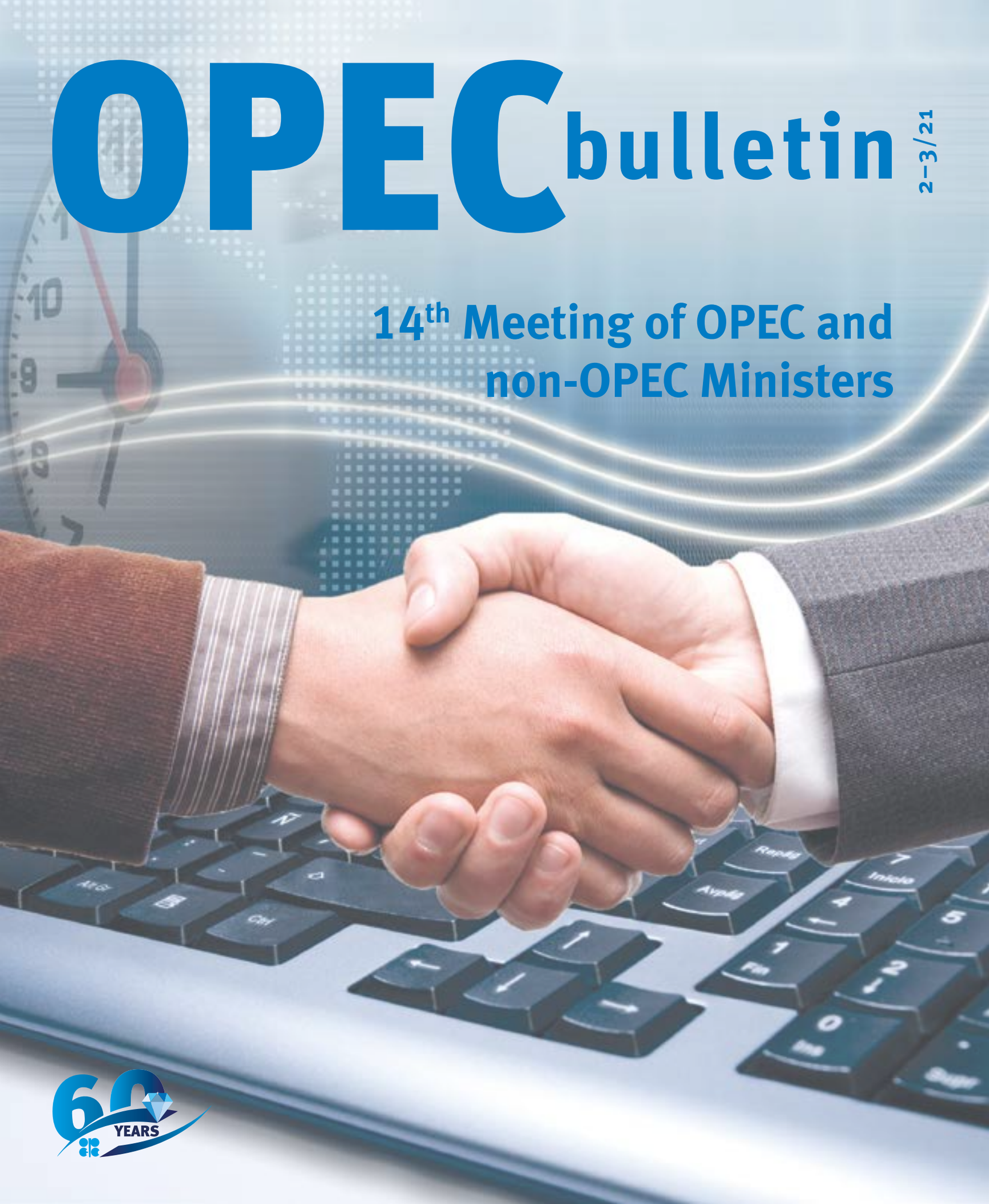
OPEC bulletin

2–3/21

14th Meeting of OPEC and non-OPEC Ministers



60 YEARS

A model of collaboration and crisis management

One year after the coronavirus pandemic ushered in one of the greatest challenges of modern times, the global oil market is enjoying relative stability. Cautious optimism has replaced the pervasive gloom of a year earlier.

The 14th OPEC and non-OPEC Ministerial Meeting (ONOMM), held on March 4, agreed to maintain most of the current production adjustments in April. Saudi Arabia also extended its supplemental 1 million b/d adjustment for a third month. The decisions reflect the vigilant, forward-looking approach taken by the 'Declaration of Cooperation' (DoC) participating countries as part of their ongoing work to support sustainable oil market stability.

The market has come a long way in a remarkably short time. Only a year ago, the increasingly sombre news about COVID-19 and its impact on economies around the world crushed oil demand and stockpiles grew. The oil market faced an existential crisis. Concerted action was needed.

With the benefit of hindsight, we now know that April 12, 2020, marked a crucial milestone in addressing the looming oil market imbalance. On that day, the OPEC and non-OPEC countries in the DoC met on screen to undertake the boldest action since their collaboration began in December 2016.

Backed by international support at the highest levels, the DoC producers agreed to the largest and longest oil production adjustments in history. The initial adjustments accounted for nearly ten per cent of global demand. Put in a historical context, this amounted to more than the combined production of the five OPEC Founder Members when the Organization was formally established in 1960.

The stage for action was already being set by the DoC countries at meetings three days earlier, on April 9, with seven additional oil-producing nations and other observers in attendance. The next day, April 10, the G20 Energy Ministers, meeting in an extraordinary session under Saudi Arabia's Presidency of the group, lent influential support to the DoC by agreeing "to use all available policy tools to maintain market stability" and to "ensure that the energy sector continues to make a full, effective contribution to overcoming COVID-19 and powering the subsequent global recovery."

"There is a huge historic challenge before us, but I firmly believe that is not insurmountable if we work together in solidarity and courage for the common cause of market stability," Mohammad Sanusi Barkindo, OPEC Secretary General, told the G20 Energy Ministers at the time.

Viewed from today's perspective, Barkindo's words were prophetic. In the ensuing days, weeks and months, world leaders, oil majors and energy stakeholders grew increasingly confident that the DoC would help pilot the oil market through the pandemic crisis.

The participating countries lived up to expectations, working side-by-side to help staunch the oil market haemorrhage, create stability, and maintain a steady flow of energy to the global economy. Throughout this process, the DoC has kept the channels of communication open to both producing and consuming countries, which share a common interest in market stability.

Researchers will without doubt be analysing the pandemic for years to come in search of ways to mitigate societal and economic harm in future crises. At first glance, there are some very important lessons to be learnt from OPEC and the DoC, including:

- OPEC's strong and trusted relationships at the multilateral level and with global energy stakeholders, including the leading consuming nations, underpinned the oil market stabilization efforts and helped reassure stakeholders;
- Strengthened monitoring and monthly meetings of the DoC's Joint Technical Committee (JTC) and Joint Ministerial Monitoring Committee (JMMC) provided crucial firepower to support strategic decision-making;
- Timely, relevant and accurate data and information sharing, and strengthened cooperation with established secondary sources, aided the flow of information needed to quickly assess the market and keep pace with rapidly changing events.

Other supporting factors — strong overall conformity to the production adjustments; additional voluntary adjustments that bolstered the collective efforts; and an innovative compensation plan for overproduction — further strengthened the DoC's capacity to support the oil market's resilience and the economic recovery.

The battle against COVID-19 is still raging, and mutations have outflanked some of the best defences. There is understandable concern about the unevenness of progress on inoculating the world and restoring its economic potential. Moreover, there is a risk that some economic recovery initiatives could reshape the energy balance without giving enough consideration to long-term stability and security of supply. Given the uncertainties, collaboration is as vital today as it was a year ago.

Cooperation requires a lot of hard work and invariably entails compromises, even in the best of times. Reflecting on the events since April 12, 2020, the efforts of OPEC and the DoC stand as a model of what can achieved through collaboration. The swift and concerted actions of a few, acting in the interests of the many, have been instrumental in supporting a commodity that is indispensable to the recovery and future energy needs.

One year on, the significance of these efforts is becoming clearer.

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This month’s cover reflects the 14th OPEC non-OPEC Ministerial Meeting (see page 4).
Photograph courtesy Shutterstock.

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OPEC Membership and aims
OPEC is a permanent, intergovernmental Organization, established in Baghdad, on September 10–14, 1960, by IR Iran, Iraq, Kuwait, Saudi Arabia and Venezuela. Its objective — to coordinate and unify petroleum policies among its Member Countries, in order to secure a steady income to the producing countries; an efficient, economic and regular supply of petroleum to consuming nations; and a fair return on capital to those investing in the petroleum industry. Today, the Organization comprises 13 Members: Libya joined in 1962; United Arab Emirates (Abu Dhabi, 1967); Algeria (1969); Nigeria (1971); Angola (2007); Equatorial Guinea (2017). Ecuador joined OPEC in 1973, suspended its Membership in 1992, rejoined in 2007, and suspended its Membership again on December 31, 2019. Qatar joined in 1961 and left on December 31, 2018. Indonesia joined in 1962, suspended its Membership on December 31, 2008, reactivated it on January 1, 2016, but suspended its Membership again on December 31, 2016. Gabon joined in 1975 and left in 1995; it reactivated its Membership on July 1, 2016. The Republic of the Congo joined the Organization on June 22, 2018.

Cornelia Meyer

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'Declaration of Cooperation' continues to chart course to recovery

HRH Prince Abdul Aziz Bin Salman Al Saud, Saudi Arabia's Minister of Energy and Chairman of the 14th OPEC and non-OPEC Ministerial Meeting (ONOMM).

Ministers of the OPEC and non-OPEC countries in the 'Declaration of Cooperation' (DoC) agree to extend the production levels of March into April. Russia and Kazakhstan received exceptions due to continued seasonal consumption needs, while Saudi Arabia extended its additional voluntary adjustment.

The 14th Meeting of OPEC and non-OPEC Ministers took place on March 4, 2021, under the Chairmanship of HRH Prince Abdul Aziz bin Salman Al Saud, Saudi Arabia's Minister of Energy, and Co-Chair Alexander Novak, Deputy Prime Minister of the Russian Federation.

In their second meeting of the year, the Ministers emphasized the ongoing positive contributions of the DoC in supporting a rebalancing of the global oil market in line with the historic decisions taken at the 10th (Extraordinary) OPEC and non-OPEC Ministerial Meeting on April 12 2020.

Delegates to the 14th ONOMM.

"We have a come a long way since we first agreed on the largest, and for the longest duration, production adjustments in the history of the oil industry in April 2020," Mohammad Sanusi Barkindo, OPEC Secretary General, told the ONOMM in his opening remarks. "Our results are testimony to what can be achieved by cooperation, dialogue and respect among nations."

The ministers noted the significant extra supply adjustment made by Saudi Arabia, which took effect on February 1, and commended Saudi Arabia for the extension of the additional voluntary adjustments of 1 million barrels/day (m b/d) into April.

Alexander Novak, Co-Chair of the 14th OPEC and non-OPEC Ministerial Meeting (ONOMM) and Deputy Prime Minister of the Russian Federation.

"From the perspective of the oil market and the DoC, it is clear that the ministerial decision we took at the beginning of January, and the extremely generous voluntary production adjustment of 1m b/d from the Kingdom of Saudi Arabia, have proven to be sound and judicial," Barkindo said.

The Ministers approved a continuation of the production levels of March for the month of April, with the exception of Russia and Kazakhstan, which can raise production by 130,000 and 20,000 b/d, respectively, due to continued seasonal consumption patterns.

Cautious optimism

The decisions reflected the cautious optimism of the participating countries, with signs of improving economic conditions counterbalanced by concerns about the continued risks associated with COVID-19. The spread of malicious mutations has forced some jurisdictions to postpone the easing of strict containment measures, while the pace of mass inoculations in many parts of the world remains uneven.

"Today, we need to decide on the next steps as we chart a path for the second quarter of 2021 and beyond," Barkindo said. "What is clear is that we cannot be taken in by all the market euphoria and believe our work is done. We cannot get ahead of ourselves. We need to proceed with caution, guided by the data and analysis so as to continue to make informed decisions."

Prince Abdul Aziz, Chairman of the ONOMM and the Joint Ministerial Monitoring Committee (JMMC), also alluded to concerns about the pace of vaccinations, noting that the "recovery in global oil demand is closely linked to vaccine acceptance and the speed at which these vaccines are being rolled out around world.

"The uncertainty surrounding the pace of recovery has not receded. And we have learned in the course of the past year the difficulty of making hard predictions in such an unpredictable environment."

Prince Abdul Aziz urged "caution and vigilance" and called on all DoC participating countries to avoid complacency.

His comments were echoed by Novak, who highlighted the improving outlook but noted that the spread

Dr Diamantino Pedro Azevedo, Angola's Minister of Mineral Resources and Petroleum and President of the OPEC Conference.

of news strains of the coronavirus illustrate that uncertainties remain. "We all need to stick to our voluntary production levels," he told the delegates.

The 14th ONOMM took place the same week that the World Health Organization (WHO) announced that the number of new global infections rose at the end of February for the first time in seven weeks. As the delegates met, the cumulative number of COVID-19 cases topped 115 million with more than 2.5m people having lost their lives since the beginning of the outbreak.

A year into the pandemic, however, there were signs that a number of countries, including the US, were beginning to turn the tide with accelerated vaccination efforts.

Aggregate conformity over 100 per cent

Amidst the cautious atmosphere, there was also recognition that the collective efforts of the DoC have supported stability and improvements in the demand and supply outlook. The delegates welcomed the positive performance of participating countries, noting that overall conformity since May 2020 was 103 per cent, reflecting the trend of aggregate high conformity by participating countries.

The Meeting noted that since the April 2020 ONOMM meeting, OPEC and non-OPEC countries had withheld 2.3 billion barrels of oil by end of January 2021, thus accelerating the oil market rebalancing.

In his remarks to the delegates, Dr Diamantino Pedro Azevedo, Minister of Mineral Resources and Petroleum of Angola and President of the OPEC Conference, encouraged "each and every Delegation here today to retain a high level of vigilance in the days and months to come. This is the only way we will achieve a sustainable stability, and it is the only way in which we will fully support the global economic recovery we are all waiting to see return.

"Today, as always," the OPEC Conference President said, "we will carry out our due diligence in thoroughly assessing the current outlook and acting in the best interest of all industry stakeholders. Thus, let us now buckle down and reassert our full commitment and energy to achieving a stable oil market, a recovered and growing global economy and a brighter future for all."

In other actions, the ministers:

- Welcomed the appointment of Dr Mohammad Abdullatif Alfares as Minister of Oil and Minister of Higher Education of Kuwait, and the return of Mohamed Arkab as Minister of Energy and Mines of Algeria.
- Extended special thanks to Nigeria for achieving full conformity in January 2021, and compensating its entire overproduced volumes.
- Thanked Timipre Sylva, Minister of State for Petroleum Resources of Nigeria, for his shuttle diplomacy as Special Envoy of the JMMC to Congo, Equatorial Guinea, Gabon and South Sudan to discuss matters pertaining to conformity levels with the voluntary production adjustments and compensation of over-produced volumes.
- Agreed to the request by several countries, which had not yet completed their compensation, for an extension of the compensation period until end of July 2021.
- Urged all participants to achieve full conformity and make up for previous compensation shortfalls, to reach the objective of market rebalancing and avoid undue delay in the process.

Participants seen on the videoscreen.

Mohammad Sanusi Barkindo, OPEC Secretary General, with members of Management and staff of the OPEC Secretariat.

Mohammad Sanusi Barkindo, OPEC Secretary General.

'We need to be vigilant and careful' — 14th ONOMM press conference

Above: HRH Prince Abdul Aziz Bin Salman Al Saud, Saudi Arabia's Minister of Energy and Chairman of the 14th OPEC and non-OPEC Ministerial Meeting (ONOMM); and above right: Alexander Novak, Co-Chair of the meeting and Deputy Prime Minister of the Russian Federation.

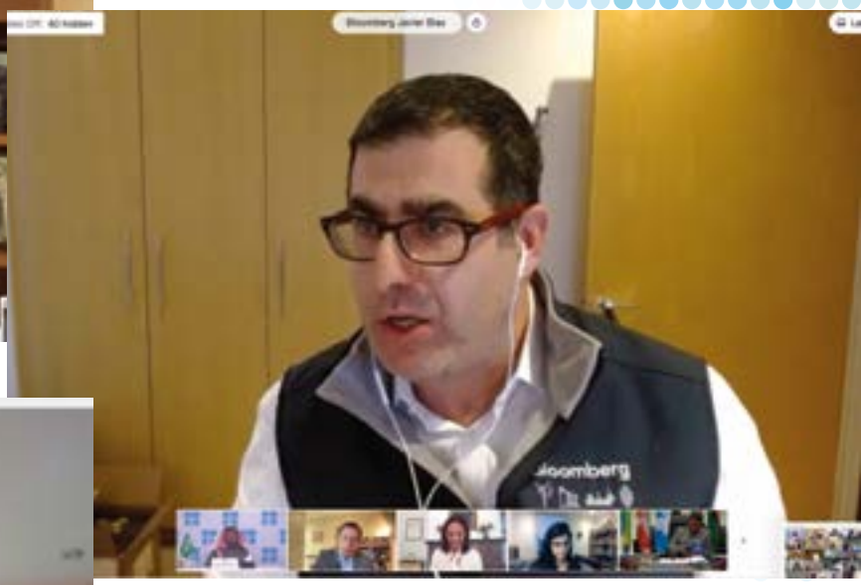
Journalists and other market observers participated in a virtual press conference following the conclusion of the 14th OPEC and non-OPEC Ministerial Meeting (ONOMM). HRH Prince Abdul Aziz Bin Salman Al Saud, Saudi Arabia's Minister of Energy, Alexander Novak, Deputy Prime Minister of the Russian Federation, and Mohammad Sanusi Barkindo, OPEC Secretary General, fielded questions from the 77 journalists and analysts who joined the conference.

Alexander Novak, Deputy Prime Minister of the Russian Federation, began the conference with a short overview of the ONOMM, describing the discussions as 'fruitful' and 'productive'. Ministers discussed an array of topics and a range of opinions was expressed, but they came to a consensus decision. The meeting carefully reviewed key trends in the economy and saw grounds for 'careful optimism'. Given the situation, participating countries agreed to continue with the 'parameters of the DoC' and review the situation in a month.

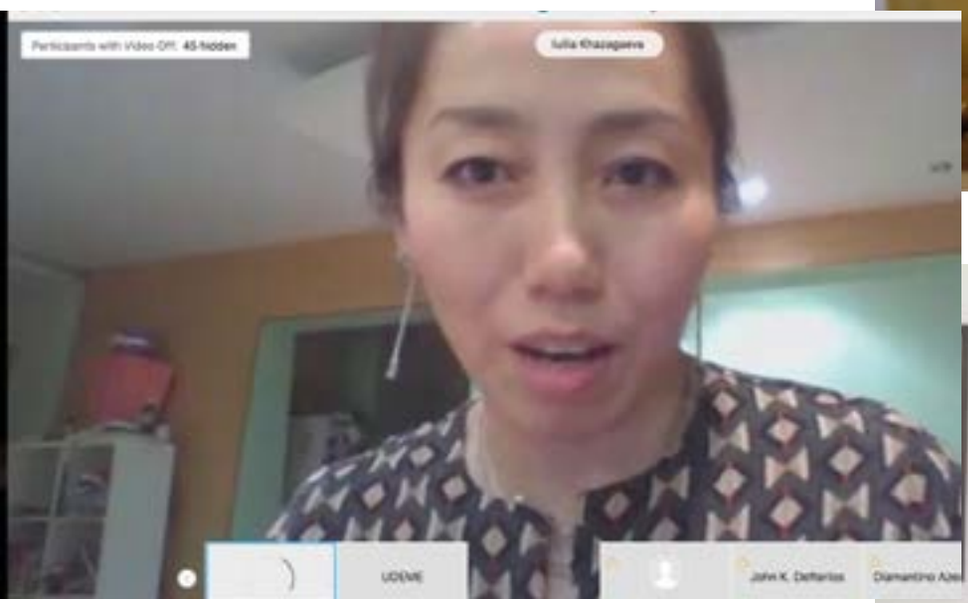
Prince Abdul Aziz emphasized throughout the conference the need for cautiousness by participating countries. He explained how the Ministers had come to their decision to approve a continuation of the production levels of March for the month of April, with the exception of Russia and Kazakhstan, which will be allowed to increase production by 130,000 and 20,000 barrels/day, respectively, due to continued seasonal consumption patterns.

The cautious approach was also reflected in Saudi Arabia's decision to continue its additional 1 million b/d (m b/d) voluntary adjustment for another month. All participants will continue to carefully monitor the market and

CNN Anchor, John Defterios.



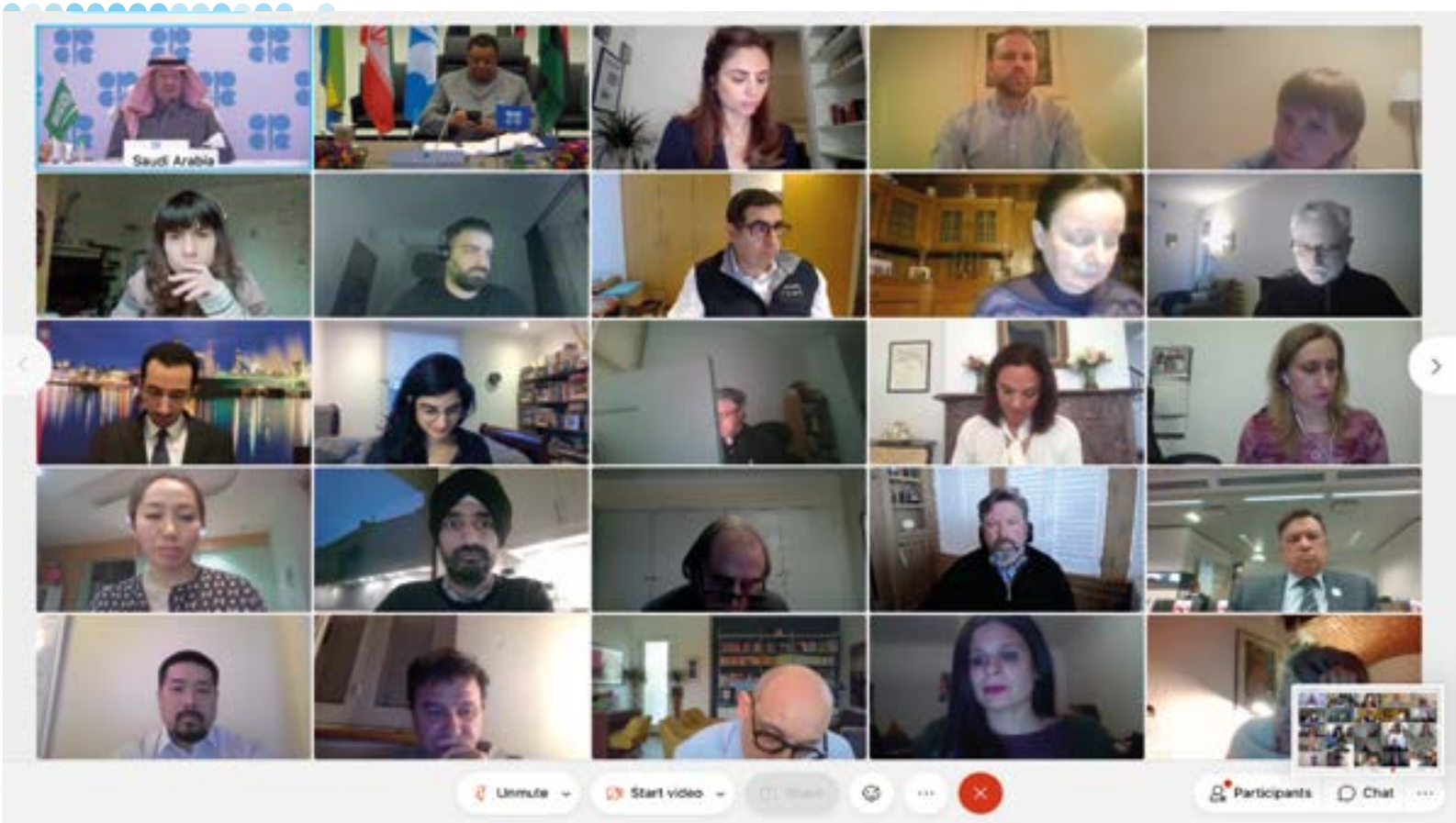
Javier Blas from Bloomberg.



Iuliia Khazagaeva of Tass News Agency.

Helima Croft, Managing Director and Global Head of Commodity Strategy at RBC Capital Markets.

Roger Diwan, Vice President, IHS Markit.



Media representatives and delegates to the 14th Meeting of the ONOMM, attending the videoconference.

adjust strategy accordingly, as necessary. The Minister also emphasized the need to continue 'disciplined compensation schemes.'

Recognition for Nigeria's role

As he had done in his opening remarks, Prince Abdul Aziz paid tribute to Nigeria for 'graduating', as Nigeria had achieved full conformity with its voluntary adjustments in production in January 2021, and compensated for its entire overproduced volumes. He also praised Timipre Sylva, Minister of State for Petroleum Resources of Nigeria, for his shuttle diplomacy as Special Envoy of the JMMC to Congo, Equatorial Guinea, Gabon and South Sudan. The Secretariat will organize workshops between those four countries and the secondary sources, to resolve any outstanding issues.

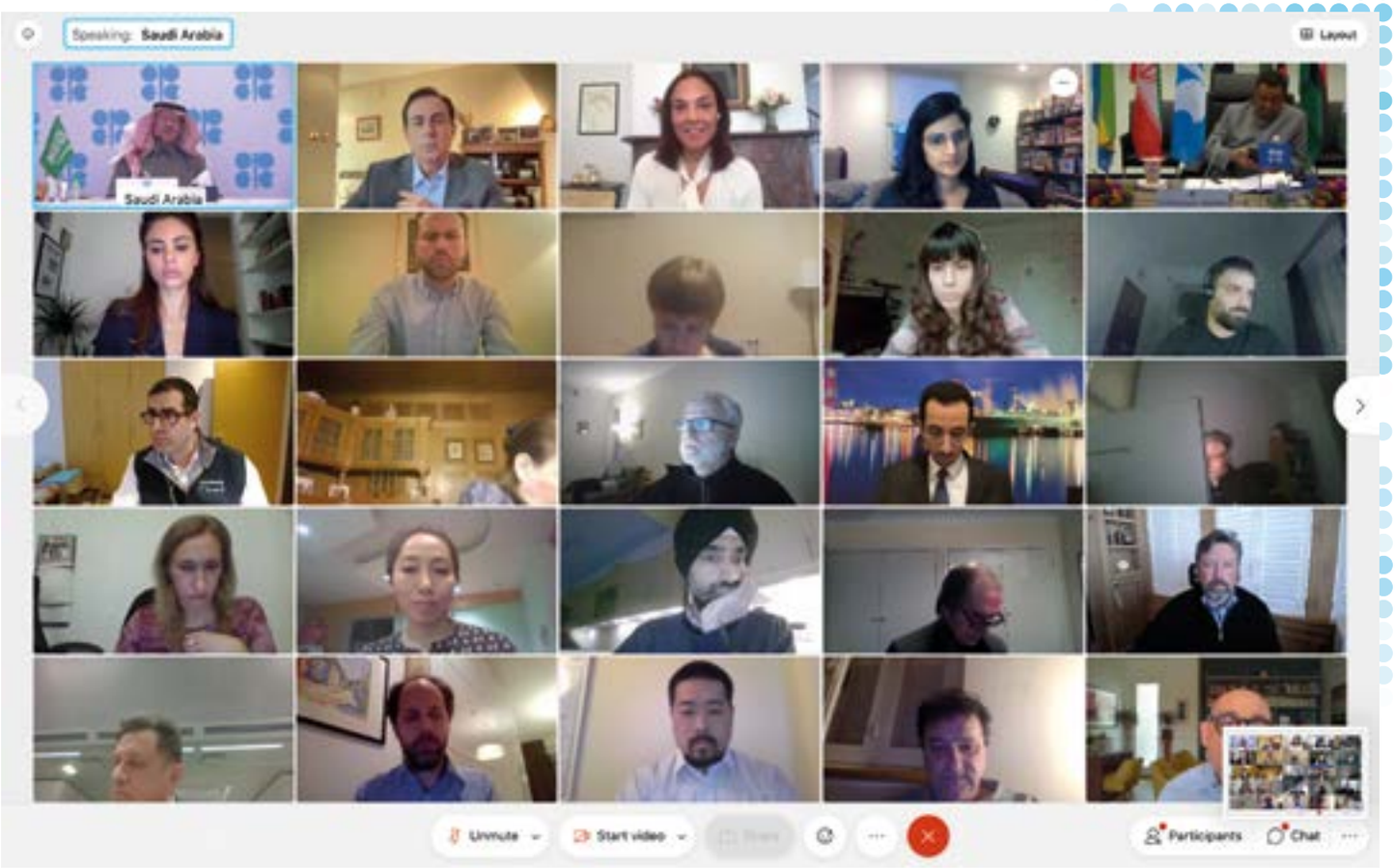
Prince Abdul Aziz said during the meetings that participating countries which had overproduced provided assurances they would compensate and asked for an extension of the compensation scheme. Based on this request, the compensation scheme was extended until July.

