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## THE 2ND BELT AND ROAD FORUM "TOWARDS A BRIGHTER FUTURE"

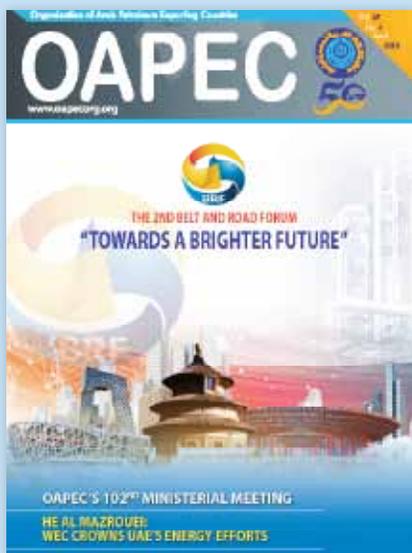


**OAPEC'S 102<sup>ND</sup> MINISTERIAL MEETING**

**HE AL MAZROUEI:  
WEC CROWNS UAE'S ENERGY EFFORTS**



# 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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**153<sup>RD</sup> MEETING OF OAPEC'S EXECUTIVE BUREAU**

• **OAPEC-Joint 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.



## THE 2<sup>ND</sup> BELT AND ROAD FORUM “TOWARDS A BRIGHTER FUTURE”

A unique event took place in April 2019 as China hosted the Second Belt and Road Forum for International Cooperation (BRF) “One Belt, One Road” in Beijing under the slogan “Towards a Brighter Future” in the presence of around 40 heads of state with a high-profile representation of over 180 countries and international organisations including leaders of OAPEC member countries.

The “One Belt, One Road” Initiative- that was first launched back in 2013- is one of the biggest and most important ambitious strategic economic projects in China’s history. It aims at building an international trade and infrastructure network linking Asia, Europe, and Africa to follow suit the old trade Silk Road with two main branches: Land Economic Silk Road Belt and Maritime Silk Road. BRI focuses on investing in infrastructure, construction, education, transportation (railways and vehicles), real-estate, energy, iron, and steel sectors. The initiative covers about 68 countries representing about 65% of the

world’s population.

The Chinese Customs Authority’s data showed bilateral commercial exchange between China and the Arab countries has grown significantly during 2018 as bilateral trade registered \$197.7 billion in the first 10 months of 2018 exceeding 2017 figures of \$191.3 billion. Chinese exports to Arab countries reached \$85.8 billion between January and October 2018, while its imports from Arab countries reached \$111.9 billion. The commercial ties of 20 Arab countries with China witnessed growth on various scales including KSA, Kuwait, Qatar, Oman, Iraq, and Egypt.

Due to China’s key role in the world’s oil and gas demand, Arab countries in general- and OAPEC members in particular- have given energy cooperation with China a special attention. The Arab countries’ proven oil and gas reserves and China’s modern technology (in the various petroleum industry stages: exploration, discoveries, transportation, refining, manufacturing, equipment, etc.)

boost the chances of cooperation between the two sides.

The Arab- Chinese Cooperation Forum was established in 2004 as a framework for collective cooperation covering various aspects which resulted in more than 10 mechanisms. The year 2010 witnessed establishing strategic cooperation ties between China and the Arab countries based on comprehensive cooperation and joint development which led to a new phase of development and qualitative overall progress. OAPEC Secretariat General had several participations in previous activities of the Forum's Energy Committee.

It is worth mentioning that the Chinese economy is going through a transitional stage from reliance on the exports sector to a domestic-consumption-supported economy, which simulates demand growth in certain sectors while slows down other sectors. It also leads to a change in the demand mix of petroleum products through accelerating the growth of certain products on the expenses of other products. The growing middle-class is expected to lead the

increase of the sales of new cars and consequently an increase in gasoline demand, as well as, jet fuel demand due to an increase in flights in contrast to a drop in diesel demand, which was once a main drive for China's oil demand in the past.

While observing the Arab-Chinese economic cooperation, especially on energy, OAPEC Secretariat General highly appreciates its member countries' endeavours in this regard and hopes that a suitable atmosphere is created for exchanging technical expertise between the two sides in a way that serves the petroleum industry. OAPEC also stresses the importance of coordination and mutual support at international forums and with relevant organisations in a way that serves the interests of both sides without affecting their national interests. OAPEC also hails the 2nd Belt and Road Forum "one Belt, One Road" and its positive perspectives and initiatives on boosting international economic cooperation where Arab countries have an active part to play.



# HE MOHAMMED IRQAB NAMED ALGERIA'S NEW ENERGY MINISTER

HE Abbas Ali Al Naqi, OAPEC Secretary General, received a cable of thanks from HE Mohammed Irqab, Algeria's new Energy Minister in response to HE Al Naqi's cable of congratulations on his appointment.

HE Irqab expressed sincere thanks and wished OAPEC all success while stressing Algeria's keenness on continuing to support OAPEC activities.



On another note, the Minister called for the conservation of electricity in Algeria as consumption exceeded 14000 MW at peak times. He said reliance should not be solely on electricity generated by natural gas (currently estimated at 99%) to improve consumption; there should be other sources like renewables, especially solar power in the southern parts of the country, to help improve consumption rates.

OAPEC Secretary General HE Abbas Al Naqi sent a cable of congratulations to HE Nasser Sultan Al Suwaidi on the occasion of his appointment as Chief Executive Officer at the National Oil and Gas Authority (NOGA) with the rank of Undersecretary, and another cable of congratulations to HE Faihan Mohammed Al Faihani, on his appointment as Deputy CEO for Strategies and International Relations at NOGA, with the rank of Assistant Undersecretary. HE Al Faihani is Bahrain's Rep at OAPEC's Executive Bureau.



HE Faihan Al Faihani,

HE Nasser Sultan Al Suwaidi

HE Al Suwaidi and HE Al Faihani replied with thanking cables expressing their appreciation and wishing OAPEC further progress and prosperity.

# EGYPT LAUNCHES INTERNATIONAL BIDDING ROUND FOR 10 RED SEA EXPLORATION BLOCKS

Egypt has announced an international bidding round for 10 offshore oil and gas exploration blocks in the Red Sea in line with the Ministry of Petroleum and Mineral Resources' strategy.

The South Valley Egyptian Petroleum Holding Company said that companies can now review technical data and buy data packages as part of the bid round. Bidding will close on August 1, 2019, with the successful bidder entering into a production sharing agreement. Details can be found on the company's website [www.ganope.com](http://www.ganope.com).

**المزايدة العالمية لعام ٢٠١٩ بالبحر الأحمر**

تدعو شركة جنوب الوادي المصرية القابضة للبتروول للشركات المتخصصة في مجال البحث عن البترول والغاز وإستغلالهما للاشتراك في المزايدة العالمية لعام ٢٠١٩ التي تضم عشر (١٠) قطاعات للبحث بالبحر الأحمر، كما هو موضح بالخريطة وطبقا لنموذج إتفاقيات إقتسام الإنتاج المعمول به في جمهورية مصر العربية.

