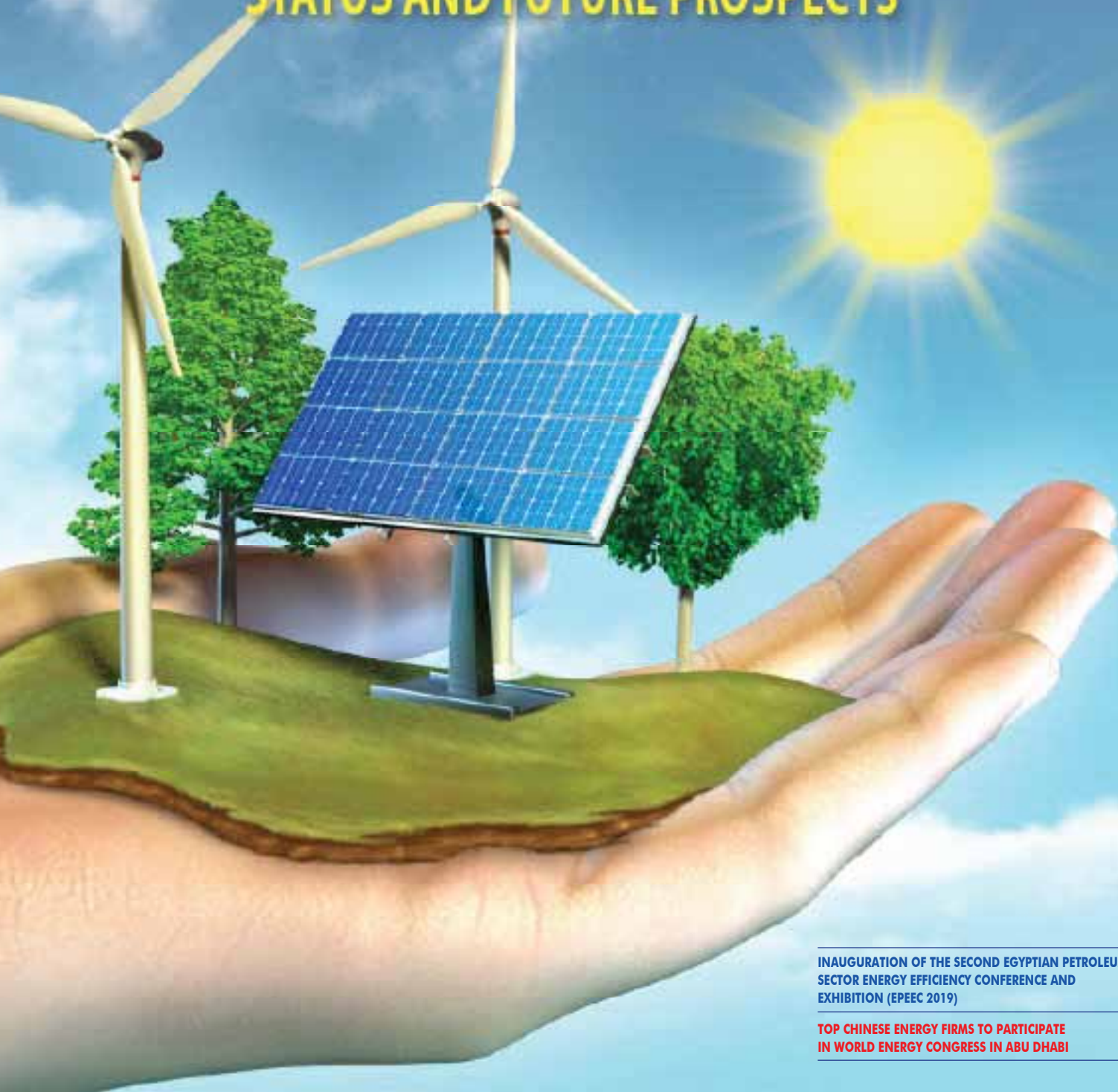


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## RENEWABLES IN ARAB COUNTRIES: CURRENT STATUS AND FUTURE PROSPECTS

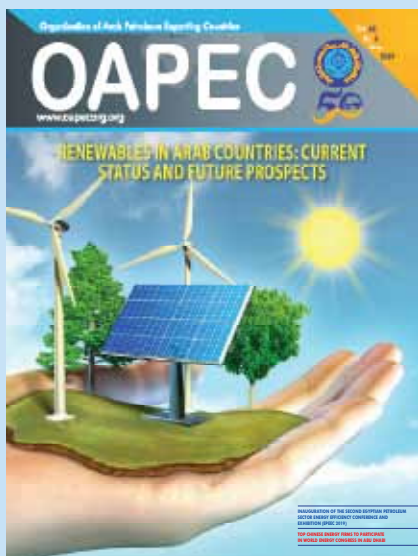


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# The Cover



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## 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.



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#### • OPAEC-Joint Ventures:

OPAEC 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.

#### OPAEC'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 OPAEC 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 OPAEC's establishment agreement, as well as disputes arising between two or more member countries concerning petroleum operations.



## RENEWABLES IN ARAB COUNTRIES: CURRENT STATUS AND FUTURE PROSPECTS

In recent years, energy consumption rates have risen significantly in the domestic markets of most Arab countries, especially the GCC, in comparison to other parts of the world. This is especially true for petroleum products, natural gas, and electrical power. A number of factors have driven the rise in consumption including: population growth; economic growth; and domestic prices for end-consumer that are not compatible with the actual costs. These factors have led to doubling energy consumption in these countries between the years 2000-2018, from 7.6 million boe/d in the year 2000 to 14.7 million boe/d in 2018 against a rise of around 40% around the world. This (i.e. meeting the high domestic demand that is eligible to rise in the future if the same current consumption behaviour continued) has become a burden for these countries.

Although primary energy resources (oil and natural gas) are available in the Arab countries in large quantities (OAPEC countries have about 705 billion barrels or 48% of the world's total proven crude reserves; 24.7million b/d of crude output in 2018 or 28% of the world's output; and 53trillion cubic metres of proven gas reserves in 2018, or

26.4% of the world's total), most of the Arab countries' economies' reliance on petroleum revenues as the main source of income calls for developing special policies on improving the efficiency of the use of these resources through demand management mechanisms (including the use of renewables as complementary resources for conventional resources) in order to meet growing domestic demand for energy.

Most Arab countries are working on exploiting available renewable resources and adding them to their energy mix to contribute to realizing national goals on securing and diversifying energy resources, as well as, supporting their petroleum resources to diversify sources of income by liberating more oil and gas for exportation.