The Minister explained that the cautious approach was based on careful analysis of current trends in the world economy. "Look at what is happening … it does not make you feel at ease with adventurism," he said, adding, "Prudence dictates caution." When asked if there were risks of a super-cycle in commodity markets or if markets were overheating, he responded, "I will believe it when I see it." He reminded participants that thus far only a fraction of the world's population has been vaccinated against the coronavirus.

Prince Abdul Aziz cautioned against the notion that there was a concern that the ONOMM decisions may stimulate other producers. He emphasized this was not a 'determinant'. "We are concerned about the well-being of the energy industry and the hydrocarbon industry," he said, adding, "There is no point in getting into zero-sum games." The Minister reminded participants of his priorities: "I care about discipline; I care about bringing inventories to a normal level. Sometimes backwardation misleads you."

'Serious number crunching'

Prince Abdul Aziz stressed that fact-based decision-making informs the DoC. "We do careful work … serious



number crunching. We need to be vigilant and careful." He reminded participants about how far the market had come in a year, noting that the DoC participants "served the world economy [and] served the energy industry" by helping to support sustainable, stable markets. Without the DoC's efforts, "Can you imagine where would we be today? Can you imagine the continuity of chaos?" Given recent global developments, he stressed, the "only thing certain is uncertainty. To do the job effectively, we need to abandon the word 'adventure'."

Prince Abdul Aziz emphasized how his Bedouin background made him generally prone to caution in policy: "As a Bedouin, we are, by design, cautious. We do not make a move without seeing if it is safe." He reminded participants of events in 2008, including his own involvement at the Jeddah Energy Meeting in June that year. The lesson he drew from this was never to talk of prices, the priority was avoidance of volatility.

When discussing the future of the energy industry, he emphasized that the key question was: "how to ensure the sustainability of the industry in the future when adopting to the challenge of climate change?" He stressed that: "We seek to set an example of how a hydrocarbon producer can adopt to the trends of future. We will work together in bringing solutions."

Hasan Hafidh (c), Head of OPEC's PR & Information Department, moderated the press conference.

JMMC holds its 27th meeting

The 27th Joint Ministerial Monitoring Committee (JMMC) took place on March 3, 2021, under the chairmanship of HRH Prince Abdul Aziz bin Salman Al Saud, Saudi Arabia's Minister of Energy, and Co-Chair Alexander Novak, Deputy Prime Minister of the Russian Federation.

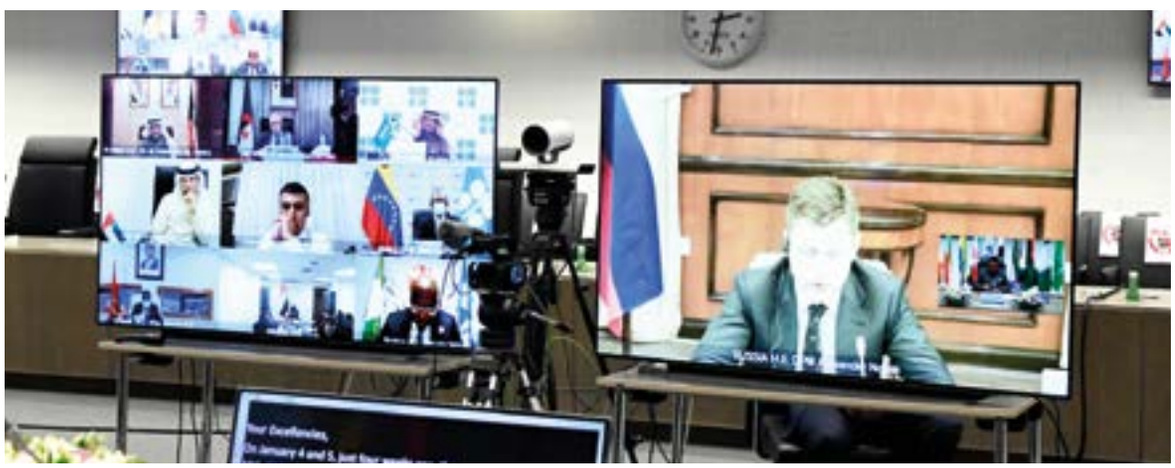
In his opening remarks to the video meeting, Mohammad Sanusi Barkindo, OPEC Secretary General, noted the positive developments since the previous JMMC meeting on February 3.

"Since then we have seen more cautious optimism seep into the global economy and the oil market outlook. This is being driven by the implementation of the production adjustments through the DoC, and the hope surrounding the COVID-19 vaccine rollout and its impact on reducing infection rates."

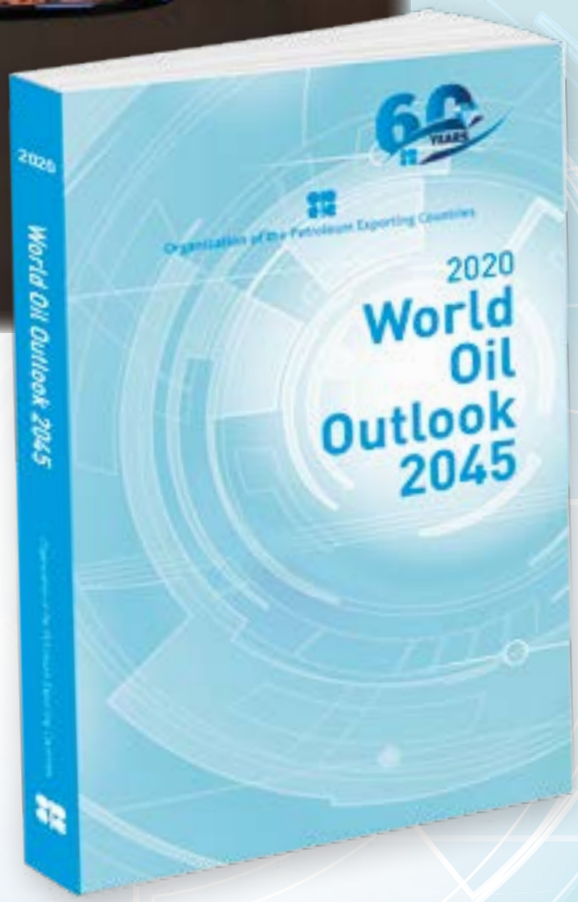
The JMMC's third meeting of 2021, which was preceded on March 2 by the Joint Technical Committee, set the stage for the 14th ONOMM on March 4.

The three meetings took place amid improving global economic and oil market developments, but amid concerns about the persistence of the COVID-19 pandemic and spread of malicious mutations of the virus.

Barkindo emphasized the mixed picture in his remarks to the JMMC. "While there is more positivity in the outlook, there remain uncertainties. We need to remain fully focused on our goals sustained market stability and bringing down inventory levels. It remains a challenging environment, and a complex one too. We cannot get ahead of ourselves."



Co-Chair Alexander Novak (r), Deputy Prime Minister of the Russian Federation, and participants (l) of the meeting held via videoconference.



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JMMC holds its 26th meeting amid brighter market outlook

Meeting for the second time in 2021, the Joint Ministerial Monitoring Committee (JMMC) emphasized the ongoing contributions of the 'Declaration of Cooperation' (DoC) in supporting a rebalancing of the global oil market during its meeting February.

HRH Prince Abdul Aziz bin Salman Al Saud, Saudi Arabia's Minister of Energy.

Mohammad Sanusi Barkindo, OPEC Secretary General.

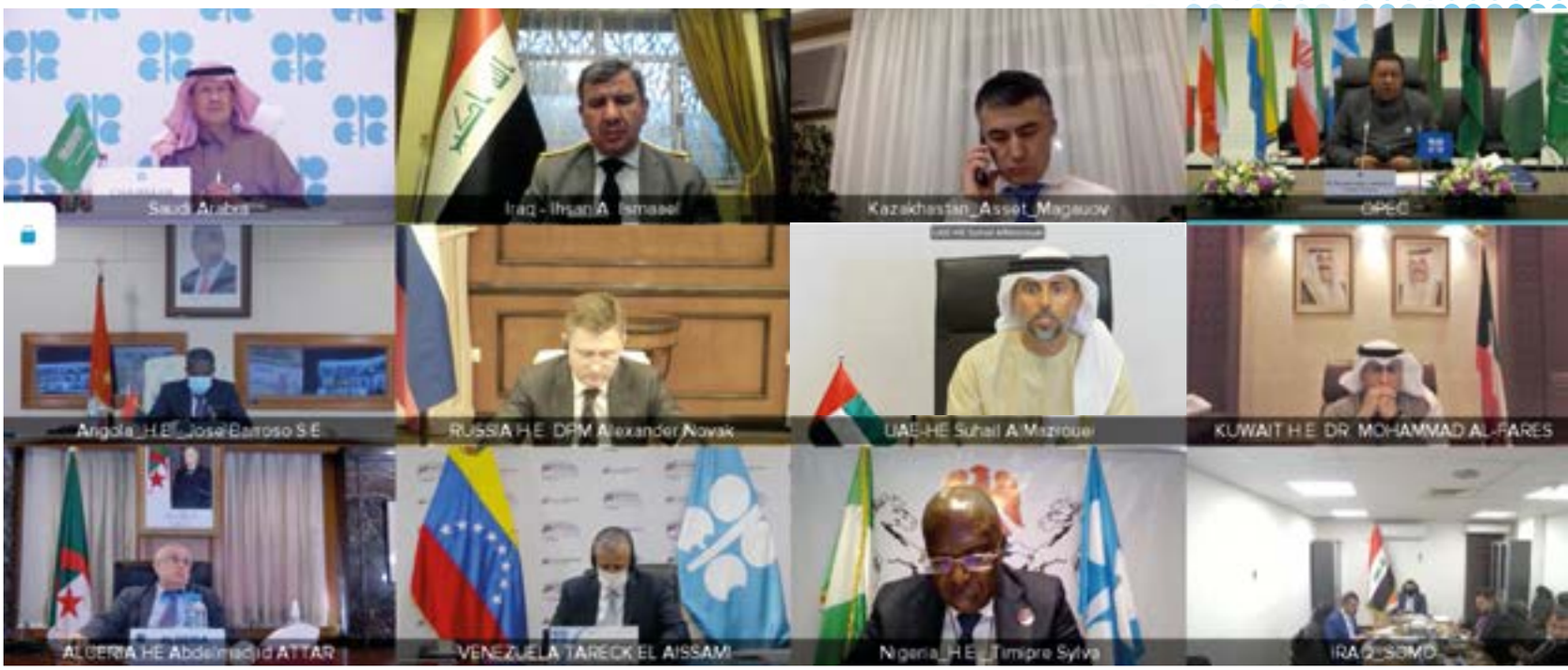
The 26th Meeting of the JMMC took place on February 3, 2021, amid growing optimism about the economic outlook and oil market prospects for 2021.

Under the chairmanship of HRH Prince Abdul Aziz bin Salman Al Saud, Saudi Arabia's Minister of Energy, and Co-Chair Alexander Novak, Deputy Prime Minister of the Russian Federation, the JMMC took note of the additional voluntary adjustments made by Saudi Arabia for February and March. The JMMC emphasized Saudi Arabia's leadership and recognized the need for all participating countries to be flexible and pre-emptive.

In his opening remarks to the video meeting, Mohammad Sanusi Barkindo, OPEC Secretary General, took note Saudi Arabia's efforts along with the overall contributions since the 13th OPEC and non-OPEC Ministerial Meeting (ONOMM) decided at the start of the year to maintain January 2021 DoC production adjustment levels into February and March.

"The meeting also saw the Kingdom of Saudi Arabia continuing to lead from the front by voluntarily adjusting downwards by a further 1 million b/d in February and March, an extremely generous commitment to the DoC in its continued and dedicated pursuit of market rebalancing and sustainable stability. The oil market has welcomed this exemplary leadership by the Kingdom of Saudi Arabia."

"In reviewing the market over the past month," Barkindo said, "it is evident that the early January analysis and the ministerial decisions taken have proven to be fitting and appropriate," he said. But he added that rising infections even as vaccination campaigns expand



Delegates attending the video conference.

underscore "that we need to keep our eyes on the path ahead, and recognize that the path will not always be straight. We cannot lose sight of our objectives. We must stay the course."

In the JMMC's second meeting of 2021, the committee took note of the positive performance of participating countries, with overall conformity reaching 101 per cent in December. Overall, the DoC participants have adjusted oil production down by a cumulative 2.1 billion barrels since the decisions taken at the 10th OPEC and non-OPEC Ministerial Meeting (ONOMM) of April 12, 2020. Those decisions ushered in the largest stabilization effort in oil market history.

The production adjustments agreed in April, totalling an initial 9.7m b/d, followed by phased reductions in the adjustment levels over a further 22 months, were unparalleled in scope and duration. These efforts, the JMMC said, have helped stabilize the oil market and accelerate the rebalancing process.

Speaking on behalf of Dr Diamantino Pedro Azevedo, Angola's Minister of Energy and President of the OPEC Conference in 2021, José Barroso, Angola's Secretary of State for Oil and Gas.

'Steady as she goes'

In his remarks to the JMMC, Prince Abdul Aziz referred the progress on rebalancing the market. "We can all take comfort from the way the global oil market has improved over the past month and from the work of the OPEC+ partners," he said. The 2.1 billion barrel in cumulative adjustments have "greatly benefitted the rebalancing process. We can also take satisfaction from the continued high-level of conformity to the targets we have set."

"There have been also encouraging signs on the compensation plans that we have agreed, which was an

Co-Chair of the JMMC, Alexander Novak, Deputy Prime Minister of the Russian Federation.

The JMMC called upon Timipre Sylva, Nigeria's Minister of State for Petroleum Resources, to serve as a special envoy.

essential item in the OPEC+ toolbox," Prince Abdul Aziz said, urging all countries to achieve full conformity and to compensate for overproduced volumes.

Using a nautical metaphor, "steady as she goes," to describe the DoC and its stabilization efforts, he added: "We are on the right course heading towards oil market rebalancing."

Speaking on behalf of Dr Diamantino Pedro Azevedo, Angola's Minister of Energy and President of the OPEC Conference in 2021, José Barroso, Angola's Secretary of State for Oil and Gas, referred to the ongoing importance of the DoC to the market.

"Despite the huge swing when COVID-19 first appeared, the market has made major strides towards rebalancing and gradually reducing the overhang in global oil stocks. Without the major production adjustments of our group since May, today's scenario would have been much different," Barroso said.

"Thus I want to commend all 'Declaration of Cooperation' participants for a job well done. We have acted with focus and consistency, which is exactly what the oil market has needed at this critical time," Barroso said.

During it meeting, the JMMC also noted that several countries, including Nigeria, were making progress on achieving full conformity and compensating for previous overproduction, stressing the continued importance of accelerating market rebalancing.

A year after WHO's COVID-19 alert

The meeting took place slightly more than a year after the World Health Organization (WHO) declared the COVID-19 outbreak a public health emergency of international concern. The declaration, announced on January 30, 2020, is WHO's highest alarm level.

Despite expanding access to vaccines in a growing number of countries, the COVID-19 pandemic continued to stoke uncertainty. New variants of the coronavirus prompted the reintroduction or extension of lockdowns and further restrictions on mobility and economic activity.

The JMMC noted took note of these uncertainties but added that the growing availability of vaccines was a positive development going forward and would lend support to the global economy and oil demand.

In the meantime, the JMMC urged all DoC participants to remain vigilant and flexible given the uncertain market conditions.

In his remarks, Novak praised the DoC for its continuing work and cooperation. "We should remain committed and united on our difficult path towards achieving market stability in the view of challenges that are yet to come. I

Mohammad Sanusi Barkindo (r), OPEC Secretary General, with members of the OPEC team during the videoconference.

call for everyone's support to be open to dialogue, transparency and to being results-oriented."

Nigeria's Sylva to serve as special envoy

While recognizing the progress the participating countries have achieved since April 2020, the JMMC also called upon Timipre Sylva, Nigeria's Minister of State for Petroleum Resources, to serve as special envoy to fellow OPEC Member Countries the Republic of Congo, Equatorial Guinea and Gabon and to non-OPEC DoC participant South Sudan.

Sylva's role, according to the JMMC, will be to support the overall market rebalancing efforts and to explore how the participating countries can assist each other in achieving full conformity to their voluntary supply adjustments.

Sylva is also to work with the four DoC participating countries on how to compensate for underperformed volumes in line with the 11th and 12 ONOMMs of last June and September.

Iraq statement on conformity

In addition to Sylva's new role, Iraq reiterated its commitment to full conformity and compensating for overproduced volumes in accordance with decisions taken at the 13th ONOMM, which concluded on January 5, 2021.

In a statement following the 26th JMMC meeting, Iraq said it "remains resolute" in the core DoC objectives of rebalancing the market and achieving much-needed sustainable stability. "The attainment of 100 per cent conformity from all participating countries, and compensating for overproduced volumes, is both fair and equitable."

Kazakhstan reaffirms support

Also following the 26th JMMC, Kazakhstan issued a statement announcing its "full support" for the decisions taken at the last ONOMM.

Kazakhstan has taken steps to not only realize full conformity to its production adjustment, but also to compensate for overproduced volumes, the statement said. Its commitment to this process will continue in the coming months, as all DoC participating countries strive for a balanced market and much needed sustainable stability.

"Kazakhstan offers its continued full support to the DoC, will take further steps to compensate for overproduced volumes, and underlines the importance of fairness and equitability in the DoC," the statement said.



L–r: Keisuke Sadamori, Director of the Office for Energy Markets and Security at the International Energy Agency (IEA); Joseph McMonigle, Secretary General of the International Energy Forum (IEF); and Mohammad Sanusi Barkindo, OPEC Secretary General.

Outlooks symposium addresses pandemic, energy security and market stability

The International Energy Forum (IEF) hosted the 11th IEA-IEF-OPEC Symposium on Energy Outlooks on February 17. During the event, participants examined the impact of the COVID-19 pandemic on global energy markets and the outlook for energy security and market stability.

By Maureen MacNeill

The Symposium, part of a wider joint programme by the International Energy Agency (IEA), the IEF and OPEC, originated from the 12th International Energy Forum held in Cancún, Mexico in March 2010.

The event was livestreamed and made available to the public for the first time. It reviewed the IEA's and OPEC's short-, medium- and long-term outlooks, which are analyzed in the newly released *IEF-RFF Outlooks Comparison Report*. The report was produced by the IEF and Resources for the Future (RFF) and is available on the IEF website. Its main highlight is a reset in energy outlooks after the biggest demand shock in history last year due to the COVID-19 pandemic.

Featured speakers at the Symposium included HRH Prince Abdul Aziz bin Salman Al Saud, Minister of Energy of Saudi Arabia; Joseph McMonigle, IEF Secretary General; Dr Fatih Birol, the Executive Director of the IEA; Mohammad Sanusi Barkindo, Secretary General of OPEC; Shri Dharmendra Pradhan, Minister of Petroleum, Natural Gas and Steel, India; Timipre Sylva, Minister of State for Petroleum Resources, Nigeria; Yury Sentyurin, Secretary-General, Gas Exporting Countries Forum (GECF); Francesco La Camera, Director-General, International Renewable Energy Agency (IRENA); Vicki Hollub, CEO Occidental Petroleum; Felipe Bayón Pardo, CEO of Ecopetrol; and Spencer Dale, Group Chief Economist at BP.

"The symposium explores what government policies and industry responses are necessary to safeguard the long-term stability of energy markets," said McMonigle.

In an address to the 11th IEA-IEF-OPEC Symposium on Energy Outlooks, Prince Abdul Aziz praised the organizers for hosting such a timely and important event, and emphasized the necessity of the trilateral programme.

Prince Abdul Aziz highlighted the need to remain vigilant given the continued oil demand uncertainty. He noted that the historic production adjustments of the 'Declaration of Cooperation' (DoC) received wide support, including from the G20 Energy Ministers. Nonetheless, he warned against complacency, adding that the scare of 2020 should "continue to teach us lessons."

The Minister said that the impact of the COVID-19 pandemic would be overcome through cooperation, dialogue, data collection and data transparency.

Prince Abdul Aziz stated that long-term models are very useful to support analysis and objective decision-making, adding that models are highly sensitive to sudden events. "None of the models was able to predict these events or their impact."

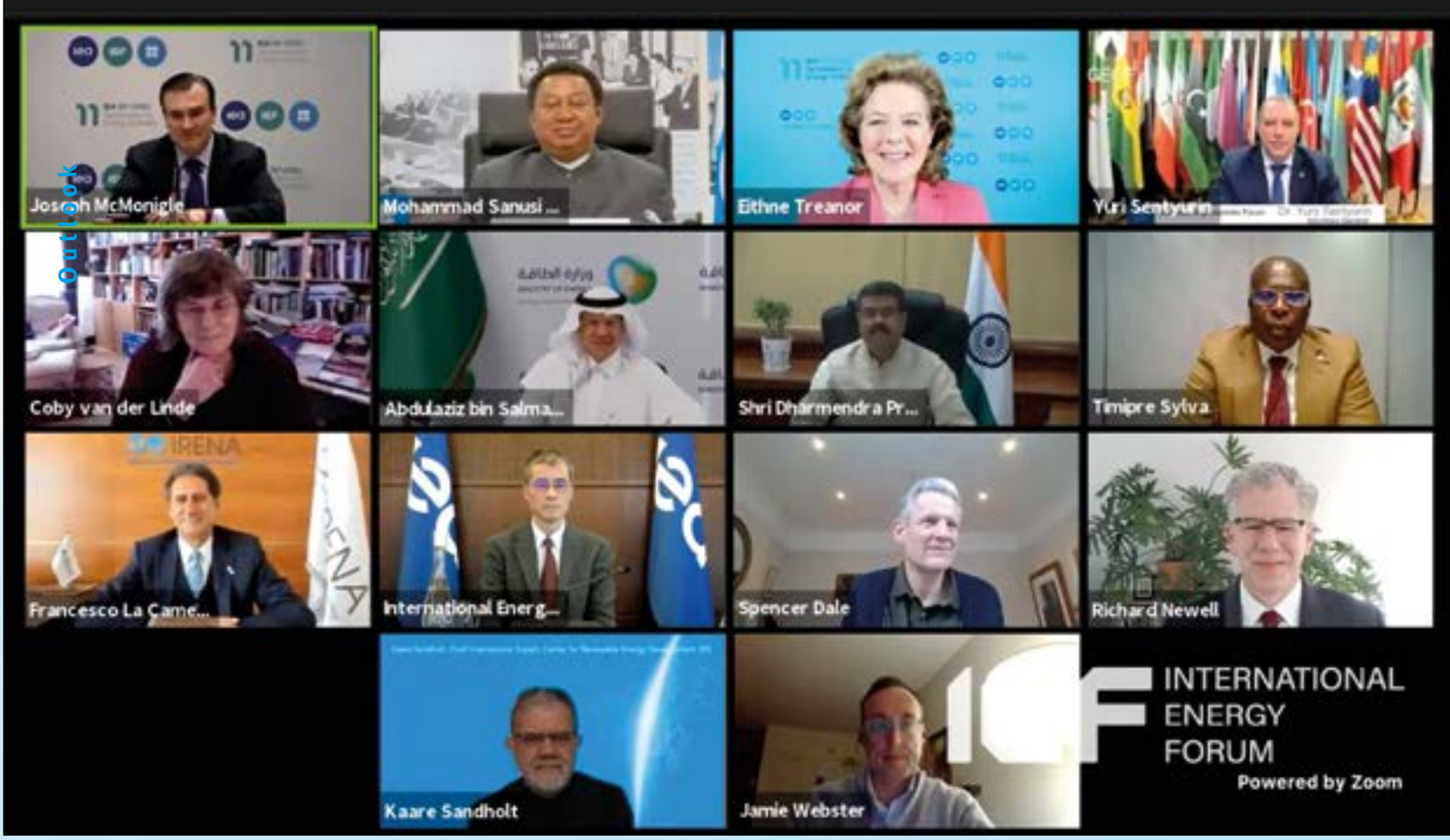
"The symposium explores what government policies and industry responses are necessary to safeguard the long-term stability of energy markets."

Joseph McMonigle, IEF Secretary General

OPEC Secretary General

In his opening remarks to the Symposium, OPEC's Secretary General quoted energy industry historian Daniel Yergin, who recently wrote in relation to the COVID-19 pandemic: "The world seemed a different planet at the end of March [2020] from what it had been in the beginning of March [2020] ... such a sudden, massive decline in oil demand has never been seen before."

Barkindo said: "Some commentators have noted that the energy industry may have been the most impacted of all sectors by the pandemic. As the world



Delegates attending the symposium which was held via videoconference.

economy contracted by 4.1 per cent in 2020, global oil demand declined by 9.7 million barrels/day (m b/d), almost ten per cent."

The OPEC Secretary General reminded the audience about the peak of the terrible situation, 'Black April', and in particular April 20, when the price of a barrel of West Texas Intermediate crude briefly hit minus $37.63, the benchmark's first plunge into negative territory. "We all had to go back to school to comprehend what was happening," he said.

The OPEC Secretary General recognized the vital contributions of the OPEC and non-OPEC countries participating in the DoC in helping to stabilize the oil market over the past year, and the importance of close dialogue with the G20, the IEA and the IEF in supporting market rebalancing efforts.

"Together with our partners and ably supported by the Saudi Arabian Presidency of the G20, we agreed on 12 April 2020 to the largest and longest-in-duration production adjustments in the industry's history.

"Consequently, we have seen a recovery in the industry that has multiplier benefits for the global economy."

Barkindo also emphasized the need for continued investment in the oil industry to ensure stability of supply and to help maintain an inclusive approach to addressing climate change, the energy transition and energy access challenges. "These investments are essential for both producers and consumers," he said.

"In our fast-changing and unpredictable world, we seek to contribute to greater stability, more predictability and enhanced transparency," Barkindo told the Symposium. "We constantly seek to improve our capacity to do so, for we believe this will help us build a better future, one which serves the interests of generations of producers and consumers."

'Unparalleled impact'

"The pandemic's impact on energy demand is unparalleled in the history of energy markets," said McMonigle, who hosted the first of two panels.

"The exceptional circumstances in which we meet and the rising challenges we face tell us the strength in our collaboration, guided by the 70 IEF ministers and the G20 outcomes," he said.

L–r: HRH Prince Abdul Aziz bin Salman Al Saud, Minister of Energy of Saudi Arabia; Shri Dharmendra Pradhan, Minister of Petroleum, Natural Gas and Steel, India; Dr Fatih Birol, the Executive Director of the IEA.

"I view this year as the great energy outlook reset following the global pandemic ... Certainly the impact to demand was profound and unprecedented, the biggest demand shock in history. It is important to note that 90 per cent of demand remained intact, demonstrating oil's resiliency and necessity to fuel the world economy."

As the RFF report indicates, there are wide variations between the high and low projections for 2040 world liquids demand, said McMonigle. "Last year the difference stood at 29m b/d but this year it grew to 35m b/d. This difference highlights the growing gap between UN goals on global sustainable development and climate change and those likely to occur under policies announced in 2020."

McMonigle said an important element of discussions should be how technology can help meet world energy demand while fulfilling sustainable development and climate change goals. Another issue he brought up is concern about a supply shock down the road due to a reduction in oil industry investment in the wake of the pandemic.

India's Pradhan took the floor, stating: "We have to build back a better collective while considering unique national circumstances," adding India has almost bounced back from pandemic-related energy demand destruction to pre-COVID-19 levels.

Pradhan added that while the world's primary energy demand is projected to increase by about one per cent per annum through to 2040, India's energy demand is expected to rise by three per cent per annum in the same period. "India has now emerged as a key centre of global energy demand and is expected to become the world's largest energy consumer soon."

India has made great strides in eliminating energy poverty, according to Pradhan, with clean cooking fuel access in the form of LPG now reaching 97.4 per cent of the population, while 70 per cent of city dwellers will have access to natural gas by 2030. The OPEC Secretary General congratulated India on its success in combatting energy poverty.

Nigeria's Sylva stated that, "Today every nation is faced with grave challenges brought on by the pandemic. Collective policy responses are needed to prevent a protracted crisis in the energy sector; in energy sector investment; widening divides between the energy poor and affluent consumers; and a rebound in global emissions as increased demand will drive higher production and lead to missing the SDG targets."

Mohammad Sanusi Barkindo, Secretary General of OPEC.

IEA's view

The IEA' Birol said: "Dialogue and cooperation will be increasingly vital to steer the global energy system towards a future that is fit for tomorrow's generations, where energy is abundant, affordable, clean and is used to underpin growth and development."

Birol said in 2020, global energy demand declined by five per cent, global energy investments fell by about 20 per cent and with oil demand plummeted by 23m b/d in April last year.

The debate about whether the world has seen peak demand started after this time, he said, adding IEA's position is: "We believe with the global economic recovery ... if there are no major changes in the government policies, we do expect a rebound in global oil consumption. We do not see a peak and decline in oil demand unless there are major changes in major consumer policies."

Birol said that 2021 will be a pivotal year in the fight against climate change because many countries around the world, including the EU, the UK, China, Japan, and soon the US, are making net-zero pledges for the next 30–40 years.

His remarks preceded President Joe Biden's announcement on February 23 that the US would work towards achieving net-zero emissions by mid-century. The only way to reach zero emissions is to consume fewer fossil fuels or make use of innovate clean energy technologies ranging from carbon capture and storage to hydrogen, among others, he added. Several governments have come up with economic stimulus packages to support clean energy technologies, including renewables, energy efficiency, hydrogen, electric vehicles and others, stated Birol.

"With net zero emissions targets, for the first time we are going to come up with a roadmap for world energy" in the form of a report, he said, noting that it is scheduled to be published in mid-May.

