab Petroleum Investments Corporation (APICORP) established in 1974 with headquarters in Khobar, Saudi Arabia, the Arab Petroleum Services Company (APSC) established in 1975 with headquarters in Tripoli, Libya.

OAPEC'S ORGANS

The Organization carries out its activities through its four organs:

- **Ministerial Council:** The Ministerial Council is the supreme authority of the Organization, responsible for drawing up its general policy.
- **Executive Bureau:** The Executive Bureau is composed of one representative from each of the member countries, drawing recommendations and suggestions to the Council, reviewing the Organization's draft annual budget and submitting it to the Council, it also adopts the regulations applicable to the staff of the General Secretariat. The resolutions of the Executive Bureau are issued by the majority of two-thirds of all members.
- **General Secretariat:** The General Secretariat of OAPEC plans, administers, and executes the Organization's activities in accordance with the objectives stated in the agreement and directives of the Ministerial Council. The General Secretariat is headed by the Secretary General. The Secretary General is appointed by resolution of the Ministerial Council for a tenor of three years renewable for similar period(s). The Secretary General is the official spokesman and legal representative of the Organization and is accountable to the Council.
The Secretary General directs the Secretariat and supervises all aspects of its activities, and is responsible for the tasks and duties as directed by the Ministerial Council. The Secretary General and all personnel of the Secretariat carry out their duties in full independence and in the common interests of the Organization member countries. The Secretary General and the Assistant Secretaries General possess in the territories of the Organization members all diplomatic immunities and privileges.
- **Judicial Tribunal:** The protocol of the Judicial Tribunal was signed in Kuwait on 9 May 1978 and came into effect on 20 April 1980. The Tribunal is competent to consider all disputes related to the interpretation and application of OAPEC's establishment agreement, as well as disputes arising between two or more member countries concerning petroleum operations.

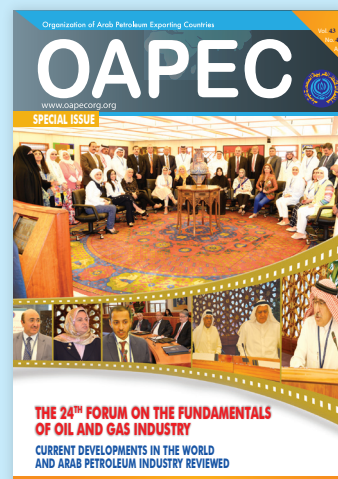




In this issue

Editorial	4
OAPEC Activities	6
Petroleum Developments	26
Tables Annex	39

The Cover



OAPEC Monthly Bulletin
is published by the General
Secretariat of OAPEC- Information
and Library Department.

(ISSN: 1018-595X)

Annual Subscription (11 issues)

Arab Countries

Individuals: KD 10 or equivalent in USD \$

Institutions: KD 15 or equivalent in USD \$

Other Countries

Individuals : USD \$ 40

Institutions : USD \$ 60

Subscription orders should be sent
to : P.O. Box 20501 Safat - Kuwait
13066 - State of Kuwait

Tel : (+965) 24959724

Fax : (+965) 24959755

E-mail :

oapec@oapecorg.org

Web-site: www.oapecorg.org



oapec



@oapec

All rights reserved. No
reproduction is permitted without
prior written consent of OAPEC.

THE 24TH FORUM ON THE FUNDAMENTALS OF OIL AND GAS INDUSTRY

The curtain has fallen a few days ago on the 24th Forum on the Fundamentals of the Oil and Gas Industry organised by OAPEC Secretariat General under the auspices and in the presence of OAPEC Secretary General. A group of specialists in the petroleum industry who work for the member countries' energy and oil ministries, as well as, national oil companies (NOCs) took part in the event.

For four decades, OAPEC Secretariat General has been organising this Forum to provide a platform for participants to broaden their horizons on the fundamentals of the oil and gas industry and keep in pace with its rapid developments through discussing issues relevant, whether directly or indirectly, to the petroleum industry. The Forum is also an opportunity to strengthen professional and interpersonal relations among the multi-national participants.

OAPEC has always been keen on organising such scientific forums because they support one of the organisation's goals—that is encouraging cooperation, expertise, and knowledge exchange among the member countries. It is through such activities that OAPEC has become a leading contributor in petroleum training activities in the Arab countries and a platform that gathers Arab petroleum and energy experience and expertise.

The Forum has tackled many current and urgent energy issues, with a focus on oil and gas. It covered all scientific, economic, environmental, and media aspects at a time when the global economy and energy industry

have been witnessing many developments and changes that directly affected oil producing and exporting countries as a result of falling global oil prices since mid-2014. This has been followed by economic and financial repercussions for many OAPEC members, and petroleum exporting countries in general, due to their leading position in the world oil and gas industry.

Therefore, the Forum has been a good opportunity for exchanging ideas and visions among a group of Arab specialists, speakers and participants alike, on the current status and future prospects of the energy industry in the Arab countries in the light of the world's increasing demand for energy, and the possibility of using available new and renewable resources as complimentary energy to conventional energy. The valuable lectures, presented by an elite of the industry's experts in the member countries, have provided an overview on the fundamentals of the oil and gas industry at its different stages from exploration and production through downstream to marketing, exporting, and energy security (both supply and demand security).

Environmental and climate change issues have also drawn special attention at the Forum, especially after the signing of the Paris Agreement on Climate Change by the countries around the world in December 2016. The participants elaborated on the implications of this important agreement for the petroleum industry in general, especially in the Arab countries. In this regard, the

participants have been informed about OAPEC efforts at international forums and also on member countries' coordination with other international groups during UNFCCC COPs.

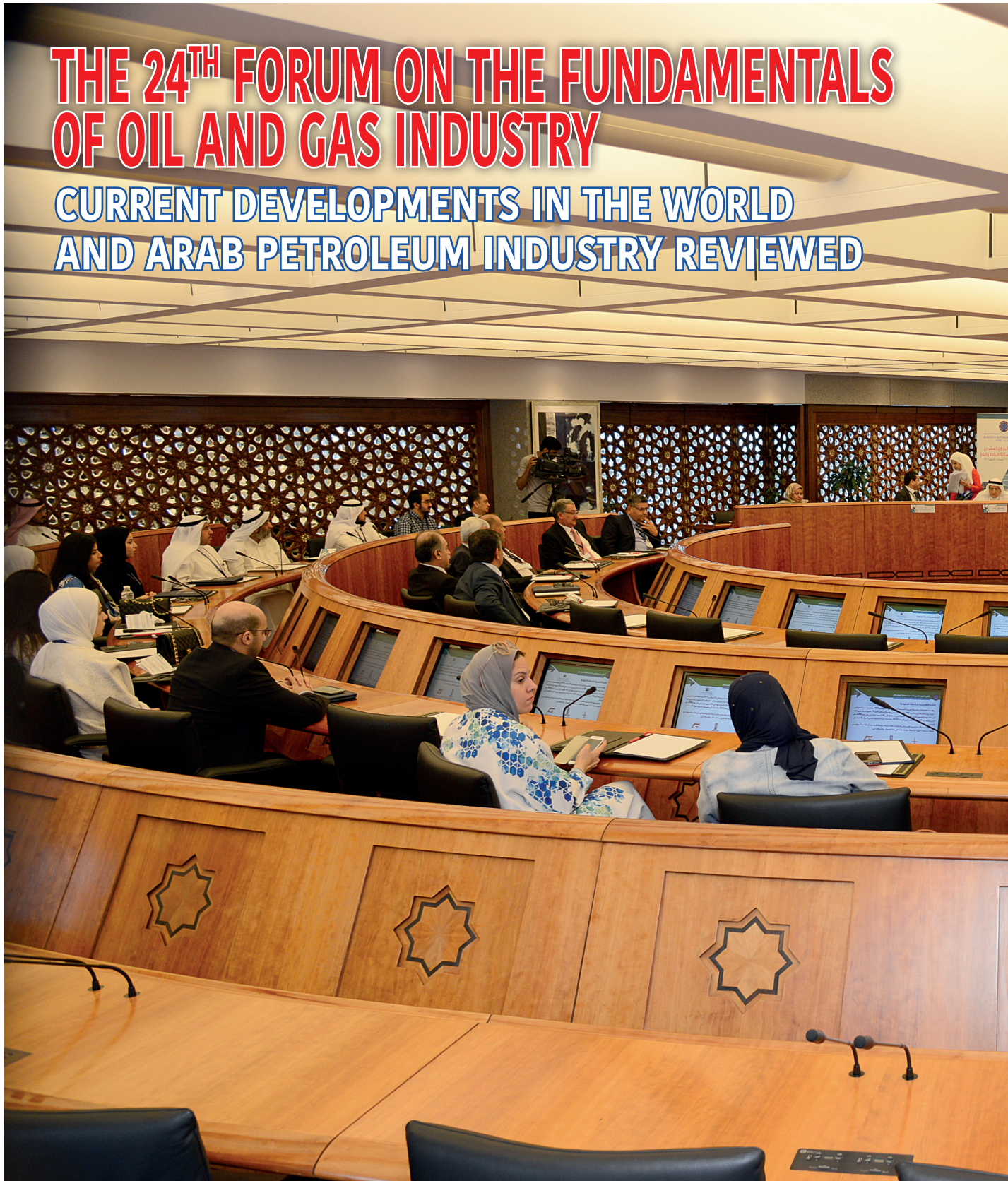
Moreover, the Forum highlighted petroleum media role and OAPEC efforts in activating cooperation and coordination among member countries in this vital field. The use of social media and its popularity has been raised as it has become a cornerstone in raising awareness and educating the public on local and foreign petroleum issues. There are high hopes that media outlets in OAPEC member countries can make progress in this sector.