رقم قطاع	الاسم	المساحة كم <sup>٢</sup>
١	البحر الأحمر قطاع رقم ١	٣٠٥٧
٢	البحر الأحمر قطاع رقم ٢	٣٠١٠
٣	البحر الأحمر قطاع رقم ٣	٣٠٩٧
٤	البحر الأحمر قطاع رقم ٤	٣٠٨٤
٥	البحر الأحمر قطاع رقم ٥	٣٠٢٥
٦	البحر الأحمر قطاع رقم ٦	٣٠٥٠
٧	البحر الأحمر قطاع رقم ٧	٣٠٩٠
٨	البحر الأحمر قطاع رقم ٨	٣٠٦٠
٩	البحر الأحمر قطاع رقم ٩	٣٠٦٧
١٠	البحر الأحمر قطاع رقم ١٠	٣٠٣٩

تتقدم الشركات الراغبة بعروض لهذه القطاعات وفقاً للإجراءات والشروط الأساسية ونموذج الاتفاقية المعلن عنها. يمكن الاطلاع على المعلومات وشراء حزم البيانات الخاصة بمناطق هذه المزايدة بطلب مسبق من الشركة الراغبة اعتباراً من يوم الأحد الموافق ١٠ مارس ٢٠١٩. يعتبر شراء حزم البيانات الرئيسية الخاصة بكل قطاع شرطاً للتقدم بعرض لهذا القطاع. يمكن الحصول على البيانات الأساسية للمناطق وإجراءات وشروط المزايدة ونموذج الاتفاقية على الموقع الإلكتروني للشركة [www.ganope.com](http://www.ganope.com) آخر موعد لاستلام العروض يوم الخميس الموافق ١ أغسطس ٢٠١٩ الساعة الثانية عشرة ظهراً بتوقيت القاهرة.



## HE AL MAZROUEI: WEC CROWNS UAE'S ENERGY EFFORTS

**HE Suhail Mohamed Faraj Al Mazrouei, UAE Minister of Energy and Industry and Chairman of the 24th World Energy Congress to be held in Abu Dhabi during 9-12 September 2019, stressed the UAE's will to crown its growing role in leading international efforts to combat energy challenges and draw a better future for the energy sector.**



Speaking at a press conference on 19 March 2019, Al Mazrouei shed the light on the four-day congress, which will take place under the patronage of the UAE's President HH Sheikh Khalifa Al Nahayyan. The WEC's theme will be 'Energy for Prosperity'.

He said the UAE is aiming to be one of the world's most innovative nations by 2021, therefore innovation will be the focus of the congress with a diversified range of topics on digitalisation, the hydrogen economy, deep decarbonisation, blockchain, IoT and AI. Also, the top 100 energy transition start-ups and entrepreneurs from around the world will come together to showcase their products and services in the innovation hub.

Al Mazrouei announced that over 160 high-level speakers had already confirmed their participation at the congress, which is expected to draw 70 ministers and 500 CEOs, out of an anticipated 15,000 attendees from 150 countries.

The second day of the congress will see 40 Asian ministerial delegations take part in the IEF 8th Asian Ministerial Energy Roundtable, in addition to Chinese, Japanese, Korean and Indian pavilions already confirmed in the exhibition. The participation of delegations from Africa will be facilitated through the Developing Countries Programme.



HE Al Mazrouei commented “We are proud to be hosting the 24th World Energy Congress in the UAE in September this year. The progress made to date has us optimistic for what we believe will be a world-class event, and the programme outlined today highlights the changing nature of the sector such as the rise of digitalisation and the greater role of entrepreneurs but also energy-engaged citizens in shaping the future of the way we produce and consume energy.”

“Bringing together the variety of players that can address the energy trilemma is key to solving the challenges the world faces today. The UAE is committed to inspiring action from all people and actors involved, and to thinking more critically about the abundant opportunities the energy sector provides.”

Established by federal decree in early 2017, the Organising Committee of the 24th World Energy Congress was set up to act as the focal point between the World Energy Council and the 24th World Energy Congress. It is chaired by HE Dr Matar Hamed Al Neyadi, undersecretary at the UAE Ministry of Energy and Industry and the UAE’s Rep at OPAEC Executive Bureau.

The Congress, which is held every three years, is one of the world’s biggest and most prestigious energy events. Abu Dhabi is the first Arab city to host this event and the UAE will be the first Arab country and OPEC member to host it. For registration please visit [www.wec24.org](http://www.wec24.org)



# SAUDI ARABIA DISCOVERS LARGE QUANTITIES OF GAS IN RED SEA

Minister of Energy, Industry and Mineral Resources of Saudi Arabia HE Eng. Khalid Al Falih has announced the discovery of large amounts of gas in the Red Sea.



He added that the Saudi Oil Company “Aramco” is working to carry out intensive explorations in the Red Sea over the next two years.

He explained that the amount of oil in the Red Sea is low and the production process is very expensive, ranging between \$30 and \$40, because it is located 1,200 to

1,500 metres deep into the sea.

He added that Aramco aims to invest in South Africa, paving the way to the rest of the continent, which has promising investment opportunities, noting that global trends focus on refineries to compensate for oil price differences (between \$1-2) as a result of crude qualities.

HE Al Falih clarified that Aramco’s global acquisitions are ongoing and the company has promising opportunities in Russia, India, Pakistan and Indonesia, as well as gas liquefaction projects in the US. He pointed out that Aramco is working to sell gas directly, purchasing from producers and selling to customers at a profit margin. This is meant to study the market before directly investing in the production of liquefied gas.



## **QATAR PETROLEUM: ISSUED INVITATION TO TENDER PACKAGE FOR EPC OF LNG MEGA-TRAINS OF ITS NORTH FIELD EXPANSION PROJECT**

Qatar Petroleum announced that it has issued the Invitation to Tender Package for Engineering Procurement and Construction (EPC) of the four Liquefied Natural Gas (LNG) mega-trains of its North Field Expansion (NFE) project.

The package has been issued to three EPC Joint Ventures: Chiyoda Corporation and Technip France S.A.; JGC Corporation and Hyundai Engineering and Construction Co. Ltd; and Saipem S.p.A, McDermott Middle East Inc. and CTCI Corporation.

The tender calls for the engineering, procurement and construction of the four mega-LNG trains with gas and liquid treating facilities, ethane and Liquefied Petroleum Gas (LPG) production and fractionation, a Helium plant, and utilities and infrastructure to support the processing units. The four-mega LNG trains are part of Qatar Petroleum's plans to expand the State of Qatar's LNG production from 77 million tons per annum to 110 million tons per annum by 2024.

Commenting on the announcement, HE Saad Sherida Al Kaabi, Qatar's Minister of State for Energy Affairs, the President & CEO of Qatar

Petroleum, said: "This tender package comes in line with Qatar Petroleum's plan to move into the next significant phase of the North Field Expansion project, which will culminate in the award of this EPC contract in January 2020. We are pleased to have the participation of three international joint ventures with outstanding EPC contractors; and we look forward to a highly competitive tender."