"We do not know whether governments will transform their pledges into real actions, but we know that the clean energy transition is accelerating around the world in all sectors, electricity generation, industrial energy use, home heating, the transport sector. No country will be unaffected by the clean energy transition."

The GECF's Secretary General said: "Despite the pandemic, GECF members have displayed outstanding discipline and resilience in the uninterrupted fulfilment of their obligations towards all contracting parties."

"It is too early to write off hydrocarbons as they will remain the dominating source in the global energy mix for the foreseeable future," added Sentyurin.

Examining different outlooks

The meeting's first session included presentations on the latest IEA and OPEC energy outlooks and key findings of the IEF-RFF comparative analysis of these publications. The objective of the session was to compare outlooks and place them in the wider context of other global reports, exchanging views on their determinants and wider implications.

BP Group's Chief Economist stated there is huge uncertainly in the energy transition, with some trends common across scenarios.

"The amount of investment needed in oil and gas varies across the different scenarios, but in all three scenarios we considered, even in one with oil declining over next 30 years," Dale said, "we will still need considerable amounts of investment in new oil production to ensure that the world is able to meet the oil demand that exists."

"There is a lack of full appreciation in many parts

of the world today that even if oil demand declines, the base decline in production will be far greater than most profiles for oil demand, which means that the world will need to continue to attract major amounts of investment in oil production in the decades to come, even in scenarios which are entirely consistent with achieving the Paris Agreement goals," Dale said.

Session II was on *Stakeholders views on energy investment, non-OPEC supply and clean energy technology on the road to recovery.* Occidental Petroleum's Hollub delivered an introductory keynote speech entitled: A US perspective on Energy Markets, Policy and Clean Technology.

Hollub stated that the pandemic had a big impact in the Permian Basin, considering that shale oil wells naturally decline by up to 70 per cent in their first year of production. Thus, a lack of investment has a big effect.

"When the pandemic is over, we're not going to get back to the 13m b/d the US had achieved prior to the pandemic," said Hollub. "We are now at about 11m b/d. Shale cannot recover." She added that investors can only be attracted back if there is a focus on value, meaning that infrastructure costs are minor compared to well development.

She added that it is possible to create low carbon or net negative carbon oil for the world to use. "Since we are going to need oil, the best oil to use is net neutral or negative (emissions) oil."

Occidental Petroleum is already using CO_2 injection to extract oil and "this has to happen around the world to meet climate change goals." She added retrofitting is not required, the capacity just has to be installed where it is used and it is thus cost competitive.

Keisuke Sadamori, the IEA's Director of the Office for Energy Markets and Security, wrapped up his agency's presentation by saying the world economy is facing enormous uncertainty due to COVID-19. "The discussion today also confirmed oil and gas industry has a huge role to play and will continue to be needed to fuel economic growth while being asked to play a great role in the energy transition.

"They need to be part of the solution ... In these conditions, I think energy outlooks and scenario analysis will have a more important role to play for decisions of industry and government. We will continue to work with OPEC and IEF to enhance work on reports and outlooks, and other works."

IEF-RFF Outlook Comparison Report

Among the report's major findings were that the pandemic led to oil demand contracting by 9–10m b/d in 2020, but it is expected to rebound by 5–6m b/d this year. The pandemic has also led to a downward revision in long-term annual economic growth by as much as 0.8 percentage points in some outlooks, the report noted. Other key findings in the IEF-RFF Outlooks Comparison Report include:

- Fossil fuels are expected to dominate the primary energy mix through 2040, even in scenarios where countries meet the Paris Agreement's climate goals.
- The gap between current pathway scenarios and alternative scenarios is large and growing annually, signalling that the zero-carbon emissions scenario may not be achieved.
- Demand for oil is expected to be stable over the long term globally, although demand will likely shift from developed to developing countries.
- Differing outlooks on the expected importance of hydrocarbons suggest that new technologies such as carbon capture, use and storage (CCUS) could have a bigger role to play.
- Nuclear, hydro, wind and solar will account for a majority of growth in the electricity sector, while coal is expected to decline and natural gas faces an uncertain future as a transition fuel.
- Growing climate ambitions in the lead-up to COP26 will have significant implications for the energy sector, which accounts for three-quarters of global emissions.

OPEC's Secretary General stated in his closing remarks: "Our successful trio has created platforms that are a haven for discussions relevant to all parties, as we have all seen. We have in these venues the valuable chance to work together for consensus within the consumer-producer dialogue.

"This is going to become even more necessary," Barkindo said, "in the months and years to come as we all emerge and rebuild from this horrific pandemic. Our industry as a whole is facing myriad significant challenges ... I believe these can all be met through consensus and leadership, such as what I have seen on display here today."

"We will continue to work with OPEC and IEF to enhance work on reports and outlooks, and other works."

Keisuke Sadamori, IEA's Director of the Office for Energy Markets and Security

Suhail Mohamed Al Mazrouei, the UAE's Minister of Energy and Infrastructure.

OPEC participates in 'Global' UAE Energy Forum

With both Suhail Mohamed Al Mazrouei, the UAE's Minister of Energy and Infrastructure, and Mohammad Sanusi Barkindo, OPEC Secretary General, participating in the 11th Gulf Intelligence 'Global' UAE Energy Forum, the* OPEC Bulletin *reports on their feature interviews that focused on the 'Declaration of Cooperation' (DoC) and the oil market outlook for 2021.

It was only a year ago that both Al Mazrouei and Barkindo sat down at the New York University in Abu Dhabi to partake in the 10th Gulf Intelligence UAE Energy Forum. How times have changed! This year's event was held virtually with attendees dialling in from across the world. The upside, however, was that the event traversed continents over a period of 12 hours giving more people the opportunity to tune into the excellent array of speakers and panellists.

Restoring equilibrium

The forum was held under the patronage of Al Mazrouei who opened proceedings in the Middle East/Africa section in a feature interview moderated by Manus Cranny, an anchor for Bloomberg TV.

Al Mazrouei sounded a note of caution for producers to be mindful as fundamentals are continually changing and the evolution of the COVID-19 pandemic in 2021 remains a wild card. He said it would not be wise to "jump the gun and overproduce during the recovery year."

Mohammad Sanusi Barkindo (top l), OPEC Secretary General, with moderator Manus Cranny (above r), an anchor for Bloomberg TV, and Dyala Sabbagh.

In talking about the UAE, he stated that production is well below its capacity, which he put at 4.2 million barrels/day (m b/d). He stressed, however, that priority must be given to restoring market equilibrium.

He also noted that he was more optimistic that oil demand would return to the levels seen before the start of the COVID-19 pandemic by the end of this year, or early in 2022 at the latest.

"I am confident that the [DoC] group" he said "will continue working hard to ensure that we are balancing the market faster than we anticipated. We have seen that the recovery has been, I think, better than anyone was expecting."

Cautiously optimistic

The OPEC Secretary General opened proceedings for the US/Americas section later in the day, with Manus Cranny again moderating the feature interview.

Barkindo emphasized that 2020 offered many lessons and it was vital to take stock for the year ahead. He noted, however, that be believed that "the worst is over" and he was "hopeful and cautiously optimistic going forward."

The Secretary General recalled the outcome of the 13th OPEC and non-OPEC Ministerial Meeting held in early January 2021, emphasizing that the decisions taken were balanced and reached through "consensus, determination and flexibility" and in the interests of oil market stability for both producers and consumers.

"We had two days of intensive discussion on market developments," he said. "We came to the consensus that we should not bring back 2m b/d." It underscored, he added, "our step-by-step approach."

The Secretary General also underscored the leadership role being undertaken by Saudi Arabia with its additional 1m b/d voluntary adjustment for February and March to help the market navigate the traditionally low-demand first quarter.

Key variables

In looking ahead, he highlighted a number of key interrelated variables that need to fall in line for the market to return to a sustained balance. These were "vaccines, lockdowns, fiscal and monetary stimulus, DOC production adjustments, GDP growth and oil demand rebound."

He said that all these variables need to be monitored "very closely, and it was vital that OPEC and its non-OPEC partners keep their hand on the steering wheel, to help drive the recovery in 2021."

In looking at current inventories, he said that "regardless of the heroic efforts we have undertaken, stocks are still high … in both the OECD and non-OECD." He stated that we "need to see them further reduced and the DoC was assisting the market in accelerating the stock drawdown."

On the possible re-emergence of shale oil, the Secretary General said: "There is no doubt that all producers of hydrocarbons have suffered from the impact of COVID-19 … US producers are not insulated from this haemorrhage."

He added that OPEC has established a channel of communication with the US independent producers. "We have always believed that we have a shared responsibility to maintain stability in the market," he said. "There is an understanding, even with the US independents, that no one group of producers will continuously maintain stability for this huge market. We had reached an understanding long ago."

The Secretary General also highlighted the importance of investment. "Even prior to COVID-19, we were put on the defensive" given the shift in interest away from oil by some institutional investors. The knock-on impacts of the pandemic have also been a serious blow to investment in 2020.

Barkindo said that oil and gas will continue to be the major part of the energy basket in the decades ahead, citing OPEC's *World Oil Outlook (WOO) 2020,* and this required serious investment. In the *WOO 2020,* it was noted that the global oil sector will need cumulative investment of $12.6 trillion in the upstream, midstream and downstream through to 2045. "Investment is the lifeblood of this industry and is vital to meet future demand," Barkindo added.

The future of the DoC

In responding to a final question about the future of the 'Declaration of Cooperation', Barkindo underlined the established and strong relationships that had been formed over the past four years. He also believed that the monumental events of 2020 had given the group "more confidence".

"We have established a solid relationship that is at the core of multilateralism … we will continue in this relationship going forward," he said. It was evident alongside the comments from Al Mazrouei that the DoC remained resolute in the face of the challenges ahead in 2021.

Atlantic Council
GLOBAL ENERGY Forum
VIRTUAL · JANUARY 19-22, 2021

Atlantic Council Global Energy Forum focuses on post-pandemic recovery

Held as part of Abu Dhabi Sustainability Week in January, the event drew diverse viewpoints on the market's outlook in 2021 and the shape of the energy future.

Nearly a year after the COVID-19 outbreak was declared a global public health emergency, Mohammad Sanusi Barkindo, OPEC Secretary General, took part in high-level discussions on the impact of the coronavirus on the oil market and prospects for 2021.

Participating in the virtual Atlantic Council Global Energy Forum, part of Abu Dhabi Sustainability Week (ADSW), the Secretary General stressed that the contributions made by the OPEC and non-OPEC countries in the 'Declaration of Cooperation' (DoC) were helping to stabilize the market and lay the groundwork for a recovery.

As one of five participants on the '2021 Global Energy Agenda' panel, Barkindo drew attention to the outcomes of the 13th OPEC and non-Ministerial Meeting in early January and the DoC's overall contributions to the global oil market during the pandemic-induced crisis.

"We are now meeting every month to ensure that we do not allow this imbalance to re-emerge," he told the videoconference. "We all agree that the recovery is fragile and there are still uncertainties. But we are cautiously optimistic that the recovery will materialize this year."

At the 13th OPEC and non-OPEC Ministerial Meeting on January 4 and 5, the DoC participants reaffirmed that incremental production increases would occur as market conditions warranted. Saudi Arabia's additional adjustment of 1 million barrels/day, on top of the current voluntary adjustments of the DoC, was recognized by the market and helped underpin the DoC's wider efforts.

Public health emergency: One year on

The Secretary General's comments came nearly a year after the World Health Organization (WHO) declared the novel coronavirus outbreak a public health emergency of international concern, WHO's highest level of alarm. The declaration was made on January 30, 2020, by Dr Tedros Adhanom Ghebreyesus, Director General of WHO.

The pandemic-induced economic shock caused oil

Delegates attending the Global Energy Forum.

demand to plummet and supplies to soar as economies went into lockdown last year.

During the lively panel discussion, which was moderated by Hadley Gamble of CNBC, the Secretary General reiterated the need to remain vigilant and adaptable to changes in the economy and oil market in the face of the ongoing COVID-19 uncertainties. A balanced market benefits both producing and consuming countries, he said.

"I want to use this opportunity to assure consumer countries that we have their interests in mind. Our role is to assist the market to return to stability," the Secretary General added.

Part of the discussion between the panellists focused on one of the top news stories of the day, the inauguration of Joe Biden as President and Kamala Harris as Vice President on the following day, January 20, and anticipated policy changes under the new US administration.

Questioned about the incoming administration, the Secretary General extended his congratulations to the new leadership in Washington. He also noted that OPEC's dialogue with US independent oil producers has grown over the years and is mutually beneficial. "We look forward to deepening our relations with the US independent producers," he said.

Abu Dhabi Sustainability Week

Now in its fifth year, the Global Energy Forum was part of ADSW, which took place under the patronage of His Highness Sheikh Mohammed Bin Zayed Al Nahyan, Crown Prince of Abu Dhabi. It ran from January 19 to 22 and was held in its entirety using a video platform because of the pandemic.

This year's Forum focused on the post-COVID-19 energy system, the energy transition and other emerging trends in the energy sector.

The opening day included a number of high-level speakers providing insights on the energy future, the oil industry's ongoing contributions, and the promise of new technologies to help address climate change.

UAE Ministers focus on the future

Suhail Mohamed Al Mazrouei, Minister of Energy and Infrastructure of the United Arab Emirates (UAE), described the COVID-19 impact in 2020 as "extraordinary", and said the efforts of the DoC countries have helped mitigate the pandemic's impact on the oil market. "We see this year as the year of recovery," he said.

Dharmendra Pradhan, India's Minister of Petroleum and Natural Gas and Minister of Steel.

Daniel Yergin, IHS Markit's Vice Chairman and Member of the Atlantic Council Energy Advisory Group.

Mohammad Sanusi Barkindo, OPEC Secretary General.

There were number of positive signs, Al Mazrouei said in his remarks, including oil demand growth prospects in China and India. The Minister noted that people are heading back to work in some parts of the world, "and that is positive for the economy."

He emphasized that the UAE is investing with the goal to achieve around 50 per cent renewables in the country's energy mix by mid-century. At the same time, the oil industry in the UAE is working to improve efficiency and reduce its carbon footprint.

"We believe we will produce some of the leanest barrels in the future," he said of plans to gradually expand oil production capacity from around 4m b/d to 5m b/d by 2030.

Also speaking on the opening day of the Global Energy Forum, Dr Sultan Ahmed Al Jaber, the UAE's Minister of Industry and Advanced Technology and Group CEO of the Abu Dhabi National Oil Company (ADNOC), spoke about the industry's key role in addressing climate matters.

"We have always made positive contributions to help address global challenges," Al Jaber said. "The challenge of climate change is no difference."

"Partnership, not just between countries but between industries — including oil and gas —, is crucial to reach our collective objective" to address the climate change, he said. "The world will still rely on oil and gas for decades to come, so this industry can and must play a role in the transition to a low-carbon future."

But Al Jaber also pointed out that policy measures need to be balanced and take into account the special circumstance of emerging economies, saying there are no "one-size-fits-all solutions" to addressing climate challenges.

Al Jaber, who is also the UAE's special envoy on climate change, noted that his country has been a leader

Fatih Birol, Executive Director of the International Energy Agency (IEA).

Mary Nichols, former chair of the California Air Resources Board (CARB)

Randolf Bell, Director and Richard Morningstar Chair for Global Energy Security, Atlantic Council.

CNN Anchor and moderator, John Defterios.

in investing in renewables and supporting the Paris Agreement.

ADNOC is investing in improving efficiency and expanding its carbon capture, storage and utilization (CCSU) potential to drastically reduce emissions, and working to become a supplier of hydrogen energy in future, he said in his presentation.

Wide-ranging panel discussion

Other participants in the '2021 Global Energy Agenda' session with the OPEC Secretary General were Dharmendra Pradhan, India's Minister of Petroleum and Natural Gas and Minister of Steel; Fatih Birol, Executive Director of the International Energy Agency (IEA); Daniel Yergin, IHS Markit's Vice Chairman and Member of the Atlantic Council Energy Advisory Group; and Mary Nichols, former chair of the California Air Resources Board (CARB).

In his comments, Birol gave an example of the major impact of the pandemic on global energy demand in 2020, noting that it declined about five per cent, seven times deeper than during the 2008–09 financial and economic crisis.

He said global oil demand would rebound along with the economic turnaround, but added that it was too early to say whether it would return to the levels of 2019.

In a wide-ranging discussion, Pradhan stressed India's strategy to diversify its import-dependent energy system, improve efficiency and tap emerging technologies like hydrogen to meet its growing energy needs. Asked by Gamble about their expectations for the new Biden administration, Both Yergin and Nichols said they expected the new US president to quickly re-join the Paris Agreement and, as Yergin put it, "step on the gas on climate issues."

On the day of the presentation, the Atlantic Council released the 'The Global Energy Agenda' as a companion publication for the forum. All of the '2021 Global Energy Agenda' panellists were among those who contributed essays. The booklet is divided into chapters on oil and gas; energy geopolitics; climate change and the energy transition; technology and innovation; and energy and environmental justice.

Multilateralism and the energy transition

*The role of multilateralism and the energy transition was the focus of a speech delivered by **Mohammad Sanusi Barkindo**, OPEC Secretary General, to the Americas Petroleum and Energy Conference organized by S&P Global Platts in late January. The* OPEC Bulletin *reports on this engagement, underscoring the importance of multilateralism to OPEC throughout its history.*

In opening, Barkindo noted that "the pursuit of global multilateralism to help drive the global energy transition" is a "topic very close to my heart, and central to the Organization that I humbly lead as Secretary General."

He emphasized that the principles of cooperation, multilateralism and dialogue have underpinned OPEC's mission and objectives for the past 60 years. "For OPEC, what has been clear since it was founded back in Baghdad in September 1960 is the value placed on ever broadening dialogue and cooperation."

In looking at the global role of multilateralism, he stated that it "has a long history, but it has perhaps never been more important to the world as we look build and shape today's architectures for tomorrow.

"It will be vital for the energy transition," he said, "which is both a massive challenge and an enormous opportunity in the decades ahead ... To put it simply: we

need to mould multilateralism and the energy transition into a form that delivers for each and every person on this planet."

OPEC's ever expanding cooperation

The Secretary General continued by illustrating OPEC's longstanding commitment to multilateralism, noting the continuous expansion of the Organization's dialogue partners, including oil producing and consuming countries, international organizations, and a plethora of other industry stakeholders.

This underscores how OPEC is now an established part of the international energy community and the multilateral system, he said, emphasizing that "these relationships were particularly vital in 2020, in the face of the colossal impacts of the COVID-19 pandemic."

He went on to stress that an outstanding example of the multilateral approach can be viewed through the prism of the 'Declaration of Cooperation' (DoC), now in its fifth year, which has brought together 23 oil-producing nations to help return balance to the market, and achieve a sustainable stability, in the interests of both producers and consumers.

This proved vital "in the aftermath of the devastating 2014–16 oil industry downturn," and again in 2020 as "the COVID-19 pandemic pervaded almost every aspect of our daily lives, with widespread lockdowns, economies in major distress and many businesses shuttered in. In terms of the oil and gas industry, every producer was impacted. No one was immune."

The DoC had to again stand up and be counted in 2020, he said. "Action was needed, and act we did with the largest and longest production adjustments in the history of the OPEC, the DoC and the oil industry agreed on April 12, 2020, to help counter the massive oil demand decline that at times was above 20 million barrels a day (m b/d) in April."

Another pivotal outcome of the April 2020 meetings, said Barkindo, has been the broader encouragement and support that DoC participants have received. "This came from the very highest levels of government, from the G20 and from the very largest global oil producers, including Norway, US and Canada, as well as consumers."

This was further built on with OPEC comparing notes with US independents, a relationship that has blossomed since the first meeting in Houston in 2017; other producing nations, such as Colombia and Brazil; major consumers, such as China, India and the EU; and select energy policymakers and experts from international institutions, consulting firms, the oil industry, the financial community and think tanks from around the world.

Barkindo stated that "here was an acknowledgement of our mutual interdependence, and the benefits of working together to return confidence and stability to the global oil market. The DoC was at times a Pole Star for the oil market during some of the dark days of 2020; a multilateral approach helping guide the industry through stormy waters."

The Secretary General also firmly stressed that "our work is not done. We have our eyes firmly fixed on 2021."

"The DoC was at times a Pole Star for the oil market during some of the dark days of 2020; a multilateral approach helping guide the industry through stormy waters."

All energies required

The multilateral approach of the DoC has shown just what can be achieved by working together, but the future, said Barkindo, "will need the coalescing of a broader coalition to tackle the energy challenges in the years ahead."

There are obviously many facets to the future energy transition, but the basic challenge is simple: ensuring that there is enough energy supply to meet expected future demand growth, and achieving this growth in a sustainable way, balancing the needs of people in relation to their social welfare, the economy, and the environment.

Barkindo noted that "there are some who believe the oil and gas industries should not be part of the energy future, that they should be consigned to the past, and that the future is one that can be dominated by renewables and electric vehicles.

"It is important to state clearly that the science does not tell us this, and the stark statistics related to the blight of energy poverty do not tell us this either."

He stated that the Organization fully supports the science and "what the science and statistics tell us that we need to reduce emissions and use energy more efficiently."

Looking at the scale of the challenge of the energy transition, he said, "we need to utilize all available energies, and it is crucial that we appreciate just what each energy source can provide in the decades ahead.

"The challenge of tackling emissions has many paths and we need to explore them all. Complex problems require comprehensive solutions. The oil and gas industries are part of the solution; they possess critical resources and expertise that can help unlock our carbon-free future."

Investments

The importance of oil market stability, and more broadly, energy market stability, will be vital to the energy transition, Barkindo stressed. "Stability begets stability, and this will be essential to helping bring on board the huge investments required in the years ahead."

"The oil and gas industries are part of the solution; they possess critical resources and expertise that can help unlock our carbon-free future."

Putting this in some context, OPEC's World Oil Outlook (WOO) 2020 shows that $12.6 trillion will be required between now and 2045 in the upstream, midstream and downstream oil sectors, and this comes on the back of current assessments showing that upstream capital expenditure could have fallen by more than 30 per cent in 2020, beyond the 23 per cent losses experienced in both 2015 and 2016.

Barkindo emphasized that "if this is not rectified it could leave long-term scars, not only for producers, but consumers too. The return of investments is a core objective of the DoC … It is vital that the required investments are made, in all energies, to ensure stable and continuous supplies, and to help reduce and, ultimately, eliminate emissions."

Without the necessary investments, he said there is the potential for further volatility and a future energy shortfall, which is not in the interests of either producers or consumers. "Moreover, if billions of people in the developing world suffering from a lack of energy access feel they are excluded from access to energies that have helped fuel the developed world, then this could sow further divisions and expand the divide between the haves and have nots, the global North and the South."

Faith in multilateralism

OPEC and its Member Countries have been directly involved in the evolution of the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol and the Paris Agreement and Barkindo said the Organization fully supports the multilateral approach to addressing climate change and the energy transition. He added that the "core elements of the UNFCCC, particularly equity, historical responsibility and national circumstances must be considered at all junctures moving forward."

OPEC welcomed coordinated action and engagement with all stakeholders in the energy community, he said. "We also believe we have a perfect vehicle — the 'Charter of Cooperation' (CoC). The CoC is open to all producers and offers a platform to address issues such as climate change, the energy transition and energy access in a coherent and inclusive way."

The Secretary General recognized that multilateralism is not easy. "It is often complicated," he said, "but it is the only possible response. We need to keep on communicating and keep on partnering."

Looking across the Atlantic, Barkindo highlighted that "we have established mutually beneficial and productive relationships with the oil industry in the US, as well as in Canada. We have much in common and we hope to further deepen these bonds in the years ahead. The US is a vital cog in the global oil market, as both a major producer and consumer."

He also "welcomed the swift decision of the Biden administration to return to the Paris Agreement. The energy transition and the global conversation around it would be incomplete without the US at the head of the multilateral table."

In concluding, he stressed that "OPEC reaffirms its faith — time and time again — of the need for dialogue, cooperation, and respect. We need to talk to each other and not at each other. We need to work with each other and not against each other.

"Working together, through a multilateral approach, we can build a future worthy of future generations and one where no one is left behind."

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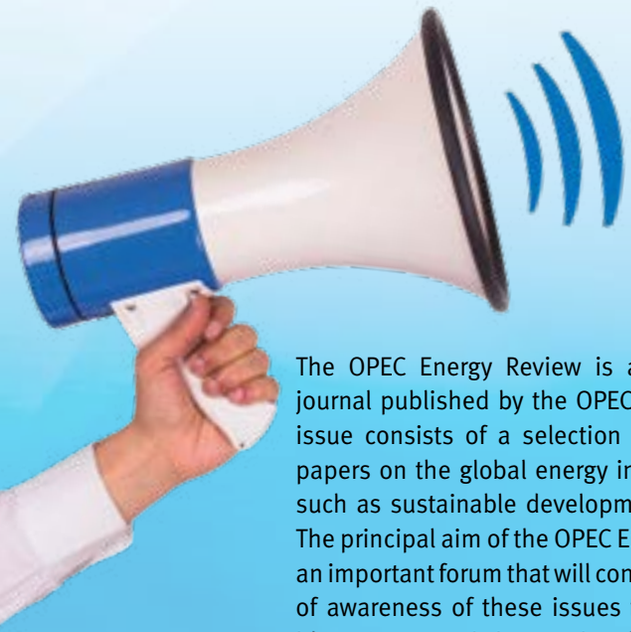
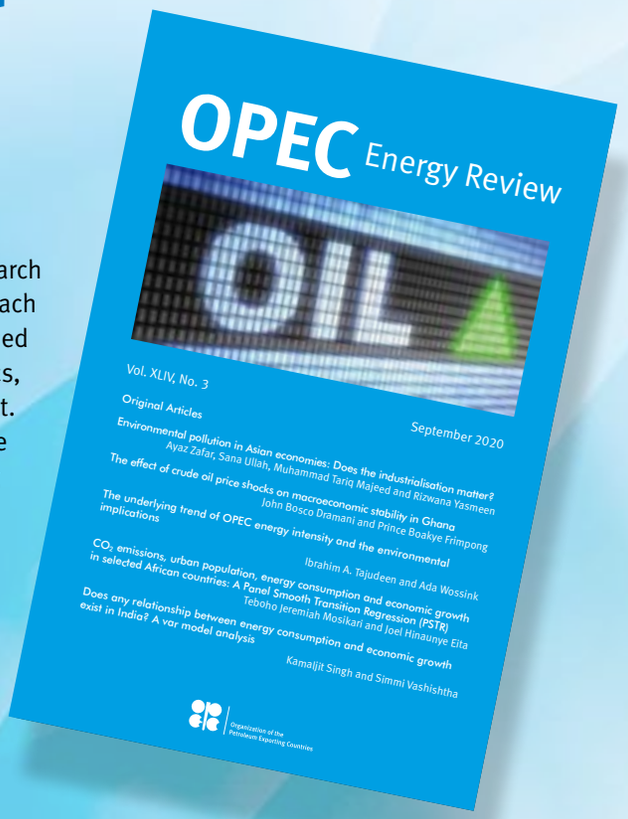




The OPEC Energy Review is a quarterly energy research journal published by the OPEC Secretariat in Vienna. Each issue consists of a selection of original well-researched papers on the global energy industry and related topics, such as sustainable development and the environment. The principal aim of the OPEC Energy Review is to provide an important forum that will contribute to the broadening of awareness of these issues through an exchange of ideas. Its scope is international.

The three main objectives of the publication are to:

1. Offer a top-quality platform for publishing original research on energy issues in general and petroleum related matters in particular.
2. Contribute to the producer-consumer dialogue through informed robust analyses and objectively justified perspectives.
3. Promote the consideration of innovative or academic ideas that may enrich the methodologies and tools used by stakeholders.

Recognizing the diversity of topics related to energy in general and petroleum in particular which might be of interest to the journal's readership, articles will be considered covering relevant economics, policies and laws, supply and demand, modelling, technology and environmental matters.

The OPEC Energy Review welcomes submissions from academics and other energy experts. Submissions should be made via Scholar One at: https://mc.manuscriptcentral.com/opec (registration required).

A PDF of "Author Guidelines" may be downloaded at Wiley's OPEC Energy Review page at: http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1753-0237/homepage/ForAuthors.html

All correspondence about subscriptions should be sent to John Wiley & Sons, which publishes and distributes the quarterly journal on behalf of OPEC *(see inside back cover)*.

2021 Legal webinar series:

The role of oil and gas in a low-carbon world

The OPEC Legal Office held its first legal webinar of 2021 on March 8, addressing the role of oil and gas in a low-carbon world. Oil will still be a relevant part of the global energy mix and a vital feedstock for industrial processes. However, the industry needs to be aware of fundamental changes that must take place and their regulatory implications, which was the topic of the webinar.

By Maureen MacNeill

Leonardo Sempertegui, OPEC's General Legal Counsel (GLC), moderated the event.

Leonardo Sempertegui, OPEC General Legal Counsel (GLC), moderated the event, which featured two guest speakers from the industry. The first, Douglas Johnston, UK Leader of Climate Change at EY, has been leading a number of global transformation programmes across the climate agenda for some of the world's largest organizations. The second presenter, Andrea Galieti, is Director of the Department for International Regulation at ENGIE, a multinational electric utility company.

The webinar series is the result of the conclusion of the *Second Annual Legal Workshop* held in October

2020, which was organized by OPEC's Legal Office (LO). It is part of the LO's efforts to provide information, knowledge and professional support to countries in energy-related areas with a focus on the most pressing issues. "The energy transition is certainly one of them," Sempertegui said. "We have a plethora of legal issues around this matter, but many of the questions are still pending."