The Arab countries have huge renewable resources, especially solar and wind. Throughout 2017, Egypt topped Arab countries in terms of the total combined power from renewables by 24.2%, followed by Morocco 16.7, Iraq 15.1%, Sudan 13.9%, and Syria 10.3%. Combined power from wind increased in Arab countries at a rate of 5.7% to reach 2295MW in 2017 compared to 2165MW in 2016 following

the operating of a number of wind-powered projects in a number of Arab countries.

During 2017 and in the beginning of 2018, Arab countries witnessed significant developments on the renewables front. The UAE has completed the second largest solar power plant with a capacity of 200MW, while Jordan has established the world's largest project to provide electricity to refugees' camps at a capacity of 12.9MW by the end of 2017.

Many other Arab countries announced new projects: KSA launched a bid on the generation of 300MW from photoelectric solar power with plans (announced in the beginning of 2018) to launch a new bid to generate 3.3GW of photoelectric solar power. Egypt has inaugurated a photoelectric solar power in Binbinan village, Aswan Province, across 8434 acres. The project aims at generating 1465 MW and work has already started in March 2018. It will cost about \$2 billion and has recently won the best project award for the year 2019 from the World Bank. Kuwait has also launched the first stage of Al Shigaya Renewables Complex at a total capacity of 70MW that is expected to increase to 244 GW/H annually.

Sudan is among Arab pioneers in generating electricity through biomass at a combined power of 190MW, followed by Qatar 38MW, Syria 7MW, Jordan 4MW, Lebanon 2MW, and the UAE 1 MW.

While observing the renewables industry's developments in the Arab countries, OAPEC Secretariat General highly appreciates the positive outcomes in this regard. The Organisation reiterates that renewables are complementary- not alternative- for conventional fossil energy that will continue to play its role as the main and most important energy resource of the globally consumed energy mix for decades to come according to studies and forecasts by energy and oil centres.

As for most Arab oil and gas producing and exporting countries, getting involved more heavily in the renewables industry goes beyond its environmental rewards; it will allow focusing on exporting larger quantities of oil and gas as crude rather than using them domestically to generate electricity. As for Arab energy importing countries, getting involved in renewables would help them meet a large proportion of their domestic energy needs, as well as, reduce imports and diversify their energy resources.



## NOGA AND ENI SIGN EXPLORATION AND PRODUCTION SHARING AGREEMENT FOR BLOCK 1 OFFSHORE BAHRAIN



Further to a joint study conducted by Eni in 2016 and a Memorandum of Understanding signed between Eni and the National Oil and Gas Authority of the Kingdom of Bahrain on 13 January 2019, an Exploration and Production Sharing Agreement (EPSA) has been signed between NOGA and Eni to pursue petroleum exploration and production activities in the Kingdom of Bahrain's Offshore Block 1 pending final legislative approvals.

The signing took place in Milan, Italy, on 1 May 2019 by HE Shaikh Mohammed bin Khalifa Al Khalifa, Bahrain's Minister of Oil and Eni's CEO Mr. Claudio Descalzi, in the presence of a number of officials from the National Oil and Gas Authority, Tatweer Petroleum and Eni.

Commenting on the signing, the Minister stated that Block 1 is an offshore area of over 2,800 km<sup>2</sup>, situated in the northern territorial waters of the Kingdom of Bahrain with water

depth ranging from 10m up to 70m and noted that this partnership with Eni, a major integrated energy company, is an important step towards utilizing the Kingdom's offshore natural resources and added that the EPSA enables Eni to explore, appraise, develop, produce and transport petroleum within Offshore Block 1.

HE Al Khalifa affirmed that the National Oil and Gas Authority pays great attention to strengthening relations and enhancing cooperation with all international oil companies and providing all means of supporting to support the Kingdom's energy needs to ensure the continuity of the economy growth and to meet the Kingdom of Bahrain's vision 2030.

It is worth noting that Eni is one of the major integrated energy companies operating in 70 countries of the world with various projects.

## OPEC JOINT MINISTERIAL COMMITTEE MONITORING PRODUCTION REDUCTION AGREEMENT: OIL MARKET BALANCE REMAINS OUR FOCUS



The Joint Ministerial Monitoring Committee to Monitor Production Reduction Agreement (JMMC) held its 14th meeting on 19 May 2019, in Jeddah, the Kingdom of Saudi Arabia. The meeting was headed by KSA's Minister of Energy, Industry and Mineral Resources HE Eng. Khalid bin Abdulaziz Al Falih and Russia's Energy Minister HE Alexander Novak, and the membership of their counterparts from Iraq, UAE, Kuwait, Algeria, Nigeria, Kazakhstan, as well as the presence of representatives of Oman, Bahrain, Venezuela, Libya, South Sudan, Azerbaijan and Brunei.

In his inaugural speech, HE Al Falih stressed that the common objective of the OPEC+ Group is to maintain the stability of world oil markets to benefit both consumers and producers with the significant progress achieved by the Group despite serious challenges it faced. He called on the world to condemn the destructive act that took place in the Kingdom before this meeting, even though they do not affect the oil supply, as these sabotage acts affect the energy supply to the world and expose the world economy to additional risks.

Following its meeting, the Joint Ministerial Committee confirmed its commitment to achieving market balance and stabilizing it on

a sustainable basis.

Its statement expressed satisfaction with the important role played by the "Declaration of Cooperation" in the recovery of the oil market witnessed in the first quarter of 2019 compared to the last quarter of 2018 and supported by the high level of commitment to voluntary production adjustments by the participating countries. The rate of compliance in April has risen to 168%, while the average rate of compliance was 120% since January 2019.

The JMMC requested that the Joint Technical Committee and the OPEC Secretariat continue to monitor and analyze oil market developments and, particularly, oil inventory projections in the coming weeks with a view to the next JMMC meeting making a recommendation to the OPEC Conference and OPEC and non-OPEC Ministerial Meeting, which are scheduled to meet in June 2019, regarding appropriate actions on the part of participating countries for the second half of 2019.

The Joint Ministerial Committee expressed great appreciation of the Kingdom of Saudi Arabia for the excellent logistical arrangements and good hospitality accorded to participation delegations.



