OPEC bulletin

2–3/22

EGYPS:
Egypt Petroleum Show in Cairo

OPEC

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Investing in a secure energy future

Although the COVID-19 pandemic is not done with yet, the milder Omicron variant in tandem with increasing global vaccination rates have helped provide the world with a collective sigh of relief. At least for now.

After two years of pandemic-driven restrictions and lockdowns, this has meant at least a partial return to business as usual.

In the world of energy industry events, this has been good news as organizers are once again beginning to open their doors to in-person attendees for oil and gas conferences and exhibitions around the world.

OPEC has joined the thousands of industry stakeholders returning to airports for travel to these industry events.

OPEC Secretary General, Mohammad Sanusi Barkindo, who is no stranger to international travel, was back on the event circuit, starting the year with a "pilgrimage" visit to OPEC Founding Member Iraq. The mission was significant and symbolic as Baghdad was the site of OPEC's birth in September of 1960.

This was followed in February and March by OPEC missions to Egypt, Nigeria and the United States.

These annual industry events are always valuable forums for energy leaders to sit and discuss the pressing issues of the day. And indeed, this round of events was no exception to the rule.

In addition to discussions related to the short-term volatility that was challenging the oil market, one of the trending topics that pervaded the panel discussions was the critical issue of industry investment.

Underinvestment is one of the great challenges the industry is currently facing, particularly in the aftermath of the global pandemic, when we saw capex in the oil sector plummet by more than roughly 30 per cent in 2020. Today, the industry continues to lag far below pre-pandemic levels for spending.

This makes it increasingly difficult to imagine how the industry will meet rising energy demand from a burgeoning global population, expected to reach 9.5 billion by 2045.

OPEC's *World Oil Outlook* forecasts global energy demand rising by a robust 28 per cent in the period to 2045. This translates to an increase from 275 million barrels of oil equivalent per day (m boe/d) in 2020 to 352m boe/d by 2045. All energies are expected to see growth, with the exception of coal, and oil is forecast to retain its position with the largest share in the global energy mix until 2045.

To meet this rising demand, the global oil sector will need to fork out cumulative spending equal to around $11.8 trillion for upstream, midstream and downstream projects to the year 2045.

Speakers at these events have repeatedly warned of the consequences related to underinvestment, which could include oil market imbalance, heightened volatility and energy insecurity.

Part of the culprit for this crisis of dwindling investment is the insistence by some activist voices that a near immediate transition away from fossil fuels is required to address the climate change issue. This, in turn, has put up financial barriers for access to much-needed capital for investment in future projects.

This frantic transition approach to reaching net-zero in record time is both unrealistic and potentially disruptive to the industry.

An energy transition that is fair, equitable and responsible will not happen overnight, and it must ensure that the needs of all the world's people will be taken into consideration.

The Secretary General, in his recent recorded remarks to the 5th Nigeria International Energy Summit, said: "We must bear in mind that climate change and energy poverty are two sides to the same coin."

Noting that 759 million people worldwide still did not have access to electricity in 2019 and around 2.6 billion, or 34 per cent, were without access to clean cooking fuels and technologies, Barkindo emphasized that developing countries have their hands full just meeting their most basic needs. Not to mention, Africa, for example, which accounts for just three per cent of global emissions.

When all is said and done, the highly complex challenges facing the energy industries will require no less than the combined efforts of all industry stakeholders.

"As an industry, we must approach these critical issues together through dialogue and cooperation, ensuring all voices are heard and all viewpoints are considered," Barkindo proclaimed. "We need to connect all aspects of the energy trilemma. This means working with each other, and not against each other. It is in the interests of each and every one of us to evolve a sustainable energy future that works for all."

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Cover
This month's cover shows the historic Baron Empain's Palace in Cairo, which provided a splendid backdrop for the EGYPS 2022 Gala Dinner (see story on page 6).

Vol LIII, No 2, February/March 2022, ISSN 0474–6279

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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.

Contributions
The *OPEC Bulletin* welcomes original contributions on the technical, financial and environmental aspects of all stages of the energy industry, as well as research reports and project descriptions with supporting illustrations and photographs.

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Indexed and abstracted in PAIS International
Printed in Austria

DoC continues to head in the direction of recovery

Following the roadmap agreed in mid-2021, the DoC participants upwardly adjusted output in February and March as the oil market remained on a recovery track.

Ministers from countries participating in the 'Declaration of Cooperation' (DoC) continued on the course they set in July 2021, deciding at their meetings in February and March 2022 to upward monthly production adjustments of 400,000 b/d.

Following brief virtual meetings on February 2 and on March 2, the Ministers decided to extend the monthly output adjustment mechanism approved at the 19th OPEC-non-OPEC Ministerial Meeting (ONOMM) last year.

The decisions at the 25th and 26th ONOMMs set the stage for continued support to the global economy nearly two years after COVID-19 was declared a pandemic. The meetings took place as increasing numbers of economies were emerging from lockdowns and other containment measures that sapped global growth, and consequently oil demand, at the outset of the pandemic in 2020.

In a statement following the 26th ONOMM on March 2, the Ministers "noted that current oil market fundamentals and the consensus on its outlook pointed to a well-balanced market, and that current volatility is not caused by changes in market fundamentals but by current geopolitical developments."

Both monthly Ministerial Meetings also took place as the outlook continued to show the global economy on track for solid growth this year, following a strong turnaround in 2021. Ahead of the 26th ONOMM, OPEC analysts projected global GDP growth of 4.2 per cent in 2022 following a 5.6 per cent economic rebound in 2021.

World oil demand is expected to grow by 4.2 million b/d (m b/d) in 2022, coming on top of a 5.7m b/d rise in 2021, driven in part by better-than-anticipated transportation fuel consumption in advanced economies. For 2022, average global consumption is pegged at 100.8m b/d, topping pre-pandemic levels.

Supporting market stability

The 25th and 26th ONOMMs marked another step in supporting market stability that has been the hallmark of the DoC's efforts since the framework's inception on December 10, 2016 and the beginning of the first voluntary production adjustments in January 2017.

The upward monthly adjustment of 400,000 b/d was set in motion at the 19th ONOMM on July 18, 2021. At the time, participating countries also decided to extend the DoC's production adjustment time horizon to the end of 2022 to provide clarity and assurance to the market.

The February 2022 edition of the OPEC Monthly Oil Market Report noted the Omicron variant of COVID-19 appeared to be less severe than previous strains and rising vaccination rates in many regions helped dilute its impact. "This prompted many countries, including

Delegates attending the 25th OPEC-non-OPEC Ministerial Meeting via videoconference.

European countries, to ease COVID-related restrictions. Meanwhile, global oil demand data showed a resilient recovery, and the physical crude market showed signs of strong fundamentals," according to the *MOMR*.

Omicron was first identified in late November 2021, briefly roiling the oil market as it rapidly became the dominant source of infection in many regions.

Rising vaccination rates

At the same time, the pace of vaccinations has continued. The World Health Organization (WHO) tally on the day of the 25th ONOMM showed that more than 9.9 billion vaccine doses had been administered since immunization efforts began in earnest in early 2021. At least 4bn people, around 54 per cent of the global population, were classified as fully vaccinated.

One month later, as the 26th ONOMM began, those figures jumped with nearly 10.6bn shots administered with more than 4.3bn people classified as fully immunized.

OPEC Member Country the United Arab Emirates (UAE) and non-OPEC DoC participant Brunei Darussalam had the world's highest reported vaccination rates, according to global vaccination trackers. In the UAE, 97 per cent of people were fully vaccinated and in Brunei, 93 per cent. Globally, 57 per cent of people were classified as fully vaccinated, according to figures at the beginning of March. Both countries also exceeded the world average for boosters.

EGYPS 2022

Delegates to EGYPS 2022 took time out for a group photograph.

Barkindo: The energy transition conversation must be global and inclusive

OPEC attends EGYPS 2022 in Cairo, Egypt

In February 2022, OPEC Secretary General, Mohammad Sanusi Barkindo, visited Egypt to participate in the fifth edition of the Egypt Petroleum Show (EGYPS) in Cairo. The* OPEC Bulletin's *Ayman Almusallam files this report.

Between February 14 and 16, the vast complex of the Egypt International Exhibition Centre in Cairo hosted the fifth Egypt Petroleum Show (EGYPS).

EGYPS 2022 was held under the patronage of Abdel Fattah El-Sisi, President of Egypt, and saw the participation of many ministers, senior officials, heads of international organizations, CEOs of national and international oil companies, as well as analysts and journalists.

The OPEC Secretary General took part in a panel session hosted by the EGYPS Strategic Conference, as well as in the Young Professionals Programme, during which he interacted with the youth. He also spoke to various international media agencies.

L–r: John Defterios, panel moderator; Tarek El-Molla, Minister of Petroleum and Mineral Resources, Egypt; Amani Abou-Ziad, Commissioner for Infrastructure and Energy, African Union Commission; Gabriel Mbaga Obiang Lima, Minister of Industry, Mines and Energy, Equatorial Guinea; and Timipre Sylva, Minister of State for Petroleum Resources, Nigeria.

Barkindo additionally held a bilateral meeting with Tarek El-Molla, Egypt's Minister of Petroleum and Mineral Resources, on the sidelines of the conference.

OPEC's Public Relations and Information Department also participated at the event by hosting a stand at the conference's exhibition.

Africa: Infinite potential, wealth of resources

At the opening ceremony, which was attended by the OPEC Secretary General, President El-Sisi welcomed all delegates from the public and private sectors attending the conference.

The President, in his remarks, stressed that Africa for historical reasons has been slow to advance on some important fronts, including development. He continued by pointing out that African countries should not have to pay the price for these historical circumstances, one of them pertaining to the impacts of colonization.

El-Sisi also shared some startling figures related to energy poverty in Africa, noting that half of the continent's population lacks energy access. In this context, he raised the question as to whether Africa is able to address the requirements for developing renewable energy sources.

Domestically, the President said Egypt had invested around $400 billion in infrastructure in the last seven years, however he emphasized that declining investment in energy is an issue, with potential impacts on addressing future energy needs.

The President noted that the upcoming 27th Conference of the Parties (COP 27) in November would be hosted by Egypt in Sharm El-Sheikh, adding that he is hoping for objective, balanced and fair outcomes.

Finally, El-Sisi addressed the future generations, whom he encouraged to remain strong to overcome adversity and address the challenges of the future.

Minister El-Molla began his speech by highlighting that since the first EGYPS in 2017, the conference has grown to become a leading event in the global energy industry. He also thanked President El-Sisi for his continuous support.

The Minister said that in the last two years, the challenging developments related to the global pandemic had impacted all sectors in Egypt's economy, including its energy industry. He added that the COVID-19 pandemic has provided Egypt with an opportunity to demonstrate its preparedness to overcome challenges of all kinds.

El-Molla outlined the country's strategic plan to further enhance its oil sector through advancing petroleum projects, adding that Egypt had signed 37 agreements related to petroleum in January 2022. These plans, he added, include efforts to address climate change and

Dr Omar Farouk Ibrahim (r), Secretary General of APPO, speaks at the panel session.

bolster sustainable development while increasing efficiency and ensuring energy and financial sustainability.

Fatih Birol, Executive Director of the International Energy Agency (IEA), noted during his remarks at the opening ceremony that EGYPS 2022 was taking place at a critical time due to the various challenges facing the energy sector. He also commended Egypt for the impressive advancements it has made in its national energy sector, including areas related to renewable energy and electricity.

On COP27, the Executive Director stated that Egypt was selected to host the upcoming meeting, "representing the continent of Africa." He added that he is confident that Egypt will fulfil this mission successfully.

On oil market developments, Birol noted that oil demand was experiencing a very strong rebound post-COVID and recognized the contributions of the OPEC-non-OPEC 'Declaration of Cooperation' (DoC) in ensuring stability in the market.

"The DoC is a responsible actor in the oil market," he said.

Birol also stated that the future for Africa is bright, particularly in the energy sector, and that the continent is rich in natural and energy resources.

Finally, the Executive Director emphasized the key role that innovation can play in addressing the climate change challenge while also helping secure future energy needs.

Egypt's Prime Minister, Mostafa Madbouly, was also present at the opening ceremony.

Global energy dialogue

At EGYPS 2022, OPEC Secretary General Barkindo participated in a panel session titled *'Modernizing the global energy dialogue for industry transformation'*.

Dr Omar Farouk Ibrahim, Secretary General of the African Petroleum Producers' Organization (APPO); Eng Mohamed Hamel, Secretary General of the Gas Exporting Countries Forum (GECF); and Joseph McMonigle, Secretary General of the International Energy Forum (IEF); were also among the session's participants.

Mohammad Sanusi Barkindo, OPEC Secretary General, and delegates with Tarek El-Molla, Egypt's Minister of Petroleum and Mineral Resources.

Hamel, who served as Algeria's Governor for OPEC before taking the helm of the GECF this year, took part via a pre-recorded message. The session was moderated by John Defterios, former CNN journalist and moderator of several OPEC International Seminars.

During the discussion, Barkindo thanked Egypt for organizing EGYPS 2022, highlighting that the event would serve as a platform for addressing the industry's critical challenges.

On the energy transition, the Secretary General emphasized that "the conversation must be global and inclusive" and that no-one should be left behind. Moreover, the conversation should be driven by "science not emotions," he added, and that the issue's possible long-term impacts on energy security are "important to all humanity."