There are many questions that may not have a definitive answer, he added. These include the meaning of the term 'energy transition', and how it can be designed to contain and minimize the impact on certain parts of the global community, along with how the regulation of this transition should look.

The objective of this and upcoming LO webinars in 2021 is to devote more time to the energy transition and its regulatory effects from the experienced perspective of different panel participants, Sempertegui said. The meeting took place under the Chatham House rule.

Uncharted territory

One of the speakers stated, "We are in uncharted territory when we talk about the energy transition." He added that oil and gas are considered fossil energies and thus will probably play a declining role, but this will take decades and it will depend on which part of the world one is referring to.

"There is a big mistake being made by institutions and local governments that decarbonization is the same as electrification of final demand," he said, adding that this risks undermining the energy transition, "because electrification may end up being too expensive for individuals and for companies."

It seems like a paradox, the speaker noted, but the more the energy transition is advancing, the more it is being understood that some gases and liquid fuels, preferably decarbonized, play an essential role. He said the debate about the longer-term feasibility of gases and liquid energy should be more about the CO_2 content than the source. "There are ways to decarbonize this energy. That's the core of the debate we are having now in markets like Europe and North America. All countries and regions have different priorities, but still see similar trends arise."

"The more I work in this sector," he said, "the more I am convinced it's not about electricity against oil and gas. These are complementary energy producers and for the oil and gas sector, there are plenty of opportunities for oil companies and oil producers to transform because this has to happen."

The speaker also pointed out that "the value of the carbon business is still very high and may become even higher over the next years as some oil companies are retreating from oil production."

An important part of what oil companies must do is examine the markets they serve, he stated. Different markets are moving at different paces. For example, many EU countries have set net-zero CO_2 emission deadlines, while hydrocarbons will have a larger role in the decarbonization agenda of other markets and there may be more focus on energy efficiency and the way energy is used.

Companies need to consider what markets they serve and what their specialties are, he said. "An understanding of the decarbonization of markets really needs to play into strategies adopted by oil and gas companies. While for some it may be appropriate to shift away from oil to gas to renewables, it is not the pathway all energy companies should necessarily follow."

The speaker noted that oil and gas are important to meeting the world's energy needs and there should be an awareness of the benefits of these two resources.

"If you take the perspective you can decarbonize overnight and the world will be fine, well that's not the case. If the oil and gas companies stopped producing oil and gas, a majority of the world would be without heat and power and all the things we need to survive," the speaker said.

The energy transition challenge

Sempertegui stated in his remarks that for OPEC Member Countries, the energy transition is not only an industry problem, but also a societal challenge. "It's a different kind of reality societies have to face. Incomes might be reduced. Therefore, other kinds of problems can arise. It is not an environmental problem only or per se, it is more of an economic problem that Member Countries face."

"If the oil and gas companies stopped producing oil and gas, a majority of the world would be without heat and power and all the things we need to survive."

The importance of energy to socio-economic development was also highlighted during the webinar. According to one of the speakers, developing countries need to find models that allow them to grow because they may not have immediate access to the decarbonization options being developed in richer countries.

"If an American company invests in a developing country in Africa [by] helping to reduce its carbon footprint, this credit could be used to satisfy obligations at home," such as what the Clean Development Mechanism under the Kyoto Protocol did, one speaker pointed out. "Maybe relaunching these kinds of solutions that allow oil companies to reach targets by also investing in developing countries could help those countries start developing in a sustainable way while still respecting the engagement of oil companies. It could trigger some positive dynamic."

GECF *Delegates attending the launch via videoconference.*

OPEC attends GECF Global Gas Outlook launch

On February 24, 2021, OPEC participated in the virtual launch event for the release of the Global Gas Outlook 2050, the flagship publication of the Gas Exporting Countries Forum (GECF). The* OPEC Bulletin's *Scott Laury reports.

Produced by the GECF Secretariat in Doha, Qatar, the *Global Gas Outlook (GGO),* now in its fifth edition, serves as a key reference tool on natural gas markets and provides scientific research and advanced analysis of gas market dynamics, including market drivers and prospects to 2050.

The launch event was hosted by GECF Secretary General, Yury Sentyurin, and attended by prominent figures in the energy industry, including Alexander Novak, Deputy Prime Minister of the Russian Federation; Joseph McMonigle, Secretary General of the International Energy Forum; Luis Bertran Rafecas, Secretary General of the International Gas Union; and Numar Alfonso Blanco Bonilla, Executive Secretary of the Latin American Energy Organization (OLADE).

OPEC was represented by Dr Ayed S Al-Qahtani, Director of OPEC's Research Division, who delivered remarks on behalf of OPEC Secretary General, Mohammad Sanusi Barkindo.

In his remarks, Barkindo recognized the proactive

Yury Sentyurin, GECF Secretary General.

role the attending leaders are playing in the industry to promote international energy collaboration.

"These leaders are all at the forefront of promoting dialogue and cooperation amongst their Member Counties and within the oil and gas industry at large," he stated. "In fact, it was just last week that OPEC and some of you took part in the 11th IEA-IEF-OPEC Symposium on Energy Outlooks. This is yet another manifestation of the value and the importance of global energy cooperation."

Ever-expanding partnership

The growing dialogue and cooperation between OPEC and the GECF, which have many Member Countries in common, was also highlighted. In November 2020, OPEC and the GECF held their inaugural high-level meeting under the Chairmanship of Secretaries General Barkindo and Sentyurin, following the signing of a memorandum of understanding between the two organizations in October 2019. The collaborative relationship has continued to flourish since then.

"What started as an informal discussion between myself and Sentyurin in Moscow on the sidelines of Russian Energy Week in October 2019 has now developed into a full-fledged, robust dialogue between two very interlinked organizations," Barkindo said. "The potential of this dialogue is unlimited, and even that much more essential now, as, together, we unite with all of our industry stakeholders to accelerate the recovery from the ravages brought on by the COVID-19 pandemic."

Barkindo also pointed out the key role being played by his GECF counterpart.

"Yury Sentyurin, I thank you for your ongoing support and dedication to our joint cooperation and dialogue efforts. OPEC values this partnership greatly and looks forward to collaborating closely with our partners at the GECF in the months and years to come."

A global reference point

The Secretary General also reiterated the importance of

Alexander Novak, Deputy Prime Minister of the Russian Federation.

Mohammad Sanusi Barkindo, OPEC Secretary General.

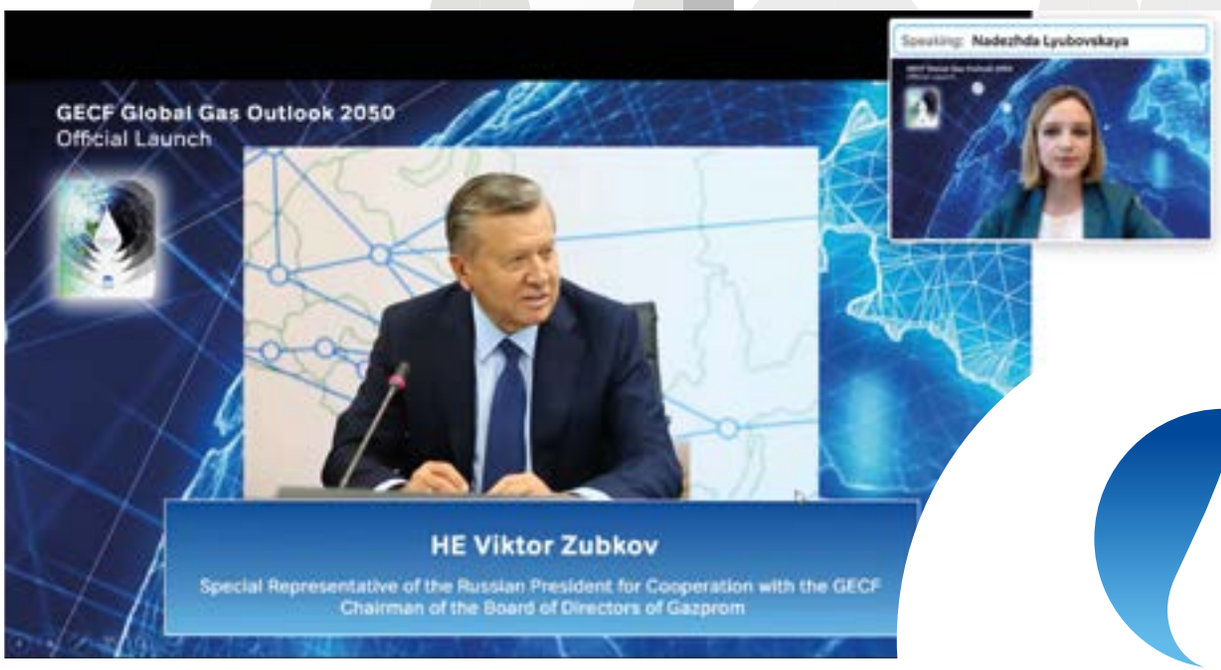
reliable and robust research in the energy industry, pointing to the GGO as a prime example.

"The *Global Gas Outlook* has become a global reference point for natural gas research and analysis. It is now considered a go-to resource for industry players, who require insights into the world gas market outlook and how it may evolve over the long-term horizon to 2050," he said.

OPEC contributed a box feature in this year's edition of the GGO on the global liquids demand outlook, with a focus on how the COVID-19 pandemic led to one of the worst-ever declines in liquids demand in history. This was a follow-up on the GECF's contribution to OPEC's *2020 World Oil Outlook* on the subject of liquefied natural gas entitled *'LNG prospects in the post-COVID-19 era'*.

"OPEC is proud to be a contributor to the GECF's flagship *Global Gas Outlook 2050,* which is being launched during this event," he stated. "Our hope is that we have helped enrich the content and analysis of this important publication by providing unique insights from our expert analysts."

Barkindo congratulated the GECF for its success in



GECF

producing the fifth edition of the GGO, noting the arduous work and extra hours that were undoubtedly put in to producing it.

"I would like to congratulate Yury Sentyurin and the entire staff of the GECF that was involved in producing this fifth edition of the flagship GGO," he said. "I am certain that, as is the case with our *World Oil Outlook*, this was the product of many long hours of hard work."

Moving from strength to strength

It was pointed out that OPEC and GECF's joint contributions to the WOO and the GGO, respectively, were signs that this fruitful partnership is here to stay.

"The publication of the *Global Gas Outlook* today and OPEC's contribution to it, are just another sign of the ever-expanding cooperation and dialogue between our two organizations," Barkindo said. "I do believe we are moving from strength to strength, and the best is yet to come for this mutually beneficial partnership."

In closing, the Secretary General turned to one of his favourite poets to encourage the industry to think big when it comes to forming cooperative bonds to achieve common goals.

"Allow me to close now with the inspirational words of the great 13th century philosopher and poet Jalaluddin Rumi who said:

'Stop acting so small. You are the universe in ecstatic motion.'

These wise words remind us that we should not act or think too small, but rather think big, on a grand scale, as together we seek to constantly enhance our cooperation and accomplish great things together."

Dr Ayed S Al-Qahtani, Director of OPEC's Research Division, delivered remarks on behalf of OPEC Secretary General, Mohammad Sanusi Barkindo.

Saudi Arabia: New year, new horizons

The Kingdom of Saudi Arabia has demonstrated leadership in the energy sector and OPEC affairs for many decades. In doing so, it has supported the world economy and the global oil market, as well as its national interests and ambitious development plans. This tradition has led one of OPEC's five Founder Members to begin 2021 by launching various initiatives under the landmark Vision 2030. The OPEC Bulletin's Ayman Almusallam files this report.

Since its establishment, Saudi Arabia has worked vigorously to expand social welfare and economic progress through the adoption of bold and proactive policies and plans, including the latest — Vision 2030.

Vision 2030 serves as a holistic, strategic and visionary roadmap that was launched by His Royal Highness Prince Mohammed bin Salman bin Abdulaziz Al Saud, Saudi Arabia's Crown Prince, Deputy Prime Minister and Minister of Defence, under the guidance of the Custodian of the two Holy Mosques and Saudi Arabia's Monarch, King Salman Bin Abdulaziz Al-Saud, in April 2016.

Upon the launch of Vision 2030, King Salman Bin Abdulaziz said: "My primary goal is to be an exemplary and leading nation in all aspects, and I will work with you in achieving this endeavour."

Vision 2030 aims to reduce the Kingdom's dependence on oil, propel efforts to diversify its income streams, and boost the stability and competitiveness of its national economy. A thriving economy, in addition to a vibrant society and ambitious nation, serve as guiding pillars that underpin Vision 2030.

In this context, HRH Crown Prince Mohammed bin Salman highlighted that "Vision 2030 is a bold yet achievable blueprint for an ambitious nation," adding, "It expresses our long-term goals and expectations and it is built upon our country's unique strengths and capabilities. It guides our aspirations towards a new phase of development — to create a vibrant society in which all citizens can fulfil their dreams, hopes and ambitions to succeed in a thriving economy."

Vision 2030 constitutes various leading and well-delineated programmes that aim to drive growth in various industries, such as the Quality of Life Programme, National Transformation Programme, Human Capital Development Programme, and National Industrial Development and Logistics Programme. Each programme has been developed to help achieve the Vision's objectives.

NEOM

'From the future for the future' may be the best phrase to describe NEOM, as it is set to define the standards of tomorrow's urban life. It also serves as a centrepiece of Vision 2030, conceptualized through the forward-looking vision of HRH Crown Prince Mohammed bin Salman.

NEOM is situated at a global crossroads in the Kingdom's north-west region. It is estimated that approximately 40 per cent of the world's population will be able to reach it in less than four hours. Its population is projected to exceed one million inhabitants from around the world.

Furthermore, the area is planned to host cities, towns, commercial zones, harbours, research centres, sports and entertainment venues, and tourism attractions and facilities.

The project's official website describes NEOM as "not just a place — it is a mind-set," adding, "Residents

Saudi Arabia's King Salman Bin Abdulaziz Al-Saud.

HRH Prince Mohammed bin Salman bin Abdulaziz Al Saud, Saudi Arabia's Crown Prince, Deputy Prime Minister and Minister of Defence.

of NEOM will embody an international ethos and embrace a culture of exploration, risk-taking and diversity. Imagine a community of dreamers and doers from all over the world — from a mix of homelands, religions and backgrounds — all living and collaborating toward a common goal."

NEOM is designed to realize a new model of urban sustainability by setting new standards for environmental protection and social welfare, in addition to the productive and effective use of technology. The project covers 26,000 square kilometres, nearly the size of Belgium.

The concept also aims to elevate several key sectors, including health and well-being, manufacturing, services, mobility, tourism, and food, to drive socioeconomic developments and growth.

The energy required to power NEOM will be supplied through renewable sources. In August 2020, the Kingdom's Ministry of Energy concluded a memorandum of understanding with NEOM to strengthen cooperation between the two entities.

At the signing ceremony, HRH Prince Abdul Aziz Bin Salman, the Kingdom's Minister of Energy, said that NEOM is one of the leading projects under Vision 2030, adding that this vital cooperation will encompass various fields, such as production of electricity, renewable energy projects, artificial intelligence (AI) development and implementation, and the implementation of the circular carbon economy strategy.

The Minister also highlighted the importance of the hydrogen project situated in NEOM, noting that the project will help drive growth, diversify the economy and limit CO_2 emissions.

Nature is also a vital pillar of impressive NEOM. According to its website, the city will "reinvent the relationship between people and nature."

The Line

The year 2021 started with another boost for the credentials of the landmark NEOM.

In January, HRH Crown Prince Mohammed bin Salman launched another aspect of Vision 2030 and an engine for economic growth — The Line. The new city is set to boost urban living standards in NEOM.

The new city is expected to host several hyper-connected communities, where cars no longer form part of transportation. In a press statement issued after the launch, The Line was described as "a direct response to some of the most pressing challenges facing humanity today such as legacy infrastructure, pollution, traffic, and human congestion."

At the launch, the Crown Prince stated: "We need to transform the concept of a conventional city into that of a futuristic one," adding, "Today, as the Chairman of the Board of Directors of NEOM, I present to you The Line. A city of a million residents with a length of 170 km that preserves 95 per cent of nature within NEOM, with zero cars, zero streets and zero carbon emissions."

The press statement also highlighted that while The Line embraces an innovative concept for mobility, the

"My primary goal is to be an exemplary and leading nation in all aspects, and I will work with you in achieving this endeavour."

— The Custodian of the two Holy Mosques, King Salman Bin Abdulaziz Al-Saud of Saudi Arabia

NEOM

Tariq Al-Tamimi, Nadhmi Al-Nasr and Malek Antabi are joined by representatives of NEOM, SATCO and Tamimi Global Co Ltd.

city will enjoy many of the essential daily services that people require, including healthcare, education, nature and green areas, and leisure facilities. These various amenities will be located within close proximity.

It added that the novel transportation model will help The Line's residents not only to travel more easily, but will also give the opportunity and time to focus on health and well-being. "It is expected [that] no journey will be longer than 20 minutes." Additionally, the city will be powered by renewable energy sources, such as solar and wind.

The statement also emphasised the city's adoption of various forward-looking notions, including AI. "An estimated 90 per cent of available data will be harnessed to enhance infrastructure capabilities far beyond the one per cent typically utilized in existing smart cities," it added.

"[The city] will drive diversification and aims to contribute 380,000 jobs in the future and SAR 180 billion ([around] $48 billion) to domestic GDP by 2030," the statement noted.

According to the statement, the construction work of The Line will begin in the first quarter of this year.

Riyadh Vision

At the fourth edition of the Future Investment Initiative (FII) held in January 2021, HRH Crown Prince Mohammed bin Salman revealed that the Kingdom has been developing a special, futuristic vision for the Saudi capital of Riyadh.

The new vision is set to further expand the country's efforts of economic diversification through building pioneering and innovative urban centres.

At a panel titled 'The Future of Riyadh', the Crown Prince highlighted that "all of Riyadh's features set the groundwork for job creation, economic growth, investment, and many more opportunities."

"We are therefore aiming to make Riyadh one of the ten largest city economies in the world. Today, it stands at number 40, the fortieth largest city economy worldwide," HRH Crown Prince Mohammed bin Salman added, noting, "We also aim to increase its residents from 7.5 million residents today to around 15–20 million residents in 2030."

The Crown Prince also underscored the vital role that cities and other urban centres play in ushering economic growth and development. "True growth begins in the city, whether in terms of industry, innovation, education, services, or other sectors," he stated, adding that cities represent 85 per cent of the global economy.

"I have no doubt that the world economies are not based on nations, but on cities."

The Crown Prince continued exploring the vital contributions of the Saudi capital city to the country's national economy, highlighting that Riyadh forms around 50 per cent of the non-oil economy. He added that the cost for job creation is lower by about 30 per cent than other cities in the Kingdom.

"The cost of developing infrastructure and real estate is also 29 per cent less than the other cities," the Crown Prince added, emphasising, "The infrastructure in Riyadh is already very well accomplished because of the sound management and planning performed by HRH King Salman over a period of 55 years and more." The Custodian of the two Holy Mosques was the Governor of Riyadh for more than a half century, following his appointment in 1955. In 1954, he was appointed as Acting Governor for the region of Riyadh.

HRH Crown Prince Mohammed bin Salman also announced that the Kingdom currently plans to develop the Green Riyadh programme, which will provide remarkable green space with millions


NEOM

of trees to be planted in the city to decrease the levels of dust and temperatures.

The Crown Prince also highlighted the Kingdom's intention to improve the environmental credentials of the province and city of Riyadh.

The Future Investment Initiative is one of the leading international conferences on investment and development, where leaders, officials, policymakers, investors and entrepreneurs come together to converse and debate emerging and pressing global issues and ways to reshape the future of the world economy and global landscape through innovation and cutting-edge technologies.

In its fourth edition this year, the conference was held in a hybrid format and saw extensive discussions related to the COVID-19 pandemic and its devastating effects.

'Coral Bloom'

Vision 2030 is notably detailed and comprehensive, with an aim to usher in a vast range of sectors, including tourism, to drive socio-economic development and growth.

In this context, the Kingdom has developed the charming 'Coral Bloom' concept, along with its main hub Shurayrah. The dolphin-shaped island is one of many archipelagos situated in the region, which is deemed as natural treasure and home to a large number of endangered species and corals.

HRH Crown Prince Mohammed bin Salman, who is the Chairman of the Red Sea Development Company, launched the forward-looking concept in February 2021, highlighting that it was designed to seamlessly blend with the island's pristine natural environment.

The project aims to promote tourism through attracting a large number of local and international visitors. In this context, John Pagano, the development company's CEO, said: "We expect guests to be awed by what they see when they first arrive at the Red Sea Project, enjoying a truly immersive barefoot luxury experience," adding, "The Coral Bloom designs, taking inspiration from the incredible flora and fauna found uniquely in Saudi Arabia, promise to make that vision a reality."

"Shurayrah Island is the gateway to the Red Sea Project. So it is important that it sets the standard in ground-breaking architecture and sustainable design, not just for our destination, but globally too. This is achieved by going beyond simply protecting the environment to applying a regenerative approach," he stated.

Biodiversity is one of the priorities, along with preserving the island's mangroves and natural features. These measures will help provide natural defence line from erosion.

Shurayrah's blueprint features 11 hotels that will be developed to fit the expectations of all travellers after the COVID-19 pandemic, focusing on providing sufficient space. The design promotes the supremacy of natural beauty, as the hotels will merge with nature. New beaches and lagoons will be developed across the island. The plan also prohibits constructing high buildings to maintain an optimum panorama.

"I present to you The Line. A city of a million residents with a length of 170 km that preserves 95 per cent of nature within NEOM."

— HRH Prince Mohammed bin Salman Al Saud, Saudi Arabia's Crown Prince, Deputy Prime Minister and Minister of Defence.

The design also helps improve the project's environmental position, as it embraces various sustainability-focused concepts, including energy efficiency.

The Saudi Press Agency (SPA) reported that the Red Sea Project is expected to welcome its first guests by the end of 2022, upon the opening of the region's international airport, and will be completed by 2030.

Following its completion, the project will offer around 50 resorts with an impressive capacity of 8,000 rooms and around 1,300 properties, located across 22 islands and six inland sites. It will also feature golf courses, entertainment facilities and luxury marinas.

OPEC's 8th International Seminar postponed to June 29–30, 2022

The Organization of the Petroleum Exporting Countries (OPEC) has postponed its 8th International Seminar until next year due to the COVID-19 pandemic. The Seminar, originally scheduled for June 16–17, 2021, will now be held on June 29–30, 2022, at the Hofburg Imperial Palace in Vienna, Austria.

OPEC Secretary General, Mohammad Sanusi Barkindo, said: "The OPEC International Seminar is regarded as one of the premier events on the world energy calendar and the decision to postpone follows very close consultations with many stakeholders, including our Member Countries. Though this was not an easy decision to make, our utmost priority is the safety and health of all participants. We look forward to building on our past achievements and holding an even more successful Seminar again in 2022. We thank the Hofburg Palace, the City of Vienna and the Austrian Government for their support and flexibility in facilitating this change."

The Seminar's participants customarily include Ministers from OPEC Member Countries, countries participating in the 'Declaration of Cooperation', and other oil-producing and oil-consuming nations; heads of international organizations; chief executives of national and international oil companies; along with other industry leaders, academics, analysts, energy experts and journalists from specialised media.

OPEC has held seminars since 1969 and the first in the current series of International Seminars took place in 2001. Over subsequent decades, the OPEC Seminar has increased in size and scope, covering topics such as the world economy, global finance, energy cooperation and the transition, sustainable development and the environment.

The Seminar's reputation has grown steadily. The last edition in 2018 attracted a record of more than 950 participants from over 50 nations, around 80 speakers, 60 ministers and CEOs, 19 sponsors, 20 exhibitors, and 170 journalists, analysts and photographers.

The postponement comes as travel restrictions remain in place in many countries and lockdown measures complicate the logistics of planning major international events.

The 7th OPEC International Seminar, was attended by many dignitaries from government, international organizations, oil companies, including Ihsan Abdul Jabbar Ismaael (pictured), the current Minister of Oil of Iraq.

OPEC 8th International Seminar

... new date ... new date ... new date ... new date ... new date ...

June 29–30, 2022

Hofburg Palace, Vienna, Austria

The 8th International OPEC Seminar will be held under the theme:

'Towards an inclusive energy transition'

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Dr Hassan Rouhani, President of the Islamic Republic of Iran.

Eng Bijan Namdar Zanganeh, Minister of Petroleum.

OPEC congratulates IR Iran on its National Day

IR Iran celebrated the 42nd anniversary of the Islamic Revolution on February 11. To mark the occasion on behalf of the OPEC family, Mohammad Sanusi Barkindo, OPEC Secretary General, sent congratulatory letters to Dr Hassan Rouhani, President of the Islamic Republic of Iran, and Eng Bijan Namdar Zanganeh, Minister of Petroleum and doyen of the OPEC Conference.

In conveying his best wishes to the President, the Minister and the people of IR Iran on their National Day, the Secretary General took note of the OPEC Founder Member's enduring support and dedication to the Organization's objectives, and its leadership in helping to ensure the success of the 'Declaration of Cooperation' (DoC) in supporting market balance and sustainable stability.

IR Iran has been a leading actor in the Organization since it joined with four other visionary oil-producing countries at the Al-Shaab Hall in Baghdad on September 14, 1960, to establish OPEC. This seminal event saw these five Founder Member Countries gather together around the premise of cooperation and to exercise their inalienable right to permanent sovereignty over their natural resources in the interest of their national development.

IR Iran was instrumental in supporting the DoC and signing of the cooperative framework on December 10, 2016. It has provided consistent support to the overall efforts to sustain balance and stability to the market, including proactive efforts taken over the past year to restore stability in response to the severe downturn related to the COVID-19 pandemic.

Furthermore, IR Iran joined the other DoC participating countries in endorsing the 'Charter of Cooperation' on July 2, 2019, opening a new chapter in their collaboration and providing a new platform for working together on wider issues facing the global oil market.

IR Iran's National Day is marked by public celebrations and an outpouring of patriotism.

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Arkab returns as Algeria's new Minister of Energy and Mines

President Abdelmadjid Tebboune appointed Mohamed Arkab to the Cabinet post on February 21, 2021.

Mohamed Arkab, Algeria's Minister of Energy and Mines.

Mohamed Arkab, who is no stranger to OPEC and the landmark 'Declaration of Cooperation' (DoC), possesses a wealth of experience in Algeria's energy sector and in public service.

Following his appointment, the new Minister noted that the impact of the COVID-19 pandemic and economic crisis on the energy sector "requires us to fully mobilize and provide increased efforts to confront current and future challenges," according to a statement published by the Ministry.

Arkab, who succeeds Abdelmadjid Attar, took his seat at the OPEC table during the 27th Joint Ministerial Monitoring Committee on March 3 and the 14th OPEC and non-OPEC Ministerial Meeting (ONOMM) on March 4.

The new Minister's career spans more than three decades. He joined ETTERKIB, an industrial construction company, in September 1990. In 2006, he was appointed as the company's chief executive officer (CEO), a position he held until 2010.

Following his tenure at ETTERKIB, Arkab was tasked to head the Electricity and Gas Engineering Company, a subsidiary of Sonelgaz Holding, between 2010 and 2017. He then became Sonelgaz's CEO.

He was appointed Minister of Energy and head of Algeria's delegation to OPEC in April 2019.

In June 2020, Arkab became Minister of Mines and Attar was appointed as Minister of Energy. Algeria's Minister served as President of the OPEC Conference in 2020, which coincided with the Organization's 60th Anniversary.

Arkab holds an engineering degree in mechanical engineering, with a major in energy systems. He also obtained a master's degree in business administration.

Leader with influence

Upon his appointment as Energy Minister in 2019, Arkab played a pivotal role in the Organization and the DoC. His role expanded when he became President of the OPEC Conference at the start of 2020.

During his tenure, Arkab presided over several crucial meetings, including the 178th (Extraordinary) Meeting of the OPEC Conference and the 179th (Ordinary) Meeting of the OPEC Conference held in March and June 2020, respectively.

The Minister was also one of the key architects of the historic decisions that were taken during the 9th, 10th and 11th OPEC and non-OPEC Ministerial Meetings held on April 9 and 10, and June 6, respectively.

These meetings witnessed OPEC and other DoC participants joining efforts to counteract the COVID-19 pandemic's devastating impact on the world economy and the global oil market. The DoC participating countries agreed to the largest and longest voluntary production adjustments in the history of OPEC and the oil sector in an effort to restore stability to the global oil market and provide a platform for economic recovery.

Alfares heads Oil and Higher Education Ministries in new Kuwaiti government

Dr Mohammad Alfares, Kuwait's Minister of Oil.

His Highness Sheikh Nawaf Al-Ahmad Al-Jaber Al-Sabah, the Emir of Kuwait, issued a decree on March 2 to form the country's new government, which saw the reappointment of Dr Mohammad Abdullatif Alfares as Kuwait's Minister of Oil and head of its Delegation to OPEC.

Alfares was also named the new Minister of Higher Education. He continues to chair the Board of Directors of the nation's energy giant — Kuwait Petroleum Corporation (KPC).

In a statement published by the Ministry of Oil following the 14th OPEC and non-OPEC Ministerial Meeting (ONOMM) on March 4, the Minister praised the 'Declaration of Cooperation' (DoC) participating countries for their efforts "to achieve market balance and return the levels of oil stocks to normal levels, and this is reflected positively in the markets today, and it is expected that the improvement in the markets will continue."