Al Kaabi added: "Issuing this tender package further demonstrates Qatar Petroleum's commitment to executing this milestone mega-project. It comes at a time when all activities related to the project are progressing well and according to plan at all fronts; and I am pleased to announce that further contract awards related to the project will be announced shortly."

The package issue follows the recent contract award for the fabrication and installation of eight NFE offshore jackets to McDermott Middle East, and the contract award for early site works for the onshore project to the joint venture between Consolidated Contractors Company (CCC) and Teyseer Trading and Contracting Company.



# APICORP REPORTS 2018 RECORD FINANCIAL YEAR WITH NET PROFIT INCREASE TO \$182M

The Arab Petroleum Investments Corporation (APICORP), an OAPEC joint venture, announced that the net profit for the Corporation in 2018 increased to \$182.3 million, a 76 percent year-over-year increase and is the highest in APICORP’s history. This was driven by returns from a capital gain of \$86.7 million on the sale of APICORP’s equity stake in National Petroleum Services (NPS) as well as remarkable growth achievements of net interest income and dividend income at 67 percent and 51 percent, respectively. Indeed, all these factors resulted in total income at \$252.7 million, increasing by 78 percent vis-à-vis the 2017 figures.

Commenting on the key financial highlights for the year, Dr Aabed bin Abdulla Al Saadoun, Chairman of the Board of Directors said: “This year was the strongest financial performance achieved by APICORP with significant net profit increase to \$182.3m and 11percent asset growth. APICORP registered robust financial results across the business and increased profitability and sustainable earnings in line with its vision, while cementing its position as the leading multilateral development bank supporting the Arab world’s broader energy and sustainability industries.”

The assets grew by 11 percent to \$6.95 billion as of 31 December 2018. This was mainly due to an expanding corporate finance portfolio that reached \$3.49 billion (around 50 percent of the balance sheet) and is well-diversified in the broader energy sectors.



**Dr Aabed Al Saadoun,**  
Chairman of the Board of Directors



**Dr Ahmed Ali Attiga,**  
Chief Executive Officer of APICORP

Notably, the non-performing loan (NPL) ratio has shown remarkable improvements from 2.05 percent in 2017 to 0.34 percent in 2018.

Dr Ahmed Ali Attiga, Chief Executive Officer of APICORP, said: “The annual results are testament to the resilient efforts of our entire team, and a strong indicator of our overall business strategy and robust risk and corporate governance framework. Notably, APICORP’s 2018 total income increased by 78 percent to \$252.7 million as compared with last year.”

On the funding front in 2018, APICORP successfully completed five (5) medium-term funding transactions for a total amount of \$1.3 billion from the international markets and widened its investor base, with strong interest from the US, Europe, Asia and China.

In September 2018, Moody’s announced an upgrade to the rating outlook of APICORP’s debt from Aa3 stable to Aa3 positive. This development comes in the wake of consistent improvement in APICORP’s funding profile and corresponding improvements in its liquidity position.

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## 153<sup>RD</sup> MEETING OF OAPEC'S EXECUTIVE BUREAU

The 153rd Meeting of OAPEC's Executive Bureau took place in Kuwait on 25-26 April 2019. It was chaired by NOGA Deputy CEO for Strategies and International Relations and Bahrain's Rep at OAPEC Executive Bureau HE Faihan Al Faihani. Bahrain chairs the 2019 term.

The Chair inaugurated the meeting welcoming Their Excellencies the ministers and head of delegations. He expressed thanks and appreciation to the State of Kuwait for the hospitality and warm welcome and to OAPEC for organising the meeting.

HE Al Faihani reviewed the most

important points for discussion and the recommendations to be submitted to OAPEC's Ministerial Council.

OAPEC Secretary General HE Abbas Al Naqi then followed with a speech welcoming Their Excellencies the ministers and head of delegations. HE Al Naqi expressed thanks and appreciation to the State of Kuwait for the hospitality and warm welcome wishing Kuwait prosperity and further development and wished the meeting all success.

The Council then made recommendations on the points of the agenda.



H.E. MOHAMMED RAS EL KAFF  
**ALGERIA**



H.E. FYHAN M. AL FIHANY  
**BAHRAIN**



H.E. GEOLOGIST ASHRAF MAHMOUD MOHAMMAD FARAJ  
**EGYPT**



H.E. SAFA'A ABDUL RAHMAN AHMED  
**IRAQ**



H.E. SHEIKH TALAL NASER AL SABAH  
**KUWAIT**



H.E. SHEIKH MISHALL BIN JABOR AL THANI  
**QATAR**



H.E. ENG. NASSER BIN IBRAHIM AL FAWZAN  
**KSA**



H.E. ENG. ABDULLAH AL KHATTAB  
**SYRIA**



H.E. DR. MATTAR AL NEYADI  
**UAE**



# OAPEC'S 102<sup>ND</sup> MINISTERIAL MEETING

OAPEC's 102nd Ministerial Meeting was held in Kuwait on 27 April 2019 and chaired by NOGA Deputy CEO for Strategies and International Relations and Bahrain's Rep at OAPEC Executive Bureau HE Faihan Al Faihani. Bahrain chairs the 2019 term.

The Chair inaugurated the meeting welcoming Their Excellencies the ministers and head of delegations. He expressed thanks and appreciation to the State of Kuwait for the hospitality and warm welcome and to OAPEC for organising the meeting.

OAPEC Secretary General HE Abbas Al Naqi then followed with a speech welcoming Their Excellencies the ministers and head of delegations. HE Al Naqi expressed thanks and appreciation to the State of Kuwait for the hospitality and warm welcome wishing Kuwait prosperity and further development.

The Council then approved the agenda, and deliberated its items as follows:

- OAPEC final accounts 2018 were approved by resolution 1/102 for the year 2018.
- The Council was informed about OAPEC's activities in H1/2019 and approved the Executive Bureau's recommendations in this regard including:
  - Following up environment and climate change issues
  - Reviewing the Secretariat General's report on OAPEC activities including its Conference on "Improving Performance in Downstream Industries" which it organised in Kuwait on 12-14 March 2019 under the auspices of Kuwait's Minister of Oil, Minister of Electricity and Water HE Dr Khalid Al Fadhel
  - Databank progress and activity development
  - LAS meetings
- OAPEC's completion of 4 economic and technical studies in H1/2019 on:
  - A. Primary Energy Consumption Development in Kuwait
  - B. The Role of Improved Oil Investments in Developing Hydrocarbon Reserves
  - C. Techniques for Treatment of Industrial Wastewater from Petrochemical Projects
  - D. Renewables: Reality and Future in the World's Energy Mix and Implications for the Oil Industry
- The Council reviewed the Secretariat General's report on the signing of an MoU on Petroleum Media between OAPEC and the GCC Council. The Council welcomed the step and OAPEC efforts.
- The 103rd Meeting will be held in Kuwait on 22 December 2019

The meeting was concluded by reiterating thanks to Kuwait for hosting OAPEC meetings.





# OAPEC AT ME-TECH 2019



OAPEC Secretariat General took part in the Middle East Technology Forum for Refining & Petrochemicals (ME-TECH 2019) held on 26-28 February 2019 in Abu Dhabi, the UAE. The event, organized by Euro Petroleum Consultants, included 2 plenary sessions, 4 sessions on refining, and 4 sessions on petrochemicals.