## CONSULTATION CONTRACT ON KIRKUK REFINERY DEVELOPMENT SIGNED

Iraq's Deputy PM for Energy Affairs and Oil Minister HE Thamer Al Ghadban asserted the Ministry's keenness on accelerating the pace of refinery development projects to meet domestic needs and improve petroleum products in line with international standards. The minister's statements came at the signing ceremony of the investment contract of Kirkuk refinery's hydrogenation and isomerization unit and improving its gasoline production with a processing capacity of 12000 b/d, in addition to, establishing an LNG unit with a capacity of 160 tons/d.

HE Al Ghadban said this contract will produce and make available 1.600 million litres/d of improved gasoline 95 formula to cover a large proportion of Kirkuk and neighbouring provinces' needs. This applies to other refineries across Iraq.

The Ministry's Undersecretary for Refining Affairs HE Hamed Younis said the contract, signed between Northern Refineries' Co and ABC, is worth about \$400 million to be executed in 24 months. He said this project is part of the Ministry's plans to encourage domestic investment to contribute in the development of the refining sector.



## QATAR PETROLEUM AWARDS FEED CONTRACT FOR THE NORTH FIELD EXPANSION PROJECT TO MCDERMOTT



Qatar Petroleum has awarded the FEED (Front End Engineering Design) contract for the North Field Expansion Project's offshore pipelines and topsides facilities. The scope of this FEED, which was awarded to McDermott Middle East Inc., includes engineering design for eight unmanned wellhead platform topsides, four 38" trunk lines and four 28" intrafield lines, and is expected to take 12 months to complete.

HE Eng. Saad Sherida Al Kaabi, Qatar's Minister of State for Energy Affairs, the President & CEO of Qatar Petroleum, commented on the award and said: "The offshore topsides and pipelines are an important component of the North Field Expansion Project's implementation. We are pleased to have McDermott take part in this important effort."

He added: "This award comes on the heels of a series of announcements for other components of the project that are all important milestones towards delivering our strategy of increasing Qatar's LNG production capacity from 77 to 110 million tons per annum, which is progressing well and according to plan on all fronts."

Qatargas is entrusted with executing this mega-project on behalf of Qatar Petroleum.



## INAUGURATION OF THE SECOND EGYPTIAN PETROLEUM SECTOR ENERGY EFFICIENCY CONFERENCE AND EXHIBITION (EPEEC 2019)

HE Eng. Tarek El Molla, Egypt's Minister of Petroleum and Mineral Resources, inaugurated the Second Egyptian Petroleum Sector Energy Efficiency Conference and Exhibition (EPEEC 2019), held on 22- 23 April under the slogan "From Success to Sustainability", with the participation of many Egyptian and international companies, representatives of more than 100 Petroleum Sector's companies, major organizations and international financial institutions, foremost of which are EU and the European Bank for Reconstruction and Development, in addition to the International Finance Corporation (IFC) of the World Bank, United Nations Industrial Development Organization (UNIDO) and the Japan International Cooperation Agency (JICA). The conference aimed at reviewing the latest technologies and the international mechanisms in energy efficiency, in addition to exchanging experiences and views during two-day discussion sessions. The accompanying exhibition included 19 pavilions for participating companies.

In his inaugural speech, HE Eng. El Molla asserted that, over the last two years, the Petroleum Sector adopted the implementation of an integrated strategy that bolsters the objectives of Egypt's 2030 vision, in the forefront of which: achieving sustainable development. The strategy aims at increasing the sector's role in the comprehensive development process and maximizing the utilization of Egypt's natural resources and its assets sustainably, in addition to increasing its revenues.

El Molla added that in line with the petroleum sector's belief in the significance of improving energy efficiency, a program has been allocated within the project on the modernization of the petroleum sector to achieve positive results within two years. The most important result was achieving energy saving of about L.E 350 million/year through applying rationalization measures in 13 petroleum companies. He also



highlighted the completion of studying the improvement of energy efficiency, as well as the modernization of production units at Alexandria petroleum refinery. An institutional system for energy efficiency was established, including energy efficiency departments in the Ministry, EGPC and the holding companies. These departments are, currently, being established at all the companies in the Sector. Also, work is done on raising awareness and boosting the workers' abilities in energy efficiency through holding workshops and organizing seminars in cooperation with international institutions and companies.



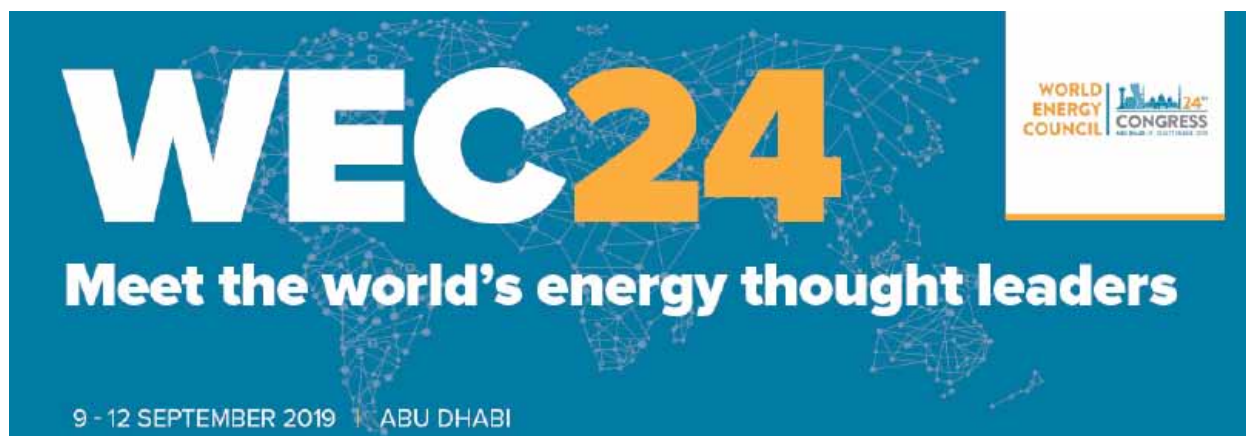


## NEW GAS FIELD DISCOVERY IN ALGERIA

Algeria's Energy Minister HE Mohammed Erqab announced the discovery of a new gas field in Tendouf province, southern west Algeria, across an area of 140km<sup>2</sup>. He said the discovery is an important historic moment for his country's national economy being the first in this province. Promising results came out of the field tests. Sonatrach will carry out more appraisals on the field's production capacity before deciding on a date to start production.