He also praised the initiative of the Kingdom of Saudi Arabia for its additional voluntary adjustments during the months of February, March and April. He referred to the efforts of the State of Kuwait, "which has proven through its full commitment to adjust its production as required with the agreement, which undoubtedly contributed to the improvement in the balance of supply and demand."

Going forward, the Minister urged a cautious approach, noting in his remarks that "the markets are facing a factor that we do not have control over, which is the spread of the coronavirus."

Alfares has previously served as Minister of Education and Higher Education, as well as being a member of KPC's Board of Directors. He was also the Secretary General of Kuwait University, as well as the university's Director of the Construction Programme and its Assistant Vice President for Planning.

The Minister completed his undergraduate studies in mechanical engineering in 1987 at the University of Kuwait. Three years later, he earned a master's degree and later a doctorate of philosophy in mechanical engineering from the University of Wisconsin in Madison.

Alfares was first appointed Minister of Oil and Minister of Electricity and Water in December 2020, succeeding Dr Khaled A Al-Fadhel, who played a key role in the DoC process.

Al-Fadhel became Kuwait's Minister of Oil in December 2018 and attended many landmark meetings of the Joint Ministerial Monitoring Committee (JMMC), the OPEC Conference and at the ONOMM.

Libya's Mustafa Sanalla receives US State Department award

Mustafa Sanalla (pictured), Chairman of the Libyan National Oil Corporation (NOC), is among the first recipients of the US State Department's International Anticorruption Champions Award.

Mustafa Sanalla, Chairman of the NOC since 2014 and steady hand at the helm of the country's vital oil and gas sector, is one of 12 people recognized by the US government for their efforts to combat corruption.

In announcing the new award on February 23, US Secretary of State Anthony J Blinken said: "Around the world, corruption threatens security and stability, hinders economic growth, undermines democracy and human rights, destroys trust in public institutions, facilitates transnational crime, and siphons away public and private resources."

Blinken, who took office in January following the inauguration of Joe Biden as President, stated that the new award is bestowed upon "courageous individuals who champion anticorruption efforts and countries working to fulfil their commitments to international anticorruption standards."

Sanalla was the only business and energy executive amongst the recipients of the US award. The others include the Director General for Electronic Payments at the Central Bank of Iraq, a judge, several prosecutors, a journalist and a civic activist.

In a letter congratulating the NOC Chairman, Mohammad Sanusi Barkindo, OPEC Secretary General, said: "I wish to extend my sincerest congratulations on your being named one of first recipients of the US Department of State's International Anticorruption Champions Award. This well-deserved honour reflects your exemplary leadership of the National Oil Corporation (NOC) and untiring work, under extraordinary circumstances, to ensure that your country's natural resources are used for the benefit of all Libyans."

Barkindo's letter went on to note Sanalla's efforts "to maintain trust and confidence both at home and internationally. You have been steadfast in your resolve to rebuild, improve and expand Libya's oil and gas sector and maintaining NOC's seat at the table of the world's leading energy suppliers. Despite the enormous challenges you have faced over the years, including the severe impact of the coronavirus on the global markets, you have worked without fear or favour to meet the vital energy needs of the Libyan people, and in doing so, providing both power and hope. That you have done so with equanimity, magnanimity and determination is an inspiration to the entire industry, and merits universal respect, admiration and recognition.

'NOC is non-partisan'

In an interview with the *OPEC Bulletin* during the 176th Meeting of the OPEC Conference on July 1, 2019, Sanalla said the NOC plays an important role in providing revenue for the country and support for the people.

"NOC is non-partisan. Our vision is only is to keep oil flowing, and gas as well, for the benefit of Libyans," he said in the interview.

Sanalla praised the Kingdom of Saudi Arabia, the Russian Federation and Barkindo himself for helping to bring about the 'Declaration of Cooperation' (DoC) in December 2016. "They really rescued the oil sector, they rescued the energy supply and they rescued the consumer and producer as well. They did good work for all. And with time they gained more experience, and we can see that right now."

A day after the interview, on July 2, 2019, Libya, along with other OPEC Member Countries and the non-OPEC DoC participants, endorsed the 'Charter of Cooperation' (CoC) during the 6th OPEC and non-OPEC Ministerial Meeting.

Libya became a full OPEC Member in 1962. During the interview with the *OPEC Bulletin*, the NOC Chairman said Libya was proud of being one of the early OPEC Member Countries "and although we are passing through a very difficult time, I am sure and I hope we will recover and will be a good actor for this Organization."

Libya's oil production stood at nearly 1.2 million b/d in early 2021, up from an average 368,000 b/d on average in 2020, according to OPEC *Monthly Oil Market Report* data. Last year was a period of political turbulence in the country and the oil sector also was affected by and the global impact of COVID-19 on economic activity and oil demand.

Sheikh Ahmed Zaki Yamani: an OPEC and oil industry pioneer

It was with great sadness that OPEC learnt of the passing of one of the Organization's and the petroleum industry's most respected and legendary leaders, Sheikh Ahmed Zaki Yamani, at the age of 90. The* OPEC Bulletin *recalls his life, and particularly his time with OPEC.

Known for his graceful manner and trademark goatee, Yamani was a true OPEC legend, a man who bestrode the meeting rooms and corridors of OPEC, and the global oil industry, during his almost quarter of a century as Minister of Petroleum and Mineral Resources of the Kingdom of Saudi Arabia between March 9, 1962, and October 5, 1986.

His tenure represents the longest period of service for an OPEC minister, with Yamani part of many of the pivotal moments that shaped the Organization's history. "To the global oil industry, to politicians and senior civil servants, to journalists and to the world at large, Yamani became the representative, and indeed the symbol, of the new age of oil," noted Daniel Yergin in his seminal book on the oil industry, *The Prize*.

Mohammad Sanusi Barkindo, OPEC Secretary General, said: "Ahmed Zaki Yamani was an outstanding icon of the world of oil and the leading light in OPEC during his eventful years as the Minister of Petroleum and Mineral Resources of the Kingdom of Saudi Arabia. I recall vividly and with fondness his patience and graciousness at our meetings. He was an active listener who when he spoke, everyone paid attention with what I call pin-drop silence. He was charismatic and eloquent, and humble and deeply religious. May his gentle soul rest in Jannat Al-Firdaus."

Yamani was born in Mecca, Saudi Arabia, in 1930. He earned a bachelor's degree in law at Cairo University in 1951, a master's degree in law at New York University in 1955 and graduated from Harvard Law School in 1956. Only six years after graduating from

Ahmed Zaki Yamani (r), with Abdul Aziz Bin Khalifa Al Thani, Minister of Finance & Petroleum, Qatar (1972–89), President of the OPEC Conference, at the 79th Meeting of the Conference, held in 1986 in Geneva, Switzerland.

Ahmed Zaki Yamani (r), with Sheikh Ali Khalifa Al-Sabah, Minister of Oil, Kuwait (1978–90), at the 77th Meeting of the OPEC Conference, which was held in 1986 in Geneva, Switzerland.

Harvard, he was plucked from relative obscurity and took up the reins of his country's petroleum ministry.

In April 1962, Yamani flew to OPEC's new headquarters in Geneva to attend the Fourth Meeting of the OPEC Conference, his first as new minister, and it proved to be an early test of his resilience and foresight. Yamani was elected as President of the Conference for the meeting, the first of seven occasions, with the meeting taking place over two sessions — April 5–8 and June 4–8. It adopted a series of resolutions that formalized OPEC's demands to international oil companies (IOCs) regarding their sovereign national interests.

It was a prelude of things to come as the group of developing countries that was OPEC sought to exercise the inalienable right of all countries to have permanent sovereignty over their natural resources in the interest of their national development.

In subsequent years, Yamani was directly involved in evolving this process and in a number of landmark OPEC statements and decisions, such as the 'Declaratory Statement of Petroleum Policy in Member Countries' in 1968, followed by a number of developments in the early 1970s that culminated in the Geneva I and Geneva II agreements. At the time, Yamani said that these developments had been "a fundamental turning point in the international oil industry, bringing OPEC prominently to the fore."

Bringing people together

Barkindo also recalled the role of Yamani in bringing people together. "During the holy months of Ramadan, he routinely hosted informal ministerial consultations in Taif in the Kingdom of Saudi Arabia to brainstorm current market developments to help build consensus for official OPEC conferences." This collaboration was also evident when Yamani chaired ministerial and technical committees that shaped the strategic direction of the Organization through the development of a Long-Term Strategy.

In 1975, Yamani was also witness to the murder of Saudi Arabia's King Faisal in Riyadh and then in December of the same year, Yamani was in attendance at the 46th Meeting of the OPEC Conference when proceedings were brought to an abrupt halt by terrorists led by the notorious 'Carlos the Jackal'. Three people were killed before Yamani and other hostages were forced onto harrowing flights across North Africa and the Middle East,

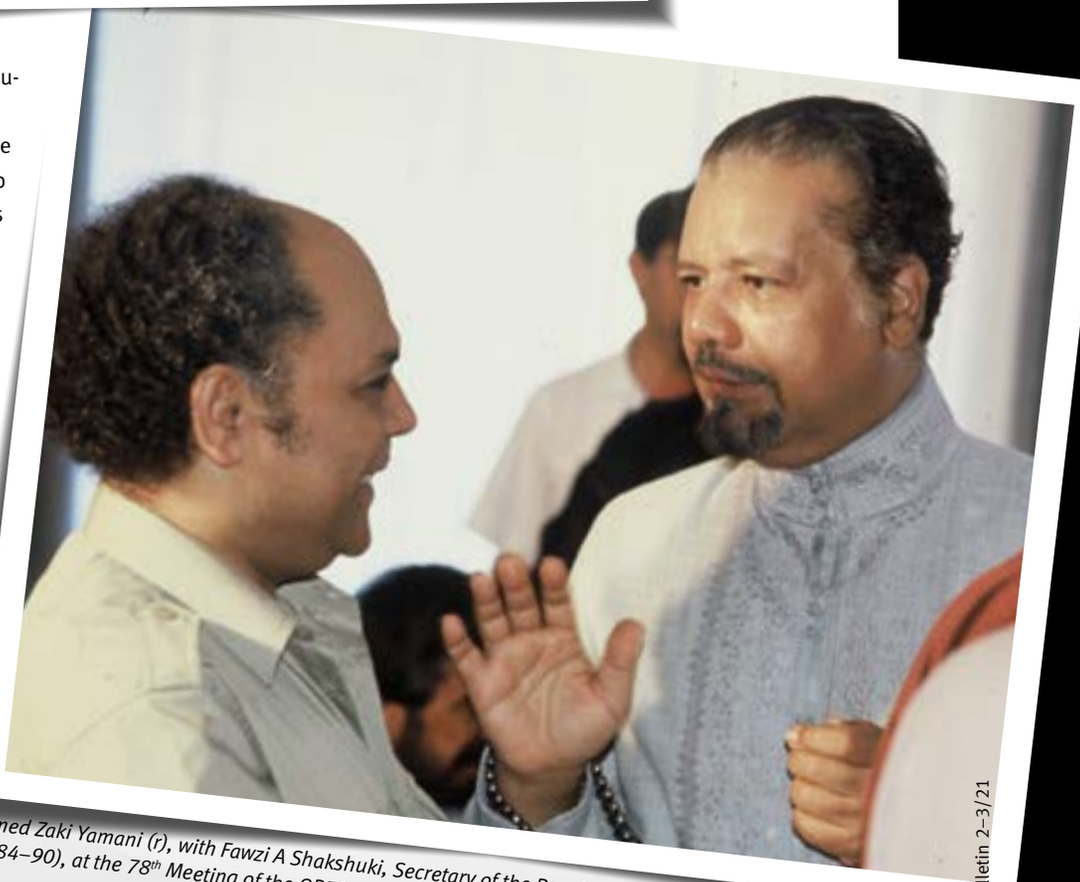
Ahmed Zaki Yamani in 1973.

before eventually being released following a traumatic ordeal that lasted more than 40 hours.

Yamani's final OPEC Ministerial Conference as minister was the 78th Meeting that ended up in Geneva in July and August 1986. Just like his first back in 1962, it proved to be an extended one. On this occasion, it lasted 21 days, the longest Ministerial Conference in the history of OPEC.

Over the course of 24 years and 75 OPEC Ministerial Conferences, Yamani was a hugely influential figure in OPEC's history. His career was remarkable and his strong leadership, dedicated service and broad vision for OPEC bequeathed a rich legacy for the Organization.

Yamani passed away on February 23, 2021. The OPEC Secretariat reflects on his contribution to the Organization's history with great admiration and pride, and extends its deepest and heartfelt condolences to his family and friends and to the Kingdom of Saudi Arabia.



Ahmed Zaki Yamani (r), with Fawzi A Shakshuki, Secretary of the Peoples Committee of Oil, Libya (1984–90), at the 78th Meeting of the OPEC Conference which was held in 1986 in Brioni, Yugoslavia.

Carving a career in the most exciting industry

*Born in Switzerland, economist **Dr Cornelia Meyer** has battled her way to the top in the oil industry, traditionally a man's world, forging her own unique path. Her secret: "I never saw myself as a woman and I don't think any of my colleagues, once they knew me, saw me as a woman. I think they saw me as a competent individual, a trustworthy, competent individual who will have the courage to speak truth to power." The* OPEC Bulletin's *Maureen MacNeill reports.*

Cornelia Meyer (l), CEO, MRL Corporation with OPEC's web moderator, Eithne Treanor, at the 162nd Meeting of the OPEC Conference.

Dr Cornelia Meyer's career path is nothing if not riveting. Born and raised in Switzerland, she studied at St Gallen University, where the country's top-ranking executives study, then at the London School of Economics before she then took off to Tokyo for what ended up becoming nine years, completing her doctoral studies at Tokyo University. While doing that, she also became advisor to Yoshiro Mori, Japan's then-Minister of Trade and Industry who later became prime minister.

"He was very good because he needed someone who could speak truth to power, especially when it came to board policy and foreign economic policy, which made me useful to him. He needed somebody whose forte was economics or geopolitics and who was willing to stand up," Meyer recalls.

Of her time in Tokyo and her choice to go there, she says that during the 1980s when she was studying, moving up the echelon in Switzerland's corporate world was the preserve of men.

"There was just no place for women, so I needed to have a differentiating factor — I needed something to set me apart."

At the time, the Asia-Pacific region was growing but didn't have a political or economic centre before China 'became big', though Japan was the centre for both private and official regional capital flows, she says. The region continues to be the most interesting in terms of energy, states Meyer, who enjoys working with emerging markets.

The risk paid off, as UBS (Union Bank of Switzerland, a Swiss international investment bank) hired her as the regional VP for country risk. "I had an offer from the *Economist* (magazine) and an offer from UBS and my dad said, you can always become a journalist, but you can't always be hired by an AAA-rated bank, so do this first."

Move to the Asian Development Bank

She decided she wanted to get more into the deal and project side of banking and thus next took a job with the Asian Development Bank in Manila, "because they were doing a lot of interesting things in that space. I provided technical assistance loans, worked on the privatization of state owned enterprises in the energy sector, oversaw lending operations into projects. It was great.

"The Swiss wanted me to go back to Switzerland, but I wasn't ready for that. So I chose Manila over Zurich," Meyer says. She ran a country programme for Pakistan, including lending for the energy and infrastructure sector on the subcontinent.

"No oil company would hire me ... I wasn't an engineer."

She again grew restless and wanted to acquire more deal experience, which is why she got into transaction work with Citibank. The bank hired her right away and moved her to London.

There she was in charge of originating transactions in Eastern Europe and the Commonwealth of Independent States (CIS).

"That was the first American money into the Russian energy sector in the heady days of the '90s when you wanted to be there. A lot was happening in Russia and everyone wanted to be there. Gazprom needed money, everybody needed money and US financial institutions were ready and prepared to finance projects. That was very good."

During her time at Citibank in London, she undertook a lot of energy-related work and decided she wanted to work for an oil company. "Then no oil company would hire me. Why would they hire me? I wasn't an engineer."

In the end, she gained recognition because she had transactional experience with US Export-Import Bank (EXIM)-financed projects and General Electric (GE) took interest.

"Doing business in Russia is not for the faint of heart and especially at that time, and GE likes people who are bold enough to pass new frontiers. That's how temperamentally they felt I was the right person and that's why I was hired by them."

Working in the Middle East

She was first placed into GE Capital, where she financed equipment for the company, and her activities moved into the Middle East. "The price of oil at that time was about $8/barrel and someone needed to finance GCC (Gulf Cooperation Council) procurement needs."

Her move to GE expanded her horizons even more. She moved to GE Energy (today GE Power) and ran business development for the Asia-Pacific region in the early 2000s. It was the biggest division of GE at the time and she worked on building the manufacturing base in China, and integrating a supply chain into the inorganic growth strategy.

She calls that a "very interesting dance" because "it needs to work with the whole corporation". At that point, she stayed at the GE Energy headquarters in Atlanta, Georgia, though she collected a lot of air miles travelling across the Asia-Pacific.

"The people who needed to feel comfortable with me were the business unit leaders in the division. They would not feel comfortable with me if they felt I was doing things out there somewhere in China. Definitely it was better that I was in HQ, even if they were somewhere else. It was the psychological thing of being there," says Meyer.

"It was at that time a very male environment. Two per cent of the salaried workforce, including secretaries of the energy division, were women. So you needed to be quite tough. I started putting on meetings at 5:30 am and things like that just to show I was really tough. It wasn't that bad for me because I was dealing with the Asian time zones, I was anyhow at 3 am on a call with somebody."

Independent economist

By this time, Meyer had fallen in love with the oil industry and fought to work inside the industry. After five years with British Petroleum, she decided to go independent and has been so for more than ten years, under the brand Meyer Resources, her own company.

Meyer has no shortage of clients, working as an advisor for multilateral and corporate organizations, covering geopolitics, business and energy. Her reputation precedes her and clients come looking for her.

"I have come full circle. I am an economist who worked very hard to get out of academia and into the business world and into investment banking and industry. Boy, have I worked to get into industry, because at first everybody told me 'You're not an engineer, get lost.'"

Although there is much more money to be made in investment banking, she has stayed true to her desire to follow what is intellectually interesting.

"It's a good mix, I do a lot of media commentating, I write a fair bit, I do macroeconomics, but I still also do a lot of the business stuff. It's a nice patchwork which gives me a 360 circle view of what's going on in the world, aspiring to add value to clients and partners."

OPEC involvement

Meyer, a member of the Oxford Energy Policy Club, has been observing OPEC for about 15 years, because "if you do oil you must follow OPEC." She has not skipped an OPEC meeting the entire time.

She likes OPEC because it doesn't just look at security of supply, but also security of demand. In recent years the energy transition has become the 'how' topic in the energy debate, she says, and OPEC has a big role to play in answering this question.

"Usually consumers just look at security of supply, but nobody will invest if you don't have security of demand, which is especially true given the demand implications of the energy transition. That's where (OPEC Secretary General Mohammad Sanusi) Barkindo has to be given a lot of credit, because he's a listener and a diplomat. He's fantastic."

It was Barkindo who first invited Meyer to an OPEC meeting when he was acting Secretary General 15 years ago. "He got me to my first meeting, and since then I've gone to every one. I was giving a presentation at OPEC on supply chain and he said now you must come to the meeting and I flew out to Abuja in Nigeria. I've come full circle with him again."

Meyer provides analysis around meetings of the OPEC Conference and now OPEC and non-OPEC Ministerial Meetings. She moderates numerous international conferences and has also taken to moderating some technical sessions for the Organization.

"What I like about moderating is it's a bit like being the CEO, you need to make sure it happens, whatever it is. You need to make sure the alchemy between the floor and the panel and among the panellists works. You might have noticed I always summarize at the end, you need to give the audience something like a little gift wrapped up in a bow to take away."

Declaration of Cooperation

OPEC's evolution since 2016 has been swift, states Meyer. The 'Declaration of Cooperation' (DoC) is probably the most important event to take place since she has been following OPEC, she adds. "We really have to compliment both Saudi Arabia, Barkindo and Russia for making it work. Without those three it would not work."

Of the DoC, she says, "You saw the shale industry became so important and OPEC was no longer the 40 per cent producer, it was at 30 per cent and below. You had this big push of shale oil and you needed to get a counterbalance, and the only way to get that counterbalance was to work with Russia and have Russia gather their friends, and hence the DoC was born."

Despite some voices foreseeing OPEC's demise, she disagrees. "This is absolutely not the end of OPEC ... I was a consumer of oil company-wise, I was a producer of oil company-wise. The last thing you want is wild (market) fluctuations. So consumers as well as producers need to have predictability, need to have a planning horizon. And I think OPEC, especially under the DoC with OPEC+, has really helped smooth those wild swings, especially when demand saw its largest drop in history last April."

She adds that despite the huge, COVID-19-induced swing, the market has grown more stable. Saudi Arabia's generous one-time voluntary adjustment of 1 million b/d for February, March and April 2021 provided a further boost to the market, states Meyer.

"Without OPEC+ we would never have come out of the doldrums of April (2020)," she says. "I was blown away at the last OPEC meeting (January 5, 2021) with the 1m b/d (additional production adjustment by Saudi Arabia). It is so important because again it's the only thing that will help clear that inventory overhang."

The US shale industry has also been buoyed by DoC decisions throughout 2020, she adds. "Without this 9.7m b/d out of the market as of May, the future of the industry would have stood under an enormous cloud."

Energy transition and investment

Meyer thinks the biggest challenge going forward is the energy transition. OPEC says oil demand will begin to plateau in the longer term, though some others say it will be by 2025, she adds. Even when oil demand begins to plateau, hydrocarbons will be required due to growing populations, she states.

Her biggest concern is how big oil companies will be financed. "Because ESG (environmental, corporate and social governance) has become so important. ESG has become so anti-oil and anti-gas."

The European Investment Bank made a landmark decision when it decided to no longer finance coal, according to Meyer. Then it said it will no longer finance oil, and now it has stated it will no longer finance gas.

"That's essentially a multilateral development bank, and when the EIB does that it's a matter of time until the World Bank and other development banks follow. And when the lenders of last resort start do that, then the banks will start to follow.

"Without OPEC+ we would never have come out of the doldrums of April (2020)."

"So the financeability of the industry, the access to capital is the biggest problem and that's again where OPEC can play a very big role in terms of educating — pushing the circular carbon economy (CCE), CCUS and such things."

She says Saudi Arabia's idea of a circular carbon economy is good — the task ahead will be for it to gain universal acceptance.

"At this point, when you talk to board members of banks, they say even if they would like to finance oil or gas projects, the chairman has received a letter from his grandchild and her friends who all follow Greta Thunberg and he doesn't want to be a pariah, so we have a hard time pushing these investments through the process.

"It's not only short-sighted, it's very dangerous. Because what happens if you deprive an industry of capital? It becomes harder to finance and the financing costs go up. The oil industry is an industry where you need to continuously invest in new oil fields, invest in keeping oil fields going, from upstream to petrochemicals, it's very capital intensive. So if the financing becomes difficult, it becomes more expensive, and that can provide an upward pressure on the price in the long run."

Investment impact of COVID-19

Since COVID-19 appeared on the scene, Meyer sees too little investment flowing into the industry. "It's a long-cycle business, so we won't feel a lack of investment today or tomorrow. A dollar invested today will only translate into a barrel produced from between three and ten years, depending on the production modalities. We will also have to see what the impact of the Biden administration's energy policy will be.

"There could be an energy crisis in some years; because of COVID-19 everybody slashed CAPEX by at least 25 per cent, even and for the first time ever the GCC NOCs (Gulf Cooperation Council national oil companies) cut CAPEX. We won't feel it tomorrow, but when we will, it's not a light switch. You will need to wait for years from dollars invested until the first barrel is pumped. There is a time lag."

Meyer is taking it upon herself, and believes OPEC and others in the industry must play a key role, to help educate the public about the industry. Oil is obviously going to have a major role in the energy transition, she adds.

"We are facing a major, major PR crisis, which we need to address. From a PR perspective, the industry needs to sell that they are working on the energy transition.

"It's not just about selling oil. It is about convincing the world of how important the oil and gas industry is in providing the world with sufficient and affordable energy. It's the environment office's job, it's the PR department's job. The industry needs to work together on this," Meyer explains. "Sometimes the key proponent should obviously push it, but you also need other people to push it in order for the argument to become mainstream.

"In reality, the oil industry itself has reduced its carbon footprint a lot. However, the real issue is what does the general public think, because this will influence investment decisions by the banks or financiers."

Meyer has always advocated and feels strongly about full environmental and economic lifecycle assessments of every source and use of energy.

"If I look at EVs (electric vehicles), that's fine, they produce less CO_2 emissions depending on where the electricity comes from. If it's from coal-fired plants then not. But think of it, an EV needs three times more copper than a normal gasoline car. You need lithium for batteries, and the batteries are highly toxic things. Someone needs to produce that copper, someone needs to ship that copper," she says. "Surely that is CO_2-intensive ... and then you need to decommission.

"Same with solar panels, everyone says, oh they're great solar panels, but we also need to consider the environmental and economic costs of decommissioning."

Full economic and environment lifecycle assessments would provide a basis to make proper policy and household investment decisions, she says. "If I suddenly see that a particular application is three times more expensive and the lifecycle is not that much different, then I look at it differently."

There are many wildcards in the energy transition, she continues. "It all depends on technology and we don't know what's coming down the road. I would say everybody is researching on this, you have the big universities in the West and also China looking at it."

The late Sheikh Ahmed Zaki Yamani, a former Minister of Petroleum and Mineral Resources of Saudi Arabia, once said that the Stone Age didn't end because we ran out of stones, she adds. "I don't know what the disruptive technology will be, but I can see magnetic applications and other technologies. There are lots of disruptive technologies and lots of people researching these disruptive technologies and we do not yet know what will stick. There is lots of money to fund such technologies."

Meyer says ESG is the fastest growing asset class in the investment world — in the US it is expected to grow by 300 per cent between 2020 and 2025 in terms of professionally managed money. By 2025, ESG investments will constitute 50 per cent of all professionally managed money in the US, she adds.

"Where this money goes tells me a lot."

Another issue is carbon pricing, which has not yet gotten far, she states. "As a hypothesis, if we have smaller countries agreeing on a price of carbon, that's great, but not important. We need the world. A global regime for carbon pricing will make investment decisions more rational ... then it's easier to attract money."

The world beyond COVID-19

Regarding COVID-19, Meyer says the world will adjust. "We will live our lives differently. There will be fewer people commuting, we will work from home more often. Fewer people want to go into town to work. Our travel patterns will change in the short term at least.

"But then I look at the oil industry and you have to hand it to them that they handled the crisis as well as could be expected from an operational perspective. They had the right protocols in place."

Meyer says that at the country level, Saudi Arabia and the United Arab Emirates (UAE) have done well. "They have great pandemic protocols in place ... Being at the crossroads between East and West, they understood that one of the big things for them potentially could be a pandemic, that's why they were amongst the first to close the borders, mosques, etc."

Importance of mentoring

Meyer has benefitted from great mentors over her career who helped her to understand how people express themselves in different environments, how to interpret what they say and how to decipher the code.

"In Japan I was very lucky, in GE I was lucky to have people explaining to me or making sure I didn't fall for the pitfalls."

Thus, mentoring has become an activity of great importance to her. She mentors on a regular basis, but only for women who are Muslim and from underprivileged backgrounds.

"Because that combination in the West, they get the worst rap. It's the hardest. Let's go to the girls who need it most," she says. "I was lucky enough to have had help along the way, so it's now my time to extend a helping hand."

Meyer adds that she also enjoys being connected to the younger generation. She loves dealing with millennials and younger people because of her interest in having a 360-degree perspective of the world.

"Politics and journalism are the two things where you have to speak to the king and you have to speak to the pauper and you have to speak to everybody in between and that gives you a different perception of the world which you live in."

Her week can go from being in M&A mode when she talks with a company that wants her on the board, to writing various articles, to delivering a macroeconomic talk.

"It keeps you alive and it makes me a better macroeconomist in the sense that I'm not somebody who lives in an ivory tower. I am someone who actually sits on boards and has exposure to the 'real world' and as an economist at times I may be asked to advise on investment strategies."

Her greatest pleasure is the privilege of writing regular Op-Eds for *Arab News,* an influential English-language publication based in Saudi Arabia.

Multilingual

On top of all of these career achievements, Meyer can also speak seven languages, which she adds was not helpful at all in the corporate world.

"It was probably helpful to be able to speak Russian. At that time there was a very strong CFO of Gazprom, though her French was better than my Russian."

However, it wasn't seen as particularly helpful in US corporations, "You're a bit of a weirdo if you speak too many languages," she laughs.

She puts her proclivity to learning languages down to the fact that she loves talking to as many people as possible and Switzerland only has 8 million people. In order to talk to more people, she had to learn more languages.

"What I like about languages is it helps you understand the culture... I do a lot of work in the Middle East and I am very angry with myself for not being able to speak Arabic yet.

"Because I understand Japanese even when a Japanese says something in English, I understand how he thinks and where he is coming from. Russian a similar thing but the language I love the most and am most comfortable with is English," states Meyer, though English is not her mother tongue.

Back when she was a student in Tokyo, she was a stringer for *The Economist* and the *Financial Times*. "I had the best teaching me how to write. Now I write much better, I do op-eds for various publications, among others the aforementioned *Arab News,"* she said. "I write best in English."