The first session titled “Technical Support Methods for Lengthening the Lifespan of Assets Used in Downstream Industries” tackled developments in the petroleum products market, petrochemicals, the industry’s trends and forecasts, the role of strategic partners and foreign investments in developing the industry, new methods of profitability, diversification of downstream

industries, and conversion of products into new ones.

The second plenary session titled “Integration between Refining and Petrochemicals” was allocated for reviewing modern technologies in producing polymers and their different uses. It also discussed the conversion of crude into chemicals, growing use of electric vehicles, new expansions of projects and their role in changing the market. About 16 presentations on the latest technological developments in the downstream industries were given.

Dr Yasser Al Baghdadi, Petroleum Industries Expert, represented OAPEC at the forum which is held for the ninth year. ADNOC was this year’s strategic partner.

# INDUSTRIAL WASTEWATER TREATMENT TECHNOLOGIES IN PETROCHEMICALS INDUSTRY

Wastewater treatment in petrochemicals industry is a complex process, with demanding environmental management challenges as byproducts can be both volatile and toxic.

Petrochemical wastewater often requires a combination of treatment methods to remove oil and other contaminants before discharge. Issues such as groundwater contamination; aromatics; oil, grease and organic removal, and VOC control have to be addressed in order to comply with environmental regulations.

A typical wastewater system may include neutralization, coagulation/flocculation, floatation/sedimentation/filtration, clarification and biodegradation (e.g., trickling filter, anaerobic treatment, and aerated lagoon, rotating biological contactor and activated sludge). A final polishing step using filtration, ozonation, activated carbon, or chemical treatment may also be required.

This study is divided into three Chapters, including the identification of different types of pollutants in industrial wastewater from various production units in the petrochemical industry, also various production processes, methods, and levels and applied treatment techniques.

The study highlighting some successful models and case studies adopted in the treatment of industrial waste water. In order to draw attention to the environmental and economic benefits of implementing these successful strategies in the petrochemical industry and various petroleum industries.





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

### 1. Oil Market

#### 1. Prices

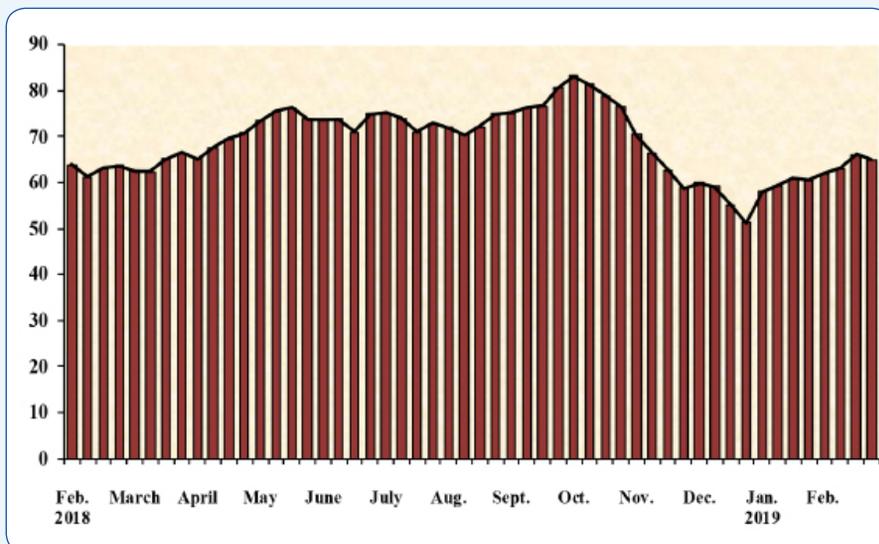
##### 1-1 Crude Oil Prices

Weekly average price of OPEC basket increased during the first week of February 2019, to reach \$61.9/bbl, and continue to raise thereafter to reach its highest level of \$66.2/bbl during the third week, then declined to reach \$65.0/bbl during the fourth

week shown in **figure 1**:

On monthly basis, OPEC Reference Basket in February 2019, averaged \$63.8/bbl, representing an increase of \$5.1/bbl or 8.7% comparing with previous month, and an increase of \$0.3/bbl or 0.5% from the same month of previous year. Lower supply from (OPEC+) Countries and signs of high conformity to the Declaration of Cooperation, as well as concerns about tightening oil supply in the coming months, amid rising unplanned outages owing to technical and geopolitical factors, were major stimulus for the increase in oil prices during the month of February 2019.

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



#### Key Indicators

- In February 2019, **OPEC Reference Basket increased** by 8.7% or \$5.1/bbl from the previous month level to stand at \$63.8/bbl.
- **World oil demand** in February 2019, **increased** by 1% or 1 million b/d from the previous month level to reach 101 million b/d.
- **World oil supplies** in February 2019, **increased** by 0.1% or 0.1 million b/d from the previous month level to reach 100.6 million b/d.
- **US tight oil production** in February 2019, **increased** by 1.1% to reach about 8.3 million b/d, whereas **US oil rig count decreased** by 15 rig from the previous month level to stand at 937 rig.
- **US crude oil imports** in January 2019, **increased** by 2.6% from the previous month level to reach 7.7 million b/d, and **US product imports increased** by 17.3% to reach about 2.1 million b/d.
- **OECD commercial inventories** in February 2019 **decreased** by 23 million barrels from the previous month level to reach 2850 million barrels, whereas **Strategic inventories** in OECD-34, South Africa and China **increased** by 1 million barrels from the previous month level to reach 1830 million barrels.
- **The average spot price of natural gas** at the Henry Hub **decreased** in February 2019 to reach \$2.69/million BTU.
- **The Price of Japanese LNG imports** in January 2019 **increased** by \$0.01/m BTU to reach \$11.22/m BTU, and the **Price of Korean LNG increased** by \$0.23/m BTU to reach 11.25/m BTU, and the **Price of Chinese LNG imports remained stable** at the same previous month level of \$8.53/m BTU.
- **Arab LNG exports to Japan, Korea and China** were about 4.292 million tons in January 2019 (a share of 23.9% 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:

	Feb. 2018	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan. 2019	Feb.
OPEC Basket Price	63.5	63.8	68.4	74.1	73.2	73.3	72.3	77.2	79.4	65.3	56.9	58.7	63.8
Change From previous Month	-3.4	0.3	4.7	5.7	-0.9	0.1	-1.0	4.9	2.2	-14.1	-8.4	1.8	5.1
Change from same month of previous Year	10.1	13.4	17.1	24.9	28.0	26.4	22.7	23.7	23.9	4.6	-5.2	-8.2	0.3

\* 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)