Whilst having concluded the proceedings of the 24th Forum on the Fundamentals of Oil and Gas, OAPEC Secretariat General hopes that it had have contributed to deepening the scientific and professional expertise of the participants from the different member countries to help them at their workplace.

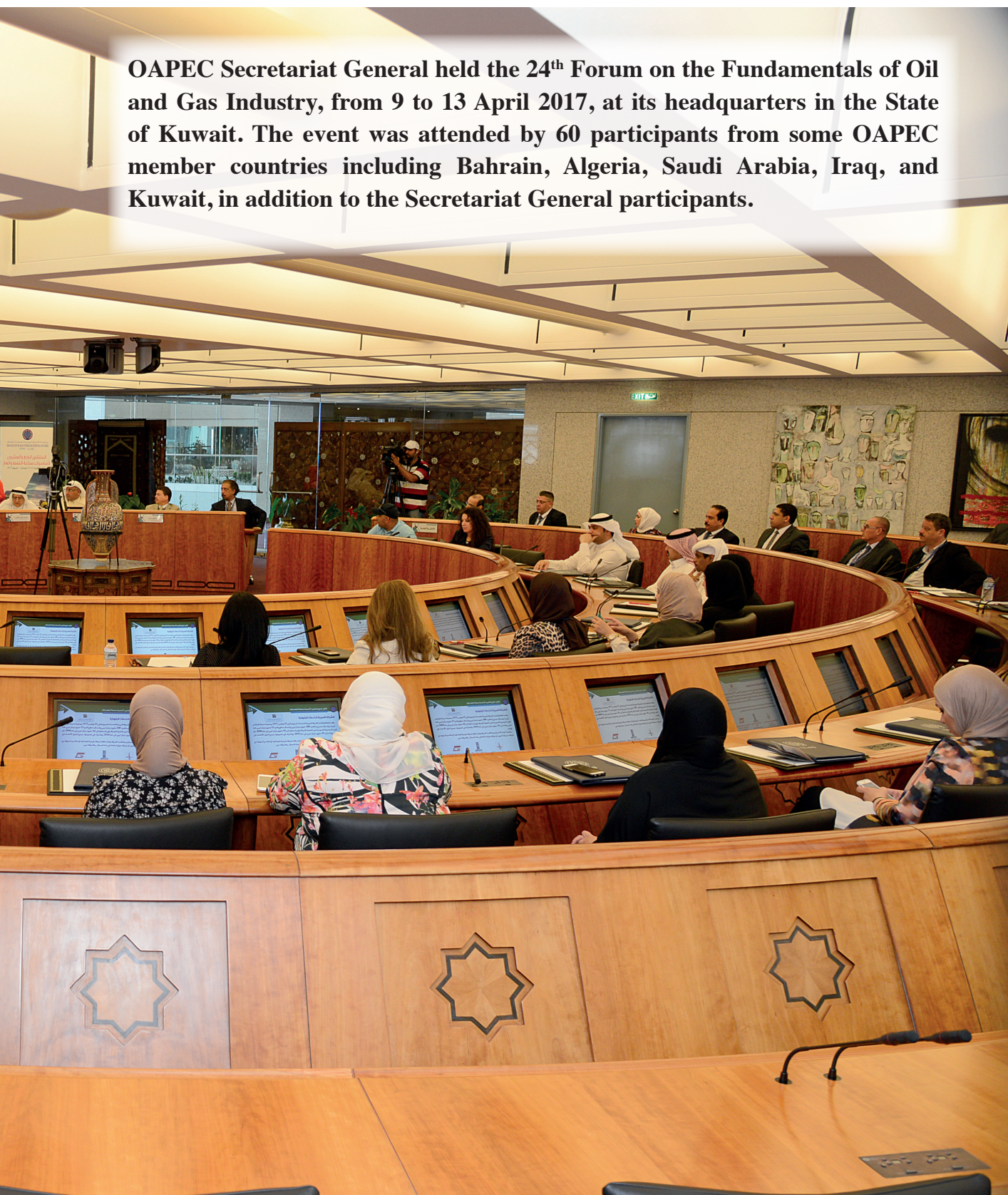
The Secretariat General would like also to express sincere thanks and appreciation to Their Excellencies the Energy and Oil Ministers in the member countries for their invaluable guidance and their continuous keenness on the participation of experts from their countries in this event and other conferences, scientific seminars, and specialised meetings organised by OAPEC. Thanks also go to all those who contributed to the success of the Forum whether lecturers (from inside and outside the Organisation), organisers, and supervisors.

THE 24TH FORUM ON THE FUNDAMENTALS OF OIL AND GAS INDUSTRY

CURRENT DEVELOPMENTS IN THE WORLD
AND ARAB PETROLEUM INDUSTRY REVIEWED



OAPEC Secretariat General held the 24th Forum on the Fundamentals of Oil and Gas Industry, from 9 to 13 April 2017, at its headquarters in the State of Kuwait. The event was attended by 60 participants from some OAPEC member countries including Bahrain, Algeria, Saudi Arabia, Iraq, and Kuwait, in addition to the Secretariat General participants.





The forum aimed at informing those working in the Arab oil industry in the member countries from the middle management about the various aspects and activities of the oil and gas industry. It also aimed at helping them develop their capabilities and broaden their professional and occupational horizons through knowing the various stages of this industry including exploration, production, refining, and transportation. The event also highlighted economic, environmental, and media aspects relevant to the industry. A brief narration on OAPEC and its joint ventures has also been presented.

The programme included 13 lectures presented by petroleum specialists from inside and outside OAPEC Secretariat General. The lectures focused on 4 pivotal points: technical, economic, media, and environmental aspects. Following is a summary of the events of the **24th Forum on the Fundamentals of Oil and Gas Industry**.

Day 1: Sunday 9 April 2017

Opening Session

Under the auspices and attendance of OAPEC Secretary General, the 24th Forum on the Fundamentals of Oil and Gas Industry was inaugurated on Sunday 9 April 2017. Participants and local and Arabic media attended the opening ceremony.

The forum was opened by a speech of OAPEC Secretariat General HE Abbas Ali Al Naqi. He welcomed the participants wishing them a happy stay in Kuwait. HE Al Naqi expressed deep appreciation for the member countries that responded to the invitation stressing that their participation is an added value to the forum.

The Secretary General gave an overview on the forum's historical development since it kicked off back in 1976. HE Al Naqi stressed the Secretariat General's keenness on continuing to organize this event with the great support from the member countries.

HE Al Naqi then presented a lecture titled "An Overview on OAPEC and its Joint Ventures", which tackled the history of establishing the organization, its objectives, and its main bodies and their specialties including the Ministerial Council, the Executive Bureau, the Secretariat General, and the Judicial Tribunal. The Secretary General also tackled OAPEC's Arab and international relations, the organization's efforts in promoting joint Arab cooperation in the petroleum industry among the member countries, and defending its members at international fora. HE Al Naqi then talked about OAPEC's joint ventures and their role in boosting the Arab petroleum industry.



HE Abbas Ali Al Naqi





Session 1

Fundamentals of Petroleum Exploration

On Sunday 9 April 2017 at 11 :30 AM, the first session of the forum was chaired by Dr Samir Al Qara'ish, Director of the Technical Affairs Department at OAPEC. The session's topic was "Fundamentals of Petroleum Exploration" presented by Engineer Sara Akbar, CEO, Kuwait Energy. The lecturer gave an overview on the oil and gas industry in the Arab countries. She explained that the Arab region is the world's capital of conventional oil and gas due to its oil and gas reserves and comparatively low production costs compared to other parts of the world. She clarified that oil is important because it is a global strategic commodity of a direct impact on other economic sectors.



Dr Samir Al Qara'ish

The lecture also presented the types of risk facing exploration and production companies which are mainly relevant to current developments in the oil market as low oil process led to the closure of many companies and the halt of many exploration operations.

She pointed out that the world is investing in exploration to compensate for the declining



Eng. Sara Akbar

oil reserves. She added that exploration is conducted worldwide by private petroleum companies- not governmental. Akbar also said that Arab private petroleum exploration companies' number is small compared to the size of oil and gas reserves in these countries.

The session presented the types of contracting between petroleum companies and governments. A thorough explanation on the specifications and advantages of each of these contracts types have been introduced. The session also stressed the fact that most governments worldwide respect petroleum exploration contracts since they are sovereign agreements that usually need to obtain all governmental, parliamentary, and sovereign permissions in the contracting country.

The session also tackled seismic surveys in some Arab countries. It drew the attention to the fact that some OPAEC members have promising opportunities with regard to discovering more oil and gas reserves. It was mentioned that the Mediterranean is a promising petroleum area referring to the giant natural gas discovery in Dhahr field in Egypt.

Oil and Gas Production

Engineer Turki Hemish, Petroleum Exploration and Production Expert, at OPAEC's Technical Department, presented a paper on "The Basics of Oil and Gas Exploration and Production." In its first part, the paper tackled the history of oil and gas discovery, use, and petrophysical properties of reservoirs and their types. The paper then moved on to explain the various theories on the formation of oil, oil migration, types of oil traps, and methods of classifying oil and gas.

The second part of the paper covered exploration and discovery methods and the concept of data integration. The third part spoke about production and its various types like secondary recovery techniques including water injection, gas injection, horizontal



Eng. Turki Hemish

drilling techniques, and others. Then it talked about enhanced oil recovery.