"It's not just about selling oil. It is about convincing the world of how important the oil and gas industry is in providing the world with sufficient and affordable energy."

Great career future

When asked whether she would encourage young girls to enter the oil industry, she does not hesitate.

"Yes, absolutely. Because the reason I got interested is there's never a dull day. It has an investment component, it has a money component, it has a big technology component. It has a sales and marketing component, petrol stations, and above all a huge geopolitical component. There is an interface with the general public and there is a public relations component. It reaches into every aspect of people's lives. I frankly couldn't think of a better industry because you will never get bored.

"And you're doing something useful, you're giving people mobility, medicines, plastics. I used to work for GE and the slogan was 'we bring good things to life'. Oil actually brings good things to life. It's now a matter of convincing the broader public that the industry brings good things to life. The industry should not be shy in advocating the environmental improvements achieved by reducing emissions, CCE and other measures.

"I am a fan. It is an exciting industry. While there is a money aspect, the industry's reach goes way beyond that. It is tangibly influencing every aspect of our lives."

Blue hydrogen: a green wave of the future?

Hydrogen is being turned to as a possible source of clean energy in order to meet Paris Agreement targets, particularly in an accelerated post-COVID-19 energy transition scenario. Research scientist, Schalk Cloete, concludes that hydrogen has significant cost and emissions advantages and is a required part of the energy system if climate goals are to be met. This includes 'blue' hydrogen from fossil fuels. By Maureen MacNeill.

Research scientist, Schalk Cloete.

Cloete, who works at the SINTEF independent research organization in Norway, argues that although clean energy has come far in the past few decades, two big challenges face decarbonization efforts under variable renewable energy (VRE): wind and solar only supply electricity, which is responsible for around 20 per cent of global final energy use today, and they are not stable sources.

Thus, the idea of a hydrogen economy is gaining traction once again as a fuel source that could decarbonize much of the remaining non-electric energy consumption.

OPEC has long been a proponent of technological solutions to the climate change conundrum, as Secretary General, Mohammad Sanusi Barkindo, pointed out at the Organization's Second Workshop on Energy and Information Technology, held on September 21, 2020.

One session of the video workshop focused on blue hydrogen. In his opening remarks, Barkindo quoted Bill Gates' observation that "innovation is the reason our lives have improved over the last century."

Barkindo pointed out that the oil industry has been a leader in developing and utilizing technologies from its earliest days and that technological innovation is one element driving advances in the industry's operations across the value chain and contributing to its ever-improving environmental performance.

"The OPEC Secretariat is constantly reviewing and

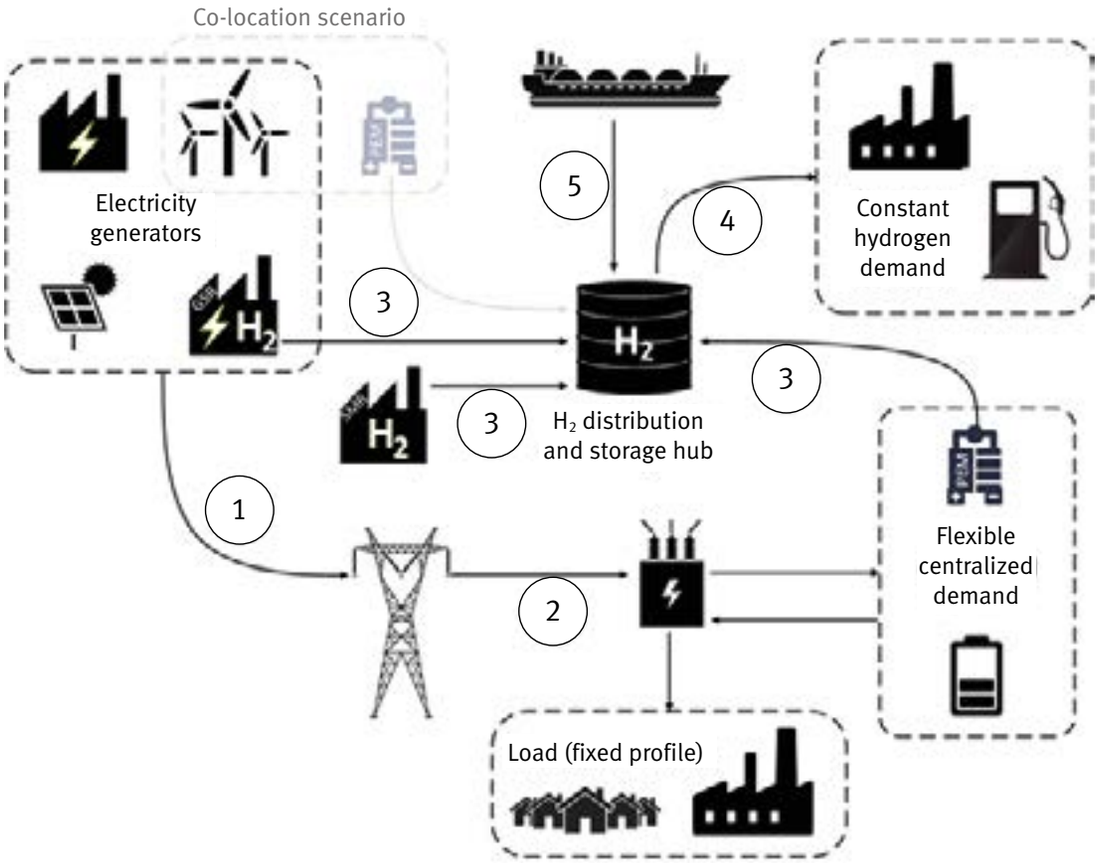


Figure 1: *Graphical summary of the modelled system (based on Germany).*
Electrolyzers (PEM) are either located close to demand (in the 'Flexible centralized demand' box) or close to wind power (in the 'Co-location scenario' box). The numbers represent the following costs: 1) additional transmission costs for wind and solar; 2) conventional transmission costs; 3) hydrogen transmission; 4) hydrogen distribution; 5) reconversion of imported NH3. Oversizing of these elements causes substantial system cost increases for intermittently produced electricity or hydrogen.

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analyzing the latest technologies emerging in our industry with the support of our Member Countries and colleagues from the industry around the world," he said.

"Blue hydrogen is one of these many exciting developments. Blue hydrogen, which is derived from hydrocarbons, offers the potential to add significant value to our industry by turning emissions into energy."

With the European Union attempting to become the first net-zero emissions region and many Western countries targeting mid-century zero emissions, along with China, which is shooting for 2060, all options are on the table. The sharp emissions reductions seen in 2020 due to COVID-19 and the resulting drop in energy demand due to lockdowns would have to continue in order to meet the Paris Agreement's target of limiting global warming to under 2°C and preferably 1.5°C. However, meeting the target appears unlikely and the world must look to alternatives.

Electrifying the future

"The fraction of our final energy consumption that could come from hydrogen in the long run is hard to say, but I would put it around 40–50 per cent of current non-electrical energy demand," says Cloete. "The question is just how rapidly we can undertake electrification and the challenge is to get from the 20 per cent electrical power we use today to a much larger fraction. I think the highest projections I've seen is roughly 50 per cent electrical power by 2050.

"That implies that the rest has to come from something else. This either has to be hydrogen or fossil fuels. So there will be quite a large role. By 2050 it is predicted there will still be plenty of fossil fuels used in the energy mix, but then they can be used by converting them into blue hydrogen. That is one possibility and that pathway will be in direct competition with green hydrogen."

Cloete explains how 'blue' and 'green' hydrogen are made.

"Blue hydrogen is made with fossil fuels, but then you have to capture and store the CO_2," he said. He adds that it can be made from gas through a conventional reforming process. The gas is combined with some steam and then transformed into syngas.

"This syngas is basically hydrogen and CO_2," he says, which must then be shifted using additional steam to more hydrogen than CO_2. Then the hydrogen is separated, and the CO_2 is stored underground, or put to use in enhanced oil recovery to improve hydrocarbon flow.

"It (hydrogen) can also be made from coal or biomass. There you need a gasification process, that's where you just expose the fuel to a small amount of oxygen to produce syngas, then this syngas has to go through the same process."

Green hydrogen is created using electrolyzers, which turn wind and solar power into hydrogen. The electrolyzers are basically just reverse fuel cells, says Cloete, "You take power and produce hydrogen and this is one thing that will become quite cheap in the long-term future, but for the time being it is rather costly."

The role of biofuels

Biofuels could also play a role in global efforts to reduce emissions, he says, but sustainable production of biofuels is a challenge due to their large land-use impact. Cloete suggests the amount of energy gained from biofuels in the long run could be between five and ten per cent, although advances in algae or ocean-based biomass production could increase this estimate.

Some sectors of the economy will be impossible to decarbonize through electrical power, adds Cloete, mainly some industries, long-distance transportation, shipping and aviation.

"From my way of thinking about this, blue hydrogen will stay a crucial factor for a long time for two reasons: First, the production cost of natural gas will remain well below the cost of wind and solar power in most regions and, second, green hydrogen is produced intermittently when the winds blow and the sun shines. So that means that you then create large fluxes of green hydrogen and then you have to handle them ... This can become rather costly."

Cloete says that there are rapid changes taking place regarding the policies, financial support and investment required to produce hydrogen on a large scale.

"This whole idea of hydrogen just became quite popular say five years ago. The idea has been around as a thought for a long time but just recently when people started to realize we cannot do everything through wind and solar electricity and we must have some fuels too (in the energy transition), they got serious about hydrogen again."

With the right impetus, hydrogen production could be ramped up pretty quickly, he says, adding that policy intentions regarding net-zero emissions in many countries could prompt this to happen. "If they are really serious about (net zero) then we will have to do this (produce hydrogen), there really isn't any choice."

Infrastructure needs

Three areas would have to be built up, says Cloete: hydrogen production, hydrogen handling and hydrogen end-use.

"Those three things all need their specific infrastructure and most of that is stuff we just don't have now. All of it will still need to be constructed and that means lots of investment.

"It's also a challenge of scale, since at the moment things are still quite costly, you need quite a lot of deployment to drive them down the learning curve. At the start wind and sun were really costly, but if we incentivize them for long enough then their prices fall quite a lot," he says.

"It will be the same process with this, but it's challenging to know how quickly these costs can actually fall, since the technologies that can cause costs to fall the fastest are very modular. Just as an example, fuel cells can fall in that category, they can potentially fall quite a lot."

However, he says, the first large plants for hydrogen use in the industrial sector will at first be costly and then become cheaper. "I guess in the end they will cost about the same as fossil fuel plants that we use today."

Cloete says if cost were not a factor, hydrogen could eventually meet virtually all non-electrical energy needs, with the exception of a few challenging sectors such as aviation. "There the low-energy density of hydrogen creates a bit of a challenge, since it's crucial that you can fit a lot of energy into a small space if you

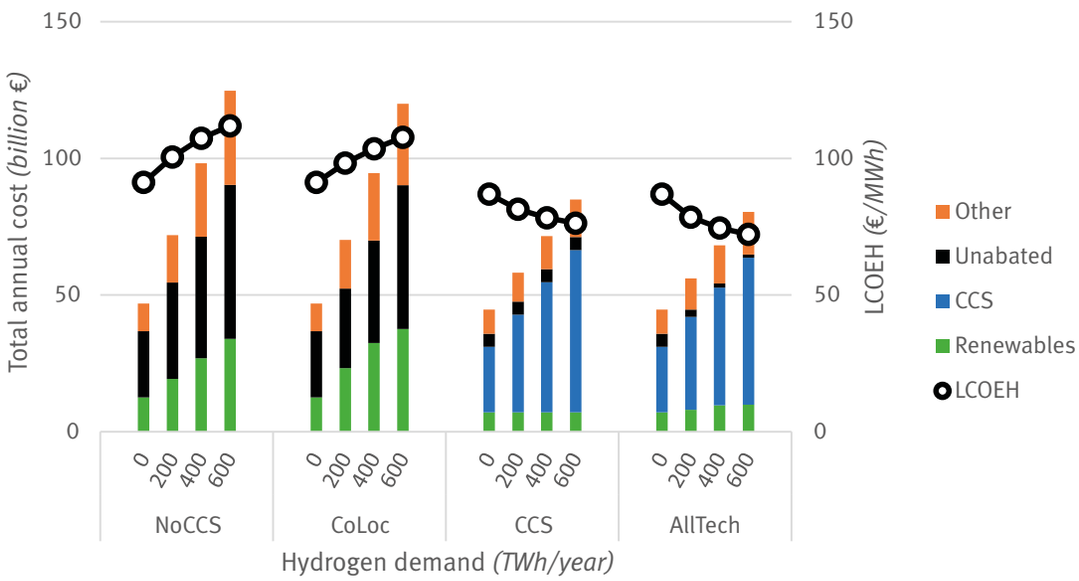

Figure 2: *Costs involved in the four different scenarios (green hydrogen in the NoCCS and CoLoc scenarios and blue hydrogen in the CCS and AllTech scenarios) at four different levels of hydrogen demand.*

The CO_2 price is set to €100/tonne. The system levelized cost of electricity and hydrogen (LCOEH) increases with hydrogen demand for the green hydrogen scenarios and decreases for the blue hydrogen scenarios. This is because green hydrogen costs more than the electricity used to produce it, but natural gas can be converted to blue hydrogen more efficiently and cheaply than it can be converted to clean electricity.

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want to fly a large aircraft. But in terms of global energy use, the aviation sector uses about two per cent or so, so it's not such a large factor.

"I think most of the fossil fuel use in the industrial sector and in the road transportation sector can be changed to hydrogen," states Cloete, with infrastructure being the crucial key.

"Just to give the example of a hydrogen car. If you have your nice fuel cell car but don't have any basis to fill it up, then it is kind of useless."

Challenges in handling hydrogen

The SINTEF researcher stated that in the long term the electrons (electricity) and molecules (fuels) will have to be differentiated.

"There will most definitely be a lot of electrification, but at the moment only about 20 per cent of our final consumption of energy is coming from electricity. All the rest comes from molecules and at this stage this is essentially all fossil fuels.

"We will not replace all of that with hydrogen because there's lots of challenges with that. For example, hydrogen is a lot harder to handle than fossil fuels, so that does introduce quite a lot of challenges."

Cloete adds that the possibility of fully electrifying everything is zero. "So we'll have to use molecules for quite a large chunk of that extra 80 per cent that currently comes from molecules. Hydrogen is a prime candidate to take a large share of that chunk."

If countries committed to producing hydrogen by investing in infrastructure, the switch could happen rather quickly.

"You need a lot of pipelines, hydrogen storage tanks, and all the processes that can actually use hydrogen, they need to be constructed from scratch. So just as an example, we will need to construct a lot of fuel cells. These can be used in vehicles and can also be used for power plants, or combined heat and power plants."

A good thing is that a lot of hydrogen could be used inside the industrial sector. There is already plenty of hydrogen gas being used in refining and in the production of ammonia, says Cloete. However, relative to the amount of fossil fuels used, it is still a very small quantity.

"If you want to ramp that up, we'll have to start to use hydrogen for purposes we haven't used it for

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A 3D rendering concept of a modern blue and white hydrogen (H2) refueling station.

previously. This will require quite a lot of new plants to be constructed."

Even though much harder to handle than fossil fuels, hydrogen is still a lot easier to store and transport than electrical power, says Cloete. "It kind of occupies this central ground."

The economics of hydrogen

Cloete completed his doctorate in the field of Flow Technology at the Norwegian University of Science and Technology in 2014. After developing a keen interest in clean energy conversion processes and the global energy transition, he subsequently focussed on novel process design and simulation and, most recently, on integrating these processes into future clean energy systems.

Using this methodology, he can now design novel process concepts specifically for lowering the cost of future energy systems with high shares of variable renewables. Cloete's work is chronicled in more than 90 peer-reviewed scientific papers and over 100 articles.

Cloete modelled Germany and the potential integration of hydrogen into that country's system in an article published in the International Journal of Hydrogen Energy. He accounted for wind, solar, fossil plant types, storage methods, transmission, carbon price and different hydrogen generating techniques.

His conclusion was that the green hydrogen scenarios turn out to be considerably more expensive than the blue hydrogen scenarios at higher levels of hydrogen demand. This is because hydrogen produced from electrolysis will always be more expensive than the electricity used to produce it, whereas natural gas can be converted to hydrogen at a significantly lower cost than it can be converted to electricity.

Transmission and storage also costs more in his study for green hydrogen as opposed to the blue variety because the former is produced in intermittent fluxes that are more expensive to handle. Additionally, the green hydrogen scenarios still produced considerable CO_2 emissions from the unabated power plants needed during longer periods of low wind and sun, even with a CO_2 price of €100/tonne. Thus, achieving deep decarbonization will require even higher CO_2 prices. However, blue hydrogen scenarios can almost eliminate CO_2 emissions at €100/tonne.

"Such a whole-system perspective is critical for optimizing the rollout of the energy transition. Given the high level of technology interdependence involved in such integrated electricity-hydrogen systems, careful planning is required to minimize costs and complexity. Blue hydrogen has an important role to play in this regard and should not be dismissed from the policy agenda," Cloete concludes in his article.

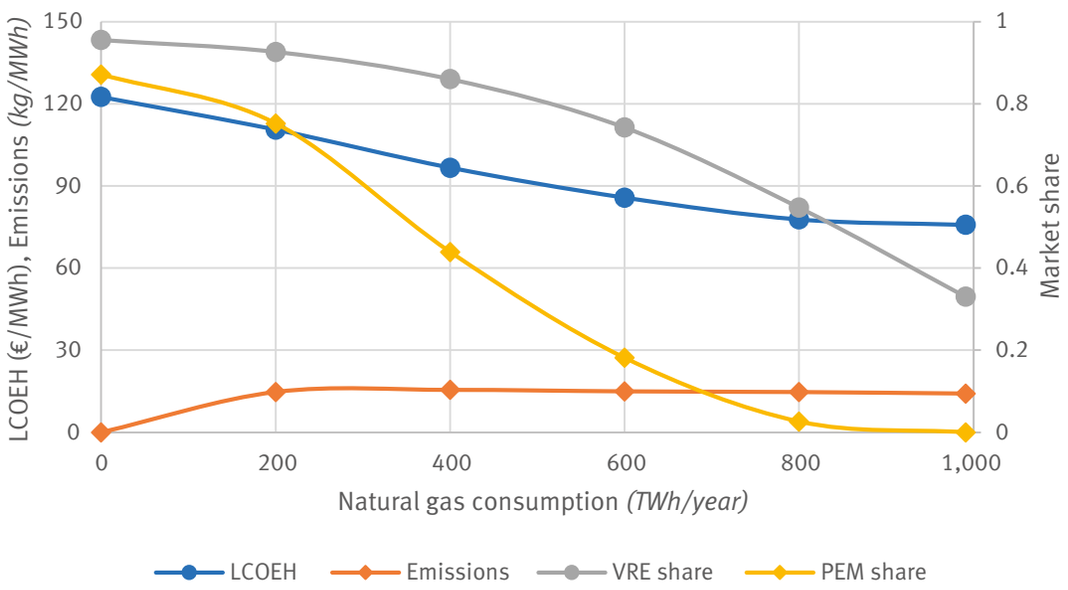

Figure 3: *The cost of reducing natural gas consumption when no coal consumption is allowed at a CO_2 price of €200/tonne.*

Green hydrogen makes it possible to achieve a 100 per cent renewable energy scenario, but the cost of this scenario is 70 per cent higher than a corresponding scenario with continued use of natural gas to generate blue hydrogen and clean electricity. LCOEH = Levelized Cost of Electricity and Hydrogen. VRE = Variable Renewable Energy (wind and solar PV). PEM = Polymer Electrolyte Membrane electrolysis.

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The International Energy Agency (IEA) published a technology report in June 2019 called The Future of Hydrogen. It found "clean hydrogen is currently enjoying unprecedented political and business momentum, with the number of policies and projects around the world expanding rapidly."

It concludes that now is the time to scale up technologies and bring down costs to allow for hydrogen's widespread use.

"The pragmatic and actionable recommendations to governments and industry that are provided will make it possible to take full advantage of this increasing momentum," it says.

In the report, IEA Executive Director Dr Fatih Birol says, "Hydrogen is today enjoying unprecedented momentum. The world should not miss this unique change to make hydrogen an important part of our clean and secure energy future."

Hydrogen was used to power the first internal combustion engine more than 200 years ago and is an integral part of today's refining industry, according to the IEA report. Demand for hydrogen has grown three-fold since 1975, and is almost entirely supplied from fossil fuels. Additionally, the number of countries with policies directly supporting investment in hydrogen technologies is on the rise, as well as the sectors being targeted, the IEA report states.

Blue vs green hydrogen

Recently a lot of emphasis has been put on simply identifying hydrogen production as clean or not clean, rather than 'blue' or 'green'. But Cloete says that "if you want to look at hydrogen, you should not care where this hydrogen comes from as long as it's clean. From that point of view, the degree of incentives for the blue and the green should be the same, so you will probably get quite a large premium for clean hydrogen that you will then send to market and you will receive a subsidy regardless of if it's blue or green.

"That's the way I think this will probably happen, but it's a rapidly changing landscape so I can't be sure."

Cloete sees blue hydrogen being used more in the shorter term and green hydrogen picking up pace down

the road as the price of production falls. However, blue hydrogen from conventional natural gas will remain cheaper than green hydrogen in the long run.

A possible complication with blue hydrogen is public acceptance in the handling of CO_2; people don't want to live next to a large CO_2 reservoir or pipeline. "You have to find the right storage locations where public resistance is not a factor and you still have access to cheap fossil fuels and markets for the resulting clean energy."

As more carbon capture and storage facilities are constructed, they will become cheaper, he adds. But incentives will be required to get the ball rolling.

He adds that the challenge of producing everything 'green' is the requirement for huge amounts of complicated infrastructure. "The costs of rebuilding almost the entire global energy system is huge and we cannot construct all of that overnight. This will need a long, long time. Even if we have this ambition to be carbon neutral by 2050, I think it will still be a big rush to get this done in 30 years.

"There's a lot of work that has to go into that. This is fine for the Western world. Thanks to our large historical fossil fuel use and associated CO_2 emissions, this is something we have the resources to handle. But most of the world still live at quite a low-income level and for them to try to invest in this huge amount of costly infrastructure is just not feasible. Ironically, the people with the lowest historical emissions will suffer most from climate change. Hampering their economic development potential via an excessive focus on greening everything is not a morally justifiable alternative."

Circular carbon economy

Hydrogen also ties in with the circular carbon economy (CCE) championed by Saudi Arabia under its presidency of the G20 in 2020 and endorsed by the leaders of the G20.

It is framed as an extension of the circular economy, adding a new category – remove – to the established principles of reduce, reuse and recycle. This refers to removal of CO_2 both at the combustion stage and directly from the atmosphere.

It renews the push for technologies to remove and store CO_2, and turn this into value-added products.

The Saudi Aramco website promotes the concept as well, stating, "The circular carbon economy is a pragmatic concept that can provide direction for a sustainable future," adding that it can restore the human-earth balance and harmonize the carbon cycle. "By mimicking the natural process of the Earth, we can achieve our own balance, closing the loop to not only reduce emissions through energy efficiency and use of renewables, but also to reuse and remove carbon emissions entirely."

Cloete says that oil companies could prove that blue hydrogen works by converting CO_2 into hydrogen quite close to the source.

'Game-changing possibilities'

As OPEC Secretary General Barkindo added at OPEC's Workshop on Energy and Information Technology last year: "At this stage, blue hydrogen is being used on an industrial scale and has the most practical potential in the transport sector. Coupled with carbon capture and storage or utilization, blue hydrogen could provide an abundant, reliable and clean fuel in the future."

Blue hydrogen has the additional benefit of supporting the economic diversification goals of energy-exporting countries, including OPEC Member Countries, Barkindo stated, while strengthening their capacity to meet their own and the world's growing energy needs.

Furthermore, OPEC recognizes the pivotal importance of technology and innovation in addressing the pressing global challenges of energy poverty and climate change, he said.

"All of these technologies and innovations represent game-changing possibilities for the oil industry and energy sector in general. However, we must be cognizant that sustained investment is essential. Our industry needs access to capital to support the development and deployment of technologies that can help us achieve a stable, inclusive and sustainable energy future."

A hybrid solution to mobility

*After researching the topic extensively, SINTEF researcher **Schalk Cloete** has determined that hybrid vehicles may be the most feasible cars of the future. By Maureen MacNeill.*

People love their electric cars, states Cloete, adding this has a lot to do with the Tesla auto manufacturer and its efforts to make their cars cool and popular.

The researcher uses Norway as an example. In 2020, more than half the cars sold were electric. "But the reason for that is that the amount of incentives in place are about €35,000 per car, which is huge.

"It just shows that if you incentivize it enough, people will definitely buy it."

In Europe, there are already plans to ban cars with conventional engines by 2030 or 2040, he adds, and this will add additional cost to transportation. However, while the Western world has the resources to handle this change, in the rest of the world people have less wealth.

"The internal combustion engine (ICE) will probably survive for quite a few more decades and I think hybrid cars would play quite a large role there," says Cloete. He states there is a real question about whether electric cars are actually cleaner, and this depends a lot upon the power source.

"For example in China now, if you drive a hybrid it's actually a lot cleaner then if you drive an electric car," noting that China still gets the bulk of its power from coal. "This will remain the case for the next couple of decades."

Cloete says remediation of the batteries is not as big an issue as it once was, as the batteries are now made much more efficiently. "It still makes a significant contribution to the car's whole lifecycle footprint, but the biggest factor is most definitely the source of electrical power. Other environmental and social impacts from mining and processing rare battery materials are more important concerns.

"For me, the primary question is the incentives that will be put into place. In the West, it's a large challenge to force ICEs out; this would be quite a costly thing to do. But in the rest of the world, where most future cars will be sold, I don't think they will be able to afford such an ICE ban."

One area that Cloete thinks does not get enough attention on the subject of energy transition is personal accountability and minimizing one's own footprint.

"To bring down our footprints in the whole world, we have three different levers that we can pull. One is to have less carbon per unit of energy that we use. The next is to use our energy more efficiently so that we can get more economic output from less energy input. And the third one that people aren't speaking about enough is that we can actually derive more happiness from less economic input."

In a July 2020 article, Cloete writes that: "Behaviour change — reducing emissions by changing how we live our lives — should be part of every government and think tank's sustainable scenario."

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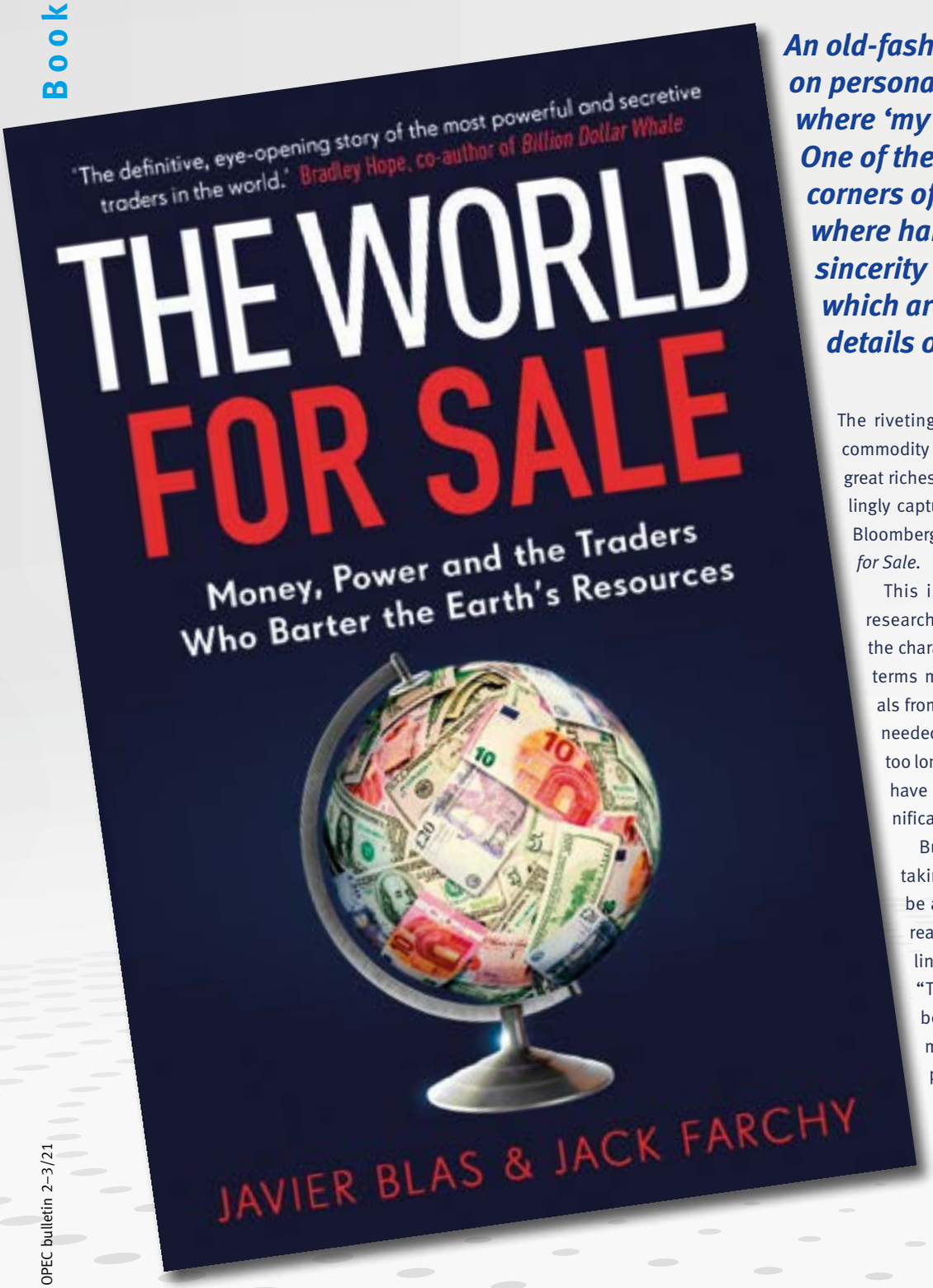
A hydrogen filling station in Hamburg, Germany.