The Secretary General continued by pointing out the vital role that Egypt, the host of COP27, can play in addressing this challenge. "It is a tall order on Egypt, but they are capable," he stated.

Barkindo concluded by stating: "All hands should remain on the wheel to avoid any future risks. Everyone has a role to play."

The GECF's Secretary General noted the huge gap in energy investment, stressing that divestment today is a clear recipe for market volatility in the future. He also said that COP27 could help Africa and developing nations in the mitigation and adaptation efforts related to climate change.

On the energy transition, Dr Ibrahim highlighted that APPO should take further steps in defending hydrocarbons, noting that Africa is dependent on the fuels for energy, as well as a vital source of revenue.

IEF's Secretary General raised the critical issue of divestment in oil and highlighted its importance as a key energy source.

McMonigle emphasized the need to remain cautious so that the climate crisis does not turn into an energy crisis. He also noted the critical role that technology can play in this regard.

As part of OPEC's participation at EGYPS 2022, Secretary General, Mohammad Sanusi Barkindo, also took part in the event's 'Young Professionals Programme'.

Energy and the role of posterity

As part of OPEC's participation at EGYPS 2022, Secretary General Barkindo also took part in the event's 'Young Professionals Programme'.

The session provided an opportunity for students from Egypt's leading high schools and universities to actively engage in discussions related to the energy industry, particularly oil, and to learn more about the history of OPEC.

At the Live Theatre, the Secretary General told the young audience the story of how OPEC was founded in Baghdad, Iraq, in 1960, and how Egypt played an instrumental role in the process.

Barkindo highlighted that the relationship between OPEC and Egypt predates the establishment of the Organization.

He noted that representatives of Iran, Iraq, Kuwait, Saudi Arabia and Venezuela met at the Maadi Sports and Yacht Club in Cairo in 1959, during which a 'Gentlemen's Agreement' was forged that led to the establishment of the Organization one year later at the Al-Shaab Hall in the Bab Al-Muaatham district of Baghdad.

Barkindo also pointed out that Egypt, as an oil producer, has attended many Meetings of the OPEC Conference as an observer and commended the positive relationship the Organization has with Minister El-Molla.

The Secretary General highlighted the importance of events such as EGYPS and its Youth Programme in attracting future talent to the energy industry.

"Since its start in 2017, EGYPS has become one of the Mediterranean region's premier energy events, and I would like to commend the organizers for involving hundreds of students from many of Egypt's leading high schools and universities," he stated.

Addressing the students, Barkindo said: "You are the future! We must make sure you have the training, resources and incentives to become this industry's next generation of leaders."

The Secretary General also raised a number of important issues that are facing the global energy industry.

"The power to address such challenges lies partly in the hands of young people like you. The tech-savvy youth of this generation are uniquely qualified to harness the latest technologies and innovations, and apply them to helping adapt and enhance this industry in the decades to come," he emphasized.

Sheikh Ahmed El Tayyeb (r), Grand Imam of Al-Azhar, welcomes Mohammad Sanusi Barkindo (l), OPEC Secretary General.

"Our industry offers dynamic opportunities to young people with diverse skill sets and educations in sciences, technology, engineering and mathematics.

"It is an industry that gives bright young people the chance to make a meaningful and sustainable contribution to their community and the world at large."

Cairo — beyond energy conversations

During the mission, OPEC Secretary General Barkindo had the opportunity to visit several cultural sites in Cairo, a city known for its rich history and charm.

Among the sites were the Al-Azhar and Al-Hussain mosque and the National Museum of Egyptian Civilization, which is world-renowned for its collection of antiquities dating back to the prehistoric era.

At Al-Azhar, Barkindo met with Sheikh Ahmed El Tayyeb, its Grand Imam. Al-Azhar was opened in 972 CE by the Fatimids.

The Grand Imam briefed the Secretary General on the activities of Al-Azhar, including those related to education, noting that it has become an important landmark for all Muslims across the world.

In return, the Secretary General thanked the Grand Imam for hosting the OPEC delegation. Barkindo also recalled OPEC's Egyptian roots and the instrumental role that Egypt played in the events leading up to Organization's founding in 1960.

The Secretary General stated: "Cairo is our home; it is the root of our Organization. We thank Egypt and its leadership for the support provided over the years.

Barkindo receives special award at EGYPS 2022

In recognition of his achievements, OPEC Secretary General, Mohammad Sanusi Barkindo, was presented with a special award by Tarek El-Molla, Egypt's Minister of Petroleum and Mineral Resources, at EGYPS 2022. The* OPEC Bulletin's *Ayman Almusallam files this report.

At the historic Baron Empain's palace in Cairo, the organizers of the Egypt Petroleum Show (EGYPS) 2022 hosted a high-level gala dinner, during which Barkindo was given a special award in honour of his achievements as Secretary General of the Organization.

Minister El-Molla, in his remarks, thanked Barkindo for his ongoing support for Egypt and its energy industry and for the valuable experience the Secretary General has shared since taking office in August 2016.

The Minister also expressed his appreciation to the Secretary General for attending EGYPS since it began five years ago in 2017.

"We took advantage of having His Excellency with us, attending the Egypt Petroleum Show again this year," Minister El-Molla said, adding, "I would like to thank Barkindo very much for his services."

The Minister concluded by wishing the Secretary General a healthy and prosperous future.

In his acceptance speech, the OPEC Secretary General praised the exemplary leadership and vision of Abdel Fattah El-Sisi, President of the Arab Republic of Egypt, and Minister El-Molla, and congratulated them for successfully hosting the fifth edition of the event.

"It has been the honour of a lifetime for me to serve as OPEC Secretary General. I count myself lucky to have been a witness to many historic moments and events in the last six years. The experience has confirmed for me, more than ever before, that nothing can be accomplished without teamwork," Barkindo stated.

"OPEC has helped the oil industry navigate some choppy waters over the last six years and taken action that ensured the survival of this industry," he added. "This has truly been a collective endeavour; the combined work of our Member Countries, their ministers and ministries of oil or energy, their capable staff and teams."

Barkindo will complete his second term as OPEC Secretary General in August 2022.

Tarek El-Molla, Egypt's Minister of Petroleum and Mineral Resources, presents the award to Mohammad Sanusi Barkindo, OPEC Secretary General.

Ebrahim Shelbaya, President of the Maadi Club's Board, with Mohammad Sanusi Barkindo, OPEC Secretary General.

Returning to the roots: OPEC Secretary General visits the Maadi Sports and Yacht Club in Cairo

During the mission to Egypt, OPEC Secretary General, Mohammad Sanusi Barkindo, and an accompanying delegation visited Cairo's Maadi Sports and Yacht Club, which has special significance in OPEC history. OPEC's Ayman Almusallam reports on the visit.

Following OPEC's successful participation in the fifth edition of the Egypt Petroleum Show (EGYPS) held in the Egypitan capital of Cairo between February 14 and 16, an OPEC delegation, led by Secretary General Barkindo, visited the Maadi Sports and Yacht Club.

The Club holds a seminal and unique place in the Organization's history.

After a warm welcome by the President of the Club's Board, Ebrahim Shelbaya, and its Board Members, attendees had an opportunity to reminisce about the club's importance in the birth of OPEC.

A transformative moment with critical ramifications for oil in the region and the whole world occurred in 1959 on the banks of the Nile.

Between April 16 and 23, 1959, Cairo hosted the first-ever Arab Petroleum Congress at the Engineers Society Building, which attracted industry representatives from across the region and beyond.

There were five delegates at the Congress with extraordinary foresight and strategic vision, who felt that the global energy crisis needed to be addressed.

The five men convened towards the end of the Conference at the Maadi Sports and Yacht Club, where the historic 'Gentlemen's Agreement' of Maadi was forged.

This Agreement encouraged the signatories' governments to establish a formal permanent body to facilitate regular consultations as a means of countering the arbitrary decisions of oil companies, particularly the Seven Sisters. The governments were also urged to coordinate and unify petroleum policies in the interest of oil market stability through ensuring an efficient, economic and regular supply of petroleum to consumers, a steady income to producers and a fair return on capital for investors.

At the time, major international oil companies controlled all aspects of the supply chain with minimal involvement by the host countries, who owned these natural resources.

The momentum created in Cairo eventually culminated in the founding of OPEC one year later at the landmark Baghdad Conference held between September 10 and 14, 1960, on the banks of the Tigris and Euphrates rivers.

These five leaders were no other than Fuad Rouhani of Iran, Tala'at al-Shaibani of Iraq, Ahmed Sayed Omar of Kuwait, Abdullah Al-Tariki of Saudi Arabia and Juan Pablo Perez Alfonzo of Venezuela.

It is noteworthy that the establishment of OPEC preceded the adoption in December 1962 of resolution 1803 by the UN General Assembly, which addresses the issue of permanent sovereignty over natural resources.

Officials gather at the Maadi Club.

OPEC participates in the 5th Nigeria International Energy Summit

The fifth edition of the Nigeria International Energy Summit (NIES) and exhibition was held from February 27 to March 4, 2022, in the Nigerian capital of Abuja. The theme for this year's event was 'Revitalizing the industry: Future fuels and energy transition'. The OPEC Bulletin's *Suraj S Matori reports.*

The event kicked-off on February 27, 2022, with a welcome reception hosted by Timipre Sylva, Nigeria's Minister of State for Petroleum Resources and Head of Nigeria's Delegation to OPEC.

Attendees included Gabriel Mbaga Obiang Lima, Minister of Industry, Mines and Energy of Equatorial Guinea; Joseph McMonigle, Secretary General of the International Energy Forum (IEF); Dr Omar Farouk Ibrahim, Secretary General of the African Petroleum Producers' Association (APPO); Dr Adedapo Odulaja, Nigeria's OPEC Governor and Special Adviser to the Minister of International Energy Affairs; together with top officials from Nigeria's government, as well as heads of both local and international oil and gas companies.

The reception provided the opportunity for invited delegates to meet and interact in an informal environment, thus setting the scene for the official opening ceremony of the Summit the next day at the State House Banquet Hall.

Timipre Sylva delivered his welcoming remarks, thanking delegates for travelling from far and wide to attend the event. The Minister said he was delighted to see the high interest of so many important stakeholders participating in NIES, an event that, he said, provides a unique forum for meaningful, honest and inclusive discussions on energy-related challenges and dynamics.

The relaxed atmosphere of the event allowed delegates to enjoy the cultural diversities Nigeria offers through its unique music and culinary specialties.

Sylva welcomed the OPEC delegation and thanked them for their participation in the event. Likewise, OPEC Consultant in charge of the Public Relations and Information Department, Hasan Hafidh, who was representing the OPEC Secretary General, Mohammad Sanusi Barkindo, extended the appreciation of OPEC to the Minister and organizers for the invitation to participate in the important event.

Delegates to NIES 2022 took time out for a group photograph.

Opening ceremony

Formerly known as the Nigeria International Petroleum Summit, this year's edition was re-named as the Nigeria International Energy Summit to reflect the realities of today's ever-evolving energy landscape, which now encompasses a broader range of opportunities and challenges related to climate change, sustainability, the energy transition and energy poverty.

The opening ceremony was attended by a cast of leading energy figures from Nigeria, other African nations, as well as a host of international delegates.

OPEC Secretary General, Mohammad Sanusi Barkindo, delivered his goodwill message virtually, expressing his appreciation to Nigeria's President Muhammadu Buhari, for his fervent, steadfast support for Nigeria's energy industry, which, he added, was so well represented at this year's Summit.

"This highly successful track-record of supporting Nigeria's industry took a massive leap forward last year when the Petroleum Industry Bill (PIB) was passed by both chambers of 9th National Assembly of our great country," Barkindo said. "This long-awaited legislation for the oil and gas sector is bringing about the necessary reforms designed to strengthen institutions, solidify regulatory and fiscal frameworks and attract much-need investment in a sustainable manner. I commend the 9th National Assembly for passing this momentous Petroleum Industry Bill."

The Secretary General said that OPEC remains indebted to President Buhari for the leading role he has played and continues to play in support of the OPEC and non-OPEC 'Declaration of Cooperation' (DoC) process. This historic achievement, he added, has ushered in a new era in global energy cooperation as OPEC and its non-OPEC partners continue to provide crucial support to the oil market, in the interest of producers, consumers and the global economy.

"At OPEC, we very much consider President Buhari as 'one of our own'. An OPEC veteran, he has been heavily involved in the Organization's affairs for decades and is currently the only serving Head of State in the world who made his career by being intensely involved in the OPEC family," Barkindo said. "He has maintained his avid interest in our Organization, and we all draw inspiration from his commitment."

The Secretary General also recognized the invaluable contributions and support of Sylva, who, as Minister of State for Petroleum Resources and Head of Delegation for OPEC, has been a staunch advocate for OPEC both at

Mohammad Sanusi Barkindo, OPEC Secretary General, delivered his remarks virtually at the event.

home in Nigeria and on the international stage through the DoC.

"Your leadership and active participation continue to enrich our ongoing pursuits to forge a sustainable stability in the oil market," he said. "On the domestic front, your ongoing contributions and leadership in guiding Nigeria's energy industry into the future are both impressive and commendable."