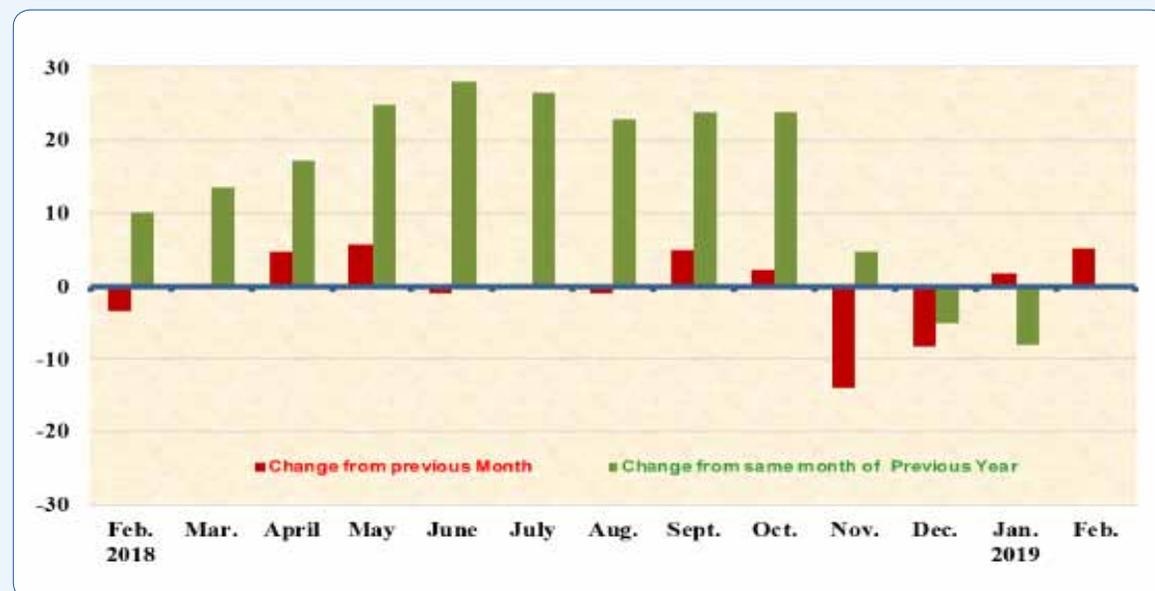


Table (3) in the annex show spot prices for OPEC basket and other crudes for the period 2017-2019.

## 1-2 Spot Prices of Petroleum Products

### - US Gulf

In February 2019, the spot prices of premium gasoline increased by 11.2% or \$7.1/bbl comparing with their previous month levels to reach \$70.3/bbl, spot prices of gas oil increased by 8.1% or \$5.7/bbl to reach \$75.9/bbl, and spot prices of fuel oil increased by 14.6% or \$8/bbl to reach \$62.9/bbl.



**- Rotterdam**

The spot prices of premium gasoline in February 2019, increased by 9.1% or \$6.2/bbl comparing with their previous month levels to reach \$74.4/bbl, spot prices of gas oil increased by 7.4% or \$5.6/bbl to reach \$80.8/bbl, and spot prices of fuel oil increased by 11.8% or \$6.5/bbl to reach \$61.4/bbl.

**- Mediterranean**

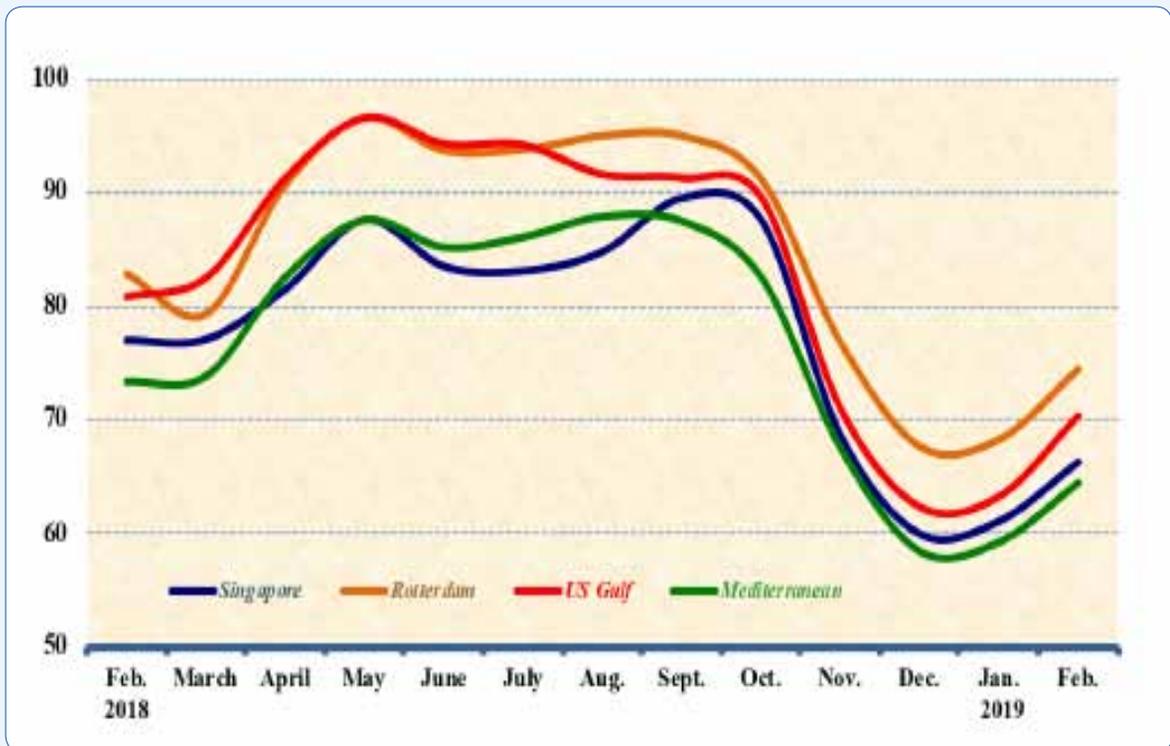
The spot prices of premium gasoline increased in February 2019, by 8.8% or \$5.2/bbl comparing with previous month levels to reach \$64.4/bbl, spot prices of gas oil increased by 8% or \$6/bbl to reach \$80.9/bbl, and spot prices of fuel oil increased by 10.9% or \$6.3/bbl to reach \$64.1/bbl.

**- Singapore**

The spot prices of premium gasoline increased in February 2019, by 8.5% or \$5.2/bbl comparing with previous month levels to reach \$66.3/bbl, spot prices of gas oil increased by 8.9% or \$6.4/bbl to reach \$78.4/bbl, and spot prices of fuel oil increased by 10.6% or \$6.1/bbl to reach \$63.9/bbl.