The fourth part of the paper included recent detailed statistics on seismic survey crews, and drilling activities worldwide and in the Arab countries in terms of the number of rigs, drilled or completed wells, in addition to the number of producing wells worldwide and in some Arab countries.

Engineer Hemish then talked about oil and gas reserves worldwide explaining that proven oil reserves in the Arab countries have been estimated at about 710 billion barrels in the beginning of 2017, representing 55.6% of the world reserves, while gas reserves were estimated at more than 54 trillion cubic meters, representing 27.7% of the world's proven gas reserves.

The paper showed that oil production average in the Arab countries exceeded 25 million b/d and their NGL production reached about 4 million b/d by the end of 2016. Arab marketed natural gas quantities have exceeded 575 billion cubic metres.

Due to the increasing importance of shale oil in the petroleum industry's market in the past few years, the lecturer allocated the fifth part of his paper to shed the light on its definition, reserve estimates, resources, and production.



Day 2: Monday 10 April 2017

The second day included two sessions: the first held at 9AM, chaired by Dr Samir Al Qara'ish, Director of the Technical Affairs Department, OAPEC. It consisted of two lectures:

Oil Refining Industry

A paper was presented by Engineer Emad Nasef, Senior Refining Expert, Technical Affairs Department, OAPEC. The lecturer defined what is meant by the refining industry and the basic stages of refining.

The lecturer then highlighted the most important challenges in the oil refining industry resulting from price fluctuations of the crude oil and its products in the world markets, as well as, the huge burdens of meeting the environmental legislations on improving product specifications to produce clean fuel, and eliminating the practice of polluting the environment, in addition to the high operating, building, and maintenance costs. He also pointed out to the most important procedures that can be followed to overcome these challenges, improve workplace environment, and keep production process balanced; most importantly:

- Rationalization of energy consumption and improving energy efficiency;



Eng. Emad Nasef

- Developing refineries to enable them improve product specifications according to domestic and global market demand; increasing valuable products' output compared to cheap products;
 - Improving commitment to legislations on environment protection against pollution;
 - Improving maintenance management to limit unprogrammed stops of production units;
 - Improving staff performance and productivity and creating an environment that responds quickly to change; in addition to, improving communication channels among a refinery's management, operation managers, and production units' managers.
- The lecturer then gave an overview on the

oil refining industry in the Arab countries, where total refining capacity of the 52 refineries in OAPEC member countries reached about 8.3 million b/d, representing 90% out of the 9.12 million b/d of the total refining capacity of Arab countries. The total refining capacity of the 11 refineries of the non OAPEC member Arab countries reached about 772,000 b/d, representing about 10% of the total oil refining capacity in the Arab countries.

He also pointed out to the refining upgrading projects currently executed in the Arab countries; whether building new refineries, or upgrading and expanding existing ones, in order to achieve various economic and environmental goals.



Dr Samir Al Qara'ish

Lecture on the Petrochemicals Industry:

Dr Samir Al Qara'ish presented a paper stating that the petrochemicals industry is considered one of the important pillars of the world economy, and a main pivotal factor in industrial development. The petrochemicals industry has contributed in the past four decades to the renaissance and development of all sides of life in most industrialized countries that have been using these industries to serve their economic growth. This industry will continue to grow in terms of production capacity, products diversity, and developing end transformational industries to achieve higher added value.

The lecturer added that the petrochemicals industry requires huge investments, advanced technology, and that it mainly depends on natural gas and petroleum products to produce petrochemicals that are used in many industries with high economic revenues.

He stressed that the Arab countries enjoy many encouraging advantages, potentials, and natural resources to establish an advanced petrochemical industry; most importantly: the availability of raw material represented in natural gas; petroleum products with competitive prices, highly-consuming markets, distinguished geographical location between

the east and the west, in addition to, great efforts by these countries to develop their integrated infrastructure to form a solid basis for the petrochemicals industry, and to help achieving their strategic goals like:

- Diversifying future oil export revenues and working on stabilizing them
- The most ideal investment of their resources by adding value
- Transferring modern technologies and improving national workforce skills
- Building complete basic installations needed for connecting existing crude operations and future forecast with a wide range of secondary industries

The lecturer reiterated the importance of cooperation and coordination between OAPEC members in the petrochemicals industry, especially research and development, to support their role as the world's main players.

He concluded by referring to the fact that the petrochemicals industry includes various chemical interactions that consist of highly-hazardous chemicals (like chlorine) that produce toxic emissions and pollutant waste. Such pollutants could be controlled by following a number of procedures and pre-emptive programmes.



Eng. Wael Hamed Abdul Moati

The second session was held at noon, chaired by Engineer Emad Nasef Mekki. It included two lectures:

Natural Gas Industry:

It is a paper presented by **Engineer Wael Hamed Abdul Moati, Gas Industries Expert, from the Technical Affairs Department, OAPEC.** The lecturer spoke about the basics of natural gas industry indicating that natural gas production in Arab countries has witnessed a substantial development since the beginning of the 1980s until 2015. The Arab region is contributing with more than 15.5% of the world's gas production compared to 3.7% in 1980, making it the fastest growing region with regards to its production at an annual rate of 7%.

The lecturer tackled gas export systems via either tankers or pipelines. He highlighted the pioneer Arab countries in this industry; and talked about gas trade via pipelines, their role in securing gas supplies to Europe, as well as, their role in boosting inter-trade between Arab countries through gas networks projects like Arab Gas Pipeline (between Egypt, Syria, and Jordan); and Dolphin Pipeline (between Qatar, Abu Dhabi, and Oman).



Eng. Emad Nasef,



Dr Yasser Baghdadi

Oil and Gas Transport

Dr Yasser Baghdadi, Petroleum Industries Expert, Technical Affairs Department, OAPEC, presented a paper on the fundamentals of oil and gas transport. The lecturer highlighted the significance of oil and gas transport which is one of the most important cornerstones of the petroleum industry. He identified the various transportation methods and provided an explanation on the increasing reliance on transporting oil and gas via pipelines driven by the world oil and gas demand developments.

The lecturer said that OAPEC members made noticeable progress in expanding oil and gas pipeline networks via installing new pipelines whether across their lands, around the region, or worldwide. This is in addition to the rehabilitation and maintenance of some old pipelines. Arab countries have also succeeded in boosting mutual cooperation and investment in the oil sector whether bilaterally or collectively through the establishment of oil and gas pipelines amongst them or for exporting to other countries like: SUMED Pipeline; Arab Gas Pipeline; Dolphin project; TransMed Pipeline; and Duran Farell Pipeline.



Day 3: Tuesday 11 April 2017

The third day included two sessions. The first was held at 9AM, chaired by Mr Abdul Karim Ayed, Director of Media and Library Department, OAPEC. It included one lecture:



Mr Abdul Karim Ayed

The Role of Oil and Natural Gas in Boosting Development in Arab Countries

Mr Abdul Fattah Dandy, Director, Economic Affairs Department, OAPEC, presented a paper titled “The Role of Oil and Natural Gas in Boosting Development in Arab Countries”. The paper aimed at:

- A. Reviewing the relationship between energy and sustainable development;
- B. Highlighting the important role of the petroleum sector in the Arab countries by defining the position of these countries on the world energy map, and the importance of petroleum in Arab economies;
- C. Explaining the role of oil in boosting Arab development through: consuming oil and gas in various economic sectors, and their



Mr Abdul Fattah Dandy

role in making financial revenues available to be spent on various economic and social sectors, as well as, funding imports and enhancing Arab cooperation.

Most important conclusions made by the paper were:

- The close connection between the oil and gas sector and the development process in the Arab countries through: firstly, using them as a source of energy and raw material in the economic sectors and for domestic consumption; and, secondly, they make revenues available for boosting economic and social development.

- The increase of energy demand rates between 2005 and 2016 from 8.7 million BOE a day in 2005 to 14.8 million BOE a day in 2016, representing an annual growth rate of 4.9%.
- Arab oil products consumption rose at an annual rate of 4% from 4.7 million BOE a day in 2005 to 7.2 million BOE a day in 2016. Also, Arab natural gas consumption during the period between 2005 to 2016 has risen by about 3.5 million BOE a day, representing an annual growth rate of 6% reaching 7.3 million BOE a day in 2016.
- Natural gas share of the energy mix in Arab countries has risen from 44.2% in 2005 to 49.5% in 2016. Petroleum products share, however, has dropped from 53.9% to 48.8%.
- Oil revenues have had a major role in boosting development in Arab oil producing and exporting countries through their contributions to the economic growth rates, general budget, trade balance, as well as their great role in boosting human development rates.
- Oil and its revenues have contributed in boosting development in other Arab non-oil countries through Arab development aid presented by the Arab oil countries to other Arab countries that reached \$79.7 billion from 2005 to 2015, i.e. at an annual rate of \$7.25 billion.

- Oil revenues had a role in boosting money transfers of the workforce in the oil countries to the workforce's homelands. The total sum of these transfers has increased from \$19.7 in 2005 to \$43.4 billion in 2015.

Day 4: Wednesday 12 April 2017

The fourth day included two sessions. The first was held at 9AM and chaired by **Mr Abdul Fattah Dandy, Director of the Economic Affairs Department, OAPEC.** It consisted of two lectures:



Mr Abdul Fattah Dandy

Petroleum Projects Funding

Mr Ghassan Al Aqwa'a, Energy Research Analyst, APICORP, gave an overview of current developments in the world and the Middle East. He explained that the Chinese economy is witnessing a slowdown and transition from manufacturing to services, while other developed countries' economies are witnessing recovery like that of the USA, Japan, Germany, and the UK.