> *"... our great continent, Africa, is still relatively unexplored, with approximately 125 billion barrels of proven oil reserves and 16 trillion standard cubic metres of natural gas."*
>
> *— Mohammad Sanusi Barkindo, OPEC Secretary General*

The Secretary General also emphasized the highly important role of OPEC's African contingent of Member Countries. Seven out of OPEC's 13 Member Countries are from Africa. They include Algeria, Angola, Congo, Equatorial Guinea, Gabon, Libya and Nigeria.

"It is extremely important that a major event of this nature is taking place on the African continent," Barkindo said. "African countries have historically assumed strong, proactive leadership roles in OPEC. The strong bonds between OPEC and Africa reflect the critical role that our great continent, with its young, vibrant and talented population, will play in the future of the energy industry."

Panel session

In his opening remarks to the international panel session, delivered via video link, the Secretary General commended the Nigeria National Petroleum Company Ltd under the leadership of Mele Kolo Kyari for assembling a thought-provoking and timely programme.

"I commend you on the very rich programme you have developed and for the impressive roster of speakers, many of whom are leading industry experts," Barkindo stated.

The panel session theme was entitled 'Revitalizing the industry: future fuels and the energy transition'. Panelists included Timipre Sylva, Nigerian Minister of State for Petroleum Resources; Gabriel Mbaga Obiang Lima, Minister of Industry, Mines and Energy, Equatorial Guinea; Dr Omar Farouk Ibrahim, Secretary General of APPO; Mary Beth Leonard, US Ambassador to Nigeria; and Hon William Owuraku Aidoo, Deputy Minister for Energy, Ghana.

Barkindo highlighted that the theme for the panel was both timely and relevant to the highly dynamic and rapidly shifting nature of today's global energy industry.

He noted that there have recently been certain voices with somewhat radical views calling for an accelerated energy transition and for investments in oil and gas to be discontinued immediately.

"We need to be cognizant of how oil and gas industry investments are being impacted by Environmental Social Governance (ESG) requirements and the climate disclosure drive from the financial community," he said. "We are concerned about the ESG footprint and stranded asset risk of the industry. The environmental aspect of ESG is perhaps outweighing the need to address the social and development issues."

He explained that Africa has a wealth of resources that are critical to the further socio-economic development of

the continent that would be in jeopardy if the world were to move in this radical direction.

"Consider the fact that our great continent, Africa, is still relatively unexplored, with approximately 125 billion barrels of proven oil reserves and 16 trillion standard cubic metres of natural gas," he stated. "It would be a tragedy of unimaginable proportions if, despite billions of dollars being poured into investments for these resources, this went to waste as stranded assets."

This narrative, he emphasized, does not correlate with the future trajectory of the world's energy needs.

"According to OPEC's *World Oil Outlook,* our flagship publication which looks at the longer term projections for the industry, the global economy in 2045 will be more than double the size it was in 2020, from around $125 trillion in 2020 to almost $270tr in 2045, based on 2017 purchasing power parity.

The global population is expected to reach 9.5 billion people by 2045, an increase of 20 per cent," he said. "As a result of these phenomenal demographic and economic changes, global energy demand is set to increase from 275 million barrels of oil equivalent a day in 2020 to 352m boe/d by 2045. No single source of energy can meet this demand growth alone."

To meet the world's future demand for energy, he added, all energy sources will be required. In fact, oil is forecast to remain the fuel with the largest share of the global energy mix until 2045, and oil and gas together are still expected to account for more than 50 per cent in this time horizon.

Moreover, to meet rising demand, Barkindo stressed the need for the reinstatement of adequate levels of investment for the survival of the industry.

"Investments are the life-blood of this industry," he stated. "Cumulative oil-related investment requirements amount to $11.8tr in the 2021–45 period. These investment requirements clearly underline that any talk of the oil and gas industries being consigned to the past and of the need to halt new investments in oil and gas is misguided. Any shortfall could have severe consequences, particularly if supply falls and demand does not. We could see crude oil and product shortages, all of which would have an impact on the global economy."

Mele Kolo Kyari, CEO of the Nigeria National Petroleum Company Ltd.

No one left behind

On the topic of energy poverty, the Secretary General reminded delegates of the stark reality that Africa is still

Timipre Sylva (second l) and Gabriel Mbaga Obiang Lima (l) visit the OPEC stand, and were welcomed by Hasan Hafidh (r), OPEC Consultant in charge of the Public Relations and Information Department.

struggling to meet its most basic needs, and energy poverty is an issue of great concern.

"The unfortunate reality for developing countries is that a staggering 759m people worldwide did not have access to electricity in 2019, with three out of four of them in sub-Saharan Africa," he said. "Moreover, there were roughly 2.6bn people or 34 per cent of the global population who did not have access to clean cooking fuels and technologies — and this includes a massive 70 per cent of Africans who have no access, exposing them to high levels of household air pollution. The energy poverty numbers for Africa are stark. And to add in one further number, Africa accounts for less than three per cent of global emissions."

This dire situation, he said, makes it even that much more important that world leaders ensure that the energy transition is both fair and equitable.

"We need to ensure energy is accessible and affordable for all; we need to transition to a more inclusive, fair and equitable world in which every person has access to energy as referenced in UN Sustainable Development Goal 7; and we need to reduce emissions," he proclaimed. "It is an energy sustainability trilemma, with each piece having to move in unison. The challenge of tackling emissions has many paths, as evidenced by the Intergovernmental Panel on Climate Change, the United Nations Framework Convention of Climate Change (UNFCCC) and the Paris Agreement. It is not just one path for all, whether that be a country or an industry."

> *"We need to ensure energy is accessible and affordable for all; we need to transition to a more inclusive, fair and equitable world in which every person has access to energy as referenced in UN Sustainable Development Goal 7; and we need to reduce emissions."*
>
> *— Mohammad Sanusi Barkindo, OPEC Secretary General*

Finally, the Secretary General called on all stakeholders across the industry value chain to work together in an effort to meet these significant challenges face on in the interest of all involved parties.

"As an industry, we must approach these critical issues together through dialogue and cooperation, ensuring that all voices are heard and all viewpoints are considered," he said. "What can be viewed in the current energy market turmoil is what can occur if we do not see the bigger picture. We need to connect all aspects of the energy trilemma. This means working with each other, and not against each other. It is in the interests of each and every one of us to evolve a sustainable energy future that works for all."

Exhibition

In addition to the Conference portion of the event, NIES featured an international exhibition, at which OPEC was well-represented with a stand featuring print and multimedia information for delegates to enhance their knowledge of OPEC and its mission in the global energy industry.

Officials from OPEC's Department of Public Relations and Information were also available at the stand to answer questions from delegates and to receive visiting officials from other delegations.

OPEC Secretary General receives 'International Petroleum Diplomacy Person of the Year' award

A Gala Dinner was held at the State House Banquet Hall on February 28, 2022. During the event, OPEC Secretary General, Mohammad Sanusi Barkindo, received the 'International Petroleum Diplomacy Person of the Year' award from the event organizers.

The award recognizes the major contributions the Secretary General has made to the energy industry during his tenure at OPEC through the promotion of cooperation and dialogue between a broad range of industry stakeholders.

The award was presented by Gabriel Mbaga Obiang Lima, Minister of Industry, Mines and Energy, Equatorial Guinea. Accepting on behalf of the Secretary General was OPEC Consultant in charge of the Public Relations and Information Department, Hasan Hafidh.

In the Secretary General's award acceptance remarks, he pointed out that none of his successes would have been possible without the loyal efforts of a supportive and talented team.

"I'm humbled and flattered by the organizers of the Nigeria International Energy Summit who decided to bestow this prestigious award on us. The modest accomplishments we achieved in the last six years at OPEC were due largely to the professional teamwork of my esteemed colleagues at the Secretariat in Vienna. I dedicate this award to them," stated Barkindo.

Houston calling

After two years of panel sessions and executive interviews over video screens due to the pandemic, CERAWeek — the so-called Davos of energy — returned in 2022 to an in-person event in Houston. With almost 6,000 industry stakeholders, politicians, policymakers and media in attendance for the event's 40th incarnation, the event found itself as an invaluable talking shop and resource at a key juncture for the global energy industry. The* OPEC Bulletin *reports from Houston.

Mohammad Sanusi Barkindo (c), OPEC Secretary General; with Carlos Pascual (l), Senior Vice President, Global Energy, S&P Global; and Jeff Currie (r), Global Head of Commodities Research at Goldman Sachs.

This year's CERAWeek, themed *'Pace of change: energy, climate, and innovation'*, looked to address the challenges of meeting the energy needs of a growing world economy while also lowering emissions. It was a conference that sought to focus on a whole host of issues surrounding the energy transition, and while these were evidently discussed, it was recent events in Europe and developments in the oil and gas sector that attendees were most concentrated on.

In speaking to the *Houston Chronicle*, James Rosenfield, Senior Vice President at S&P Global and the conference's founder and co-chairman, said: "This year's CERAWeek was absolutely at the centre of the energy universe at a critical time."

More oil and gas

One of the key takeaways from the event was the need for all energy forms and the development of a whole host of clean energy technologies in the years ahead, and it was clear the world now needed oil and gas as much as ever.

This was emphasized by a number of keynote speakers, including US Secretary of Energy, Jennifer Granholm, who said to a packed room of delegates: "I am here to extend a hand of partnership, because we will only be able to meet these challenges of oil and gas supply and climate change by working together."

She further added the importance of deploying clean

technologies as fast as possible and that the Department of Energy, and the entire Biden administration, is ready to work with industry stakeholders to seize opportunities. "Maybe you are excited about clean hydrogen. Maybe it is carbon capture and storage. Maybe it is offshore wind, geothermal, lithium from geothermal brines, sustainable aviation fuels, EV charging — you name it."

Granholm was also asked what message she would have for investors who have grown wary of putting their money in oil and gas. "Investors, like every human on the planet, we have to do something. We all have to give. I hope investors are listening because we cannot have one element holding back for what we need for the world."

L–r: Carlos Pascual, Senior Vice President, Global Energy, S&P Global; Daniel Yergin, Vice Chairman, S&P Global, Chair of CERAWeek; Mohammad Sanusi Barkindo, OPEC Secretary General; Angela Stent, Director, Center for Eurasian, Russian and East European Studies at Georgetown University; Jamey Rosenfield, Senior Vice President, S&P Global, co-Chair of CERAWeek.

Investments and energy flows

The issue of investments was one raised by many other delegates, with references to both the past and the future.

OPEC Secretary General, Mohammad Sanusi Barkindo, noted that underinvestment remains one of the great challenges for the industry and this had been further exacerbated by the COVID-19 pandemic. In the oil sector alone, he said, "upstream oil capital expenditure fell by around 30 per cent in 2020, exceeding the annual dramatic declines seen in the severe industry downturn in 2015 and 2016." Moreover, it has not come back as much as hoped in 2021.

He said that the issue required "a global solution" and this meant, "working with all industry stakeholders to ensure an investment-friendly climate, one that is sustainable and works for both producers and consumers."

The challenge was also highlighted by Saudi Aramco CEO, Amin Nasser, who said that the "tragic situation unfolding in Ukraine is making the global energy crisis worse."

Echoing comments from other energy executives, he added that the crisis exposes the mixed signals delivered by policymakers to the oil and gas industry amid

Mohammad Sanusi Barkindo, OPEC Secretary General, during an interview with Bloomberg's Kriti Gupta on the sidelines of CERAWeek 2022.

the energy transition. "As oil and gas investments are discouraged, demands are being placed on our industry to increase production," he said.

He added: "All energy resources will be needed to support a successful transition, and the demonization of our industry is not helping. We need consensus on the essential role of oil and gas with lower emissions, working side-by-side with alternatives to meet the rising global call on energy and deliver on net-zero ambitions."

It was not only the role of policymakers that was highlighted when it came to discussions on the issue of underinvestment, but the response of investors to oil and gas too. On a panel with Barkindo, moderated by Carlos Pascual, Senior Vice President, Global Energy, S&P Global, Jeff Currie, Global Head of Commodities

Rt Hon Greg Hands MP (r), the UK's Minister of State at the Department for Business, Energy & Industrial Strategy.

Ihsan Abdul Jabbar Ismaael (r), Iraq's Minister of Oil.

Research at Goldman Sachs, said: "So far, and I am on the frontlines, I see this every day, there is no interest to go in this space."

In the same panel session, Barkindo underlined the importance of energy to every person on the planet, highlighting the United Nations Sustainable Development Goal 7 that looks to ensure access to affordable, reliable, sustainable and modern energy for all. In this regard, he said, it was vital to keep energy flowing and highlighted the importance of depoliticizing energy given its importance to the global economy and social development.

When asked about current market conditions and the challenges wrought by conflict in Ukraine, Barkindo said of OPEC: "We have no control over current events, geopolitics, and this is dictating the pace of the market," before adding "all we can do is stay the course of our decisions."

Cooperation

Throughout his time at CERAWeek, Barkindo also regularly underscored the value of cooperation in looking at both the challenges and opportunities ahead.

This included the regular dialogues OPEC undertakes annually at CERAWeek, including with North American independent oil companies, the financial investor community and on climate change and sustainability.

In comments after the event, Barkindo recalled how the annual get-together with the independents had become a vital outreach. He said: "It has become an event that we all look forward to; an informal and relaxed occasion where we can compare notes and learn from each other. We all realize that we are in the same boat, appreciate the inherent benefits of a sustainable oil market stability, in the interests of both producers and consumers, and recognize the importance of continuing to break down barriers."