Uncovering commodities



An old-fashioned world based on personal relationships and where 'my word is my bond'. One of the most secretive corners of the global economy, where handshakes and sincerity can open doors, which are then closed to the details of what takes place.

The riveting and eye-opening world of global commodity trading, an industry that can deliver great riches, but massive losses too, is compellingly captured by Javier Blas and Jack Farchy, Bloomberg journalists, in their book *The World for Sale*.

This is an anecdotally rich, brilliantly-researched and easily digestible dive into the characters and companies that in simple terms move vast quantities of raw materials from here to there. It is also a story that needed to be told. As the authors write: "For too long their [commodity traders] activities have been little understood and their significance underappreciated."

But it is often far more than a story of taking supply to meet demand; it can be a complex web that at times has far reaching repercussions as Blas underlines in talking to the *OPEC Bulletin*. "The industry has a huge impact beyond markets, because many commodity traders, by default, have a political impact. In some cases, they have supported governments during crisis, providing resources and cash in times of need."

Javier Blas (l) and Jack Farchy (r) are internationally-renowned journalists covering energy, commodities and trading houses. They both work for Bloomberg News, where Blas is Chief Energy Correspondent and Farchy is a Senior Reporter covering natural resources.

Captivating stories

The book's insightful and captivating stories transcend the commodities business; it is a script that will interest those with little or no knowledge of this world.

Both authors are well-acquainted with the history and workings of this sector, but their research did throw up a number of surprises. "One of the biggest", says Blas, was "learning about the very early days of the oil trade in the 1950s and 1960s. Many people assume — wrongly — that Marc Rich invented oil trading. In reality, a few others were ahead of him, starting in 1954, with a prosperous trade of Soviet crude into Western Germany. Learning about those early deals, done in an era of difficult communication and travel, and even more difficult politics between the Western and the Communist bloc, was fascinating."

It is the periods that come later, however, that Blas and Farchy suggest drove the development of commodity trading to what we see today. They spotlight on four waves from the 1970s on.

The first was the nationalization drive that swept the oil industry in the 1970s. It was also a time when OPEC came to the fore with a series of resolutions formalizing demands to international oil companies regarding sovereign national interests. This included the Tehran and Tripoli Agreements of 1971 and Geneva I and Geneva II from 1972 and 1973. The second was the disintegration of the Soviet Union in the 1990s. What Blas and Farchy show is that these two waves upended the previous world of vertically integrated supply chains, allowing commodity traders to step in and take a slice of the market.

Tectonic shifts

The authors describe two other tectonic shifts early this century. The first was the rise of China, with its rapid economic growth and its insatiable appetite for commodities to fuel its development, and the second was the rapid deregulation in the flows of capital across borders. Commodity traders had a captive and ever-expanding market in which to sell, and the ever-increasing means available to finance it.

With such a topic it would be easy to get bogged down in all the details and numbers. Blas and Farchy do not. They take these and frame a compelling narrative that the best journalists do to evolve a rollicking good read that reviewers of fiction would call a 'page-turner'. But this is not fiction, it is the real world of often breath-taking and daring deals, and a smorgasbord of characters that would not look out of place in a Hollywood blockbuster.

The business of commodity trading has often been labelled a shadowy corner of the global economy. It is bigger than that; it is a whole darkened room. Blas and Farchy have opened a door and shed light on this absorbing world, but there are others to be unlocked. There is also mention of a shift from West to East, with Chinese trading houses now paying a greater role in the business.

The *OPEC Bulletin* asked Blas about a possible sequel, but not surprisingly the authors may have other priorities first. "I think both Jack and I would take a holiday, when COVID permits, before thinking about the next book. *The World for Sale* has taken a good three years of our lives, so we need to recover first!"

Images courtesy Javier Blas and Jack Farchy.

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Number of people to benefit from the $30 million loan

118k

FRESH FUNDING FOR LESOTHO

The OPEC Fund helps Lesotho to improve access to clean potable water

The Botha-Bothe region in the northern part of Lesotho comprises four towns and surrounding villages and settlements, with limited water resources. However, a $30 million loan from the OPEC Fund for International Development is set to change this by financing clean drinking water and improving health and living conditions for around 118,000 people.

Botha Bothe is the major town in the region with a population of 86,781 located about 120 kilometres north-east of Lesotho's capital, Maseru. The project being financed by the OPEC Fund and others involves the construction of new water infrastructure, including water points and connections to households. On completion, the new infrastructure will provide water for the population, as well as for industrial and institutional use.

"We are pleased to be working with our longstanding partners to support the government of Lesotho as it makes key reforms," said OPEC Fund Director-General, Dr Abdulhamid Alkhalifa. "The OPEC Fund has supported the development ambitions of the country since our organization was established in 1976. During this time, we have financed a wide variety of projects, particularly across Lesotho's water and sanitation, agriculture, industry, health, education and transportation sectors."

This project is co-financed by the Arab Bank for Economic Development in Africa, the Kuwait Fund for Arab Economic Development, the Abu Dhabi Fund for Development and the Saudi Fund for Development, as well as the government of Lesotho.

> **We are pleased to be working with our longstanding partners to support the government of Lesotho as it makes key reforms.**
>
> OPEC Fund Director-General
> Dr Abdulhamid Alkhalifa

This latest funding supports food self-sufficiency, modernizing rural infrastructure and providing country-wide access to a clean water supply.

OPEC Fund Director-General Dr Abdulhamid Alkhalifa

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Clean water and safe roads in DR Congo

Two loans from the OPEC Fund totaling $45 million will help increase the supply of potable water and boost food security in the Democratic Republic of Congo (DR Congo).

A $30 million loan will support the Ozone Water Supply Project to provide around 1.4 million people in western Kinshasa with clean drinking water. The project is expected to attract more investment into the area, create jobs and strengthen the local economy. The World Bank is a co-financier.

A $15m loan will finance the North Kivu Agriculture Sector Support Project to improve food security and incomes for more than 170,000 people. The OPEC Fund's contribution will help rehabilitate more than 300 kilometres of rural roads to open up access to marketplaces and reduce transport costs. The International Fund for Agricultural Development is also financing the project.

OPEC Fund Director-General, Dr Abdulhamid Alkhalifa, said: "This latest funding supports DR Congo's development aspirations that include achieving food self-sufficiency, modernizing rural infrastructure and providing country-wide access to a clean water supply. All the work we are financing aligns with the Sustainable Development Goals. We look forward to working with our partners in the near future to finance other economic sectors deemed a priority by the government."

The DR Congo government is co-funding both projects. To date, the OPEC Fund has approved more than $100m in public sector lending to the country.

Both features originally published in the OPEC Fund Quarterly 1/21.

The two DR Congo loans are worth

$45m

Ozone Water Supply Project to benefit

1.4m people

North Kivu Agriculture Sector Support Project to improve:

300 km of roads

‘Mighty Mangroves’ expands ADNOC’s social responsibility scope

In efforts to widen its constructive social footprint, the Abu Dhabi National Oil Company (ADNOC) has announced a new initiative that aims to raise environmental awareness amongst children, particularly in regard to the importance of mangrove forests.

The ‘Mighty Mangroves’ initiative comes at a time when the United Arab Emirates (UAE) continues to strengthen its commitment to sustainable development and promote the importance of biodiversity and environmental protection.

ADNOC Offshore’s Chief Executive Officer (CEO), Ahmed Al Suwaidi, said in a statement that the Mighty Mangroves initiative “is a wonderful way for us to reaffirm our commitment to protecting the environment in which we operate and to help our young people understand the ecological significance of the ‘mighty’ mangroves in our country. The UAE’s coastal areas are part of our precious natural heritage and we are committed to help sustain them in line with the vision of the late Founding Father of the UAE, His Highness Sheikh Zayed bin Sultan Al Nahyan.”

The initiative is set to target children in grades 8–12 and provide them with the opportunity to learn more about the mangroves in Arabic and English, and to planting saplings.

The initiative is the result of a partnership between ADNOC’s subsidiary, ADNOC Offshore, and Azrag, the UAE-based ocean conservation organization.

Highlighting the commitment to protecting the environment, Natalie Banks, Azraq’s Founder, stated: “Azraq has been actively planting mangrove trees in Ajman for the past two years, due to the amazing ability these trees have in keeping waterways healthy and sequestering carbon,” adding that the organization is “beyond thrilled” to extend its activities to the Emirate of Abu Dhabi with the support of ADNOC.

Founded in 1971, the Emirati energy giant ADNOC is also marking its 50th anniversary this year.

The beautiful natural mangrove forest in Abu Dhabi, UAE.

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Iraq and Russia enhance bilateral cooperation

Ihsan Abdul Jabbar Ismaeel, Iraq's Minister of Oil.

Alexander Novak, Russian Deputy Prime Minister.

Nikolai Shulginov, Russia's Minister of Energy.

Ihsan Abdul Jabbar Ismaael, Iraq's Minister of Oil, travelled to Moscow in early March to meet with Alexander Novak, Russia's Deputy Prime Minister, in order to strengthen the relations between the two countries.

During the meeting, the two leaders explored ways to further enhance the ties between the two oil-producing countries, including in the domains of energy, investment and healthcare. They also discussed the ongoing collaboration in the oil and gas sector, as well as the conditions and prospects of the global oil market, according to official statements issued on March 3.

Ongoing collaboration

Ismaael underscored the depth of the bilateral ties and the importance of expanding cooperation further for the benefit of the two nations.

The Minister highlighted the pivotal role of the Russian Federation in the success of the landmark 'Declaration of Cooperation' (DoC) and the global oil market at large. He also underlined each country's interest in oil market stability and the return of balance amid the challenges that the market is facing, and the importance of cooperating with other oil-producing nations to achieve these objectives.

Iraq, a Founder Member of OPEC, and Russia have played fundamental role in the consultation and implementation phases of the historic DoC since its inception in 2016.

In return, Novak highlighted the fruitful cooperation between Iraq and the Russian Federation in the oil sector, stating: "We maintain very proactive cooperation despite current restrictions and the impact of the coronavirus pandemic."

Successful investment

"Our companies are actively implementing a number of successful projects in the Republic. The accumulated investment of Russian oil and gas companies in Iraqi projects now exceeds $10 billion," Novak added.

The meeting was attended by Nikolai Shulginov, Russian Minister of Energy, and Vagit Alekperov, Lukoil's President and CEO.

An agreement on the provision of the Russian COVID-19 vaccine 'Sputnik V' to Iraq was also concluded.

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New report cites virus' impact on Africa's oil market

The COVID-19 pandemic caused Africa's worst economic shock in a quarter century, according to a new report published jointly by the African Union (AU) and Organization for Economic Cooperation and Development (OECD).

The report, *Africa's development dynamics: digital transformation for quality jobs,* also highlights the severe impact of the 2020 oil market decline on Africa's producing countries and ripple effects on the continent as a whole. Oil and oil products represent around 38 per cent of the continent's exports, according to data in the report. In Algeria, Angola, Chad, Equatorial Guinea, Libya and Nigeria, the figure is around 70 per cent.

"In a continent where oil rents were 4.5 per cent of GDP in 2017, the oil price shock in the first half of 2020 is affecting the fiscal position of oil exporters," the report notes, citing estimates that exporting countries could suffer revenue losses of $65 billion because of the oil market's precipitous decline last year.

The report by the AU's Commission for Economic Affairs and OECD's Development Centre also warns that 41 of the region's 54 countries are likely to face their first recession in 25 years in 2020, compared to the 11 African countries whose GDP declined during the global financial crisis in 2009. The continent's overall GDP could fall between 2.1 per cent and 4.9 per cent in 2020, according to scenarios prepared by the AU and OECD Development Centre.

Before the outbreak of COVID-19, the African Development Bank's 2020 edition of the *African Economic Outlook* pegged the continent's real GDP growth for 2020 at 3.9 per cent, up from 3.4 per cent in 2019.

The AU/OECD Development Centre report calls for digital transformation to support job and economic growth across Africa. It notes that the need for expanded digital training, capacity and investment will gain urgency in the post-COVID-19 recovery.

"For Africa's economic recovery to be sustainable, the digital transformation must be felt in all of the continent's priority sectors. This will require the commitment of all stakeholders, both private and public, and of the continent's partners," Moussa Faki Mahamat, Chairperson of the AU Commission and Angel Gurría, OECD Secretary-General, write in the report, published in January 2021.

The report also says that Africa must protect gains made in regional and continental trade and in areas such as cross-border energy and infrastructure development, and must also work to make digital services more widely available.

Amongst its recommendations, the report calls for:

- promoting the dissemination of digital innovation beyond urban areas;
- investment in advancing workforce skills and social protections in the flourishing sectors, such as delivery services, that are using digital platforms and applications;
- supporting small firms so they can compete more effectively in the digital sector; and
- updating and harmonizing regulations and laws in areas such as data protection and cybercrime.

Review of the global oil demand trend

February ***2021***

The historical drop in global oil demand of 9.7m b/d y-o-y in 2020, as a result of the COVID-19 pandemic, prompted a shock to the established relationship between oil demand and global economic growth. While demand for all petroleum products declined sharply in 2020, the transportation sector, and aviation in particular, which amounts to around 50 per cent of total oil demand, was disproportionately affected.

Within the OECD, all three major regions — Americas, Europe and Asia Pacific — showed sharp declines in 2020, although at differing degrees. In the Americas, oil demand for the petrochemical sector partially offset large losses in gasoline, jet kerosene and diesel, leading to a y-o-y decline of 3.0m b/d. In Europe, lockdown measures were the most stringent and longest lasting during 2Q20 and 4Q20, leading to a decline of 1.9m b/d, y-o-y, for the year. Oil demand in the Asia Pacific was the least affected, declining by only 800,000 b/d y-o-y.

In the non-OECD region, oil demand declines in 2020 were less pronounced. Following a drop in 1H20, China's oil demand returned to positive growth in 2H20 — supported by successful containment of the pandemic and a healthy petrochemical sector — to show a y-o-y decline of 400,000 b/d. In India and Other Asia, oil demand fell on the back of restricted mobility, particularly during 1H20, but improved thereafter, to decline y-o-y by 500,000 b/d and 900,000 b/d, respectively, for the whole of 2020.

In 2021, global oil demand is forecast to grow by around 5.8m b/d, recovering some of the losses seen in 2020. At the same time, global GDP growth is projected to rebound based on positive developments, particularly in the US, China and India in 4Q20. With regard to oil demand, the negative impact of the containment measures on transportation fuels is expected to carry over, particularly into 1Q21, with a stronger rebound in oil demand growth, especially for industrial fuels, forecast in 2H21. In the OECD, oil demand is projected to grow by 2.5m b/d in 2021, led by OECD Americas and driven by a steady partial recovery in the transportation fuels and healthy petrochemical feedstock requirements. Oil demand in OECD Europe is projected to grow by 600,000 b/d, supported by economic developments. OECD Asia Pacific oil demand is forecast to increase by 200,000 b/d on improvements in the transportation and petrochemical sectors.

In the non-OECD, 2021 oil demand growth is forecast at around 3.3m b/d, led by China. Recovery is also projected in other regions, particularly Other Asia, the Middle East and Latin America. Light and middle distillates will be key to fuelling the growing petrochemical sector and supporting industrial activities, as well as gasoline for transportation.

Developments in aviation and general travel will be important parameters for 2021 world oil demand. Indeed, the shock to the traditional relationship between GDP and oil demand that occurred in 2020 further clouds the short-term outlook. It should be noted that oil-intensive sectors, especially travel and transportation, accounted for a disproportionately large drop in overall world oil demand in 2020, compared to the decline in global economic growth, while the slower recovery in these sectors is expected to have a less positive impact on oil demand growth in 2021. In addition, the ongoing COVID-19 pandemic, challenging unemployment levels, trade constraints, the pace of vaccinations as well as the impact of the announced economic stimulus measures into the real economy will continue to cause a large degree of uncertainty. Moreover, the ongoing degree of substitution, phasing out of subsidy programmes, the impact of commissioning, delays, and/or closure of downstream projects, as well as programmes for fuel efficiencies, will all require continued close monitoring during the course of the year.

While the global economy is showing signs of a healthy recovery in 2021, oil demand is currently lagging, but is forecast to pick up in the 2H21. With this, a healthy rebound in oil demand, in combination with the vigilant stance and considerable efforts of the countries participating in the 'Declaration of Cooperation', are essential to maintaining stability in the oil market.

MOMR ... oil market highlights

February 2021

Crude oil price movements — Crude oil spot prices rose firmly in January, along with a steady rise in futures markets. Major physical crude benchmarks increased about ten per cent month-on-month (m-o-m) on improving market fundamentals, particularly the prospect of tighter crude supply and the declining trend in global oil stocks. The OPEC Reference Basket gained $5.21, or 10.6 per cent, m-o-m to average $54.38/b. Crude oil futures prices extended gains in January, increasing on both sides of the Atlantic for the third consecutive month, with the ICE Brent front month up $5.10, or 10.2 per cent, in January to average $55.32/b and NYMEX WTI gaining $5.03, or 10.7 per cent, to average $52.10/b. Consequently, the Brent-WTI spread widened slightly by 7¢ but remained at a narrow $3.22/b on average. The futures price structure for the Brent, WTI and Dubai markets was in sustained backwardation last month, evidence that the global oil market is improving, resulting in an accelerating rebalancing process. Hedge funds and other money managers appeared positive about the oil price outlook, raising net long positons by nearly 11 per cent in the four weeks of January.

World economy — The contraction in the global economy was revised up for 2020, after a better-than-expected actual performance by key economies in 2H20. As a result, the global economy now shows a decline of 3.9 per cent y-o-y. This compares with the previous month's forecast of –4.1 per cent. Additional stimulus measures in the US and an accelerating recovery in Asian economies are expected to lift the 2021 forecast to 4.8 per cent, compared to the previous month's forecast of 4.4 per cent. The US officially reported a contraction of 3.5 per cent for 2020. US economic growth in 2021 is now revised up to 4.2 per cent, from the 3.4 per cent expected in last month's report. The Euro-zone's GDP growth forecast for 2020 was also revised up by 0.4 percentage points (pp) to –6.8 per cent, while the 2021 growth forecast was lifted to 4.1 per cent from 3.7 per cent. Japan's economic forecast remained at –5.2 per cent for 2020 and was lifted by 0.1 pp to 2.9 per cent for 2021. China's economic growth was officially reported at 2.3 per cent for 2020 and the forecast for 2021 was lifted to 7.4 per cent from 6.9 per cent in 2021. The forecast for India was revised up to –8.2 per cent from –9.0 per cent for 2020 and to 7.5 per cent from 6.8 per cent for 2021. Brazil's 2020 forecast was revised up to –4.9 per cent from –5.2 per cent and to 2.9 per cent from 2.4 per cent for 2021. Russia's economic growth forecast in 2020 was officially reported at –3.1 per cent, while the growth forecast for 2021 was improved from 2.9 per cent to 3.0 per cent.

World oil demand — The world oil demand contraction estimate for 2020 was little changed, lower by just 30,000 b/d compared to the last month's report. Better-than-expected oil demand data from India in 4Q20 was largely offset by figures showing weaker-than-expected consumption in OECD Americas. Global oil demand is estimated to have declined by 9.7m b/d in 2020 to average 90.3m b/d. For 2021, oil demand is now anticipated to increase by 5.8m b/d, revised down by around 100,000 b/d from last month's projection, to average 96.1m b/d. Revisions are concentrated in the OECD region. Extended lockdowns and the re-introduction of partial lockdowns in a number of countries has resulted in downward revisions to 1H21 projections. At the same time, positive developments on the economic front, supported by massive stimulus programmes, are expected to encourage demand in various sectors in 2H21.

World oil supply — Non-OPEC liquids production in 2020 is estimated to average 62.7m b/d, representing a contraction of 2.5m b/d, y-o-y. This is down marginally from the previous report, on the back of several upward and downward revisions in the production of various countries in 4Q20. The contraction in 2020 is driven mainly by Russia, the US, Canada, Kazakhstan, Colombia, Malaysia, the UK and Azerbaijan, while oil production increases are expected mainly in Norway, Brazil, China and Guyana. The forecast for non-OPEC supply growth in 2021 has been revised down by about 200,000 b/d to show an increase of 700,000 b/d, to average 63.3m b/d. Supply from the US and Other Asia has been revised lower, whereas supply from Canada has been adjusted higher. US supply is expected to be 200,000 b/d lower in 2021 from last month's assessment, to increase by about 200,000 b/d to average 17.8m b/d. The key contributors to non-OPEC supply growth in 2021 are expected to be Canada, Brazil, the US, Norway, Ecuador, Qatar and Guyana, while declines are seen coming from Russia, the Sudans, Malaysia and the UK. OPEC NGLs are forecast to grow by about 100,000 b/d y-o-y in 2021 to average 5.2m b/d, following an estimated contraction of 100,000 b/d in 2020. OPEC crude oil production in January increased by 180,000 b/d m-o-m to average 25.50m b/d, according to secondary sources.

Product markets and refining operations — Refinery margins improved globally in January, with complex configurations benefitting the most, backed by an improved performance at the top of the barrel. On the US Gulf Coast, the positive impact of holiday season demand sustained transport fuel markets over the month, despite strong refinery runs and rising product inventories. Refining economics witnessed the most limited gains in Europe relative to the other regions due to subdued product drawdowns, seasonal weakness and strict lockdown measures. Meanwhile, in Asia, robust performance at the light end of the barrel filtered through gasoline markets, offsetting the poor performance registered across the middle and bottom sections of the barrel.

Tanker market — Dirty tanker rates remained low in January, reportedly below operational costs in some cases, although rates from West Africa picked up. A host of factors have weighed on freight rates, including the lingering impacts of the COVID-19 pandemic on oil consumption, reduced supplies on the market, ample onshore inventory and long tonnage lists. The backwardated market structure also provides little incentive to hold inventories in floating storage, even at current low rates. Meanwhile, clean tanker rates improved, supported by activities West of Suez, but are still caught up in general malaise. From the current vantage point, the outlook for freight rates remains lacklustre, certainly in 1H21 but potentially into 2022.

Crude and refined products trade — Preliminary data shows US crude imports averaged 5.9m b/d in January, the highest figure since July 2020, following a sharp increase in inflows from Canada. US crude exports were steady at close to 3.1m b/d, as renewed outflows to Korea offset lower China-bound volumes. In Japan, crude imports averaged 2.5m b/d in 2020, the lowest annual average since at least 1980. Japan's product imports in 2020 averaged 900,000 b/d, representing a three per cent increase y-o-y. Meanwhile, China's crude imports hit a three-year low in December, averaging 9.1m b/d. The decline came as independents were largely absent from the market and a backlog of ships waited offshore to be cleared. Early indications expect crude oil imports to rebound in January and February, as independents make use of a fresh round of import quotas. China set a new global record high for crude imports in 2020, averaging 10.9m b/d, representing a 700,000 b/d gain y-o-y. India's crude imports continued to see a healthy m-o-m increase in December, averaging 4.8m b/d, the first y-o-y gain in eight months and the country's second-highest on record. In annual terms, India's crude imports averaged 4.0m b/d in 2020, a decline of almost 11 per cent y-o-y, representing a four-year low. India's product imports averaged above 1.0m b/d for the first time on record, while exports declined for the second year in a row, down 11 per cent y-o-y.

Commercial stock movements — Preliminary data for December shows total OECD commercial oil stocks were down by 39.3m b, m-o-m. At 3,068m b, inventories are 179m b higher than year-ago levels and 143m b above the five-year average (2015–19). Within components, crude and product stocks declined, m-o-m, by 24.2m b and 15.1m b, respectively. At 1,528m b, OECD crude stocks are 110m b higher than in December 2019 and 81m b above the five-year average (2015–19). Total product inventories stood at 1,540m b in December, 69m b above the same month a year ago and 62m b higher than the five-year average (2015–19). In terms of days of forward cover, OECD commercial stocks fell by 1.0 days m-o-m in December to stand at 70.8 days. This is 7.2 days above the December 2019 level and 8.6 days above the five-year average (2015–19).

Balance of supply and demand — Demand for OPEC crude in 2020 was revised up by 300,000 b/d from the previous report to stand at 22.5m b/d, around 7.1m b/d lower than in 2019. Demand for OPEC crude in 2021 was also revised up by 300,000 b/d from the previous month to stand at 27.5m b/d, around 5.0m b/d higher than in the previous year.

The feature article and oil market highlights are taken from OPEC's Monthly Oil Market Report (MOMR) for February 2020. Published by the Secretariat's Petroleum Studies Department, the publication may be downloaded in PDF format from our Website (www.opec.org), provided OPEC is credited as the source for any usage. The additional graphs and tables on the following pages reflect the latest data on OPEC Reference Basket and crude and oil product prices in general.

Assessment of the global economy

March ***2021***

The year 2020 witnessed an extraordinary and unprecedented turn of events that have negatively impacted the global economy. While it seemed that global economic developments were improving at the beginning of 2020, the COVID-19 pandemic hit economic momentum relatively early in 1Q20, and the highly volatile growth trend continued throughout the remainder of the year. World economic growth is estimated to have declined by 3.7 per cent in 2020. Considerable fiscal and monetary stimulus in many key regions have led to a recovery in 2H20, and expected to gain more traction in the current year. The recently approved $1.9 trillion fiscal stimulus bill in the US, which comes in addition to the already more than $3tr fiscal stimulus package in 2020, will further support US and global economic growth. In addition, the ongoing recovery in Asian economies will support the global recovery, forecast at 5.1 per cent in 2021.

However, the current forecast will very much depend on the near-term path of the COVID-19 pandemic. The base assumption of this forecast is that by the beginning of 2H21, the pandemic will largely be contained with the majority of the population in western economies vaccinated, with COVID-19 not posing a major obstacle for emerging and developing economies. Nonetheless, numerous challenges remain, including COVID-19 spread and the effectiveness of vaccines against mutations. Moreover, sovereign debt in most economies has risen to levels at which raising interest rates could cause severe fiscal strain. While not imminent, a further rise in inflation, especially in the US and the Euro-zone, may cause some tightening of monetary policies, an area that needs monitoring in the short term. Additionally, trade-related disputes, especially between the US and China, may continue.

On a quarterly basis, 1Q21 growth will still be considerably affected by ongoing lockdown measures, voluntary social distancing and other pandemic-related developments. This may, to some extent, carry over into 2Q21. However, by the end of 1H21, economic activity is expected to accelerate as the impact of the pandemic is expected to taper off. The momentum is then expected to be supported by pent-up demand, especially in contact-intensive service sectors such as tourism and travel, leisure and hospitality. The seasonal aspect of warm weather in the northern hemisphere and the summer travel season will add more support. Forced household savings from lockdowns, combined with ongoing monetary and possibly additional fiscal stimulus, will add to the momentum of the rebound. The base assumption for this scenario is that by the end of 2H21, COVID-19 will largely be contained.

Evidently, the COVID-19 pandemic has negatively global economic growth and demand for energy, including oil. As the pandemic had a major impact on the oil market balance, OPEC, together with its non-OPEC partners in the 'Declaration of Cooperation' (DoC) took historic action to help stabilize the oil market. This proactive stance turned out to be a very important element in supporting global economic growth, after an estimated drop in oil demand of 9.6m b/d in 2020. Oil demand is forecast to recover in 2021, growing by 5.9m b/d. However, this year's demand growth will not be able to compensate for the major shortfall from 2020, as mobility is forecast to remain impaired throughout 2021. Thus, oil-intensive sectors, especially travel and transportation, will remain disproportionately affected, with a larger negative impact on 2020 oil demand and a lower positive contribution to 2021 oil demand, relative to global economic growth.

Similarly, non-OPEC supply is expected to have declined by 2.6m b/d in 2020, while growth of 950,000 b/d is anticipated for 2021. However, as the impacts of COVID-19-related developments remain uncertain, continued responsible global policy action from all market participants, including the efforts undertaken by OPEC and the participating non-OPEC producers of the DoC, will continue to be crucial over the coming months to return markets to more stable conditions.

MOMR ... oil market highlights

March 2021

Crude oil price movements — Spot crude prices surged by more than 13 per cent in February to their highest monthly average since January 2020. Oil prices were supported by ongoing improvements in oil market fundamentals and a futures market that remained bullish in anticipation of a recovery in demand amid restrained global oil supplies. Oil prices extended gains after severe winter weather triggered a supply disruption in the US. The OPEC Reference Basket (ORB) gained $6.67, or 12.3 per cent, to average $61.05/b for the month. Similarly, crude oil futures prices increased sharply in February on both sides of the Atlantic, with the ICE Brent front month up $6.96, or 12.6 per cent, to average $62.28/b while NYMEX WTI rose $6.96, or 13.4 per cent, to average $59.06/b. Consequently, the Brent-WTI spread was unchanged in February, averaging $3.22/b. The forward curve of the three main futures prices — Brent, WTI and Dubai — steepened further last month as the market rebalancing process continued. Meanwhile, hedge funds and other money managers were bullish on the outlook for oil prices, further increasing combined futures and options net long positions linked to ICE Brent and NYMEX WTI to their highest point in more than a year.