Mr Ghassan Al Aqwa'a



He pointed out that dropping oil prices had negative impacts on many economies worldwide, especially some Middle Eastern oil exporting countries led by the GCC countries; as dropping oil prices have led to a drop in their fiscal revenues in a noticeable way. He clarified that the mid-term economic growth in the oil exporting countries would depend mainly on the oil price movement and the ability of governments to rationalize spending and execute structural reforms.

The lecturer then moved on to tackle current developments in the oil market in terms of supply and demand; where Brent crude registered an average of \$45 per barrel in 2016 and \$55 per barrel by the end of the year. Oil demand growth was unexpectedly higher than estimated in 2016 reaching an average of 1.6million b/d. it is probable that demand growth would slow down in 2017, however, it is expected to remain solid at about 1.3million b/d. The lecturer expected that supply from non-OPEC would drop by 650 thousand b/d in 2016. He explained that the recent OPEC and non-OPEC deal is a very important step towards rebalancing the market.

In the second part of the lecture, Al Aqwa'a

presented current and future prospects of the energy investments in the Middle East and North Africa. The lecturer clarified that global investments in the oil and gas sector have dropped by 24% in 2016 compared to 2015.

He expected that oil and gas investments would improve in 2017 especially in the GCC countries; while investments would focus on the electricity sector in non-oil and gas exporting countries in the Middle East during 2017.

He also tackled energy sector challenges in the Middle East, including security developments in a number of oil exporting countries, in addition to economic challenges especially governments' ability to rationalize spending and execute structural reforms; as well as, the increasing difficulties of funding petroleum projects in some countries in the region due to falling fiscal revenues.

As for energy investments, it was noticed that global investment in the oil and gas sector has dropped by 24% in 2016 compared to 2015. It is projected that oil and gas investments would improve in 2017 especially in the GCC countries. As for non-oil and gas exporting countries in the Middle East, investments would focus in the electricity sector during 2017.



Dr Ibrahim Al Muhanna

Current and Future Developments in the World's Petroleum Markets

Dr Ibrahim Al Muhanna, Chairman, Energy Consultancy Company/ Deputy President, World Energy Council/ and Former Advisor to the Saudi Energy, Industry and Mineral Resources Minister, gave a lecture in which he reviewed the current situation of the world petroleum market. He clarified that during the time of market instability and falling oil prices that lasted for 3 years, oil producing countries and oil companies posted huge financial losses and shed billions of dollars. Other energy industries were also affected (like the solar power). Future petroleum investments in exploration and production have dropped by about 40%.

He added that these circumstances called for a joint action among OPEC and non-OPEC oil producing and exporting countries, which resulted in the Vienna deal in late 2016 that contributed to changing the market's psychology.

Dr Al Muhanna expected KSA to continue leading the oil market due to its petroleum importance and the fact that it is chairing OPEC during 2017. KSA will lead along with Russia, Algeria, Iraq, Kuwait, and Oman in collaboration with other OPEC and non-OPEC countries.

The lecturer spoke about the future of petroleum demand in the next years. He estimated the annual increase in petroleum demand to be between 1.0 to 1.5 million b/d. Many factors stand behind this increase including: the continued growth of the world economy between 3-4% (and more than that in emerging and developing economies); increasing population; urban growth; the move of citizens to the middle class that needs more energy in all walks of life.

He also spoke about shale oil developments, whose output is estimated now at about 4.5 million b/d in the USA. In case prices return to hit \$100 per barrel, with the continued development of its production, shale oil output



is expected to hit 10 million b/d around the world in the next 10 years, representing less than 10% of the world's total petroleum output. It is worth mentioning that this annual increase in shale oil production- if happened- would not meet the increasing world petroleum demand per annum.

Dr Al Muhanna concluded the lecture by the following points:

- The petroleum market is adopting a bullish trend in terms of increasing demand and production year after year
- The petroleum market is exposed to shocks from time to time which affect its stability and price movement. Such shocks happen for various reasons; the most recent is the rapid increase of shale oil production.
- It is hard to leave the oil market to rebalance itself like the case with some other goods. This is due to the nature of the petroleum industry, its investments, and its economic importance to the producing countries and world economy.
- Rebalancing the petroleum market needs integrated efforts from the petroleum producing and exporting countries to work collectively to achieve the sought-after goal. This calls for having a leader to coordinate this cooperation- at least in the beginning- including two or more countries that enjoy credibility and importance in the petroleum market.



Dr Waheeb Al Nasser

The second session was held at 11:30AM, chaired by Eng. Turki Hemish. It included one lecture:

New and Renewable Energies: Present and Future



Eng. Turki Hemish

Dr Waheeb Al Nasser, Vice President for Academic and Higher Education Programmes, University of Bahrain, presented a paper that tackled renewable energy in terms of economic, environmental, technical, and industrial aspects. He also talked about some renewables projects in the Arab countries.



Dr Mohammed Al Sayyad

The lecturer indicated that there were about 173 countries that had their 2030 or 2050 goals with regards to the renewable energy's share out of the total energy production. There are 146 countries that have pro- renewables policies whether on national or provincial levels.

He said that 2015 was an exceptional year in terms of increasing use of renewables. The year 2016 has witnessed various developments in the different aspects of renewables which led to a severe decline in oil prices (according to some experts). There were relatively cheap contracts for renewables projects.

The lecturer concluded by saying that there were many signs that should encourage Arab countries to seriously consider renewables as a major option for securing energy in the future or at least to have a share of no less than 10% in their power generation by 2030.

Day 5: Thursday 13 April 2017

The fifth day included one session chaired by **HE Abbas Ali Al Naqi, OAPEC Secretary General**. It consisted of two lectures:

Climate Change Agreement Developments

Dr Mohammed Al Sayyad, Advisor, Oil and Gas Holding Company, gave the lecture reviewing developments in the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol. He gave a thorough explanation on mechanisms for cutting emissions, the future of oil in light of increasing use of renewables, and imposing taxes on crude oil.



The lecturer reviewed the efforts by OPEC and non-OPEC oil exporting countries during COPs to bar enlisting petroleum countries among countries that bear part of the responsibility on cutting emissions.

He also spoke about the future of oil after Paris Agreement on Climate Change that commits all parties of the agreement- whether rich or poor- to cut GHG, on top of which CO2 that represents 70% of the emissions. It also requires presenting a report every 5 years to the Agreement Secretariat on ambitious quantitate goals on cutting emissions. Since the source of CO2 is fossil fuel that include oil, coal and gas; cutting emissions would mean lesser consumption and consequently lower fossil fuel demand.

Petroleum Media

Mr Abdul Karim Ayed, Director of the Media and Library Department/Acting Administrative Affairs Director, OAEPC, presented a paper on the petroleum media. In his paper, Mr Ayed pointed out to the fact that the global media industry is going through a rapid technological development, which has a significant impact on various media sectors around the world, especially electronic and social media. The coming stage requires



Mr Abdul Karim Ayed

planning to make use of these technologies that help reaching out to a large number of audience with the lowest cost and effort. This is not to forget the traditional media in order to strike a balance between the traditional and new media.

The lecturer also spoke about the professional development of the petroleum media, underscoring that it is important to introduce oil as a strategic good for both consumers and producers while raising collective awareness on oil's importance and its role in the development process. He explained that among the priorities of petroleum media bodies in the petroleum producing and exporting countries are: highlighting the role of oil producing countries

in keeping the prices stable while securing supplies, bringing stability back to energy markets, highlighting the importance of oil as a main source of energy in the coming decades, highlighting the role of producing countries in maintain the safety of the environment through using environment friendly technology, stressing the role of oil producing countries in sustainable development- an efficient way to use oil revenues, and the role of sovereign funds of the producing countries in supporting development projects in the developing countries.

The lecturer introduced a variety of topics that enjoy special interest from the part of the petroleum media including the stereotyping

of Arab petroleum industry in the western media, oil prices, and climate change- which is gathering momentum with the advent of COP in Paris, France, in December 2017. Moreover, he tackled energy security, while stressing that petroleum media bodies in OAPEC Secretariat General and its member countries were keen on tackling these sensitive issues in a professional and objective way to clarify the stances of Arab countries on these issues.

The lecturer concluded by stressing that OAPEC Secretariat General welcomes all sorts of cooperation in the field of petroleum media with its member countries and Arab and international organizations specialized in energy, oil and gas.





FIELD VISIT TO PETROLEUM RESEARCH CENTRE

The Forum's Day 3 programme included a visit to the Petroleum Research Centre of Kuwait Institute for Scientific Research (KISR). The visit started with a lecture on safety and occupational health instructions that are followed inside the Centre. Moreover, the officials explained to the participants the different types of services offered by the Centre in various aspects including: technical, consultancy, and technological services, in addition to technical training for local petroleum institutions. They added that the Centre is specialised in research and development, as well as, training, consultancy and expertise in petroleum- related fields like: petroleum production and refining, petrochemicals, and corrosion. The visit included a tour in a number of labs like: PVT lab, the experimental refining unit, water lab, and catalysts lab.

At the end of the visit, the participants lauded the Centre's research staff and facilities, as well as, its advanced consultancy services that aim at serving the petroleum industry.