AFP



## TOP CHINESE ENERGY FIRMS TO PARTICIPATE IN WORLD ENERGY CONGRESS IN ABU DHABI

**Top Chinese energy officials have underlined the importance of the 24<sup>th</sup> World Energy Congress (24<sup>th</sup> WEC) 2019, to be hosted in Abu Dhabi on 9-12 September 2019.**

The Chinese officials made the statements during their meeting with a visiting UAE delegation, led by HE Dr Matar Hamed Al Neyadi, Under-Secretary of the Ministry of Energy and Industry, Chairman of the Congress's Organising Committee, and UAE's representative at OAPEC Executive Bureau.

The UAE delegation met with a number of top Chinese energy officials who underscored their interest in participating in the event.

"The event is a valuable opportunity to accelerate cooperation between the Chinese energy firms and their international counterparts," said Yang Kun, the Executive President of China Electricity Council, adding that the Congress will be a significant platform to enhance awareness about the Belt and Road Initiative.

"The UAE has robust strategic relations with China, a country that serves as the meeting point between the East and West," said Al Neyadi, adding that the UAE has been among the first countries that positively responded to the B&R initiative in addition to being a founding member of the Asian Infrastructure Investment Bank (AIIB).

It is worth mentioning that the WEC is the world's most influential Energy event covering all aspects of the energy agenda.





## 34<sup>TH</sup> INTERNATIONAL SCIENTIFIC & EXPERT MEETING OF GAS PROFESSIONALS



The 34<sup>th</sup> International Scientific and Expert Meeting of Gas Professionals with an extensive international exhibition of gas equipment and technologies was held in Opatija, Croatia, from 8 – 10 May 2019 under the patronage of His Excellency the President of Croatia. The event was organized by the Croatian Gas Centre Ltd and the Croatian Gas Association (CGA), member of the International Gas Union (IGU). It was inaugurated by the Croatian Environment and Energy Minister.

OAPEC Secretariat General was represented by Eng. Wael Abdul Moati, Gas Industries' Expert. He presented a paper on the "Current and Future Role of the Arabian Region in Meeting Europe's Gas Needs" explaining the industry's development in the Arab countries



and their role in meeting European gas needs.

Various technical presentations were given at the meeting while the meeting sessions discussed the current status and future prospects of the gas industry in the EU and the world. Topics discussed also covered: using gas with renewables; smart technology in the gas sector; creativity; technology transfer; and transportation. The accompanying exhibition consisted of 45 stands from 20 countries.

Organization of Arab Petroleum Exporting Countries

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## Petroleum Developments in the World Market and Member Countries\*

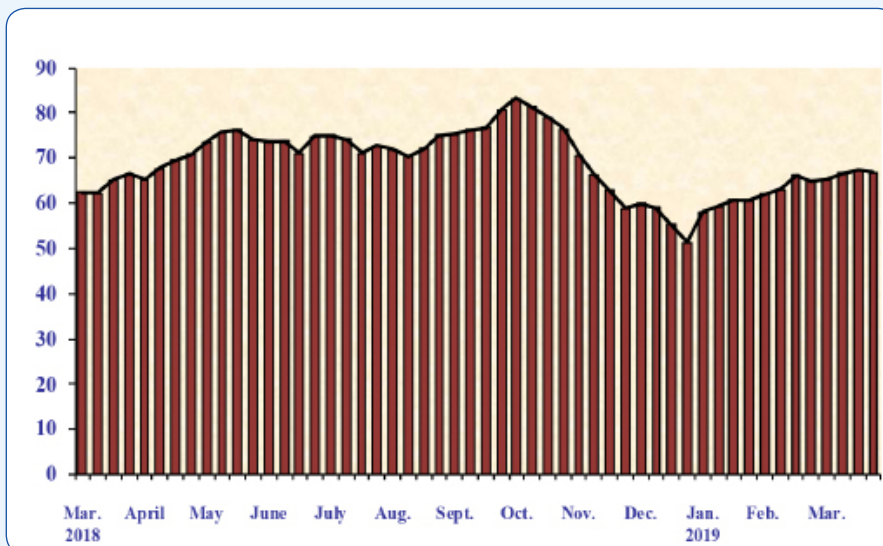
### 1. Oil Market

#### 1. Prices

##### 1-1 Crude Oil Prices

Weekly average price of OPEC basket increased during the first week of March 2019, to reach \$65.1/bbl, and continued to raise thereafter to reach its highest level of \$67.2/bbl during the third week, then declined to reach \$66.8/bbl during the fourth week

**Figure - 1** Weekly Average Spot Price of the OPEC Basket of Crudes 2018 - 2019 (\$/bbl)



shown in **figure 1**:

On monthly basis, OPEC Reference Basket in March 2019, averaged \$66.4/bbl, representing an increase of \$2.6/bbl or 4.1% comparing with previous month and the same month of previous year. Lower supply from (OPEC+) Countries and signs of high conformity to the Declaration of Cooperation, as well as strong crude demand, especially from Asia Pacific, were major stimulus for the increase in oil prices during the month of March 2019.

#### Key Indicators

- In March 2019, **OPEC Reference Basket increased** by 4.1% or \$2.6/bbl from the previous month level to stand at \$66.4/bbl.
- **World oil demand** in March 2019, **decreased** by 1.3% or 1.3 million b/d from the previous month level to reach 99.9 million b/d.
- **World oil supplies** in March 2019, **decreased** by 0.7% or 0.7 million b/d from the previous month level to reach 99.5 million b/d.
- **US tight oil production** in March 2019, **increased** by 3.5% to reach about 8.3 million b/d, whereas **US oil rig count decreased** by 22 rig from the previous month level to stand at 915 rig.
- **US crude oil imports** in February 2019, **decreased** by 12.6% from the previous month level to reach 6.7 million b/d, whereas **US product imports increased** by 6.1% to reach about 2.2 million b/d.
- **OECD commercial inventories** in March 2019 **decreased** by 26 million barrels from the previous month level to reach 2849 million barrels, whereas **Strategic inventories** in OECD-34, South Africa and China **increased** by 1 million barrels from the previous month level to reach 1833 million barrels.
- **The average spot price of natural gas** at the Henry Hub **increased** in March 2019 to reach \$2.95/million BTU.
- **The Price of Japanese LNG imports** in February 2019 **decreased** by \$0.19/m BTU to reach \$11.03/m BTU, whereas the **Price of Korean LNG increased** by \$0.53/m BTU to reach 11.78/m BTU, and the **Price of Chinese LNG imports increased** by \$2.1/m BTU to reach \$10.61/m BTU.
- **Arab LNG exports to Japan, Korea and China** were about 4.567 million tons in February 2019 (a share of 29.5% of total imports).