The Secretary General also held a number of bilateral meetings on the sidelines of the event, including with Ihsan Abdul Jabbar Ismaael, Iraq's Minister of Oil; the Rt Hon Greg Hands MP, the UK's Minister of State at the Department for Business, Energy & Industrial Strategy; Professor Meghan L O'Sullivan, the Jeane Kirkpatrick Professor of the Practice of International Affairs at Harvard University's Kennedy School; and, Jason Bordoff, co-dean of Columbia University's Climate School and director of the university's Center on Global Energy Policy.

The CERAWeek leadership team, headed by Daniel Yergin, vice chairman of S&P Global, also presented the Secretary General with a present to thank him for his contributions to CERAWeek over many years, his tenure of distinguished service at OPEC and his outstanding contributions to the global energy industry.

Professor Meghan L O'Sullivan (r), the Jeane Kirkpatrick Professor of the Practice of International Affairs at Harvard University's Kennedy School.

Jason Bordoff (l), co-dean of Columbia University's Climate School and Director of the university's Center on Global Energy Policy.

Barkindo receives award from Nigeria Energy Forum

At the Nigeria Energy Forum, hosted by Energy & Corporate Africa, on March 9 in Houston, OPEC Secretary General, Mohammad Sanusi Barkindo, received an award from the organizers that recognized his outstanding achievements as Secretary General over the past six years.

The event, on the sidelines of CERAWeek 2022, saw host, Sunny Oputa, CEO of Energy & Corporate Africa, pay tribute to Barkindo as a "visionary leader and an eloquent leader who has guided OPEC through a new, glorious chapter in its history. He has elevated the Organization's position and role as an active and responsible partner in the oil industry and international community."

On receiving the award, Barkindo stated that this "was not a recognition of the contribution of any one individual, but testimony to what can be achieved through cooperation." He underlined the support of Nigerian President Muhammadu Buhari, OPEC Member Countries and Ministers, and the staff at the OPEC Secretariat. In terms of the Secretariat, he said: "I have had the privilege of working alongside them day-in and day-out, 24/7 for the last six years. They are the backbone of the Organization."

Rick Kennedy (l), Chairman and Managing Director of Chevron Nigeria Limited, presented the awarrd to Mohammad Sanusi Barkindo (r), OPEC Secretary General.

Mohammad Sanusi Barkindo, OPEC Secretary General, with delegates and OPEC Secretariat staff.

Guest lecture

Barkindo also delivered a guest lecture at the Forum that focused on the event's theme of 'Oil & gas investments: the future of fossil fuels amid the quest for decarbonization'.

In this, he highlighted that the "the discourse around energy, climate, and sustainable development continues to be extremely emotive with some voices all but excluded, including many from the oil and gas industries."

He stated that this is wrong with rational discussions needed to be based on facts, hard data and science, and include all stakeholders.

Additionally, he added: "We are witnessing investors, environmental lobbyists and even some corporate boards pressuring oil and gas companies and governments to pursue increasingly radical policies and initiatives that could, in the end, be more disruptive than productive for the global energy industry.

"There have recently even been calls for investments in new oil and gas projects to be discontinued, particularly in the context of discussions around net-zero targets. This is again wrong."

In regards to net-zero emissions targets, he said OPEC understands the move of many developed nations, and a number of developing nations have set them too. In fact, some OPEC Member Countries, including Nigeria, have made political pledges on net zero.

However, he noted, "it is important to appreciate the massive challenges for developing countries to reach net zero emissions, many of which are acutely focused on priorities such as energy access, living wages, and supplying basic necessities."

In reiterating a point he made on his CERAWeek panel session, he said: "We need to continually keep in mind that access to affordable, reliable, sustainable and modern energy, is a right for all, not a privilege of the few, and is enshrined by the UN in SDG 7."

When considering the scale of the energy transition, said Barkindo, we must harness all available energies. "In terms of providing reliable and secure supplies, and from the perspective of reducing emissions, the oil and gas industries have much to offer.

"This includes some of the world's most cutting-edge technologies and advanced innovations, which can all be leveraged to promote a lower carbon future. From the perspective of science and innovation, we believe technologies such as carbon capture, utilization and storage (CCUS), hydrogen and other technologies are viable options for reducing the carbon footprint."

He also highlighted that energy efficiency programmes will also be vital, such as the Circular Carbon Economy, with its four 'Rs' — reduce, reuse, recycle and remove — that can provide a balanced and inclusive solution for dealing with greenhouse gas emissions.

In looking ahead, Barkindo stressed that there is no 'one size fits all' solution to reducing emissions, and ensuring energy security and energy affordability. "Different countries around the world have varying capabilities and diverse needs, particularly in relation to equity, historical responsibility and the principle of common but differentiated responsibilities and respective capabilities. Thus, reducing emissions has many paths, as set out by the Intergovernmental Panel on Climate Change (IPCC), and we must consider all of them as viable options."

From market meltdown to gradual rebound:

A COVID-19 timeline

The OPEC Bulletin *takes a look at some of the significant dates and events that have influenced the oil market in the tumultuous two years since COVID-19 was declared a pandemic.*

2020

March 11

The World Health Organization (WHO) for the first time characterizes COVID-19 as a 'pandemic', with Director-General, Dr Tedros Adhanom Ghebreyesus, calling for "urgent and aggressive action" to contain the virus. Total worldwide cases stand at 118,319 with 4,292 deaths reported.

March 16

Host country Austria institutes strict lockdown measures and the OPEC Secretariat shifts to home office for most employees and meetings are held by video link. In less than a month since Austria's first COVID-19 case was reported, the number of reported cases reaches 14,370 with 393 deaths recorded.

March 16

Mohammad Sanusi Barkindo, OPEC Secretary General, and Dr Fatih Birol, International Energy Agency (IEA) Executive Director, speak by phone to review the current situation in global oil markets. In a joint statement, they noted that COVID-19 "is already a grave and unprecedented global health crisis with potentially far-reaching economic and social consequences." They also underscore the importance of market stability and "to minimize the impact of the current situation on vulnerable developing countries.

March 26

WHO Director-General Tedros addresses the Extraordinary G20 Summit on COVID-19, chaired by HH King Salman Bin Abdul Aziz Al-Saud of Saudi Arabia, and calls on G20 leaders to "fight, unite, and ignite" against COVID-19. The G20 leaders declare they are "committed to do whatever it takes to overcome the pandemic."

April 9

The 9th (Extraordinary) OPEC-non-OPEC Ministerial Meeting (ONOMM) takes place by videoconference under the chairmanship of HRH Prince Abdul Aziz Bin Salman Al Saud, Saudi Arabia's Minister of Energy, and co-Chair Alexander Novak, Minister of Energy of the Russian Federation. The Ministers reaffirm their continued commitment in the 'Declaration of Cooperation' (DoC) to achieve and sustain a stable oil market. Argentina, Colombia, Ecuador, Egypt, Indonesia, Norway, Trinidad and Tobago and the International Energy Forum (IEF) participate as observers.

April 10

An Extraordinary G20 Energy Ministers meeting takes place under the Presidency of Saudi Arabia. The Ministers collectively endorse immediate measures to stabilize the energy market in response to the pandemic. In remarks to the videoconference, Barkindo tells the Ministers: "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." The G20 Ministers agree "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."

April 11

The African Petroleum Producers' Organization (APPO), in a statement on the 9th (Extraordinary) ONOMM and the G20 Energy Ministers meeting, commends participants "for the commitment they demonstrated to finding a solution to a problem that would have had serious repercussions to the global economy both now and in the medium and long terms."

April 12

The OPEC and non-OPEC participating countries in the DoC usher in the largest stabilization effort in oil market history. The voluntary production adjustments, totalling 9.7 million barrels/day (m b/d) for two months, followed by gradual reductions in the adjustment levels over two years, are unparalleled in scope and duration. Some OPEC Member Countries — led by Saudi Arabia, the United Arab Emirates, Kuwait — along with Oman offer additional voluntary adjustments, totalling around 1.2m b/d. These contributions further reduce the risk of stocks reaching tank tops and offer fresh reassurance and confidence to the market.

April 16

In a statement to the Intergovernmental Group of Twenty Four (G-24) Meeting of Ministers and Governors, Barkindo says: "Given the current global crisis brought on by the COVID-19 pandemic, the need for international coordination has become ever more apparent. OPEC reiterates its commitment to spearhead the joint efforts in re-establishing healthy oil market fundamentals and restoring balance to the oil market in support of the global economy."

April 17

The OPEC Secretariat holds the first in a series of briefings to review the outcomes of the 9th and 10th ONOM Meetings. Over the next month, the Secretariat holds an additional 14 virtual briefings with an array of energy stakeholders. Discussions cover topics such as the global economy, world oil demand contraction, storage capacity and constraints, the oil market rebalancing process, future cooperation among producers and prospects for a recovery and return to a "new normal".

April 20

The West Texas Intermediate (WTI) contract for May nosedives into negative territory for the first time ever, hitting nearly –$38/barrel, before recovering. The day becomes know as 'Black Monday' for the oil industry.

June 6

In his opening remarks to the 179th Meeting of the OPEC Conference, Mohamed Arkab, Algeria's Minister of Energy and President of the OPEC Conference for 2020, notes that this "is the first time the OPEC Conference has ever held a meeting via videoconference — a vivid reminder of how far the global COVID-19 pandemic has altered almost every aspect of daily life. Our world has been transformed in a very short space of time, and much has transpired since the last meeting of the Conference." He concludes with

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a reference to OPEC's forthcoming 60th Anniversary. "Despite the many changes for the industry and the world over these six decades, one thing has remained constant: the Organization's abiding commitment to both oil market stability and the principle of cooperation among nations that lies at the heart of the international community."

July 1

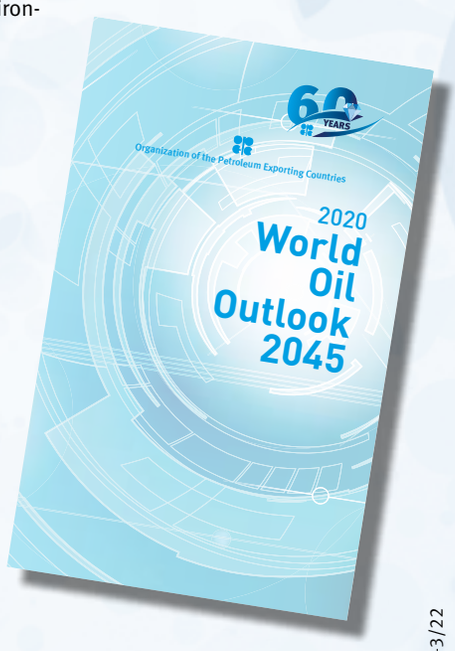
With the summer travel season under way in the northern hemisphere, the International Air Transport Association (IATA) reports that global passenger demand fell 98.3 per cent in May compared to May 2019, and 98.4 per cent in April. Domestic traffic fell 79.2 per cent in May, compared to an 86.2 per cent decline the previous month. Alexandre de Juniac, IATA's Director General and CEO, warns "there is tremendous uncertainty about what impact a resurgence of new COVID-19 cases in key markets could have." The grounding of airlines globally slams oil demand, with OPEC figures showing that the share of the aviation sector in total oil demand in 2019 was approximately eight per cent.

September 14

OPEC marks the Diamond Anniversary of its founding in Baghdad with a tribute to the five Founder Members of OPEC: IR Iran, Iraq, Kuwait, Saudi Arabia and Venezuela. With celebrations at Baghdad's newly renovated Al-Shaab Hall postponed due to the pandemic, Barkindo said: "What is clear today is that what was set in motion has stood the test of time; OPEC still has the same core objectives, of order and stability in global oil markets. But its role has also broadened considerably, in terms of deeper cooperation with other producers, dialogue with a host of industry stakeholders, and an embrace of human concerns such as sustainable development, the environment and energy poverty eradication."

October 8

The launch of the 2020 edition of the *World Oil Outlook (WOO)* takes place by videoconference and is widely attended by journalists, analysts and other leading energy industry stakeholders. This 14th edition of the *WOO* includes the OPEC Secretariat's in-depth look at the unprecedented scale and impact of the COVID-19 pandemic on the global energy and oil markets. "In a year without precedent, we are very proud to bring you this exceptional edition of the WOO with the hope that it



enriches the global energy dialogue and inspires closer cooperation," the Secretary General said. "As we turn an important page in our history, OPEC's commitment to securing an efficient, economic and steady supply of oil to consuming countries, and providing essential support to the global economy, is as unshakable today as it was when the Organization was founded 60 years ago."

October 27

OPEC hosts the 14th High-Level Energy Dialogue with the European Union (EU), with the OPEC delegation led by Barkindo and Kadri Simson, Energy Commissioner, heading the EU delegation. Both parties stress the key importance of the open exchanges between OPEC and the EU, especially in times of unprecedented developments in the energy markets coupled with the ongoing COVID-19 pandemic. They reaffirm the importance of dialogue for both parties.

November 25

OPEC's think tank, the Economic Commission Board (ECB), holds its 134th meeting via video link. Secretary General Barkindo opens the meeting by addressing the impact of the COVID-19 pandemic and points out the positive development that vaccines could soon become available to the global population. He also commends OPEC's decisive actions and achievements through the DoC, adding: "All of our efforts, including by far the deepest supply adjustments ever made, have led to the greatest stabilization commitment in oil market history, both in magnitude and duration."