Petroleum Developments in the World Market and Member Countries*

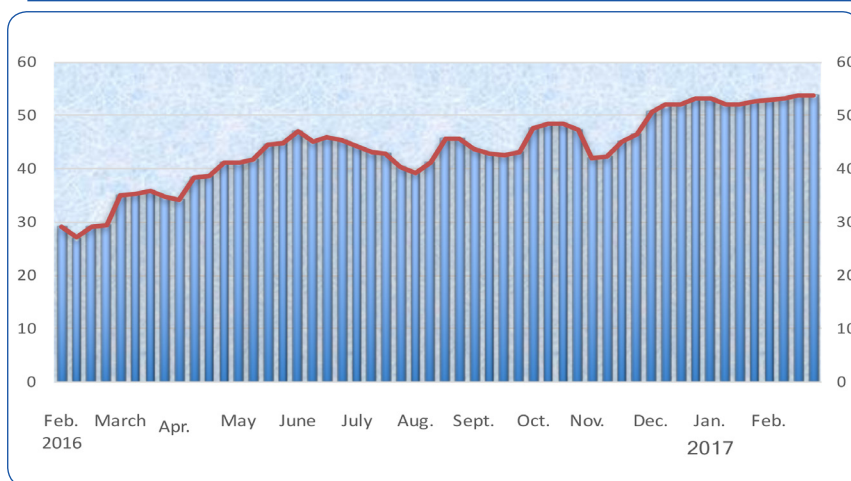
1. Oil Market

1. Prices

1-1 Crude Oil Prices

Weekly average price of OPEC basket increased during the first week of February 2017, to reach \$52.9/bbl, and continued to raise thereafter, to reach its highest level of \$53.7/bbl during the third week. During the fourth week, weekly average price decreased to \$53.6/bbl, as shown in figure 1:

Figure - 1 Weekly Average Spot Price of the OPEC Basket of Crudes 2016 - 2017 (\$/bbl)



On monthly basis, OPEC Reference Basket in February 2017, averaged \$53.4/bbl, representing an increase of \$1/bbl or 1.9% comparing with previous month, and an increase of \$24.7/bbl or 85.8% from the same month of previous year. OPEC agreement concerning curtail oil production, which was reached during OPEC 171st Meeting in Vienna, OPEC and non-OPEC join deal to cut production, as of the first of January 2017, and a weaker US dollar, were major stimulus for the increase in oil prices during the month of February 2017, to reach its highest level since July 2015.

Key Indicators

- In February 2017, **OPEC Reference Basket** increased by 1.9% or \$1/bbl from the previous month level to stand at \$53.4/bbl.
- **World oil demand** in February 2017, increased by 1.8% or 1.7 million b/d from the previous month level to reach 97.9 million b/d.
- **World oil supplies** in February 2017, decreased by 0.2% or 0.2 million b/d from the previous month level to reach 98.4 million b/d.
- **US tight oil production** in February 2017, increased by 0.9% to reach about 4.8 million b/d, and **US oil rig count** increased by 43 rig from the previous month level to stand at 541 rig.
- **US crude oil imports** in January 2017, increased by 7.5% from the previous month level to reach 8.4 million b/d, and **US product imports** increased by 14.9% to reach about 2.2 million b/d.
- **OECD commercial inventories** in January 2017 increased by 48 million barrels from the previous month level to reach 3030 million barrels, and **Strategic inventories** in OECD-34, South Africa and China increased by 1 million barrels from the previous month level to reach 1880 million barrels.
- **The average spot price of natural gas** at the Henry Hub in February 2017 decreased by \$0.5/million BTU comparing with the previous month to reach \$2.85/million BTU.
- **The Price of Japanese LNG imports** in January 2017 increased by \$0.4/m BTU to reach \$7.5/m BTU, the **Price of Korean LNG imports** increased by \$0.7/m BTU to reach \$7.9/m BTU, whereas the **Price of Chinese LNG imports** decreased by \$0.1/m BTU to reach \$7/m BTU.
- **Arab LNG exports to Japan, Korea and China** were about 4.944 million tons in January 2017 (a share of 30.8% of total imports).

* Prepared by the Economics Department.

Table (1) and figure (2) show the change in the price of the OPEC basket versus last month and the corresponding month of last year:

Table 1 Change in Price of the OPEC Basket of Crudes, 2016-2017 (\$/bbl)

	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan. 2017	Feb.
OPEC Basket Price	28.7	34.7	37.9	43.2	45.8	42.7	43.1	42.9	47.9	43.2	51.7	42.4	53.4
Change From previous Month	2.2	5.9	3.2	5.4	2.6	-3.1	0.4	-0.2	5.0	-4.7	8.5	0.7	1.0
Change from same month of previous Year	-25.3	-17.8	-19.4	-19.0	-14.4	-11.5	-2.4	-1.9	2.8	2.7	18.1	25.9	24.7

* Effective June 16, 2005 OPEC replaced its seven-crude basket with one comprised of eleven crudes, one from each member country (weighted according to production and exports to major markets). Effective 1 January and mid of October 2007, Angola's Girassol and Ecuadorian Oriente crudes have been incorporated to become the 12th and 13th crudes comprising the new OPEC Basket. As of Jan. 2009, the basket excludes the Indonesian crude. As of Jan. 2016, the basket price includes the Indonesian crude. As of July 2016, the basket price includes the Gabonese crude. As of Jan. 2017, the basket excludes the Indonesian crude.

Figure - 2 Change in the Price of the OPEC Basket of Crudes, 2016-2017 (\$/bbl)

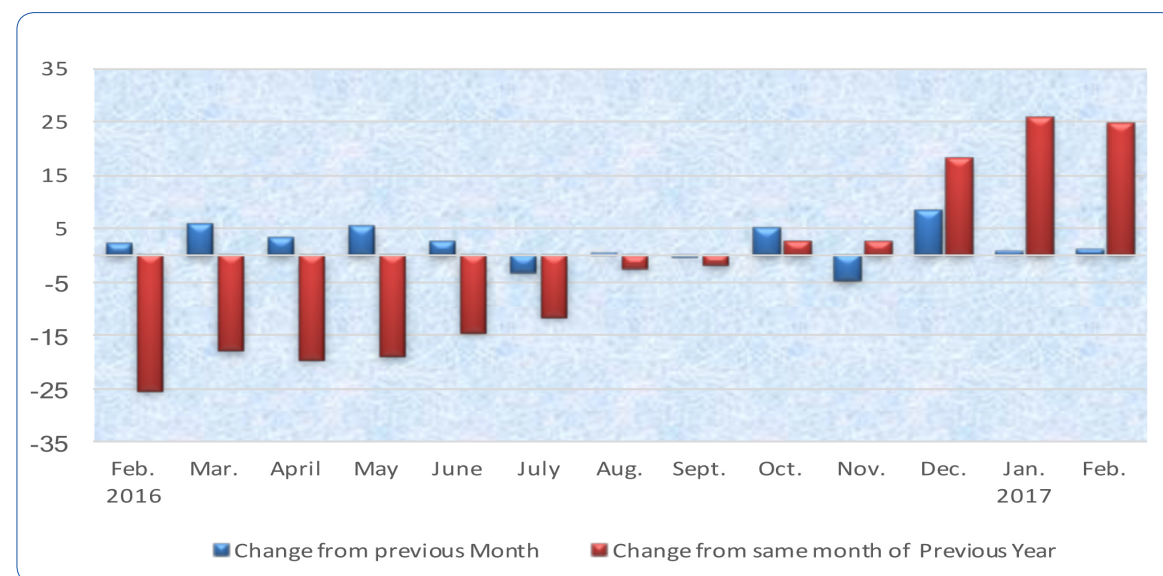


Table (3) in the annex show spot prices for OPEC basket and other crudes for the period 2015-2017.

1-2 Spot Prices of Petroleum Products

- US Gulf

In February 2017, the spot prices of premium gasoline decreased by 3% or \$2.2/bbl comparing with their previous month levels to reach \$70.6/bbl, whereas spot prices of gas oil increased by 1.1% or \$0.7/bbl to reach \$63.2/bbl, and spot prices of fuel oil increased by 0.2% or \$0.1/bbl to reach \$46.9/bbl.

- Rotterdam

The spot prices of premium gasoline increased in February 2017, by 2.6% or \$1.9/bbl comparing with previous month levels to reach \$75.7/bbl, spot prices of gas oil increased by 1.5% or \$1/bbl to reach \$66.1/bbl, whereas spot prices of fuel oil decreased by 1.8% or \$0.9/bbl to reach \$49.7/bbl.

- Mediterranean

The spot prices of premium gasoline increased in February 2017, by 1.9% or \$1.3/bbl comparing with previous month levels to reach \$68.3/bbl, spot prices of gas oil increased by 1.5% or \$1/bbl to reach \$67.5/bbl, whereas spot prices of fuel oil decreased by 3.4% or \$1.8/bbl to reach \$50.4 bbl.

- Singapore

The spot prices of premium gasoline increased in February 2017, by 0.6% or \$0.4/bbl comparing with previous month levels to reach \$69.9/bbl, spot prices of gas oil increased by 2.1% or \$1.4/bbl to reach \$67.3/bbl, whereas spot prices of fuel oil decreased by 0.9% or \$0.5/bbl to reach \$54.6/bbl.

Figure (3) shows the price of Premium gasoline in all four markets from February 2016 to February 2017.