World economy — The contraction in the global economy in 2020 is reduced after the better-than-expected actual performance by key economies in 2H20. As a result, the global economy now shows a decline of 3.7 per cent, y-o-y. For 2021, additional stimulus measures in the US and an accelerating recovery in Asian economies are expected to raise the global economic growth forecast to 5.1 per cent. However, this forecast remains surrounded by uncertainties including but not limited to COVID-19 variants, the effectiveness of vaccines, sovereign debt levels in many regions, inflationary pressures, and central bank responses. After a contraction of 3.5 per cent in 2020, US economic growth in 2021 is now expected to reach 4.8 per cent. The forecast for the Eurozone in 2021 is raised to 4.3 per cent, following a contraction of 6.8 per cent last year. Japan's GDP in 2020 is officially reported at a contraction of 4.9 per cent, while it is forecast at 3.1 per cent for 2021. Following growth of 2.3 per cent in 2020, China's GDP is forecast to increase by eight per cent in 2021. Official data shows India's economy contracted by 7.0 per cent last year but the country's growth in 2021 is expected to reach nine per cent. Government estimates show Brazil's economy contracted by 4.1 per cent in 2020 but the growth forecast for 2021 is expected to be at three per cent. After contracting by 3.1 per cent in 2020, Russia's growth forecast for 2021 is expected to remain at three per cent.

World oil demand — World oil demand in 2020 shows a contraction of 9.6m b/d, to stand at 90.4m b/d. OECD oil demand contracted by 5.6m b/d, while non-OECD demand declined by 4m b/d. For 2021, world oil demand is expected at 5.9m b/d, to stand at 96.3m b/d. Oil requirements in 1H21 are adjusted lower, mainly due to extended measures to control COVID-19 in many key parts of Europe. In addition, elevated unemployment rates in the US slowed the recovery process. In contrast, oil demand in 2H21 is adjusted higher, reflecting expectations for a stronger economic recovery with the positive impact of vaccination rollouts. In regional terms, OECD oil demand is expected to increase by 2.6m b/d in 2021 to stand at 44.6m b/d, while non-OECD demand is seen rising by 3.3m b/d to average 51.6m b/d.

World oil supply — Non-OPEC liquids production is estimated to average 62.9m b/d in 2020, a contraction of 2.6m b/d, y-o-y. Non-OPEC oil supply in 2020 declined in Canada, Colombia, Kazakhstan, Malaysia, the UK and Azerbaijan, but increased in Norway, Brazil, China, and Guyana. Non-OPEC liquids supply for 2021 is forecast to grow by almost 1m b/d to average 63.8m b/d. The US liquids supply forecast remains unchanged, with growth of 160,000 b/d in 2021, although uncertainties persist. The main contributors to supply growth are expected to be Canada, the US, Norway, Brazil and Russia. OPEC NGLs are forecast to grow by 80,000 b/d in 2021 to average 5.2m b/d, following a decline by 130,000 b/d last year. In February, OPEC crude oil production decreased by 650,000 b/d, m-o-m, to average 24.85m b/d, according to secondary sources.

Product markets and refining operations — Refinery margins showed diverging trends in February. In the US Gulf Coast and Asia, a rise in planned maintenance, unplanned outages and a subsequent decline in refinery intakes led to bullish market sentiment and provided support for fuel markets. Europe showed negative performance as refining economics experienced slight losses. The negative impacts of higher feedstock prices and higher product output, given the extension of mobility restrictions in some countries, have completely overshadowed support provided by robust product exports.

Tanker market — Dirty tanker rates picked up in February, as a more than 20 per cent increase in both Suezmax and Aframax spot freight rates outpaced a 6 per cent decline in VLCCs. Weather was a key factor in boosting rates with weather delays in the Turkish straits and around the Mediterranean, lifting rates West of Suez amid a pickup in chartering activity. Unusual freezing weather in the US which struck in the middle of February led to disruptions in US crude and product trade flows, providing further support for Aframax as well as Suezmax rates amid limited availability in the Atlantic basin. Rising bunker fuel prices also provided some momentum for higher rates.

Crude and refined products trade — A plunge in temperatures disrupted trade flows of US crude and products in February. US crude imports fell back from the strong levels seen in January, and hence crude exports were down around 1m b/d in the second half of February relative to the first half due to the freezing weather and power outages on the US Gulf Coast. Meanwhile, Japan's crude imports were stable in January, averaging 2.6m b/d. A jump in heating demand for kerosene and fuel oil led to higher product imports and reduced exports. China's crude imports surged above 11m b/d in the first two months of 2021, as independent refiners returned to the market armed with fresh quotas. Net product exports were sharply higher. In India, crude imports remained at healthy levels in January, although lower m-o-m and y-o-y, averaging 4.6m b/d. Product imports and exports also fell back from the strong performance seen the month before.

Commercial stock movements — Preliminary data shows that total OECD commercial oil stocks fell by 11.3m b, m-o-m, in January. At 3,052m b, inventories were 138.7m b higher than the same month a year ago and 92.2m b above the latest five-year average, 125.7m b above the (2015–19) average. Within the components, crude stocks declined by 17.7m b, m-o-m, while product stocks increased by 6.4m b over the same period. OECD crude stocks stood at 46.3m b above the latest five-year average, 61.3m b above the (2015–19) average while product stocks exhibited a surplus of 45.9m b, 64.3m b above the (2015–19) average. In terms of days of forward cover, OECD commercial inventories declined by 1.1 days, m-o-m, in January to stand at 69.6 days. This is 0.2 days lower than the year-ago level and 5.5 days above the latest five-year average, 7.8 days above the (2015–19) average.

Balance of supply and demand — Demand for OPEC crude in 2020 is estimated at 22.4m b/d, around 6.9m b/d lower than in 2019. Demand for OPEC crude in 2021 is forecast to stand at 27.3m b/d, around 4.9m b/d higher than in 2020.

The feature article and oil market highlights are taken from OPEC's Monthly Oil Market Report (MOMR) for March 2021. Published by the Secretariat's Petroleum Studies Department, the publication may be downloaded in PDF format from our Website (www.opec.org), provided OPEC is credited as the source for any usage. The additional graphs and tables on the following pages reflect the latest data on OPEC Reference Basket and crude and oil product prices in general.

Table 1: OPEC Reference Basket spot crude prices

$/b

Crude/Member Country	2020 Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2021 Jan	Feb	Weeks 5-9/2021 (week ending) Jan 29	Feb 5	Feb 12	Feb 19	Feb 26
Arab Light – Saudi Arabia	56.84	35.58	18.27	24.99	36.12	43.52	45.33	42.09	40.32	42.98	49.24	54.78	61.49	55.15	57.88	60.89	62.98	64.20
Basrah Light – Iraq	54.75	33.25	16.82	24.73	37.23	44.63	46.10	42.09	40.60	43.12	49.95	54.73	61.40	55.09	57.72	60.70	62.97	64.22
Bonny Light – Nigeria	57.77	33.41	15.54	24.86	39.03	43.46	45.40	40.78	39.64	41.91	49.59	55.01	62.24	55.42	58.16	61.08	64.01	65.71
Djeno – Congo*	54.37	29.11	11.91	21.36	32.63	35.82	37.34	33.13	32.56	35.09	42.29	47.28	54.78	47.69	50.70	53.62	56.55	58.25
Es Sider – Libya	55.70	31.49	14.58	24.56	38.68	42.17	43.69	39.18	37.71	40.24	48.09	53.08	60.83	53.49	56.75	59.67	62.60	64.30
Girassol – Angola	57.25	32.45	14.70	28.62	43.10	45.78	45.83	41.10	40.72	44.11	51.50	55.84	62.99	56.17	59.15	61.78	64.65	66.37
Iran Heavy – IR Iran	52.87	32.79	17.16	23.55	36.26	43.30	45.07	41.93	40.24	42.88	49.20	54.38	60.66	54.77	57.07	60.05	62.18	63.33
Kuwait Export – Kuwait	55.90	34.85	17.22	24.54	35.58	43.31	45.08	42.12	40.38	42.99	49.36	54.83	61.31	55.18	57.77	60.77	62.81	63.89
Merey – Venezuela	35.99	18.39	7.04	16.33	24.73	28.32	35.21	28.22	26.23	27.07	32.70	37.40	42.87	37.73	39.69	42.37	44.25	45.18
Murban – UAE	57.06	35.60	23.94	28.23	39.33	43.73	45.49	41.88	41.06	43.09	49.48	54.93	60.99	55.43	57.36	60.33	62.32	63.96
Rabi Light – Gabon	53.27	30.16	13.30	26.08	40.70	43.56	43.75	39.38	39.01	42.12	49.28	54.27	61.77	54.68	57.69	60.61	63.54	65.24
Saharan Blend – Algeria	57.91	34.23	17.08	26.31	40.48	44.12	45.64	40.98	39.76	42.59	49.99	55.08	62.38	55.49	58.30	61.22	64.15	65.85
Zafiro – Equatorial Guinea	56.65	30.95	13.40	26.76	40.79	43.82	45.19	40.62	39.99	43.41	50.43	55.07	62.46	55.69	58.70	61.26	64.10	65.80
OPEC Reference Basket	**55.53**	**33.92**	**17.66**	**25.17**	**37.05**	**43.42**	**45.19**	**41.54**	**40.08**	**42.61**	**49.17**	**54.38**	**61.05**	**54.76**	**57.38**	**60.34**	**62.58**	**63.91**

Table 2: Selected spot crude prices

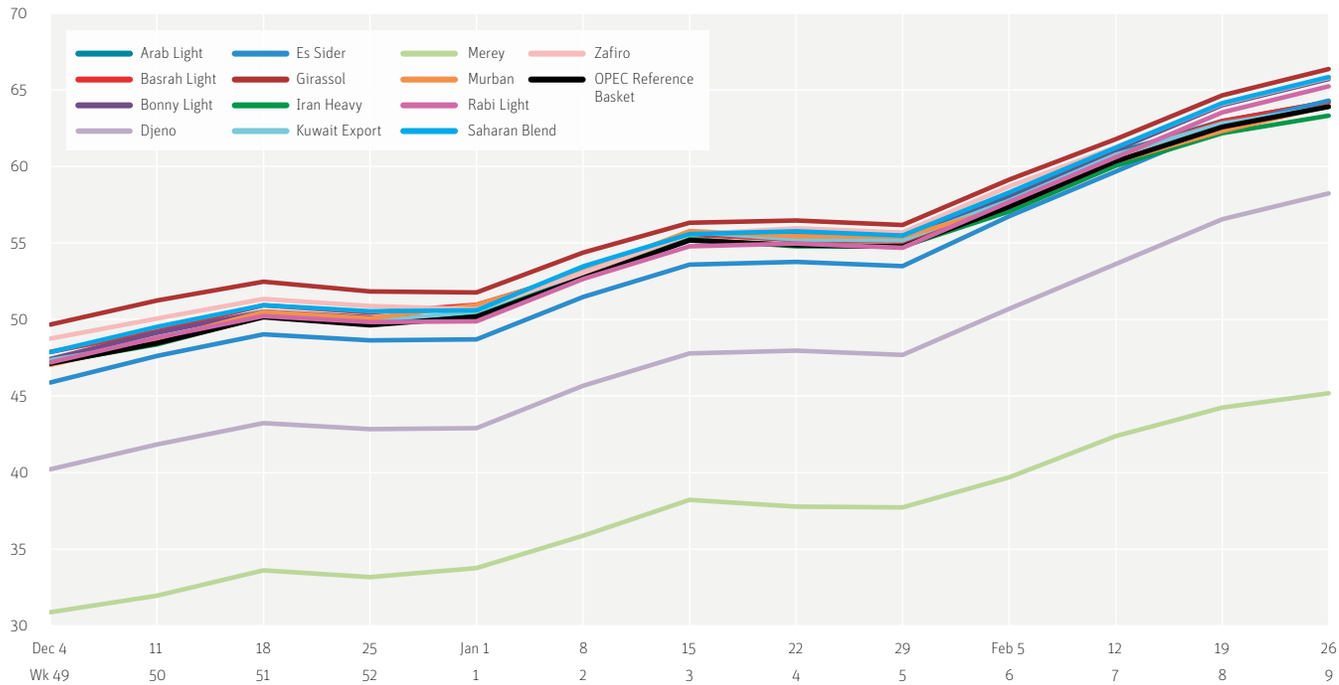
$/b

Crude/country	2020 Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2021 Jan	Feb	Weeks 5-9/2021 (week ending) Jan 29	Feb 5	Feb 12	Feb 19	Feb 26
Arab Heavy – Saudi Arabia	54.98	34.87	18.05	24.51	35.45	43.33	45.01	42.13	40.61	43.28	49.59	54.88	61.16	55.24	57.62	60.60	62.69	63.73
Brega – Libya	55.40	31.36	14.48	24.46	38.73	42.27	43.85	39.28	37.81	40.69	48.69	53.78	61.28	54.19	57.20	60.12	63.05	64.75
Brent Dtd – North Sea	55.45	31.71	18.83	28.81	40.08	43.27	44.79	40.58	40.01	42.54	49.74	54.73	62.23	55.14	58.15	61.07	64.00	65.70
Dubai – UAE	54.25	33.78	21.33	30.35	40.71	43.19	43.89	41.45	40.70	43.33	49.78	54.76	60.83	55.18	57.22	60.29	62.32	63.50
Ekofisk – North Sea	58.45	32.64	15.55	28.54	41.18	44.27	45.66	40.94	40.14	42.64	50.29	55.17	63.01	55.55	58.84	61.62	65.02	66.55
Iran Light – IR Iran	53.54	27.94	14.93	29.27	40.79	42.71	43.44	39.41	38.69	41.78	48.50	53.32	59.90	53.98	56.79	58.46	61.33	63.03
Isthmus – Mexico	47.50	23.99	7.78	25.17	35.07	38.45	41.24	38.06	38.15	40.26	46.60	52.06	58.90	52.47	55.09	58.16	60.18	62.18
Oman – Oman	54.61	34.85	23.65	33.48	41.58	43.68	44.32	41.60	41.11	43.83	50.00	54.79	60.88	55.10	57.42	60.29	62.46	63.35
Suez Mix – Egypt	53.41	27.81	14.80	29.14	40.66	42.58	43.31	39.28	38.56	41.65	48.37	53.19	59.77	53.85	56.66	58.33	61.20	62.90
Minas – Indonesia*	53.39	32.40	24.24	29.66	38.42	41.01	42.78	39.81	39.30	41.42	47.91	53.00	59.84	53.56	55.61	58.74	61.40	63.62
Urals – Russia	55.11	29.51	16.61	30.65	42.36	44.28	45.03	40.98	40.26	43.35	50.07	54.89	61.47	55.55	58.36	60.03	62.90	64.60
WTI – North America	50.60	29.89	16.52	28.57	38.30	40.75	42.36	39.61	39.53	41.52	47.05	52.11	59.08	52.55	55.42	58.54	60.08	62.27

Notes:
Brent for dated cargoes; Urals cif Mediterranean. All others fob loading port.
** The Republic of the Congo joined on June 22, 2018.*
Sources: Argus; Secretariat's assessments.

Graph 1: Evolution of the OPEC Reference Basket spot crude prices, 2020–21

$/b



Graph 2: Evolution of selected spot crude prices, 2020–21

$/b

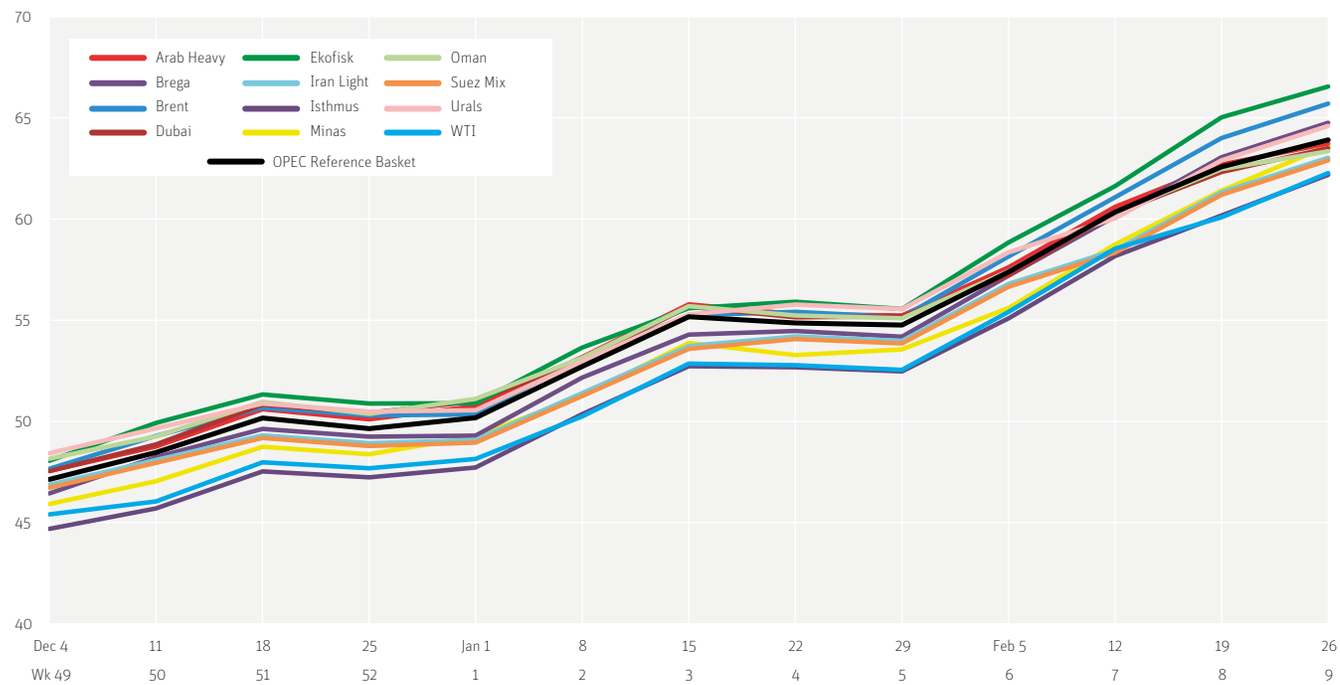


Table and Graph 3: North European market — spot barges, fob Rotterdam

$/b

		naphtha	regular gasoline unleaded	diesel ultra light	jet kero	fuel oil 1 per cent S	fuel oil 3.5 per cent S
2020	February	51.30	69.65	65.67	66.45	54.82	38.21
	March	27.08	40.52	40.49	46.36	29.98	21.12
	April	15.14	27.61	23.24	33.12	22.25	15.50
	May	24.74	37.80	28.25	34.10	25.95	20.92
	June	37.59	49.75	41.26	44.56	35.88	32.56
	July	42.04	54.10	44.92	49.53	39.08	35.96
	August	41.95	53.41	44.60	49.70	41.17	39.65
	September	40.42	50.45	39.93	41.92	37.71	33.88
	October	41.26	50.19	42.55	44.17	40.57	37.12
	November	40.67	49.86	46.07	47.45	44.46	39.90
	December	47.63	55.64	54.25	55.20	50.02	43.65
2021	January	55.22	63.06	59.40	60.06	55.52	48.85
	February	61.37	70.71	66.45	67.89	63.42	54.38

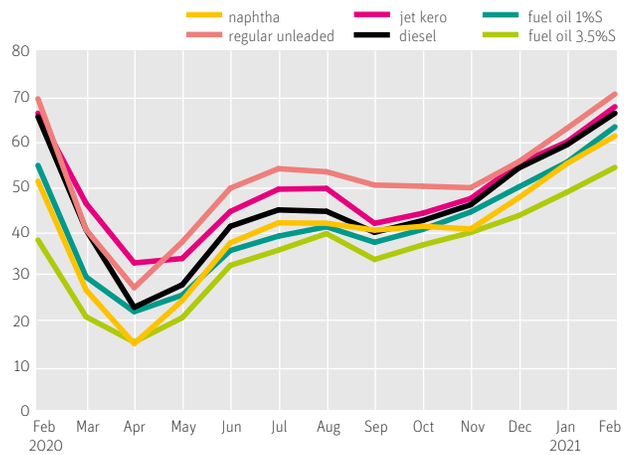


Table and Graph 4: South European market — spot cargoes, fob Italy

$/b

		naphtha	premium gasoline 50ppm	diesel ultra light	fuel oil 1 per cent S	fuel oil 3.5 per cent S
2020	February	49.46	64.69	67.60	58.81	40.47
	March	24.88	34.88	46.76	33.38	22.93
	April	10.50	23.42	32.21	25.41	15.90
	May	22.71	32.59	35.23	28.78	21.71
	June	36.60	43.96	45.89	38.36	32.68
	July	41.56	47.45	50.49	41.68	36.18
	August	41.49	49.00	50.33	43.66	38.20
	September	39.21	48.52	44.31	40.56	34.92
	October	41.07	46.18	45.12	43.27	36.10
	November	40.34	46.11	48.17	46.17	38.25
	December	47.08	52.12	56.16	50.76	42.21
2021	January	54.51	59.87	60.93	56.45	47.80
	February	60.28	68.13	68.54	64.62	53.13

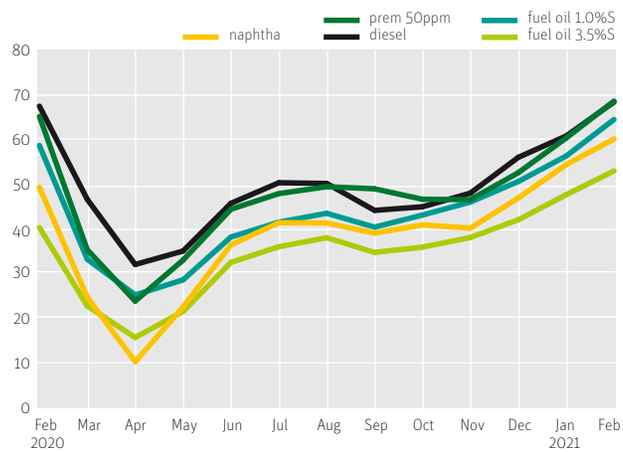
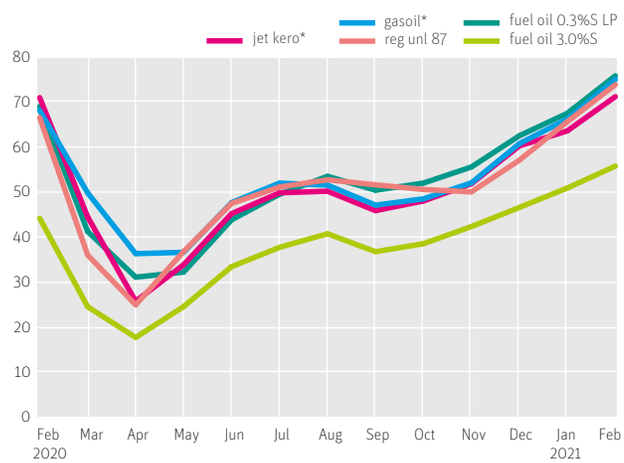


Table and Graph 5: US East Coast market — spot cargoes, New York

$/b, duties and fees included

		regular gasoline unleaded 87	gasoil*	jet kero*	fuel oil 0.3 per cent S	fuel oil 3.0 per cent S
2020	February	66.51	68.13	70.97	69.02	44.12
	March	35.93	49.77	44.40	41.19	24.44
	April	24.87	36.26	25.67	31.03	17.61
	May	36.74	36.56	33.80	32.15	24.48
	June	47.44	47.62	45.16	43.79	33.37
	July	51.09	51.96	49.80	49.49	37.67
	August	52.70	51.50	50.15	53.48	40.68
	September	51.58	47.05	45.83	50.37	36.70
	October	50.53	48.45	47.99	51.96	38.47
	November	50.01	52.02	51.83	55.55	42.30
	December	57.06	60.75	60.24	62.50	46.54
2021	January	65.63	66.20	63.58	67.50	50.87
	February	73.85	75.00	71.19	75.84	55.73



* *FOB barge spot prices.*

Source: Argus. Prices are average of available days.

Table and Graph 6: Singapore market – spot cargoes, fob

$/b

		naphtha	premium gasoline unl 95	premium gasoline unl 92	gasoil	jet kero	fuel oil 180 Cst	fuel oil 380 Cst
2020	February	52.56	64.34	62.62	64.66	63.98	63.05	44.34
	March	30.60	36.42	35.08	44.42	43.72	39.39	30.06
	April	17.86	20.49	19.42	28.85	28.32	21.35	22.23
	May	26.49	33.44	30.81	34.04	33.74	28.94	24.92
	June	39.06	45.21	42.75	46.05	45.32	41.16	34.66
	July	43.60	46.56	44.74	49.82	49.02	43.92	38.43
	August	43.08	48.18	46.96	48.10	47.61	43.28	40.60
	September	43.19	47.27	45.66	43.30	43.07	39.37	37.98
	October	41.88	45.96	44.79	43.43	43.28	41.65	38.90
	November	40.71	46.67	45.51	47.15	47.01	45.64	42.72
	December	47.80	53.43	52.40	54.50	54.40	53.87	46.08
2021	January	55.83	60.03	58.92	58.87	58.77	58.02	50.35
	February	61.85	67.83	66.36	66.70	66.45	65.15	55.74

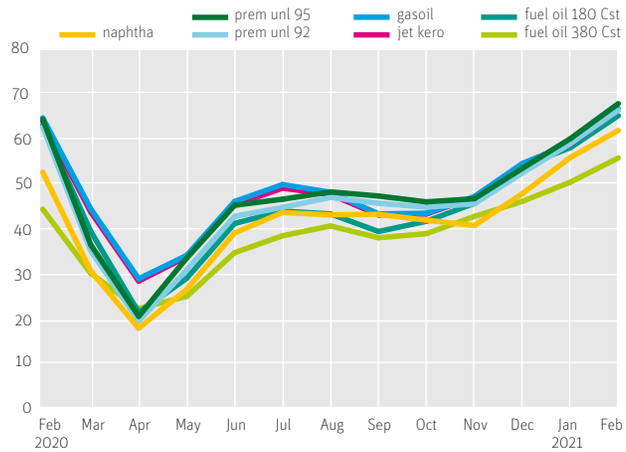
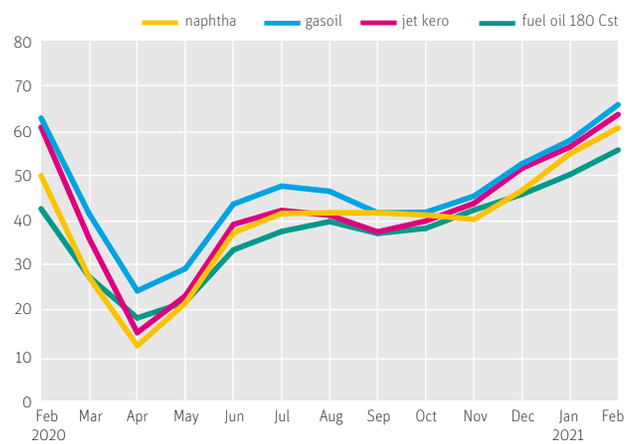


Table and Graph 7: Middle East Gulf market – spot cargoes, fob

$/b

		naphtha	gasoil	jet kero	fuel oil 180 Cst
2020	February	50.06	62.81	60.82	42.76
	March	27.60	41.63	36.18	27.71
	April	12.50	24.62	15.40	18.63
	May	21.91	29.52	23.50	22.15
	June	37.45	43.80	39.30	33.67
	July	41.71	47.77	42.40	37.74
	August	41.88	46.63	41.33	39.92
	September	41.88	41.85	37.66	37.32
	October	41.39	41.99	40.06	38.45
	November	40.43	45.55	43.95	42.48
	December	46.80	52.72	51.72	45.94
2021	January	54.92	57.87	56.43	50.34
	February	60.62	65.78	63.61	55.76

Source: Argus. Prices are average of available days.



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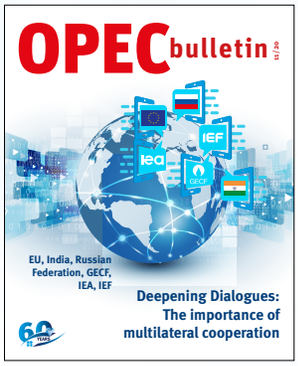

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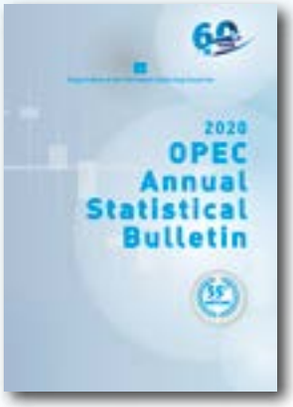

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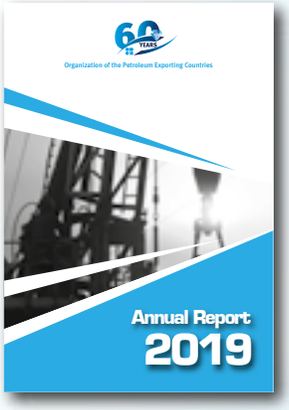

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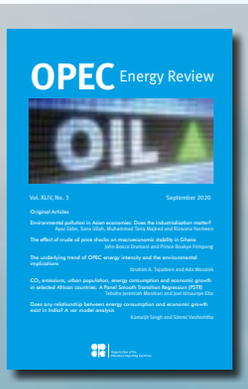

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