December 3

The 12th ONOMM announces the gradual return 2m b/d, giving consideration to market conditions. Furthermore, the decision is made to hold monthly ONOMMs starting in January 2021 to assess market conditions and decide on production adjustments for the following month, with further monthly adjustments being no more than 500,000 b/d.

December 7

The 4th High-level Meeting of the OPEC-China Energy Dialogue takes place by videoconference, co-chaired by Zhang Jianhua, Administrator of China's National Energy Administration, and OPEC Secretary General

Barkindo. Wang Qun, Ambassador of the Permanent Mission of China to the UN and Other International Organizations in Vienna, also participates. Barkindo provides an overview of the actions taken by OPEC and the DoC participating countries in response to the unprecedented oil demand contraction due to the COVID-19 pandemic, noting that these actions have been pivotal in preventing further volatility in an industry vital to the global economy.

December 17

Austria announces more stringent lockdown measures to take effect after the Christmas holidays, joining other European countries in re-introducing new measures to combat COVID-19 even as the first vaccines start to become available to the general public.

2021

January 4/5

The 13th ONOMM "highlighted the unprecedented events of 2020 and shocking impact of the COVID-19 pandemic on the world economy and markets, and commended the DoC participating countries for undertaking the largest and longest crude oil production adjustments in history in response to the exceptional challenges and market conditions caused by the pandemic." The Meeting also acknowledges the need to gradually return 2m b/d to the market, with the pace being determined according to market conditions.

January 5

Saudi Arabia announces an additional voluntary adjustment of 1m b/d for February and March. "We do that willingly and we do that with the purpose of supporting our economy, the economies of our friends and colleagues in the OPEC+ countries, for the betterment of the industry at all levels," HRH Prince Abdul Aziz bin Salman Al Saud, Saudi Arabia's Minister of Energy and Chairman of the 13th ONOMM, told journalists and analysts attending the first ONOMM news conference of the year.

January 22

With efforts under way to support COVAX, the global initiative to supply COVID-19 vaccines to all countries, WHO Director-General Tedros says: "The urgent and equitable rollout of vaccines is not just a moral imperative, it is also a health security, strategic and economic imperative."

February 3

The DoC's Joint Ministerial Monitoring Committee (JMMC) names Timipre Sylva, the Minister of State for Petroleum Resources of Nigeria, as Special Envoy to Congo, Equatorial Guinea, Gabon and South Sudan. In this role, Sylva is to discuss matters pertaining to conformity levels with the voluntary production adjustments and explore how countries participating in the DoC can collectively support and assist each other in achieving full conformity.

February 24

In a sign of the lingering impact of COVID-19, OPEC announces it is postponing its 8th International Seminar to June 2022 from June 2021. "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," OPEC's Secretary General said. "Though this was not an easy decision to make, our utmost priority is the safety and health of all participants."

March 11

The world marks the first anniversary of WHO's designation of COVID-19 as a pandemic. The latest WHO figures show a cumulative 116.7 million confirmed cases and 2.6m deaths globally.

March 24

In a sign of the wide-ranging impact of the pandemic, the International Olympic Committee postpones the Tokyo 2020 Olympic and Paralympic Games until the summer of 2021. Many other leading sporting events, as well as key oil industry meetings, are also rescheduled due to the pandemic.

April 1

Nearly one year after the historic production adjustments announced at the 10th ONOMM, the 15th ONOMM approves new voluntary adjustment levels for May, June and July 2021. The Ministers said "the improvements in the market supported by global vaccination programmes and stimulus packages in key economies" support the decision. But they note that "the volatility observed in recent weeks warrants a continued cautious and vigilant approach in monitoring market developments."

April 6

Speaking to the Texas Independent Producers & Royalty Owners Association, Occidental Petroleum Corp CEO, Vicki Hollub, recognizes the DoC participating countries' dedicated efforts to address the 2020 market collapse. "They've been brilliant in the way they've handled it, the way they've been doing it," she says in remarks picked up by news media.

June 1

At their sixth meeting of the year and 17th since the start of the landmark DoC in December 2016, Ministers note "the ongoing strengthening of market fundamentals, with oil demand showing clear signs of improvement and OECD stocks falling as the economic recovery continued in most parts of the world as vaccination programmes accelerated."

June 2

OPEC, along with the African Energy Commission (AFREC), the African Petroleum Producers' Organization (APPO) and African Refiners and Distributors Association (ARDA), hold the inaugural OPEC-Africa Energy Dialogue to discuss, among other key issues, the pandemic's impact on the oil market and to promote continent-wide energy cooperation initiatives. The meeting culminates more than two years of work to expand dialogue, technical cooperation and enhanced research on the continent's promising energy future.

July 12

Nigeria celebrates its 50th Anniversary as an OPEC Member Country. "Over the course of the five decades of OPEC Membership, Nigeria has been a constructive partner, seeking consensus, and always encouraging compromise," Secretary General Barkindo says of this golden milestone.

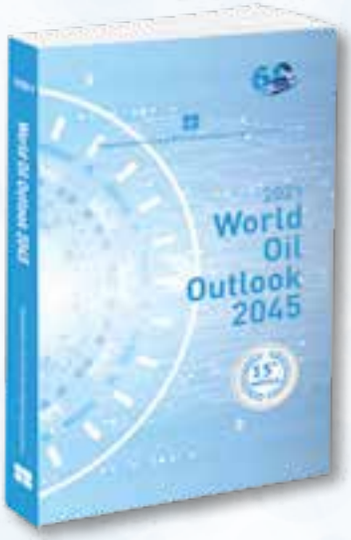
July 18

Marking a significant moment in the COVID-19 recovery efforts, the 19th ONOMM announces the upward adjustment of the participating countries' overall production by 400,000 b/d on a monthly basis starting in August 2021. Ministers will also continue to hold monthly meetings to assess market developments and participating countries' performances. In addition, the Ministers extend the decisions of the 10th ONOMM of April 2020 until the end of 2022.

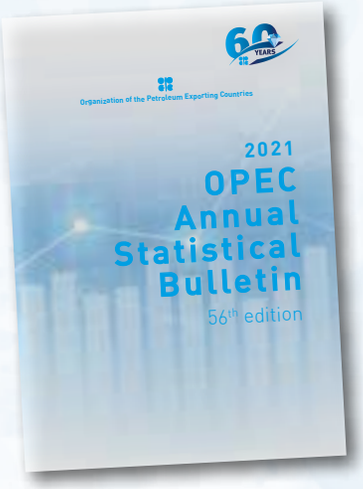
September 14

OPEC marks the 61st Anniversary of its founding. In reflecting on this milestone, Barkindo said: "The world has changed in unimaginable ways since 1960. The challenges our Member Countries faced in 1960 are very different to those of today. However, throughout all the seismic events of the last 61 years, OPEC's commitment to international cooperation, dialogue and taking responsible action in the interests of oil producers, consumers and the global economy has been unwavering."

September 28



With its ongoing analysis of the impacts of the COVID-19 pandemic, as well as medium- and long-term forecasts for the global oil and energy industry, the 15th edition of the *WOO* is released with a large global audience attending the remote launch. "The COVID-19 pandemic has continued to upend the world, with the spread of new variants, particularly the Delta one, and many countries and regions today still face some form of lockdowns and restrictions on mobility," Secretary General Barkindo said in launching the *WOO*. Nonetheless, he says, it is clear "that the vaccination rollout in 2021, alongside huge fiscal and infrastructure packages totalling around $24 trillion, has put the global economy on the road to recovery." Hardeep Singh Puri, India's Minister of Petroleum and Natural Gas and Minister of Housing and Urban Affairs, and Professor Thomas Lindner from the Executive Academy of the Vienna University of Economics and Business (WU), also present remarks at the ceremony.



September 30

OPEC releases the 56th edition of its flagship *Annual Statistical Bulletin (ASB)* at a special live-streamed event attended by Barkindo; Lindner from the WU, sponsor of the launch event; as well as OPEC officials and members of Secretariat management. The ASB captures the wide-ranging industry impacts of the COVID-19 pandemic, Barkindo noted, adding: "This global health crisis has had massive implications for OPEC's Member Countries and the entire industry value chain, which are still in various stages of recovery. These trends are captured in the *ASB's* extensive time-series data, which will provide industry leaders and analysts alike with valuable input as to the future prospects for the industry."

October 1

Expo 2020 Dubai opens its doors to the world following a spectacular ceremony to kick off the first international exposition ever held in the Middle East, Africa and South Asia region. The opening of the 182-country event marks a milestone for the United Arab Emirates in its Golden Jubilee year. The Expo symbolizes the hope for a strong global recovery from the COVID-19 pandemic and a more resilient, interconnected future.

October 4

Thirteen university students are part of the first Vienna Energy Scholar Programme (VESP) held under the auspices of the OPEC Academy. The week-long VESP is the first in-person event held at OPEC since the onset of the COVID-19 pandemic. The students and an OPEC delegation were gracefully welcomed for an evening reception on October 6 at the spectacular Vienna City Hall, where Mayor Michael Ludwig and Barkindo address the audience, which includes Abdulhamid Alkhalifa, Director-General of the OPEC Fund.

October 14

The 8th High-level Meeting of the OPEC-Russia Energy Dialogue takes place in Moscow on the sidelines of Russian Energy Week, co-chaired by Deputy Prime Minister of Russia, Alexander Novak, and Secretary General Barkindo. The meeting provides a platform to discuss oil market developments, DoC and 'Charter of Cooperation' (CoC) processes, as well as to exchange insights on the short-, medium- and long-term prospects for the energy sector.

October 29

The 5th High-Level Meeting of the OPEC-India Energy Dialogue takes place via videoconference, chaired by India's Minister Puri and Barkindo. The second meeting in this dialogue series since the start of the pandemic focuses on a number of key areas, including the impact of COVID-19 on global energy markets, the post-COVID energy recovery in India, the overall energy market outlook and the ongoing efforts to support sustainable oil market stability.


October 29

October 31

Delayed for a year because of the pandemic, the 26th Conference of Parties (COP) opens in Glasgow, Scotland, and runs for 14 days with delegates from OPEC, including the Secretary General and OPEC Member Country dignitaries, taking part in the negotiations.

October 31

Reuters


November 10

November 10

Barkindo tells COP26 in Glasgow: "The delicate balance between reducing emissions, energy affordability and security requires comprehensive and sustainable policies, with all voices being heard, and listened to. Focusing on only one of these over the others can lead to unintended consequences; market distortions, heightened volatility and energy shortfalls. We need to ensure energy is available and affordable for all; we need to move towards a more inclusive, fair and equitable world in which every person has access to energy, aligned with SDG 7; and we need to reduce emissions."

November 22

Amid surging new infections that are overwhelming the national health system, OPEC host country Austria announces its fourth strict lockdown since the pandemic began for a period of 20 days. The government also introduces an unprecedented mandatory vaccination programme for all citizens starting in February 2022. Many OPEC Secretariat employees continue to work from home and many meetings, including the OPEC Conference, continue to be held by videoconference.

November 28

The WHO designates the newly discovered Omicron strain of COVID-19 as "a variant of concern" amid reports of its rapid spread and the introduction of strict countermeasures in a number of countries. The discovery of Omicron triggers momentary volatility in both equity and commodity markets.

December 1

Addressing the 182nd Meeting of the OPEC Conference, Dr Diamantino Pedro Azevedo, Angola's Minister of Mineral Resources and Petroleum and Conference President, tells fellow Ministers: "In these uncertain times, it is imperative that we — together with the non-OPEC countries in the DoC — remain prudent in our approach and prepared to be proactive as market conditions warrant. We need to remain united, focused and ready to adapt to any changing market dynamics, as we have always done in the five-year history of the DoC, to ensure market balance, a sustainable stability, and to support growth and investments in the months and years ahead."

December 2

The 23rd ONOMM reconfirms the production adjustment plan and the monthly production adjustment mechanism approved in July to adjust upward the monthly overall production by 400,000 b/d for the month of January 2022. But amid growing concern about the Omicron spread, the Ministers announce that the meeting will "remain in session pending further developments of the pandemic and continue to monitor the market closely and make immediate adjustments if required.

December 29

With a new year approaching, the WHO warns that the risk associated with the rapidly spreading Omicron "remains very high" as a number of countries, including those with high vaccination rates, set new records for infections. WHO's Director-General expresses concern about the potential for "a tsunami of cases" resulting from the combined threat posed by the Omicron and Delta variants.

2022

January 3

A Special Meeting of the OPEC Conference appoints Haitham Al-Ghais of Kuwait as Secretary General of the Organization, starting from August 1, 2022. In media interviews, the former OPEC Governor and first Chairman of the Joint Technical Committee (JTC) stresses the important roles of the DoC and the CoC in underpinning ongoing efforts to support sustainable oil market stability, as well as broader market issues.

January 4

With a new year fresh on the calendar, the 24th ONOMM rolls over the voluntary production adjustment plan aimed at sustaining market balance and supporting the global economic recovery, with Ministers deciding to adjust upward the monthly overall production by 400,000 b/d for February 2022. This continues the monthly production adjustment mechanism adopted at the 19th ONOMM six months earlier.