Figure - 3 Monthly Average Spot Prices of Premium Gasoline, 2016-2017 (\$/bbl)

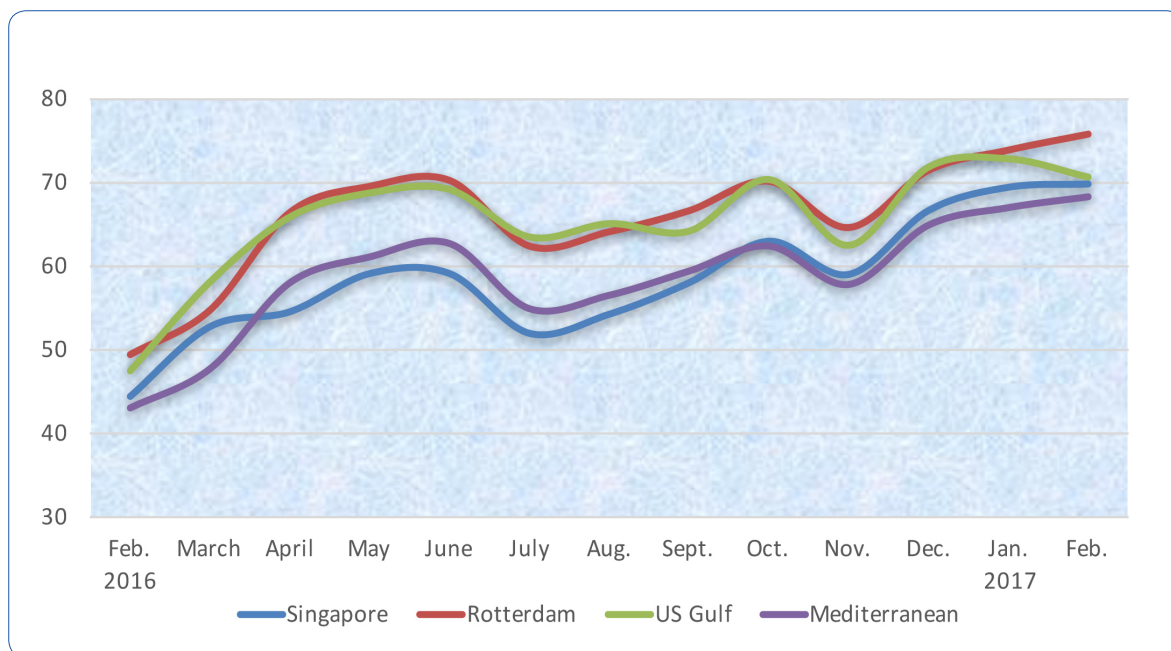


Table (4) in the annex shows the average monthly spot prices of petroleum products, 2015-2017.

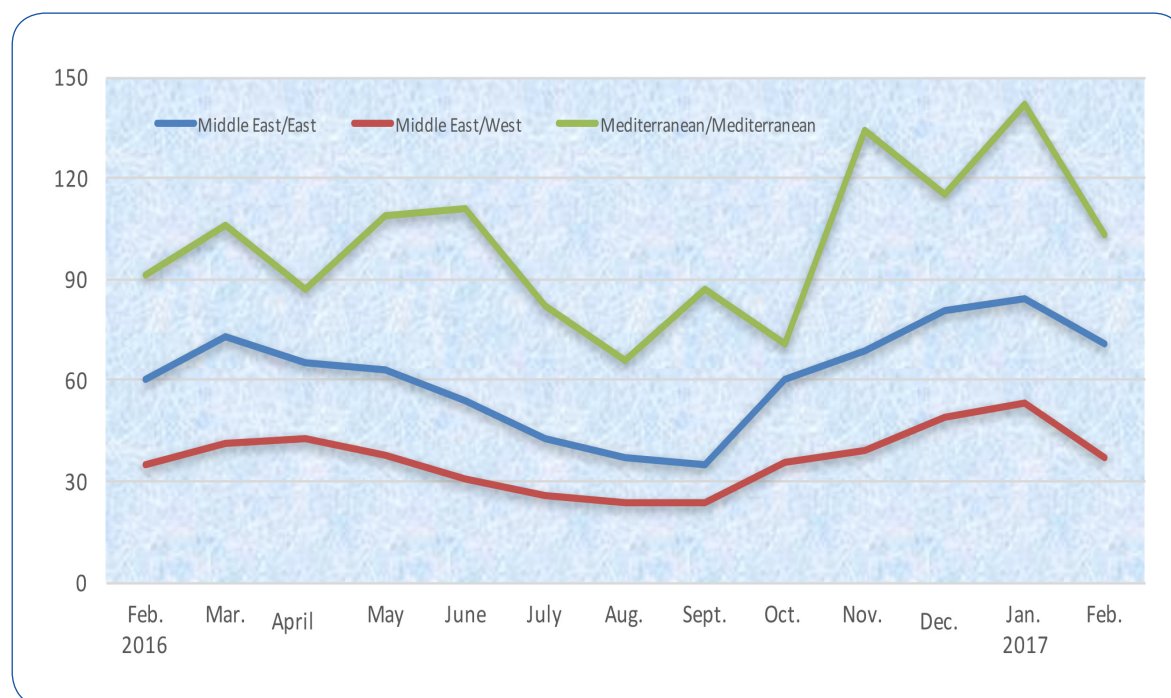
1-3 Spot Tanker Crude Freight Rates

In February 2017, Freight rates for crude oil for tanker size (230-280 thousand deadweight tons (dwt)), leaving Middle Eastern ports to the East, decreased by 13 points or 15.5% comparing with previous month to reach 71 points on the World Scale (WS*), and freight rates for crude oil for tanker size (270-285 thousand deadweight tons (dwt)), leaving Middle Eastern ports to the West, decreased by 16 points or 30.2% comparing with previous month to reach 37 points on the World Scale (WS).

And freight rates for inter - Mediterranean for small to medium sized tankers (80-85 thousand deadweight tons (dwt)), decreased by 39 points or 27.5% comparing with previous month to reach 103 points on the World Scale (WS).

Figure (4) shows the freight rates for crude oil to all three destinations from February 2016 to February 2017.

Figure - 4 Monthly Spot Crude Oil Tanker Freight Rates, 2016 -2017 (World Scale)*



* World Scale is a method for calculating freight prices. One point for the WS means 1% of the standard price of freight in the direction in the WS book, which is published annually by the World Scale Association. The book contains a list of prices in the form of US dollar per ton, called "World Scale 100," for all the major routes in the world.

1-4 Spot Tanker Product Freight Rates

In February 2017, monthly spot Tanker freight rates for petroleum products [for tanker size 30-35 thousand deadweight tons (dwt)], leaving Middle Eastern ports to the East, decreased by 8 points, or 6.5% comparing with previous month to reach 116 points on WS.

Freight rates for Petroleum Products across Mediterranean [for tanker size 30-35 thousand deadweight tons (dwt)], decreased by 36 points, or 19.7% to reach 147 points on WS, and freight rates for petroleum products [for tanker size 30-35 thousand deadweight tons (dwt)], leaving Mediterranean to North-West Europe decreased by 41 points, or 20.7% to reach 157 points on WS.

Figure (5) shows the freight rates for oil products to all three destinations from February 2016 to February 2017.

Figure - 5

Monthly Spot Product Tanker Freight Rates, 2016 -2017

(World Scale)

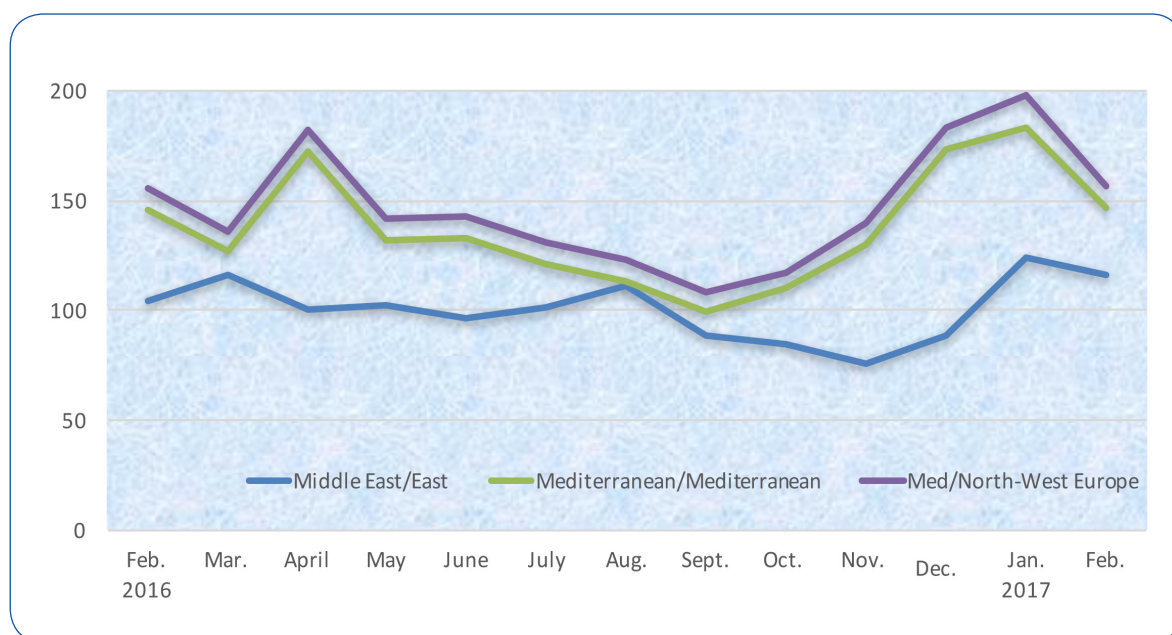


Table (5) and (6) in the annex show crude and products Tankers Freight Rates, 2015-2107.

2. Supply and Demand

Preliminary estimates in February 2017 show an **increase** in **world oil demand** by 1.8% or 1.7 million b/d, comparing with the previous month level to reach 97.9 million b/d, representing an increase of 1.2 million b/d from their last year level.

Demand in **OECD** countries **increased** by 3.2% or 1.5 million b/d comparing with their previous month level to reach 47.8 million b/d, representing an increase of 0.2 million b/d from their last year level. And demand in **Non-OECD** countries **increased** by 0.4% or 0.2 million b/d comparing with their previous month level to reach 50.1 million b/d, representing an increase of 1 million b/d from their last year level.