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

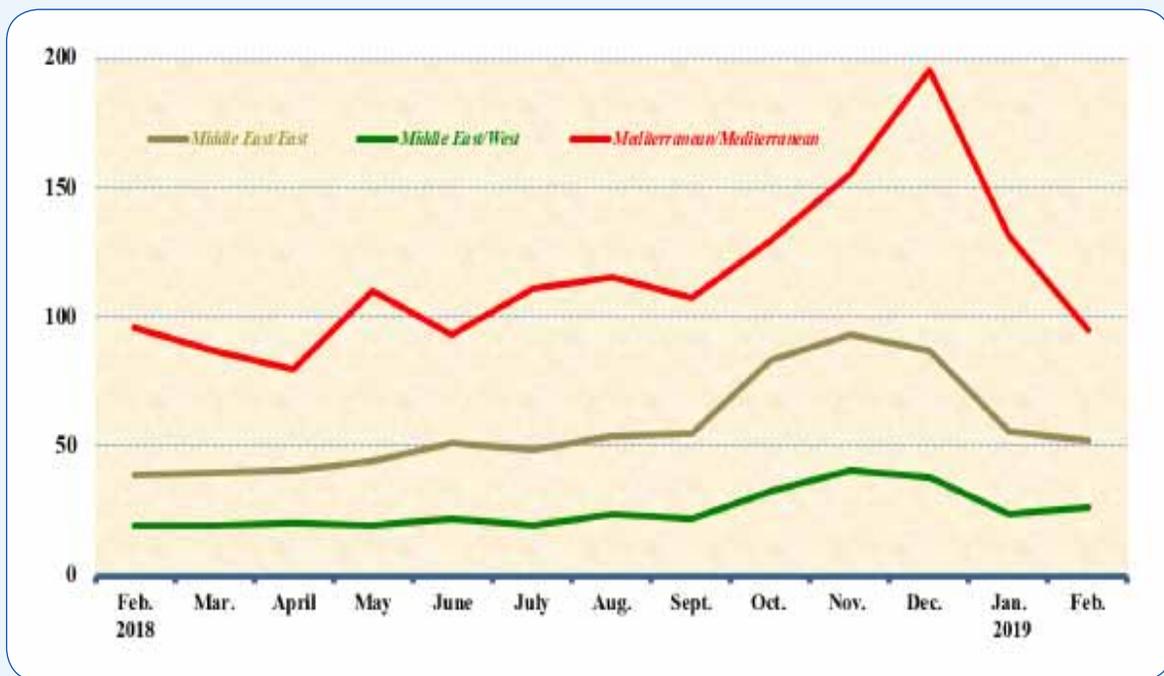
### 1-3 Spot Tanker Crude Freight Rates

In February 2019, Freight rates for crude oil for tanker size (230-280 thousand deadweight tons (dwt)), leaving Middle Eastern ports to the East, decreased by 4 points or 7.1% comparing with previous month to reach 52 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 36 points or 27.5% comparing with previous month to reach 95 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, increased by 2 points or 8.3% comparing with previous month to reach 26 points on the World Scale (WS).

**Figure (4)** shows the freight rates for crude oil to all three destinations from February 2018 to February 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 February 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 34 points, or 23.1% comparing with previous month to reach 113 points on WS.



And Freight rates for Petroleum Products across Mediterranean [for tanker size 30-35 thousand deadweight tons (dwt)], decreased by 17 points, or 9.6% comparing with previous month to reach 160 points on WS, freight rates for petroleum products [for tanker size 30-35 thousand deadweight tons (dwt)], leaving Mediterranean to North-West Europe decreased by 17 points, or 9.1% comparing with previous month to reach 170 points on the World Scale (WS).

Figure (5) shows the freight rates for oil products to all three destinations from February 2018 to February 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 February 2019 show an increase in world oil demand by 1% or 1 million b/d, comparing with the previous month level to reach 101 million b/d, representing an increase of 1.2 million b/d from their last year level.

Demand in OECD countries increased by 2.3% or 1.1 million b/d, comparing with the previous month level to reach 48.5 million b/d, representing an increase of 0.3 million b/d from their last year level. Whereas demand in Non-OECD countries decreased by 0.2% or 0.1 million b/d comparing with their previous month level to reach 52.5 million b/d, representing an increase of 0.9 million b/d from their last year level.

On the supply side, preliminary estimates show that world oil supplies for February 2019 increased by 0.1% or 0.1 million b/d, comparing with the previous month to reach 100.6 million b/d, representing an increase of 2.5 million b/d from their last year level.

In February 2019, OPEC crude oil and NGLs/condensates total supplies decreased by 0.6% or 0.2 million b/d, comparing with the previous month to reach 36 million b/d, representing a decrease of 0.7 million b/d from their last year level. Whereas preliminary estimates show that Non-OPEC supplies increased by 0.5% or 0.3 million b/d, comparing with the previous month to reach 64.6 million b/d, representing an increase of 3.2 million b/d from their last year level.

Preliminary estimates of the supply and demand for February 2019 reveal a shortage of 0.4 million b/d, compared to a surplus of 0.5 million b/d in January 2019 and a shortage of 1.7 million b/d in February 2018, as shown in [table \(2\)](#) and [figure \(6\)](#):

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

	February 2019	January 2019	Change from January 2019	February 2018	Change from February 2018
<i>OECD Demand</i>	48.5	47.4	1.1	48.2	0.3
<i>Rest of the World *</i>	52.5	52.6	-0.1	51.6	0.9
<i>World Demand</i>	<b>101.0</b>	<b>100.0</b>	<b>1.0</b>	<b>99.8</b>	<b>1.2</b>
<b><i>OPEC Supply :</i></b>	<u>36.0</u>	<u>36.2</u>	<u>-0.2</u>	<u>36.7</u>	<u>-0.7</u>
<i>Crude Oil</i>	30.4	30.6	-0.2	31.2	-0.8
<i>NGLs &amp; Cond.</i>	5.6	5.6	0.0	5.5	0.1
<b><i>Non-OPEC Supply</i></b>	62.2	61.9	0.3	59.0	3.2
<i>Processing Gain</i>	2.4	2.4	0.0	2.4	0.0
<b><i>World Supply</i></b>	<b>100.6</b>	<b>100.5</b>	<b>0.1</b>	<b>98.1</b>	<b>2.5</b>
<b><i>Balance</i></b>	<b>(0.4)</b>	<b>0.5</b>		<b>(1.7)</b>	

Source: Energy Intelligence Briefing Mar. 7, 2019.

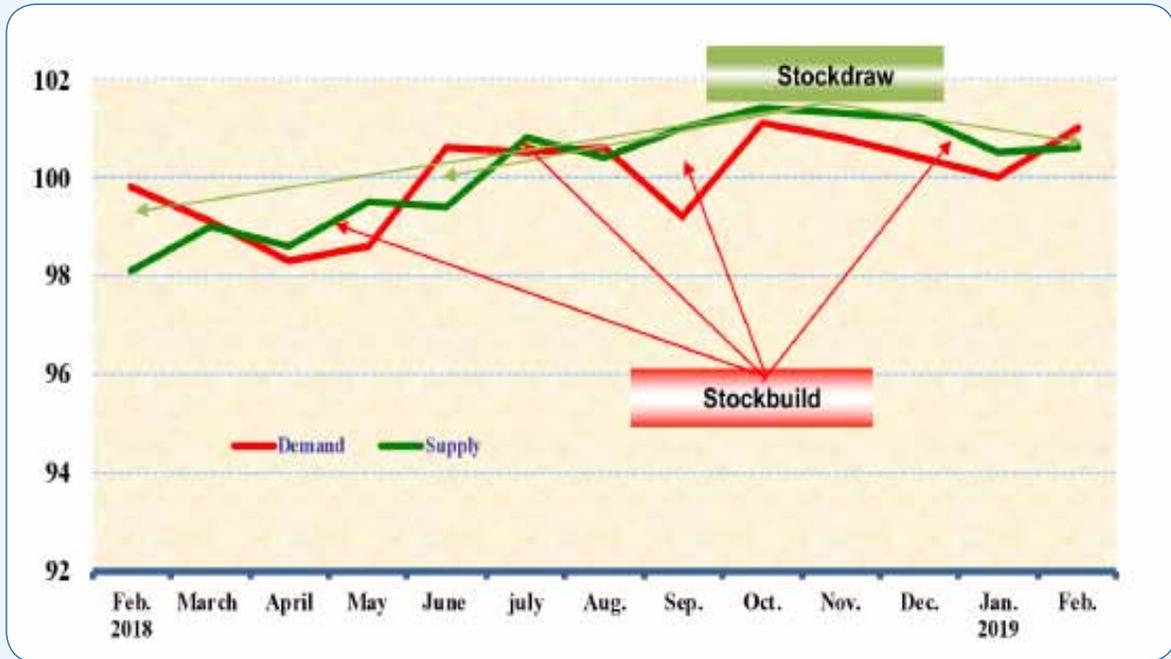
\* include 0.2 million b/d of oil needed to fill up the supply system for crude and products, and strategic reserves.