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January 5

A year after vaccination efforts began in earnest, the WHO reports that 9.1 billion doses have been administered globally, with 3.9 billion people classified as fully vaccinated.

January 6

A post-Christmas holiday explosion in COVID-19 infections prompts Austria's government to tighten restrictions once again, including the introduction of a face mask mandate in busy outdoor areas and encouraging employees to work from home whenever possible. Austria's first case of COVID-19 was recorded nearly two years earlier, on February 26, 2020.

January 18

In its first edition of the new year, OPEC's *Monthly Oil Market Report (MOMR)* sees world oil demand growing by 4.2m b/d in 2022, with global consumption averaging 100.8m b/d for the year. Demand is expected to grow by 1.8m b/d in the OECD and 2.3m b/d in the non-OECD. "While the impact of the Omicron variant is projected to be mild and short-lived, uncertainties remain regarding new variants and renewed mobility restrictions amid an otherwise steady global economic recovery," the *MOMR* says.

February 2

The 25th ONOMM upwardly adjusts monthly overall oil production by 400,000 b/d for March 2022.

February 28

Global vaccination trackers show that the UAE and non-OPEC DoC participant Brunei Darussalam had the world's highest reported vaccination rates. In the UAE, at least 97 per cent of people were fully vaccinated and in Brunei, 93 per cent. Globally, 57 percent of people were classified as fully vaccinated. Both countries also exceeded the world average for boosters.

March 1

As the JTC meets for the 60th time, OPEC data show that world oil demand growth in 2021 stood at 5.7m b/d to average 96.6m b/d, driven in part by better-than-anticipated transportation fuel consumption in advanced economies. For 2022, the data shows world oil demand growth of 4.2m b/d, with total global average consumption of 100.8m b/d for the year, topping pre-pandemic levels. In his remarks to the JTC, the Secretary General commended the DoC producers for their contributions to advancing the economic recovery in the wake of the pandemic. "This highly effective framework for multilateral energy cooperation has repeatedly risen to the needs of the global oil industry in times of crisis, again coming to the rescue in 2020 as the world was confronted with the COVID-19 global pandemic," he said. "Their swift and noble response helped restore stability in the oil market and thereby accelerate the global economic recovery." Noting that the impacts of Omicron had been muted, he did caution against the development

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of new and unknown variants. "While the impacts of the Omicron variant have to-date proven to be minimal overall and seem to be slowly dissipating, uncertainties remain regarding the potential development of new variants, which could pose further challenges related to renewed mobility restrictions, albeit at a lesser magnitude."

March 2

In keeping with the July 2021 adjustment roadmap, the 26th ONOMM upwardly adjusts monthly overall oil production by 400,000 b/d for April 2022. In a statement, the Ministers "noted that current oil market fundamentals and the consensus on its outlook pointed to a well-balanced market, and that current volatility is not caused by changes in market fundamentals but by current geopolitical developments."

March 11

The world marks the second anniversary of the WHO's designation of COVID-19 as a pandemic.

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Oil will continue to play a role in a low-carbon world

The following essay was published in 'The 2022 Global Energy Agenda' from the Atlantic Council Global Energy Center (ACGEC). Now in its second edition, the 'Global Energy Agenda' is the ACGEC's annual flagship publication that seeks to set the energy agenda for the coming year. Through the publication, ACGEC surveys global energy leaders on key energy and climate-related issues to elicit their expert views on the latest trends and where the world of energy might be moving. The ACGEC's mission, as stated on its website, is to 'promote energy security by working alongside government, industry, civil society, and public stakeholders to devise pragmatic solutions to the geopolitical, sustainability and economic challenges of the changing global energy landscape.' The Secretary General's contribution to this year's publication, which follows, centres on the COP26 meeting and its outcomes, with a focus on the need for a fair and equitable approach to mitigating climate change and navigating the energy transition.

By Mohammad Sanusi Barkindo, OPEC Secretary General

Looking back at the COP26 meeting in Glasgow, Scotland, while negotiations were tense at times, there were also positive outcomes: for example, the US is back at the head of the multilateral table, all Parties reiterated their commitment to the implementation and full operationalization of the Paris Agreement and the Glasgow Climate Pact was announced.

This was all encouraging, given the pressing need to reduce global emissions, alleviate energy poverty, counter the impacts of the COVID-19 pandemic and find a sustainable way forward that leaves no country, industry or peoples behind.

However, the event also underlined that the discourse around energy, climate and sustainable development continues to be extremely emotive with some voices all but excluded, including many from the oil industry. At times, it can feel like rational discussions based on facts, hard data and science have taken a back seat.

The parameters of the public discourse around the energy transition seem reduced to the question: are you for or against fossil fuels? It is perhaps the ultimate false dichotomy.

It erroneously constrains what options are avail-able. It should not be a question about one or the other. The complexity of the challenge calls for an inclusive approach, not the pursuit of a single 'one size fits all' panacea.

We appreciate and fully understand the move of many developed nations to set net-zero emissions targets.

In fact, some developing nations have too. Some OPEC Member Countries — Nigeria, Saudi Arabia and the United Arab Emirates — have made political pledges on net zero.

However, it is important to appreciate the massive challenges for developing countries to reach net zero emissions, many of which are acutely focused on priorities such as energy access, living wages and supplying basic necessities.

Enormous challenges ahead

The challenges before us are enormous and complex. We have been delivered a stark reminder of this with the recent strains and conflicts related to energy affordability, energy security and the need to reduce emissions playing out in regions across the world at the end of 2021.

Focusing on only one of these issues, while ignoring the others, can lead to unintended consequences, such as market distortions, heightened price volatility and energy shortfalls.

It requires a delicate balancing act, comprehensive and sustainable solutions, and all voices at the table. It is an energy sustainability trilemma, with each piece of the jigsaw having to fit together.

We need to ensure energy is affordable for all; we need to transition to a more inclusive, fair and equitable world in which every person has access to energy as referenced in UN Sustainable Development Goal 7; and we need to reduce emissions. Oil has a role to play in each part.

It will be required to meet the expected huge increase in energy demand. In OPEC's *World Oil Outlook (WOO)* 2021, global energy demand is set to expand by 28 per cent by 2045. This will require the use of all forms of energy to support the post-pandemic recovery, drive the energy transition and address long-term energy needs.

Investments

We see oil still making up 28 per cent of the world's energy needs by 2045. This will require huge investments in the global oil upstream, midstream and downstream sectors, with the WOO showing that investments of $11.8 trillion will be required between now and 2045. OPEC Member Countries remain committed to investments to ensure supply meets the demand of their customers.

From the perspective of the developing world, if billions of people who suffer from a lack of energy access feel they are excluded from tapping into 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 South. Nobody should be left behind in the energy transition.

In terms of tackling climate change and reducing emissions, we fully believe that the oil industry can be part of the solution. The history of the oil industry from its very early beginnings has been one of innovation, of providing solutions to the most intractable of challenges.

We have no doubt that the resources and expertise of the oil industry can be harnessed again to help develop cleaner and more efficient technological solutions, contributing to a reduction of emissions as part of unlocking a low-emissions future. For example, carbon capture utilization and storage, including direct air capture, blue hydrogen and other technologies, can be leveraged — along with the promotion of the Circular Carbon Economy — to improve overall environmental performance.

OPEC is ready, willing and able to play a key role. As we have seen through the prism of recent events, any talk of the oil industry being consigned to the past — as well as talk of halting new investments in oil and gas — is misguided.

We need to follow all the right transition paths and appreciate there is not just one path for all. We need to connect all aspects of the energy sustainability trilemma.

Our energy future is not about 'them' or 'us'. It has to be about 'we'. This needs to be the focus as we approach the coming years and talks lead us to COP27 in Egypt in November 2022, and then to COP28 in OPEC Member Country, the United Arab Emirates, in 2023.

OPEC Secretary General addresses Austrian Diplomatic Academy

Since assuming the position of OPEC Secretary General in August 2016, ***Mohammad Sanusi Barkindo****, has prioritized reaching out and communicating with young people in his many speaking engagements. This has included the convening of youth-focused events at international conferences, arranging special participation for young people at the OPEC International Seminars and other initiatives. As part of this outreach, the Secretary General spoke to students at the prestigious Diplomatic Academy of Vienna (DA), which was an opportunity to generate ideas with the next generation of diplomats. The* OPEC Bulletin *files this report.*

Former neighbours: OPEC and the DA

The Secretary General was introduced by Ambassador Emil Brix, Director of the Vienna School of International Studies. Ambassador Brix invited Mohammad Sanusi Barkindo to address some of the most salient themes affecting the oil market today, as well as OPEC's views on the energy transition. He noted that public attention on OPEC has increased, especially as a result of the OPEC-non-OPEC 'Declaration of Cooperation' (DoC).

The Secretary General began his public lecture by focusing on the shared history and overlapping experiences of the Diplomatic Academy and OPEC. "Standing in these hallowed chambers, one cannot help but feel a sense of history … The Academy has fostered strong relations with the community of International Organizations in Vienna, including OPEC. These bonds have been an important component in the regular liaison between OPEC and Austria's Ministry of International and European Affairs. Indeed, there are many ways in which the history of the Vienna School of International Studies and OPEC intersect," he said.

Barkindo noted the physical proximity of the DA to OPEC's first residence. "Just 200 metres from where I am

OPEC Secretary General, Mohammad Sanusi Barkindo, with Ambassador Emil Brix, Director of the Vienna School of International Studies.

currently standing is Möllwaldplatz 5. This was the first-ever home for the OPEC Secretariat when we moved to Vienna in 1965. OPEC resided in these premises between September 1, 1965 and January 31, 1967," he said.

1965: A significant year

The Secretary General emphasized the importance of the year 1965 in the DA and OPEC's respective histories. On January 11, 1965, following extensive repairs, the Consular Wing of the Theresianum, which had been damaged during the Second World War, welcomed the first contingent of students in the diploma programme in the Diplomatic Academy of Vienna. Austria's then Foreign Minister, Dr Bruno Kreisky, had signed the document establishing the new Diplomatic Academy on June 1, 1964. Kreisky would also sign on September 1, 1965, the 'Headquarters Agreement' between Austria and OPEC, along with OPEC's then Secretary General, Dr Ashraf Lutfi.

For OPEC, the decision to move to Vienna proved a judicious one. The Organization obtained an immense level of legitimacy through its Headquarters Agreement with Austria. Almost immediately, OPEC became more involved with the UN through the Economic and Social Council (ECOSOC) and UNCTAD. OPEC formalized relations with the ECOSOC under Resolution 1053, adopted on July 30, 1965. OPEC also became intensively involved with UNCTAD after 1965.

In reflecting on this shared history, the Secretary General stated: "Let me underscore that we are proud of our friendship with Vienna and Austria, proud of our role in the multilateral system and international energy community. This friendship has been sustained and fostered by successive generations of Austrian diplomats, the majority of whom honed their skills and trained here at the DA."

OPEC and the energy transition

The Secretary General focused the second half of his remarks on the great challenges of climate change and sustainable development.

"At the outset, permit me to stress a point: there are no climate change deniers at OPEC. As an Intergovernmental Organization composed exclusively

of developing countries, our Member Countries will be among the worst impacted by climate change. The Organization has a long history of supporting environmental issues and sustainable development, with the declaration of the Third Summit of Heads of State and Government of OPEC Member Countries in Saudi Arabia in 2007, recognizing not only the importance of stability of global energy markets, but the need to utilize energy for sustainable development and energy and the environment, putting OPEC well ahead of its time," he said.

He continued by stressing OPEC's long history in being involved with multilateral efforts to address climate change.

"OPEC and its Member Countries have also been directly involved in the evolution of the United Nations Framework Convention on Climate Change (UNFCCC), whose core elements particularly equity, historical responsibility and national circumstances must remain central to all processes moving forward. The Organization has been there every step of the way — from the UN Intergovernmental Negotiating Committee in 1990, which produced the framework convention on climate change, to the Rio Earth Summit in 1992; from the first Conference of the Parties (COP1) to the UNFCCC in Berlin in 1995; to the Kyoto Protocol in 1997 and the Paris Agreement in 2015, to COP26 in Glasgow in 2021. We are also delighted that COP28 will be hosted by our Member Country, the United Arab Emirates in 2023," Barkindo stated.

"The oil and gas industry can foster its resources and expertise and help unlock our emissions-free future through its role as a powerful innovator in developing cleaner and more efficient technological solutions to help reduce emissions."

Mohammad Sanusi Barkindo, OPEC Secretary General

Need for comprehensive solution

Barkindo provided a summary of OPEC's views on climate discussions.

"OPEC is pro-science. OPEC is pro-data driven analysis. OPEC is pro-multilateralism. OPEC believes that a challenge of this scope requires a comprehensive solution. There is no silver bullet or panacea that can solve the climate issue on its own. No-one should be left behind. All voices need to be heard, and listened to. We all share this planet. We need multilateralism at the centre of our energy, climate and sustainable development future," Barkindo stated.

Barkindo continued by saying, "This is not a race to renewables alone. Rather it is a race to reduce greenhouse gas emissions and in doing so, use energy more efficiently. The oil and gas industry can foster its resources and expertise and help unlock our emissions-free future through its role as a powerful innovator in developing cleaner and more efficient technological solutions to help reduce emissions," he asserted. Examples he touted in this regard included carbon capture utilization and storage (CCUS), as well the promotion of the Circular Carbon Economy.