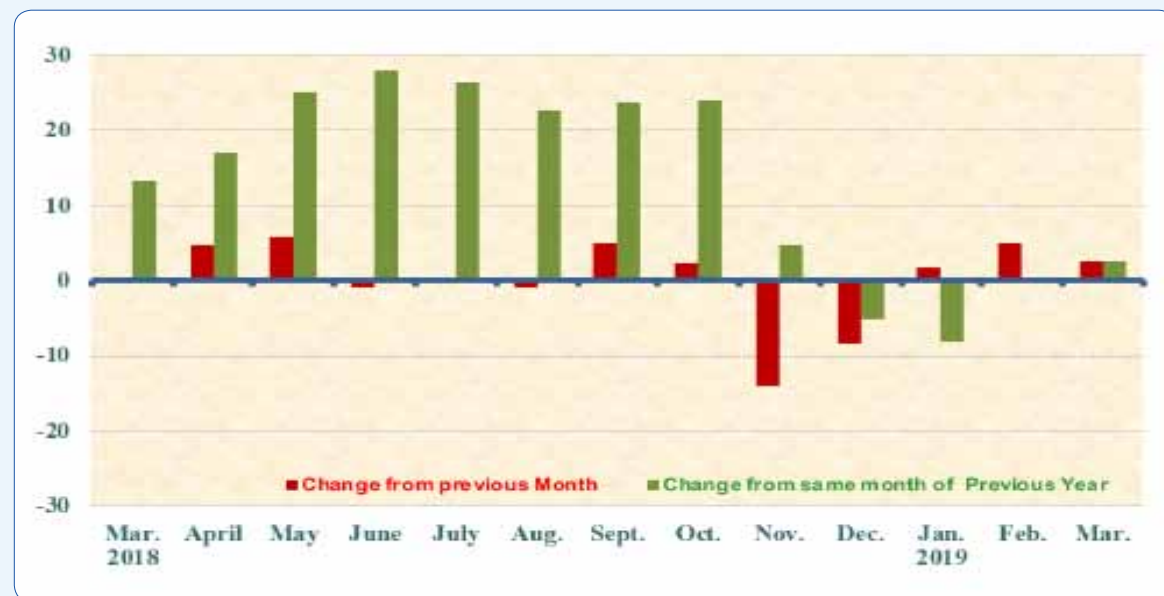
\* Prepared by the Economics Department.

**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:

	Mar. 2018	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan. 2019	Feb.	Feb.
OPEC Basket Price	63.8	68.4	74.1	73.2	73.3	72.3	77.2	79.4	65.3	56.9	58.7	63.8	66.4
Change From previous Month	0.3	4.7	5.7	-0.9	0.1	-1.0	4.9	2.2	-14.1	-8.4	1.8	5.1	2.6
Change from same month of previous Year	13.4	17.1	24.9	28.0	26.4	22.7	23.7	23.9	4.6	-5.2	-8.2	0.3	2.6

\* 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. 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".

**Figure - 2** Change in the Price of the OPEC Basket of Crudes, 2018-2019 (\$/bbl)



**Table (3)** in the annex show spot prices for OPEC basket and other crudes for the period 2017-2019.

## 1-2 Spot Prices of Petroleum Products

### - US Gulf

In March 2019, the spot prices of premium gasoline increased by 22.3% or \$15.7/bbl comparing with their previous month levels to reach \$86/bbl, spot prices of gas oil increased by 1.1% or \$0.8/bbl to reach \$76.7/bbl, and spot prices of fuel oil increased by 0.08% or \$0.05/bbl to reach \$62.9/bbl.



#### - Rotterdam

The spot prices of premium gasoline in March 2019, increased by 9% or \$6.7/bbl comparing with their previous month levels to reach \$81.1/bbl, spot prices of gas oil increased by 1.2% or \$1/bbl to reach \$81.8/bbl, and spot prices of fuel oil increased by 2.6% or \$1.6/bbl to reach \$63/bbl.

#### - Mediterranean

The spot prices of premium gasoline increased in March 2019, by 12.6% or \$8.1/bbl comparing with previous month levels to reach \$72.5/bbl, spot prices of gas oil increased by 1% or \$0.8/bbl to reach \$81.7/bbl, and spot prices of fuel oil increased by 0.6% or \$0.4/bbl to reach \$64.5/bbl.

#### - Singapore

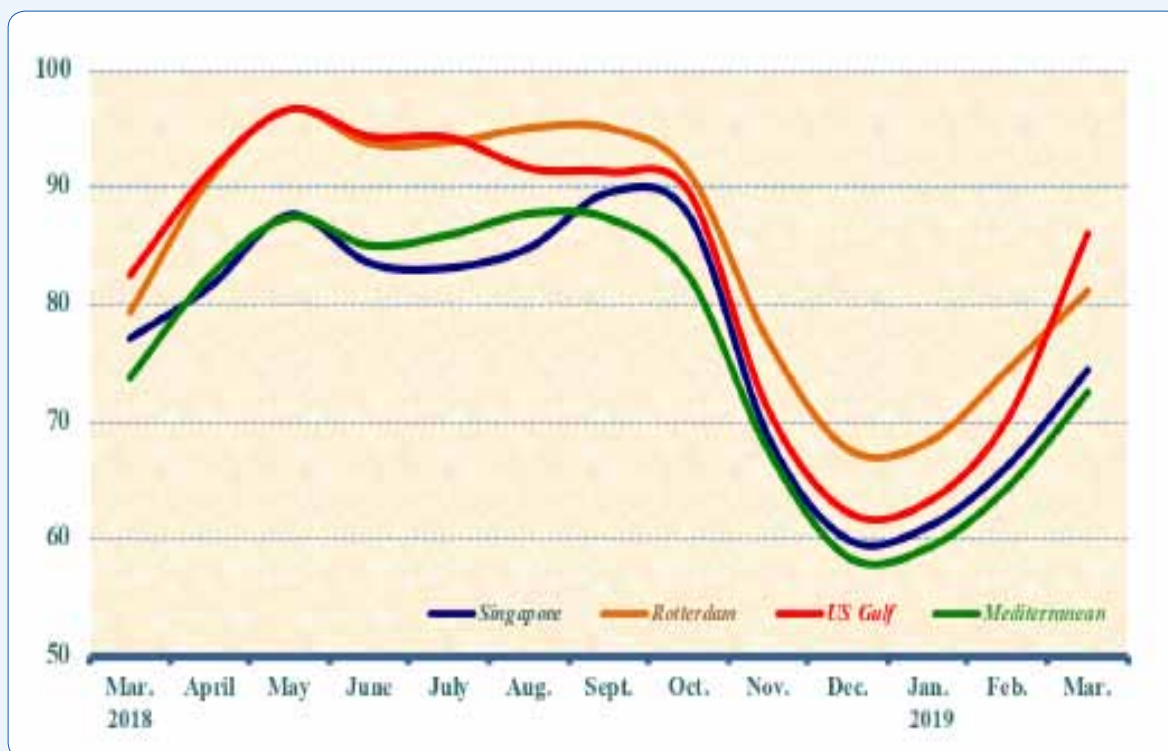
The spot prices of premium gasoline increased in March 2019, by 12.2% or \$8.1/bbl comparing with previous month levels to reach \$74.4/bbl, spot prices of gas oil increased by 2.9% or \$2.3/bbl to reach \$80.7/bbl, and spot prices of fuel oil increased by 3.4% or \$2.2/bbl to reach \$66.1/bbl.