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 2017-2018.

**US tight oil production**

In February 2019, US tight oil production increased by 95 thousand b/d or 1.1% comparing with the previous month level to reach 8.3 million b/d, representing an increase of 1.8 million b/d from their last year level. The US oil rig count decreased by 15 rig comparing with the previous month level to reach 937 rig, a level that is 75 rig higher than last year, as shown in table (3) and figure (7):

Table 3

US tight oil production\*

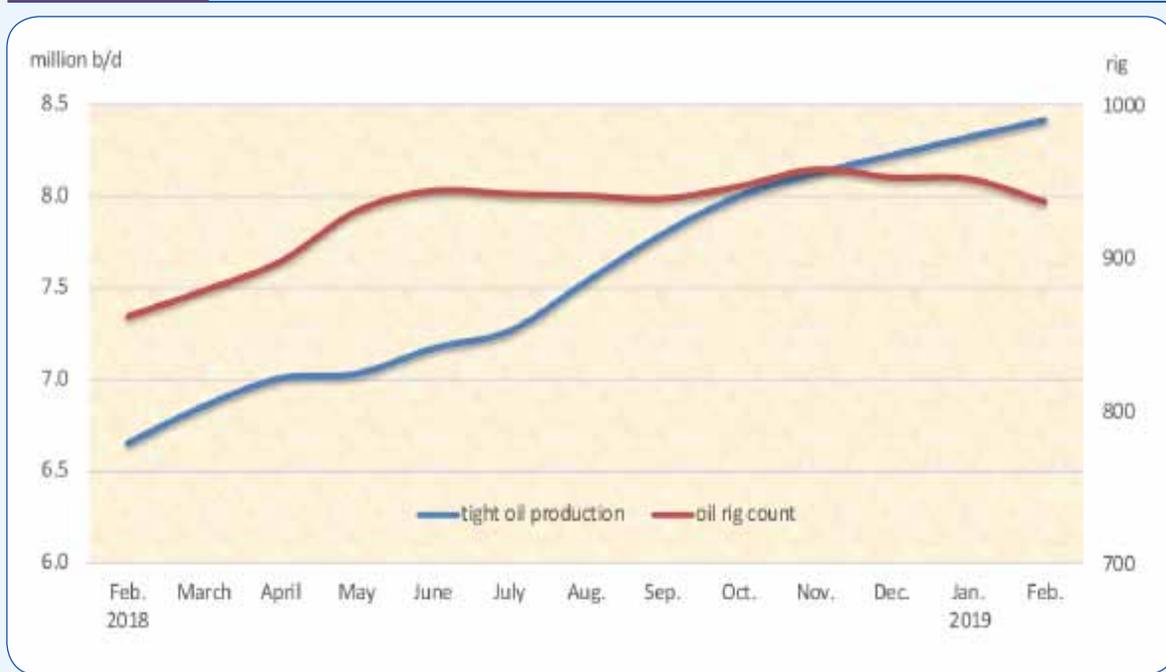
(Million b/d)

	February 2019	January 2019	Change from January 2019	February 2018	Change from February 2018
<i>tight oil production</i>	8.418	8.323	0.095	6.661	1.757
<i>Oil rig count (rig)</i>	937	952	(15)	862	75

Source: EIA, Drilling Productivity Report for key tight oil and shale gas regions, March 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 January 2019, US crude oil imports increased by 196 thousand b/d or 2.6% comparing with the previous month level to reach 7.7 million b/d. And US oil products imports increased by 303 thousand b/d or 17.3% to reach about 2.1 million b/d.

On the export side, US crude oil exports decreased by 199 thousand b/d or 8.1% comparing with the previous month level to reach 2.2 million b/d, and US products exports decreased by 674 thousand b/d or 12.1% to reach 5 million b/d. As a result, US net oil imports in January 2019 were 1.4 million b/d or nearly 114% higher than the previous month, averaging 2.6 million b/d.

Canada remained the main supplier of crude oil to the US with 53% of total US crude oil imports during the month, followed by Saudi Arabia with 10%, then Venezuela with 8%. OPEC Member Countries supplied 30% of total US crude oil imports.

#### Japan

In January 2019, Japan's crude oil imports increased by 255 thousand b/d or 9% comparing with the previous month level to reach 3.2 million b/d. Whereas Japan oil products imports (except LPG) decreased by 65 thousand b/d or 10% comparing with the previous month to reach 600 thousand b/d.

On the export side, Japan's oil products exports increased in January 2019, by 28 thousand b/d or 5% comparing with the previous month, averaging 639 thousand b/d. As a result, Japan's net oil imports in January 2019 increased by 162 thousand b/d or 5.3% to reach 3.2 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 26% and Qatar with 8% of total Japan crude oil imports.



### China

In January 2019, China’s crude oil imports decreased by 272 thousand b/d or 3% comparing with the previous month level to reach 10.1 million b/d. Whereas China oil products imports increased by 66 thousand b/d comparing with the previous month to reach 1.3 million b/d.

On the export side, China did not export any crude oil in January 2019, whereas China oil products exports decreased by 110 thousand b/d or 8% comparing with the previous month, averaging 1.4 million b/d. As a result, China’s net oil imports in January 2019 decreased by 96 thousand b/d or 0.9% to reach 10 million b/d.

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

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

	Crude Oil			oil Products		
	January 2019	December 2018	Change from December 2018	January 2019	December 2018	Change from December 2018
USA	5.409	5.015	0.394	-2.835	-3.811	0.976
Japan	3.250	2.995	0.255	-0.039	0.054	-0.093
Japan	10.059	10.331	-0.272	-0.013	-0.189	0.176

Source: OPEC Monthly Oil Market Report, various issues 2018 & 2019

## 4. Oil Inventories

In February 2019, OECD commercial oil inventories decreased by 23 million barrels to reach 2850 million barrels – a level that is 5 million barrels higher than a year ago. It is worth mentioning that during the month, commercial crude inventories in OECD increased by 22 million barrels to reach 1103 million barrels, whereas commercial oil products inventories decreased by 45 million barrels to reach 1747 million barrels.