On the supply side, preliminary estimates show that world oil supplies for February 2017 decreased by 0.2% or 0.2 million b/d, comparing with the previous month to reach 98.4 million b/d, representing an increase of 1 million b/d from their last year level.

In February 2017, **OPEC** crude oil and NGLs/condensates total supplies **decreased** by 0.8% or 0.3 million b/d comparing with the previous month level to reach last year level of 38.5 million b/d. Preliminary estimates show that **Non-OPEC** supplies **increased** by 0.3% or 0.2 million b/d comparing with the previous month level to reach 60 million b/d, a level that is 1.1 million b/d higher than last year.

Preliminary estimates of the supply and demand for February 2017 reveal a surplus of 0.5 million b/d, compared to a surplus of 2.4 million b/d in January 2017 and a surplus of 0.7 million b/d in February 2016, as shown in [table \(2\)](#) and [figure \(6\)](#):

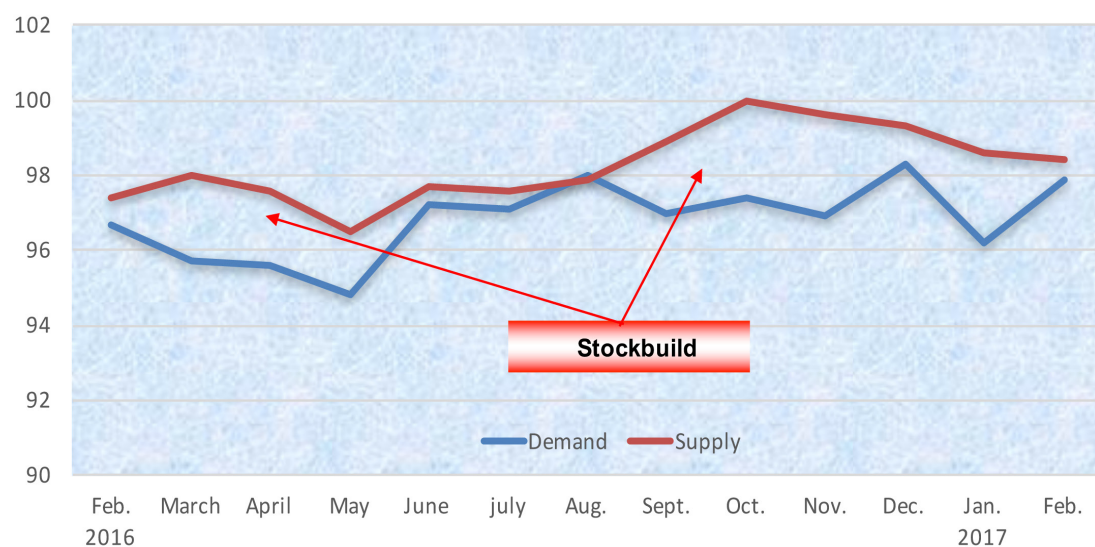
	<i>February 2017</i>	<i>January 2017</i>	<i>Change from January 2017</i>	<i>February 2016</i>	<i>Change from February 2016</i>
<i>OECD Demand</i>	47.8	46.3	1.5	47.6	0.2
<i>Rest of the World</i>	50.1	49.9	0.2	49.1	1.0
<i>World Demand</i>	97.9	96.2	1.7	96.7	1.2
<i>OPEC Supply:</i>	<u>38.5</u>	<u>38.8</u>	<u>-0.3</u>	<u>38.5</u>	<u>0.0</u>
<i>Crude Oil</i>	31.7	32.0	-0.3	32.0	-0.3
<i>NGL's & Cond.</i>	6.8	6.8	0.0	6.5	0.3
<i>Non-Opec Supply</i>	57.5	57.3	0.2	56.5	1.0
<i>Processing Gain</i>	2.5	2.5	0.0	2.3	0.2
<i>World Supply</i>	98.4	98.6	-0.2	97.4	1.0
<i>Balance</i>	0.5	1.0		0.7	

Source: Energy Intelligence Briefing March 8, 2017.

Tables (7) and (8) in the annex show world oil demand and supply for the period 2014-2016.

Figure - 6 World Supply and Demand

(Million b/d)



US tight oil production

In February 2017, US tight oil production increased by 41 thousand b/d or 0.9% comparing with the previous month level to reach 4.775 million b/d, representing a decrease of 341 thousand b/d from their last year level. The US oil rig count increased by 43 rig comparing with the previous month level to reach 541 rig, a level that is 189 rig higher than last year, as shown in [table \(3\)](#) and [figure \(7\)](#):

Table 3 US* tight oil production

(Million b/d)

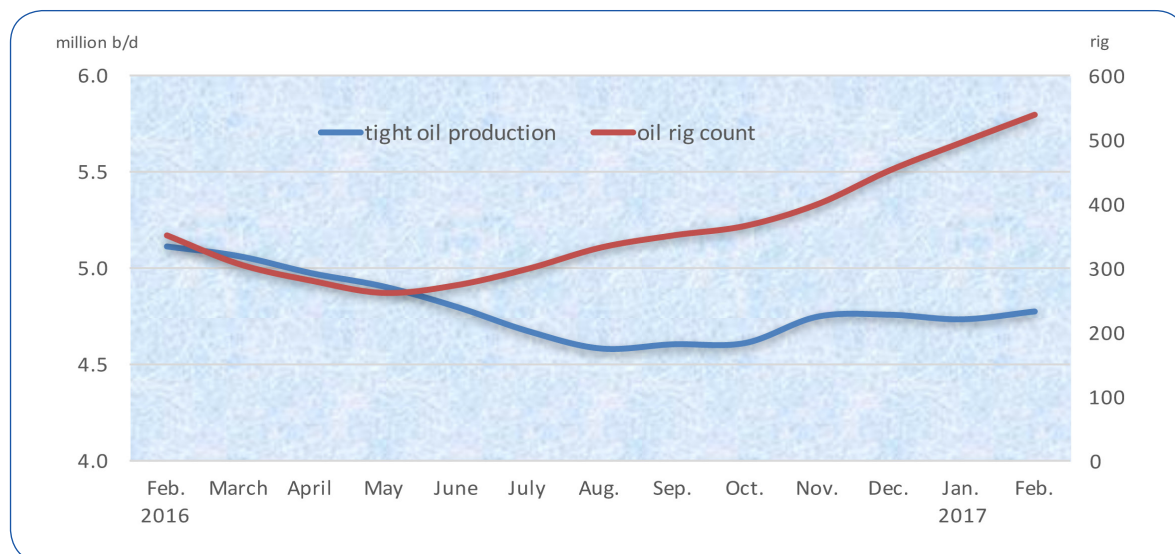
	February 2017	January 2017	Change from January 2017	February 2016	Change from February 2016
tight oil production	4.775	4.734	0.041	5.116	-0.341
Oil rig count (rig)	541	498	43	352	189

Source: EIA, Drilling Productivity Report for key tight oil and shale gas regions, March 2017.

* focusing on the seven most prolific areas, which are located in the Lower 48 states. These seven regions accounted for 92% of domestic oil production growth during 2011-2014 (Bakken, Eagle Ford, Haynesville, Marcellus, Niobrara, Permian, Utica)

Figure - 7 US tight oil production and oil rig comt

(Million b/d)



3.Oil Trade

USA

In January 2017, US crude oil imports increased by 587 thousand b/d or 7.5% comparing with the previous month level to reach 8.4 million b/d, and US oil products imports increased by 287 thousand b/d or 14.9% to reach about 2.2 million b/d.

On the export side, US crude oil exports increased by 56 thousand b/d or 9.5% comparing with the previous month level to reach about 645 thousand b/d, whereas US products exports decreased by 369 thousand b/d or 7% to reach 4.9 million b/d. As a result, US net oil imports in January 2017 were 1.2 million b/d or nearly 30.6% higher than the previous month, averaging 5.1 million b/d.

Canada remained the main supplier of crude oil to the US with 43% of total US crude oil imports during the month, followed by Saudi Arabia with 13%, then Venezuela with 10%. OPEC Member Countries supplied 42% of total US crude oil imports.

Japan

In January 2017, Japan's crude oil imports decreased by 153 thousand b/d or 4.4% comparing with the previous month to reach 3.5 million b/d. Whereas Japan oil products imports increased by 36 thousand b/d or 5.8% comparing with the previous month to reach 658 thousand b/d.

On the export side, Japan's oil products exports increased in January 2017, by 26 thousand b/d or 4.7% comparing with the previous month, averaging 583 thousand b/d. As a result, Japan's net oil imports in January 2017 decreased by 143 thousand b/d or 3.9% to reach 3.5 million b/d.

Saudi Arabia was the big supplier of crude oil to Japan with a share of 42% of total Japan crude oil imports, followed by UAE with 22% and Kuwait with 8% of total Japan crude oil imports.

China

In January 2017, China's crude oil imports decreased by 554 thousand b/d or 6% to reach 8 million b/d, whereas China's oil products imports remained stable at the same previous month level of 1.2 million b/d.

On the export side, China's crude oil exports reached 114 thousand b/d. And China's oil products exports decreased by 631 thousand b/d or 43.8% to reach 810 thousand b/d, the lowest level since July 2015. As a result, China's net oil imports reached 8.3 million b/d, representing an increase of 0.5% comparing with the previous month level.

Saudi Arabia was the big supplier of crude oil to China with 15% of total China's crude oil imports during the month, followed by Angola with 15%, and Russia with 14%.