**Figure (3)** shows the price of Premium gasoline in all four markets from March 2018 to March 2019.

**Figure - 3**

**Monthly Average Spot Prices of Premium Gasoline, 2018-2019**

(\$/bbl)



**Table (4)** in the annex shows the average monthly spot prices of petroleum products, 2017-2019.

### 1-3 Spot Tanker Crude Freight Rates

In March 2019, Freight rates for crude oil for tanker size (230-280 thousand deadweight tons (dwt)), leaving Middle Eastern ports to the East, increased by 8 points or 15.4% comparing with previous month to reach 60 points on the World Scale (WS\*). And freight rates for inter - Mediterranean for small to medium sized tankers (80-85 thousand deadweight tons (dwt)), increased by 4 points or 15.4% comparing with previous month to reach 30 points on the World Scale (WS).

Whereas freight rates for crude oil for tanker size (270-285 thousand deadweight tons (dwt)), leaving Middle Eastern ports to the West, remained stable at the same previous month level of 95 points on the World Scale (WS).

**Figure (4)** shows the freight rates for crude oil to all three destinations from March 2018 to March 2019.

**Figure - 4**

**Monthly Spot Crude Oil Tanker Freight Rates, 2018 -2019**

(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 March 2019, 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 1 point, or 0.9% comparing with previous month to reach 112 points on WS.



Whereas Freight rates for Petroleum Products across Mediterranean [for tanker size 30-35 thousand deadweight tons (dwt)], increased by 7 points, or 4.4% comparing with previous month to reach 167 points on WS, freight rates for petroleum products [for tanker size 30-35 thousand deadweight tons (dwt)], leaving Mediterranean to North-West Europe increased by 6 points, or 3.5% comparing with previous month to reach 176 points on the World Scale (WS).

**Figure (5)** shows the freight rates for oil products to all three destinations from March 2018 to March 2019.

**Figure - 5**

**Monthly Spot Product Tanker Freight Rates, 2018 -2019**

(World Scale)



**Table (5)** and **(6)** in the annex show crude and products Tankers Freight Rates, 2017-2019.

## 2. Supply and Demand

Preliminary estimates in March 2019 show a decrease in world oil demand by 1.3% or 1.3 million b/d, comparing with the previous month level to reach 99.9 million b/d, representing an increase of 0.9 million b/d from their last year level.

Demand in OECD countries increased by 0.2% or 0.1 million b/d, comparing with the previous month and their last year levels to reach 48.2 million b/d. Whereas demand in Non-OECD countries decreased by 2.6% or 1.4 million b/d comparing with their previous month level to reach 51.7 million b/d, representing an increase of 0.8 million b/d from their last year level.

On the supply side, preliminary estimates show that world oil supplies for March 2019 decreased by 0.7% or 0.7 million b/d, comparing with the previous month to reach 99.5 million b/d, representing an increase of 1.4 million b/d from their last year level.

In March 2019, OPEC crude oil and NGLs/condensates total supplies decreased by 1.9% or 0.7 million b/d, comparing with the previous month to reach 35.2 million b/d, representing a decrease of 1.4 million b/d from their last year level. Whereas preliminary estimates show that Non-OPEC supplies remained stable at the same previous month level of 64.3 million b/d, representing an increase of 2.8 million b/d from their last year level.

Preliminary estimates of the supply and demand for March 2019 reveal a shortage of 0.4 million b/d, compared to a shortage of 1 million b/d in February 2019 and a shortage of 0.9 million b/d in March 2018, as shown in [table \(2\)](#) and [figure \(6\)](#):

**Table 2** World Oil Supply and Demand (Million b/d)

	March 2019	February 2019	Change from February 2019	March 2018	Change from March 2018
<i>OECD Demand</i>	48.2	48.1	0.1	48.1	0.1
<i>Rest of the World *</i>	51.7	53.1	-1.4	50.9	0.8
<i>World Demand</i>	<b>99.9</b>	<b>101.2</b>	<b>-1.3</b>	<b>99.0</b>	<b>0.9</b>
<i>OPEC Supply :</i>	<u>35.2</u>	<u>35.9</u>	<u>-0.7</u>	<u>36.6</u>	<u>-1.4</u>
<i>Crude Oil</i>	29.7	30.3	-0.6	31.2	-1.5
<i>NGLs &amp; Cond.</i>	5.5	5.6	-0.1	5.4	0.1
<i>Non-OPEC Supply</i>	61.9	61.9	0.0	59.2	2.7
<i>Processing Gain</i>	2.4	2.4	0.0	2.3	0.1
<i>World Supply</i>	<b>99.5</b>	<b>100.2</b>	<b>-0.7</b>	<b>98.1</b>	<b>1.4</b>
<i>Balance</i>	<b>(0.4)</b>	<b>(1.0)</b>		<b>(0.9)</b>	

Source: Energy Intelligence Briefing Apr. 8, 2019.

\* include 0.2 million b/d of oil needed to fill up the supply system for crude and products, and strategic reserves.



Figure - 6

## World Oil Supply and Demand

(Million b/d)



Tables (7) and (8) in the annex show world oil demand and supply for the period 2017-2019.