Commercial oil inventories in Americas decreased by 12 million barrels to reach 1532 million barrels, of which 620 million barrels of crude and 912 million barrels of oil products. Whereas Commercial oil Inventories in Europe increased by 7 million barrels to reach 936 million barrels, of which 328 million barrels of crude and 608 million barrels of oil products. And Commercial oil inventories in Pacific decreased by 18 million barrels to reach 382 million barrels, of which 155 million barrels of crude and 227 million barrels of oil products.

In the rest of the world, commercial oil inventories increased by 70 million barrels to

reach 2983 million barrels, whereas the Inventories at sea decreased by 38 million barrels to reach 1167 million barrels.

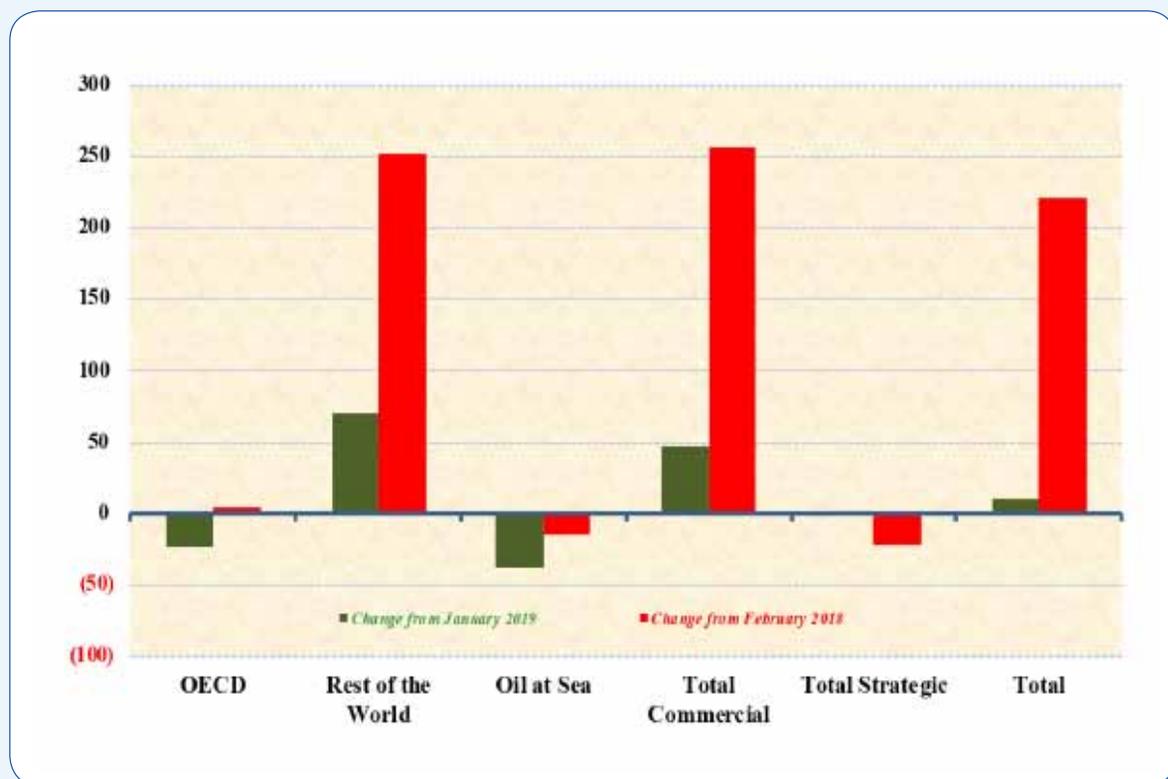
As a result, Total Commercial oil inventories in February 2019 increased by 47 million barrels to reach 5833 million barrels – a level that is 257 million barrels higher than a year ago.

Strategic inventories in OECD-34, South Africa and China increased by 1 million barrels to reach 1830 million barrels – a level that is 22 million barrels lower than a year ago

Total world inventories, at the end of February 2019 were at 8831 million barrels, representing an increase of 11 million barrels comparing with the previous month, and an increase of 221 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 February 2019.

**Figure - 8** Changes in Global Inventories at the End of February 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 February 2019 decreased by \$0.4/million BTU comparing with the previous month, to reach \$2.69/million BTU.



The comparison, shown in **table (5)**, between natural gas prices and the WTI crude reveal differential of \$6.8/ 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>)

	Feb. 2018	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan. 2019	Feb.
<i>Natural Gas</i> <sup>(2)</sup>	2.7	2.7	2.8	2.8	3.0	2.8	2.9	3.0	3.3	4.1	4.1	3.1	2.7
<i>WTI Crude</i> <sup>(3)</sup>	10.7	10.8	11.4	12.1	11.7	12.2	11.7	12.1	12.2	9.8	8.5	8.9	9.5

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 2019, the price of Japanese LNG imports increased by \$0.01/million BTU comparing with the previous month to reach \$11.22 million BTU, and the price of Korean LNG imports increased by \$0.23/million BTU comparing with the previous month to reach \$11.25/ million BTU, Whereas the price of Chinese LNG imports remained stable at the same previous month level of \$8.53/ million BTU.

### 2.2. LNG Imports

Total Japanese, Korean and Chinese LNG imports from various sources, decreased by 1.7% or 319 thousand tons from the previous month level to reach 17.959 million tons.

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

**Table 6 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

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 6.341 million tons or 35.3% of total Japan, Korea and China LNG imports in January 2019, followed by Qatar with 17.6% and Malaysia with 10.6%.

The Arab countries LNG exports to Japan, Korea and China totaled 4.292 million tons - a share 23.9% 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 \$7.23/million BTU at the end of January 2019, followed by Indonesia with \$7.04/million BTU then Malaysia with \$6.99/million BTU, and Australia with \$6.94/million BTU. LNG Qatar’s netback reached \$6.61/million BTU, and LNG Algeria’s netback reached \$6.07/million BTU.

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

**Table 7** LNG Exporter Main Countries to Japan, Korea and China, And Their Netbacks\* at The End of January 2019

	Imports (thousand tons)				Spot LNG Netbacks at North East Asia Markets (\$/million BTU)
	Japan	Korea	China	Total	
<b>Total Imports, of which:</b>	<b>7547</b>	<b>3832</b>	<b>6580</b>	<b>17959</b>	
<b>Australia</b>	2835	778	<b>2728</b>	<b>6341</b>	<b>6.94</b>
<b>Qatar</b>	929	1170	<b>1063</b>	<b>3162</b>	<b>6.61</b>
<b>Malaysia</b>	859	491	<b>561</b>	<b>1911</b>	<b>6.99</b>
<b>Indonesia</b>	600	111	<b>458</b>	<b>1169</b>	<b>7.04</b>
<b>Russia</b>	617	126	<b>197</b>	<b>940</b>	<b>7.23</b>

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



## Tables Annex