Table (4) shows changes in crude and oil products net imports/(exports) in January 2017 versus the previous month:

Table 4 USA, Japan and China Crude and Product Net Imports / Exports (Million bbl/d)

	Crude Oil			oil Products		
	January 2017	December 2016	Change from December 2016	January 2017	December 2016	Change from December 2016
USA	7.738	7.207	0.531	-2.668	-3.324	-0.656
Japan	3.460	3.613	-0.153	0.075	0.065	0.010
China	7.922	8.59	-0.587	0.404	-0.227	-0.631

Source: OPEC Monthly Oil Market Report, various issues 2017.

4. Oil Inventories

In January 2017, **OECD commercial oil inventories** increased by 48 million barrels to reach 3030 million barrels – a level that is 8 million barrels higher than a year ago. It is worth mentioning that during the month, **commercial crude inventories in OECD** increased by 32 million barrels to reach 1208 million barrels, and **commercial oil products inventories** increased by 17 million barrels to reach 1823 million barrels.

Commercial oil inventories in Americas increased by 24 million barrels to reach 1624 million barrels, of which 668 million barrels of crude and 956 million barrels of oil products. **Commercial oil Inventories in Europe** increased by 23

million barrels to reach 991 million barrels, of which 352 million barrels of crude and 639 million barrels of oil products. **Commercial oil inventories in Pacific** increased by 2 million barrels to reach 416 million barrels, of which 188 million barrels of crude and 228 million barrels of oil products.

In the rest of the world, commercial oil inventories increased by 24 million barrel to reach 3110 million barrels, whereas the **Inventories at sea** decreased by 18 million barrels to reach 1232 million barrels.

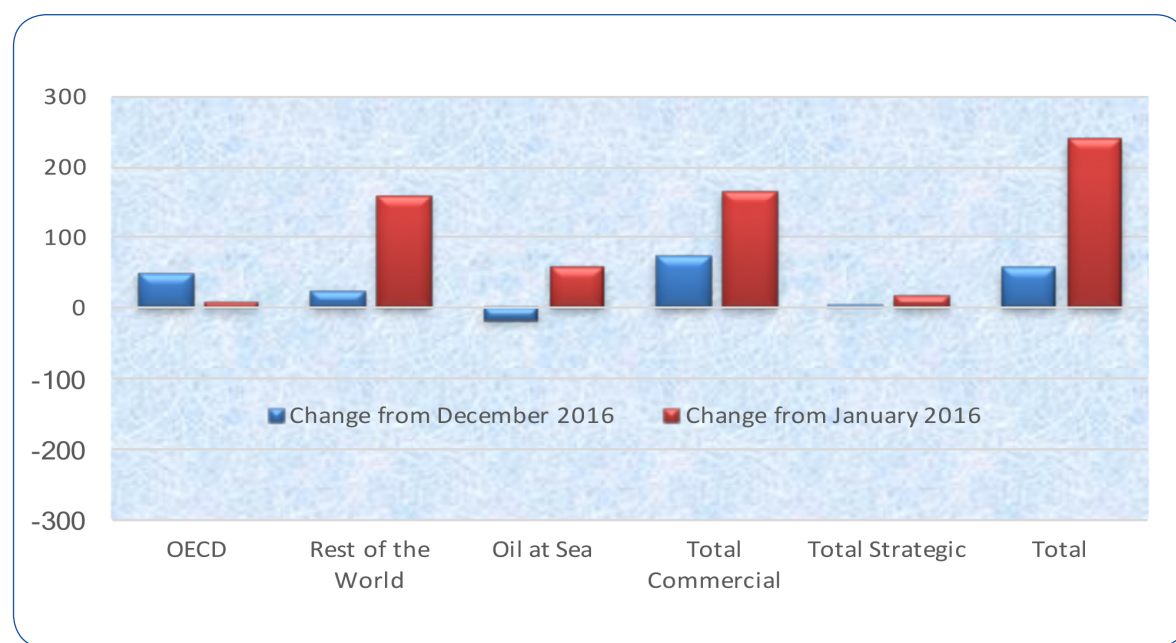
As a result, **Total Commercial oil inventories** in January 2017 increased by 72 million barrels comparing with the previous month to reach 6140 million barrels – a level that is 165 million barrels higher than a year ago.

Strategic inventories in OECD-34, South Africa and China increased by 1 million barrels comparing with the previous month to reach 1880 million barrels – a level that is 17 million barrels higher than a year ago.

Total world inventories, at the end of January 2017 were at 9252 million barrels, representing an increase of 56 million barrels comparing with the previous month, and an increase of 239 million barrels comparing with the same month a year ago.

Table (9) in the annex and figure (8) show the changes in global inventories prevailing at the end of January 2017.

Figure - 8 Changes in Global Inventories at the End of January 2017 (Million bbl)



II. The Natural Gas Market

1- Spot and Future Prices of Natural Gas in US market

The monthly average of spot natural gas price at the Henry Hub in February 2017 decreased by \$0.5/million BTU comparing with the previous month to reach \$2.85/ million BTU.

The comparison, shown in table (5), between natural gas prices and the WTI crude reveal differential of \$6.4/ million BTU in favor of WTI crude.

Table 5 Henry Hub Natural Gas, WTI Crude Average, and Low Sulfur Fuel Oil Spot Prices, 2016-2017 (Million BTU¹)

	Feb. 2016	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb. 2017
Natural Gas ⁽²⁾	2.0	1.7	1.9	1.9	2.6	2.8	2.8	2.8	3.0	2.6	3.6	3.6	2.8
WTI Crude ⁽³⁾	5.2	6.5	7.1	8.1	8.4	7.7	7.7	7.8	8.6	7.9	9.0	9.0	9.2

1. British Thermal Unit.

2. Henry Hub spot price.

3. WTI – West Texas Intermediate Crude oil price, in dollars per barrel, is converted to dollar per million BTU using a conversion factor of 5.80 million BTU/bbl.

Source: <http://www.eia.gov/dnav/ng/hist/rngwhhdM.htm>

2- LNG Markets in North East Asia

The following paragraphs review the developments in LNG Markets in North East Asia, concerning prices and Japanese, Chinese and South Korean imports of LNG and their sources, and Spot LNG Exporters Netbacks.

2.1. LNG Prices

In January 2017, the price of Japanese LNG imports increased by \$0.4/ million BTU comparing with the previous month to reach \$7.5/ million BTU, the price of Korean LNG imports increased by \$0.7/million BTU comparing with the previous month to reach \$7.9/ million BTU, whereas the price of Chinese LNG imports decreased by \$0.1/million BTU comparing with the previous month to reach \$7/ million BTU.

2.2. LNG Imports

Total Japanese, Korean and Chinese LNG imports from various sources, increased by 4.7% or 724 thousand tons from the previous month level to reach 16.032 million tons.

Table (6) shows the prices and quantities of LNG imported by Japan, South Korea, and China for the period 2015-2017.

Table6

LNG Prices and Imports: Korea, Japan, and China 2015-2017

	Imports (thousand tons)				Average Import Price (\$/million BTU)		
	Japan	Korea	China	Total	Japan	Korea	China
2015	84850	33141	19606	137597	10.2	10.6	8.6
2016	82767	33257	26017	142041	6.9	6.9	6.5
January 2016	7245	3338	2464	13047	7.9	8.0	7.3
February	7370	2998	1801	12169	8.0	7.8	6.9
March	7959	3282	1702	12943	7.2	7.3	6.6
April	6382	2177	1861	10420	6.4	6.6	6.6
May	5455	2218	1425	9098	5.9	6.0	6.3
June	6193	2484	2146	10823	6.0	5.7	6.0
July	6460	1918	1604	9982	6.3	5.9	5.4
August	7656	1971	2257	11884	6.7	6.3	6.0
September	6671	2236	2527	11434	7.1	6.8	6.1
October	6282	3187	1838	11307	7.2	7.3	6.7
November	7545	3422	2659	13626	7.1	7.5	6.8
December	7549	4026	3733	15308	7.1	7.3	7.1
January 2017	8302	4294	3436	16032	7.5	7.9	7.0

Source: World Gas Intelligence various issues.

2.3. Sources of LNG imports

Australia was the big supplier of LNG to Japan, Korea and China with 3.941 million tons or 24.6% of total Japan, Korea and China LNG imports in January 2017, followed by Qatar with 22.7% and Malaysia with 14.9%.

The Arab countries LNG exports to Japan, Korea and China totaled 4.944 million tons - a share 30.8% of total Japanese, Korean and Chinese LNG Imports during the same month.

2.4. LNG Exporter Netbacks

With respect to the Netbacks at North East Asia markets, Russia ranked first with \$7.64/million BTU at the end of January 2017, followed by Indonesia with \$7.54/million BTU then Malaysia with \$7.49/million BTU. And LNG Qatar's netback reached \$7.31/million BTU, and LNG Algeria's netback reached \$6.96/million BTU.

Table (7) shows LNG exporter main countries to Japan, South Korea, and China and their netbacks at the end of January 2017.

Table7 LNG Exporter Main Countries To Japan, Korea and China, And Their Netbacks At The End Of January 2017

	Imports (thousand tons)				Spot LNG Netbacks at NE Asia Markets (\$/million BTU)
	Japan	Korea	China	Total	
Total Imports, of which:	8302	4294	3436	16023	
Australia	2014	807	1120	3941	7.48
Qatar	1171	1402	1067	3640	7.31
Malaysia	1656	226	513	2395	7.49
Indonesia	567	244	187	998	7.54
Russia	670	255	64	468	7.64

* Export Revenues minus transportation costs, and royalty fees.
Source: World Gas Intelligence various issues.

Tables Annex