## US tight oil production

In March 2019, US tight oil production increased by 291 thousand b/d or 3.5% comparing with the previous month level to reach 8.3 million b/d, representing an increase of 1.4 million b/d from their last year level. The US oil rig count decreased by 22 rig comparing with the previous month level to reach 915 rig, a level that is 36 rig higher than last year, as shown in table (3) and figure (7):

Table 3

## US tight oil production\*

(Million b/d)

	March 2019	February 2019	Change from February 2019	March 2018	Change from March 2018
<i>tight oil production</i>	8.291	8.200	0.291	6.898	1.393
<i>Oil rig count (rig)</i>	915	937	(22)	879	36

Source: EIA, Drilling Productivity Report for key tight oil and shale gas regions, April 2019.

\* focusing on the six most prolific areas, which are located in the Lower 48 states. These six regions accounted for 92% of domestic oil production growth during 2011-2014, Bakken, Eagle Ford, Haynesville, Niobrara, Permian, Appalachia (Utica and Marcellus), in addition to Anadarko region which become the target of many producers in the recent years, as of July 2017, there are 129 operating rigs in the Anadarko region.

**Figure - 7 US tight oil production and oil rig count**



### 3.Oil Trade

#### USA

In February 2019, US crude oil imports decreased by 963 thousand b/d or 12.6% comparing with the previous month level to reach 6.7 million b/d. Whereas US oil products imports increased by 125 thousand b/d or 6.1% to reach about 2.2 million b/d.

On the export side, US crude oil exports increased by 797 thousand b/d or 35.4% comparing with the previous month level to reach 3 million b/d, and US products exports increased by 73 thousand b/d or 1.5% to reach 5 million b/d. As a result, US net oil imports in February 2019 were 1.7 million b/d or nearly 66% lower than the previous month, averaging 865 thousand b/d.

Canada remained the main supplier of crude oil to the US with 55% of total US crude oil imports during the month, followed by Mexico with 10%, then Saudi Arabia with 9%. OPEC Member Countries supplied 24% of total US crude oil imports.

#### Japan

In February 2019, Japan's crude oil imports decreased by 157 thousand b/d or 5% comparing with the previous month level to reach 3.1 million b/d. Whereas Japan oil products imports (except LPG) increased by 21 thousand b/d or 3% comparing with the previous month to reach 621 thousand b/d.

On the export side, Japan's oil products exports increased in February 2019, by 32 thousand b/d or 5% comparing with the previous month, averaging 671 thousand b/d. As a result, Japan's net oil imports in February 2019 decreased by 168 thousand b/d or 5.2% to reach 3 million b/d.

Saudi Arabia was the big supplier of crude oil to Japan with a share of 37% of total Japan crude oil imports, followed by UAE with 26% and Kuwait with 10% of total Japan crude oil imports.



### China

In February 2019, China's crude oil imports increased by 197 thousand b/d or 2% comparing with the previous month level to reach 10.3 million b/d. Whereas China oil products imports decreased by 265 thousand b/d comparing with the previous month to reach 1.1 million b/d.

On the export side, China did not export any crude oil in February 2019, whereas China oil products exports decreased by 292 thousand b/d or 20.8% comparing with the previous month, averaging 1.1 million b/d. As a result, China's net oil imports in February 2019 increased by 224 thousand b/d or 2% to reach 10.3 million b/d.

Saudi Arabia was the big supplier of crude oil to China with a share of 15.2% of total China crude oil imports, followed by Russia with 14.6% and Angola with 11.3% of total China crude oil imports.

**Table (4)** shows changes in crude and oil products net imports/(exports) in February 2019 versus the previous month:

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

	Crude Oil			oil Products		
	February 2019	January 2019	Change from January 2019	February 2019	January 2019	Change from January 2019
USA	3.649	5.409	-1.760	-2.784	-2.835	0.051
Japan	3.093	3.250	-0.157	-0.050	-0.039	-0.011
Japan	10.256	10.059	0.197	0.014	-0.013	0.027

Source: OPEC Monthly Oil Market Report, various issues 2019

## 4. Oil Inventories

In March 2019, OECD commercial oil inventories decreased by 26 million barrels to reach 2849 million barrels – a level that is 37 million barrels higher than a year ago. It is worth mentioning that during the month, commercial crude inventories in OECD decreased by 6 million barrels to reach 1105 million barrels, and commercial oil products inventories decreased by 20 million barrels to reach 1744 million barrels.

Commercial oil inventories in Americas decreased by 14 million barrels to reach 1496 million barrels, of which 605 million barrels of crude and 891 million barrels of oil products. Whereas Commercial oil Inventories in Europe increased by 2 million barrels to reach 973 million barrels, of which 339 million barrels of crude and 634 million barrels of oil products. And Commercial oil inventories in Pacific decreased by 14 million barrels to reach 380 million barrels, of which 161 million barrels of crude and 219 million barrels of oil products.

In the rest of the world, commercial oil inventories decreased by 35 million barrels to reach 2867 million barrels, and the Inventories at sea decreased by 7 million barrels to reach 1160 million barrels.

As a result, Total Commercial oil inventories in March 2019 decreased by 61 million barrels to reach 5716 million barrels – a level that is 148 million barrels higher than a year ago.

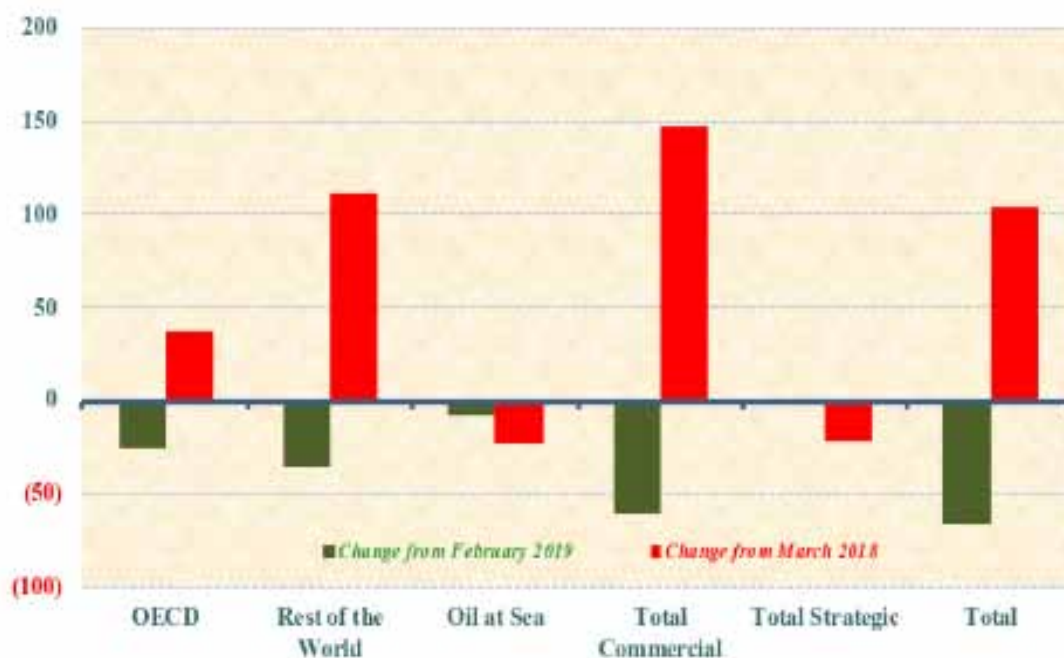
Strategic inventories in OECD-34, South Africa and China increased by 1 million barrels to reach 1833 million barrels – a level that is 22 million barrels lower than a year ago. Total world inventories, at the end of March 2019 were at 8710 million barrels, representing a decrease of 67 million barrels comparing with the previous month, and an increase of 104 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 March 2019.