Barkindo emphasized the fact that the capacities and national circumstances of developing countries must be taken into account in all actions. In order to not render countries already struggling even more besieged, it is necessary to carefully consider the adverse socio-economic impacts on these countries due

In 1754 the Empress Maria Theresa founded the Oriental Academy to train young men for the diplomatic service of the Habsburg monarchy. Out of the Oriental Academy evolved first the Consular Academy and in 1964 the Vienna School of International Studies, which in 1996 was granted the status of an independent public training institution. The Academy is thus one of the oldest of its kind worldwide.

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OPEC Secretary General, Mohammad Sanusi Barkindo, with Ambassador Emil Brix, Director of the Vienna School of International Studies.

to mitigation activities, in order to identify remediation measures and share best practices. He stressed that sustainable development and climate change are two sides of the same coin.

The Secretary General also noted the conclusions of the *World Oil Outlook*, which showed that global energy demand is set to increase from 275 million barrels of oil equivalent a day in 2020 to 352m boe/d by 2045. No single source of energy can meet this demand growth alone.

"Clearly, multiple forms of energy are required to meet this rise in demand. Oil is forecast to remain the fuel with the largest share of the global energy mix until 2045. Primary oil demand is set to increase in the long-term from 83m boe/d in 2020 to 99m boe/d in 2045. In 2020, oil accounted for 30 per cent of global energy requirements," he stated.

Barkindo highlighted the pressure on the financial community to divest from oil and gas despite the urgent need for investments in the industry to meet the demand needs of the future. He outlined the role of the DoC as a volatility-fighting toolkit aimed at improving the investment climate of the industry.

In concluding his remarks, the Secretary General appealed to the students of the DA to not rule out a career in the oil industry. He described how there were multiple pathways for a fulfilling career in the oil sector. The talent and skills of the next generation can help improve the oil industry. Finally, he quoted the famous academic song, Gaudeamus igitur, sung by generations of DA students on their graduation day:

Vivat Academia,
Vivant Professores,
Vivat membrum quodlibet,
Vivant membra quaelibet,
Semper sint in flore!

The lose translation of this Latin version is:

Long live the academy!
Long live the professors!
Long live each student;
Long live the whole fraternity;
Forever may they flourish!

Informative question and answer session

The Secretary General then took some questions from the floor. They included questions and insights on the evolving nature of the oil industry since OPEC's founding in 1960; the use of CCUS technologies; the cost of living situation in Europe; mitigation efforts and the future of the energy industry landscape. In his responses, HE Barkindo repeatedly emphasized the need for a comprehensive solution to climate challenge.

"We cannot address this issue in 'bits and pieces,'" he stressed.

Overall, the public lecture was a good opportunity for OPEC to disseminate its key messages and counter some of the prevailing narratives on the energy transition. Future cooperation with the Diplomatic Academy has great potential.

Symposium on Energy Outlooks provides important forum for exchange

The 12th IEA-IEF-OPEC Symposium on Energy Outlooks, held on February 16, brought together leaders from the three institutions, along with energy ministers and other high-level guests to present and compare outlooks prepared by the International Energy Agency (IEA), OPEC and other governmental organizations and stakeholders.

By Maureen MacNeill

Dr Ayed S Al-Qahtani, Director of OPEC's Research Division.

The Director of OPEC's Research Division (DRD) Dr Ayed S Al-Qahtani spoke in Riyadh on behalf of OPEC Secretary General, Mohammad Sanusi Barkindo.

He thanked the hosts of the event, in particular HRH Prince Abdulaziz bin Salman Al Saud, Minister of Energy of Saudi Arabia for "holding this very important and unique forum for consumer-producer dialogue.

"To our partners, Joseph McMonigle, Secretary General of the International Energy Forum (IEF) and Fatih Birol, Executive Director of the IEA, thank-you for the bonds of friendship and your eager willingness to work together to ensure energy security and energy equality for the entire world. Our deep and meaningful collaboration affects all of the world's citizenry, who rely heavily on us to find solutions to the very substantial problems facing mankind today."

The three organizations — IEA, IEF and OPEC — have been working together on the Symposium for over a dozen years, stated Al-Qahtani, part of a deeper collaboration endorsed by energy ministers at the 12th IEF Ministerial Energy Forum held in Cancun in March 2010.

"We are able to focus more clearly on differences related to shifts in global energy demand and supply patterns, as well as how much our compared energy matrices change over time," he said. "I can say with certitude that market confidence is positively affected when dialogues take place using comparable data and transparent methodologies in deriving the outlooks we will see today."

A secure and sustainable energy future

"The IEA, IEF and OPEC are working together to achieve an orderly energy transition, along with a more secure and sustainable energy future," he added. "Our dialogue supports energy security, while addressing environmental protection and mitigation of climate change and moving economic prosperity forward for all on this planet, including the most deprived."

Al-Qahtani went on to discuss the COVID-19 crisis and recovery, which he described is "like no other we have seen in history."

Two powerful variants over 2021, Delta and Omicron, wore on market confidence and the global economy, he added.

"We have had to remain nimble and flexible in our outlooks to incorporate sudden and dramatic changes."

He quoted the International Monetary Fund, which stated that it is vital to break the hold of the pandemic to address the many difficulties facing the world economy. Uncertainty about the future direction of COVID-19 and increasing debt burdens are major challenges. There are also

"The IEA, IEF and OPEC are working together to achieve an orderly energy transition, along with a more secure and sustainable energy future."

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

geopolitical issues, supply chain breakdowns, gas shortages and a lack of investment exacerbating market volatility, he said.

"From our latest *Monthly Oil Market Report,* we estimated that the global economy will grow at 5.6 per cent in 2021 and at 4.2 per cent in 2022, however, uncertainties surrounding COVID-19 remain. World oil demand is forecast to increase by 5.7 million barrels/day (m b/d) in 2021 and 4.2m b/d in 2022," said Al-Qahtani.

In the medium- and long-term, it is clear that the world will need more energy, he added.

"We expect by 2045, the global economy is estimated to more than double; world population is set to expand to 9.5 billion; and we need to remember that there is huge potential for socio-economic development in terms of expanding access to modern energy services for those billions who continue to go without."

He added OPEC sees global energy demand expanding by at least 28 per cent by 2045.

"The use of all forms of energy will be required to support the post-pandemic recovery, the energy transition and address long-term energy needs."

The DoC: five years of success

Al-Qahtani also discussed the role of the 'Declaration of Cooperation' (DoC) participating countries in guiding the oil market back to stability throughout the pandemic, including meeting each month throughout 2021 and still today.

"Our work under the DoC over the past five years has been the epitome of fairness, transparency and cooperation. From its initiation due to a market downturn in 2014–16, the DoC has proven itself once again to be an invaluable tool in supporting oil market stability in the face of incredible, rapidly changing and unknown odds."

The lodestone of this success has been teamwork, he added, with OPEC joining with an expanding group of consumers, producers, institutions and analysts to ensure that every voice is heard.

"In these times of uncertainty and rapid change, it is all the more necessary to enhance transparency and cooperation further," he concluded.

Secretary General of the IEF, Joseph McMonigle, chaired the event, stating that last October the G20 called on the IEF to intensify dialogue on energy markets considering the growing challenges the world is facing this winter and this spring.

"(We are) using the IEF's neutral platform for dialogue to enhance market stability and make progress towards a just and orderly transition," he said. "Energy market outlooks were for decades the preserve of a small group of experts. But today, they have become a critical component of our understanding of the future for our climate."

On the topic of climate change and the energy transition, he painted a picture of uncertainty.

"Since the Paris Agreement in 2015, climate policy-making has moved into higher gear, and with COP26 in Glasgow, 90 per cent of the worlds GHG emissions are now covered by net-zero commitments. But this is where the certainty ends," he said.

The energy industry is struggling to determine what these changes mean for the long term, and the pathways are uncertain, he added.

McMonigle added that despite the spectacular rise of renewables today and in the future, the reality is that 80 per cent of the world's energy needs continue to be met by fossil fuels, and this number hasn't changed in three decades. However, investment in oil and gas last

Joseph McMonigle (l), Secretary General of the International Energy Forum (IEF); and Dr Fatih Birol, the Executive Director of the IEA.

"Never has the dialogue between energy producers and consumers been more important than today."

Fatih Birol, Executive Director of the IEA.

year was still 23 per cent below levels recorded in 2019 according to an IEF-IHS Markit report.

Energy innovation key

"Investor hesitance on fossil fuel investment is now having real world effects," he stated. "Policymakers must support investment on three fronts simultaneously: low carbon energy sources that are commercially viable today such as wind, solar and nuclear; investment in fossil fuels, on which we rely to maintain market stability; and energy innovation."

He said that technology breakthroughs can close the gaps in energy outlooks and strengthen the market for the benefit of all, however, he added, "we are not moving fast enough. There is no time to waste to get the world on track for a just and orderly transition."

Finally, McMonigle emphasized the critical need for producers and consumers to enhance cooperation and dialogue at all levels to overcome future challenges.

"Intensifying the open dialogue between producers and consumers, aligning outlooks and sharing perspectives are vital to stabilizing global energy markets and supporting a just and orderly transition," he concluded.

The IEA's Fatih Birol commended the OPEC-non-OPEC countries of the 'Declaration of Cooperation' for their ongoing support of the global oil market through their monthly voluntary production adjustments.

Enhancing stakeholder dialogue

He joined his peers in stressing the dire importance of advancing the producer-consumer dialogue as a means to ensuring that the needs of all stakeholders are met.

"Never has the dialogue between energy producers and consumers been more important than today. The energy sector faces a range of challenges related to security, affordability and sustainability — and we must navigate them together if we are to ensure success," he said.

The IEA Executive Director also addressed the issues of climate change and the energy transition, underlining the need for a balanced and collaborative approach.

"I am well aware of the potential challenges this transformation of energy systems may put on economies of producing countries," he said. "It is very important to discuss how this transition can be made in an orderly manner so that on one hand climate targets can be reached, but on the other hand producer economies can be part of the solution, because without their contribution we can't address this issue."

Assessing future energy markets at the 11th Middle East Conference

On February 21–22, 2022, the Valdai Discussion Club hosted its 11th Annual Middle East Conference under the theme 'Russia and the Middle East: Strategic Rapprochement and the Intertwinement of Interests'. OPEC participated in an international panel session that set out to facilitate a discussion on the future energy transition and how the world might achieve a balanced and fair outcome. The* OPEC Bulletin's *Scott Laury filed this report.

Dr Ayed S Al-Qahtani (c), OPEC's Director of Research; with Dr Abderrezak Benyoucef (r), OPEC's Head, Energy Studies Department; and Dr Mohammad Alkazimi (l), Senior Upstream Oil Industry Analyst.

The 11th edition of the Valdai Discussion Club's Middle East Conference was presented with the support of the Institute of Oriental Studies of the Russian Academy of Sciences and featured a two-day programme tackling a wide variety of topics related to global energy affairs. Energy experts from Russia, the European Union and from around the world were invited to attend and share their unique viewpoints.

On day one, OPEC's Director of Research, Dr Ayed S Al-Qahtani, represented OPEC Secretary General, Mohammad Sanusi Barkindo, on a panel session entitled: 'Looking to the future of energy markets: How not to turn the green transition into an energy crisis'.

Joining Dr Al-Qahtani on the panel were Sadad I Al-Husseini, Founder and President, Husseini Energy Company; Carole Nakhle, Founder and Chief Executive Officer, Crystol Energy; Nurislam Syubaev, Deputy General Director for Strategic Development, PJSC TATNEFT; and Denis Derushkin, Deputy General Director of the FGFI REA.

The panel was moderated by Konstantin Simonov, Director General of the National Energy Security Fund and Head of the Politology Department, Faculty of Social Sciences and Mass Communications, Financial University under the Government of the Russian Federation.

Discussions centred on the challenges of adapting to two distinct realities — the first being that fossil fuels will still be required in the medium to long terms to meet rising global demand, while the second is to find balanced and equitable solutions to addressing climate change and reducing emissions that take into consideration the unique needs and circumstances of both developed and developing nations.

Delivering remarks on behalf of the Secretary General, Dr Al-Qahtani commended the hosts on its 11th iteration of the annual Middle East Conference and complimented them on both a timely and relevant programme. He added that these industry events are crucial as a means to bringing together industry stakeholders to exchange viewpoints, share lessons learned and discuss the issues of the day.

"Let me begin by saying that events such as today's Middle East Conference are absolutely essential to advancing multilateral energy dialogue and thereby helping to ensure stability in

the global energy markets," he stated. "And there could be no better living example of multilateral energy collaboration than the landmark OPEC-non-OPEC 'Declaration of Cooperation' (DoC), in which the Russian Federation has played a key leadership role from day one."

Since its inception in 2016, he added, the OPEC-non-OPEC DoC has evolved into a robust framework and a highly effective instrument for the promotion of dialogue and cooperation at all levels and among a diverse range of industry stakeholders.

"It has literally proved to be a 'life-saver' during the various crises this industry has had to navigate over the past five years," he explained. "From the severe downturn that rocked the oil industry between 2014 and 2016 to the latest crisis brought on by the COVID-19 global pandemic, OPEC and its non-OPEC partners of the DoC have been a highly successful force in helping restore stability in the oil market and thereby provide a desperately needed boost to the economy."