Figure - 8

### Changes in Global Inventories at the End of March 2019

(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 March 2019 increased by \$0.26/million BTU comparing with the previous month, to reach \$2.95/million BTU.



The comparison, shown in **table (5)**, between natural gas prices and the WTI crude reveal differential of \$7.1/ million BTU in favor of WTI crude.

**Table 5**

Henry Hub Natural Gas and WTI Crude Average Spot Prices, 2017-2018

(\$/ Million BTU<sup>1</sup>)

	Mar. 2018	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan. 2019	Feb.	Feb.
<i>Natural Gas</i> <sup>(2)</sup>	2.7	2.8	2.8	3.0	2.8	2.9	3.0	3.3	4.1	4.1	3.1	2.7	2.9
<i>WTI Crude</i> <sup>(3)</sup>	10.8	11.4	12.1	11.7	12.2	11.7	12.1	12.2	9.8	8.5	8.9	9.5	10.0

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 February 2018, the price of Japanese LNG imports decreased by \$0.19/million BTU comparing with the previous month to reach \$11.03 million BTU, whereas the price of Korean LNG imports increased by \$0.53/million BTU comparing with the previous month to reach \$11.78/ million BTU, and the price of Chinese LNG imports increased by \$2.1/million BTU comparing with the previous month to reach \$10.61/ million BTU.

### 2.2. LNG Imports

Total Japanese, Korean and Chinese LNG imports from various sources, decreased by 13.7% or 2.228 million tons from the previous month level to reach 15.501 million tons.

**Table (6)** shows the prices and quantities of LNG imported by Japan, South Korea, and China for the period 2017-2019.

**Table6 LNG Prices and Imports: Korea, Japan, and China 2017-2019**

	Imports (thousand tons)				Average Import Price (\$/million BTU)		
	Japan	Korea	China	Total	Japan	Korea	China
<b>2017</b>	<b>83630</b>	<b>37657</b>	<b>38286</b>	<b>159573</b>	<b>8.1</b>	<b>8.0</b>	<b>7.3</b>
January 2017	8302	4294	3436	16032	7.5	7.9	7.0
February	7790	3600	2372	13762	7.9	8.0	7.0
March	8143	3527	1991	13661	7.7	7.8	6.9
April	6573	2337	2171	11081	8.2	7.8	7.0
May	6239	2488	2911	11638	8.5	8.3	7.3
June	6185	3460	3038	12683	8.3	7.8	7.1
July	6817	2716	3121	12654	8.3	7.9	7.4
August	7259	2603	3140	13002	8.3	8.2	7.4
September	5821	2368	3454	11643	8.1	8.1	7.2
October	6137	2760	3567	12464	7.8	8.1	7.4
November	6411	3328	4056	13795	7.9	7.7	7.7
December	7953	4176	5029	17158	8.1	8.3	8.1
<b>2018</b>	<b>82852</b>	<b>44300</b>	<b>53945</b>	<b>181097</b>	<b>10.0</b>	<b>10.1</b>	<b>8.5</b>
January 2018	8263	4144	5184	17591	8.7	8.7	8.4
February	8294	4588	3993	16875	9.2	9.9	8.6
March	7934	4304	3254	15492	9.5	9.4	8.7
April	5608	3217	3254	12079	9.4	9.3	8.7
May	6407	2784	4150	13341	9.6	9.8	8.5
June	5547	3758	4000	13305	9.8	9.8	8.5
July	6813	2746	4150	13709	9.8	10.0	8.5
August	7575	2920	4710	15205	10.2	10.2	8.5
September	6274	3358	4370	14002	10.6	10.8	8.5
October	6538	3795	4600	14933	10.9	11.1	8.5
November	6345	3952	5990	16287	10.9	11.2	8.5
December	7254	4734	6290	18278	11.2	11.0	8.5
January 2019	7547	3832	6580	17959	11.2	11.2	8.5
February	7350	3799	7352	15501	11.0	11.8	10.6

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 4.554 million tons or 29.4% of total Japan, Korea and China LNG imports in February 2019, followed by Qatar with 22.2% and Malaysia with 11.8%.

The Arab countries LNG exports to Japan, Korea and China totaled 4.567 million tons - a share 29.5% of total Japan, Korea and China 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 \$5.31/million BTU at the end of February 2019, followed by Indonesia with \$5.17/million BTU then Malaysia with \$5.12/million BTU, and Australia with \$5.10/million BTU. LNG Qatar's netback reached \$4.87/million BTU, and LNG Algeria's netback reached \$4.45/million BTU.

**Table (7)** shows LNG exporter main countries to Japan, South Korea, and China and their netbacks at the end of February 2019.

**Table7** LNG Exporter Main Countries to Japan, Korea and China, And Their Netbacks\* at The End of February 2019

	Imports (thousand tons)				Spot LNG Netbacks at North East Asia Markets (\$/million BTU)
	Japan	Korea	China	Total	
<b><u>Total Imports, of which:</u></b>	<b><u>7350</u></b>	<b><u>3799</u></b>	<b><u>4352</u></b>	<b><u>15501</u></b>	
<b>Australia</b>	2324	426	1804	4554	<b>5.10</b>
<b>Qatar</b>	1054	1690	703	3447	<b>4.87</b>
<b>Malaysia</b>	986	477	371	1834	<b>5.12</b>
<b>Indonesia</b>	537	121	303	961	<b>5.17</b>
<b>Russia</b>	604	259	130	993	<b>5.31</b>

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



## Tables Annex