Leaders across the industry, he added, have lauded these contributions time and again and have come to rely on the positive effects it provides to the market.

A balanced approach

On the panel session's theme, Dr Al-Qahtani said that a balanced and inclusive approach to climate change will be crucial to avoid unwanted energy crises.

"At OPEC, we are not climate change deniers — all of our Member Countries have signed the Paris Agreement and most of them have ratified it. We believe that emissions must be reduced, however there are many paths to achieve this as evidenced by the IPCC, the UNFCCC and the Paris Agreement. There is simply no one-size-fits-all solution," he said. "OPEC and all our Member Countries are fully-supportive of an energy transition that draws on the strengths of all energy forms, including oil and gas."

He acknowledged that mounting pressure is coming from the international financial community to limit or exclude oil and gas from the energy mix through investment constraints and minimizing access to capital, but said that this is "simply not realistic. In fact, to the contrary, it could cause unwanted volatility in the market."

Referring to OPEC's latest *World Oil Outlook,* he said that global energy demand is forecast to expand by a robust 28 per cent by 2045, and of this, oil is expected to retain the largest share of the energy mix throughout the outlook period, accounting for just over a 28 per cent share in 2045.

Innovation and technology will be key

"We believe that the oil and gas industries possess vital resources and expertise that can help unlock an emission-free future," he said. "Innovation and technology will be key going forward to help provide clean and more efficient technological solutions. We are already seeing great technological advances in areas such as carbon capture, utilization and sequestration, as well as with hydrogen. In addition, we are seeing more and more progress when it comes to energy efficiency measures and the Circular Carbon Economy."

In this regard, he emphasized the fact that many of OPEC's Member Countries have significant investments in solar and wind resources, as well as in hydrogen.

In terms of the energy transition timeline, Dr Al-Qahtani pointed out that if we are realistic, the energy transition is simply not going to happen overnight.

"It is going to take time and patience, especially if it is to occur in an equitable and inclusive manner, where the diverse needs of all of the world's populations are met," he said. "This is about fairness, inclusivity and mutual benefit. Developing countries, which have been harder hit by the COVID-19 pandemic, stand to once again lose out if the energy transition is not undertaken in a measured and responsible manner."

He closed with a call for intensified collaboration among all industry stakeholders around the world, in the spirit of the highly successful DoC, as we enter the next phase of the energy transition. It will take a coordinated approach to ensure it is handled in a responsible manner, he added.

"Finally, looking ahead, I hope to see the continued great flourishing of OPEC and its non-OPEC partners of the DoC, very ably led by Russia, for many years to come. Our joint efforts over the last five years have borne much fruit, and I am confident that there is much more to achieve together!"

The Valdai Discussion Club

The Valdai Discussion Club was founded in 2004 and is named after Lake Valdai, which is located close to Veliky Novgorod, where the Club's inaugural meeting took place.

In its first ten years, the Club's programming and events were focused mainly on informing the world about Russian affairs, but in 2014, it expanded its scope to encompass a wider range of topics, including international relations, global politics, economics, security, energy, sociology, communications and other relevant fields.

According to its website, one of its main objectives is "to promote dialogue among the global intellectual elite in order to find solutions to overcome the crises of the international system."

More than 1,000 academicians from 85 countries have participated in the Club's activities, including professors from major world universities and think tanks.

14th Meeting of the Legal Defence Team takes place

The 14th Meeting of the Legal Defence Team, hosted by the OPEC Secretariat and its Legal Office, took place via videoconference on February 15, 2022. The meeting, chaired by the representative of the Kingdom of Saudi Arabia, Dr Mohammed Aibrahim, and hosted by the OPEC Legal Office, was an opportunity for Member Country lawyers to provide expert opinions on issues of legal relevance for the Organization.

Leonardo Sempértegui (c), OPEC's General Legal Counsel; Dr Taiwo Ogunleye (l), Legal Advisor, International Matters; and Julia Gierveld (r), Intern in OPEC's Legal Office.

The videoconference of the 14th Meeting of the Legal Defence Team in progress.

Participants at the meeting included officials of the OPEC Secretariat and Legal Office, as well as several Member Country lawyers.

In his opening remarks, Dr Aibrahim emphasized the importance of the community of Member Country lawyers. He noted it has served to enhance the unity and cooperation that has defined OPEC for many years.

Subsequently, there was a presentation by the OPEC Secretariat General Legal Counsel, Leonardo Sempértegui, which introduced topics for discussion. An interactive question and answer session followed, in which both Member Country lawyers and the members of the OPEC Secretariat Legal Office participated.

The meeting ended with an open discussion and analysis, with the OPEC Member Country lawyers providing expert advice. The meeting concluded with the Chairman providing closing reflections and Sempértegui thanking the Member Country lawyers for their participation.

Saudi Aramco spearheads venture capital fund

Saudi Aramco has unveiled a $1 billion venture capital fund to support the development of new technologies to be applied in a variety of sectors.

The new initiative was named the Prosperity7 Ventures fund in homage to the Dammam Well-7, Saudi Arabia's first commercial oil discovery, which is also referred to as the 'Prosperity Well'.

Although the fund has been up and running over the past year, it was officially launched by Saudi Aramco's Chief Technology Officer, Ahmed al-Khowaiter, at a conference held in Riyadh during the first week of February.

The fund will support innovative high-tech companies with a focus on block chain, education solutions, healthcare, as well as financial and industrial technologies.

According to a statement released by Saudi Aramco, the fund will seek to "support entrepreneurs in building transformative companies striving to solve some of the world's most pressing challenges."

With its corporate headquarters in Dhahran, the fund will also have offices in the US and China.

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Sonatrach signs joint E&P agreement in Niger

Sonatrach's headquarters in Algiers, Algeria

On February 12, 2022, Algeria's national oil company Sonatrach announced that it had signed an agreement with the Niger petroleum ministry to share production in Niger's petroleum-rich Kafra region.

Sonatrach International Petroleum Exploration and Production, a subsidiary of the Algerian company, signed the agreement in Niger's capital Niamey on February 4, 2022, according to the statement released by Sonatrach.

The project in Kafra comprises two exploration wells, KFR-1 and KFRN-1, with proven oil reserves of around 168 million barrels and 100m b respectively, according the statement.

ADNOC discovers new offshore gas block

Dr Sultan bin Ahmad Sultan Al Jaber, UAE's Minister of Industry and Advanced Technology and ADNOC Group CEO.

The Abu Dhabi National Oil Company (ADNOC) has announced new natural gas discoveries in an offshore block nearby the Emirati capital of Abu Dhabi.

According to a company statement, the initial outcome from drilling the first exploration well indicates reserves in Abu Dhabi's Offshore Block 2 Exploration Concession could amount to approximately 1.5 to 2 trillion standard cubic feet of raw gas.

Dr Sultan bin Ahmad Sultan Al Jaber, UAE's Minister of Industry and Advanced Technology and ADNOC Group CEO, stated: "The discovery of natural gas resources in Offshore Block 2 underscores how ADNOC's expanded approach to strategic partnerships is enabling us to accelerate the exploration and development of Abu Dhabi's untapped hydrocarbon resources and create long-term value for the UAE, in line with the Leadership's wise directives."

"We congratulate our valued partners, Eni and PTTEP, on this achievement and we look forward to continuing to work with all our strategic partners to sustainably unlock Abu Dhabi's hydrocarbon resources and stay ahead of the world's growing demand for lower-carbon energy," the Minister added.

A consortium consisting of Eni and PTT Exploration and Production Public Company Limited (PTTEP) was awarded the concession in 2019 to explore the block.

Harnessing the power that runs the sun: nuclear fusion

European scientists say they have made a major breakthrough in their quest to develop nuclear fusion — the energy process that powers the sun and stars. Though still some decades away as a usable energy source, it is believed that nuclear fusion could begin helping power the planet safely, cleanly and reliably by 2050.

By Maureen MacNeill

According to a EUROfusion press release, the UK-based Joint European Torus (JET) laboratory in Oxford, UK was recently able to produce 59 megajoules (MJ) of energy over five seconds (11 megawatts [MW]) of power. While this may not seem like much — enough to power about 10,000 European homes — it more than doubles the previous fusion energy record of 21.7 MJ set at JET in 1997, and is highly significant to fusion's future development.

"Record results announced today are the clearest demonstration in a quarter of a century of the potential for fusion energy to deliver safe and sustainable low-carbon energy," said a press release from the February 9 announcement.

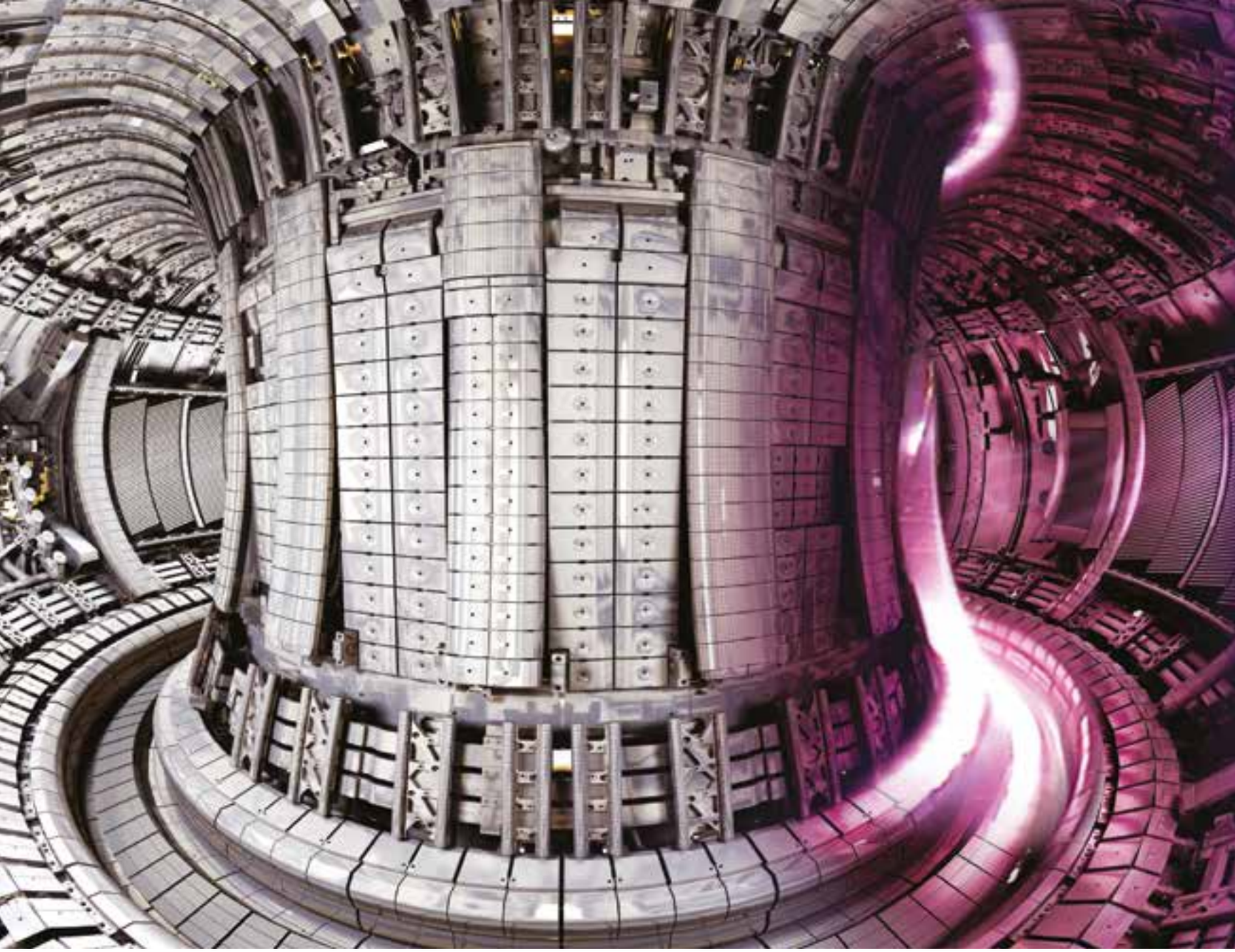
"This achievement is the result of years-long preparation by the EUROfusion team of researchers across Europe. If we can maintain fusion for five seconds, we can do it for five minutes and then five hours as we scale up our operations in future machines," stated an enthusiastic Tony Donné, EUROfusion Programme Manager, at the press conference.

He added that the operational experience gained under realistic conditions provides great confidence in the next stage of experiments at ITER and Europe's future demonstration power plant EU DEMO.

The JET device is being operated by researchers of the EUROfusion consortium — including 4,800 experts, students and staff from across Europe, of which 300 scientists and engineers are involved in the JET exploitation. EUROfusion is comprised of 30 research organizations and behind them around 150 affiliated entities, including universities and companies, from 25 EU states plus the UK, Switzerland and Ukraine.

Together they are working towards a facility that can deliver fusion energy to the power grid in accordance with the European Research Roadmap to the Realization of Fusion Energy.

JET is currently the most powerful fusion operation in the world, and its successes are being transferred into a much bigger 'next-step' facility currently being constructed in southern France called ITER, which is thought to be the



JET interior with superimposed plasma.

step that will integrate physics and technology advances to demonstrate fusion energy production at an industrial scale.

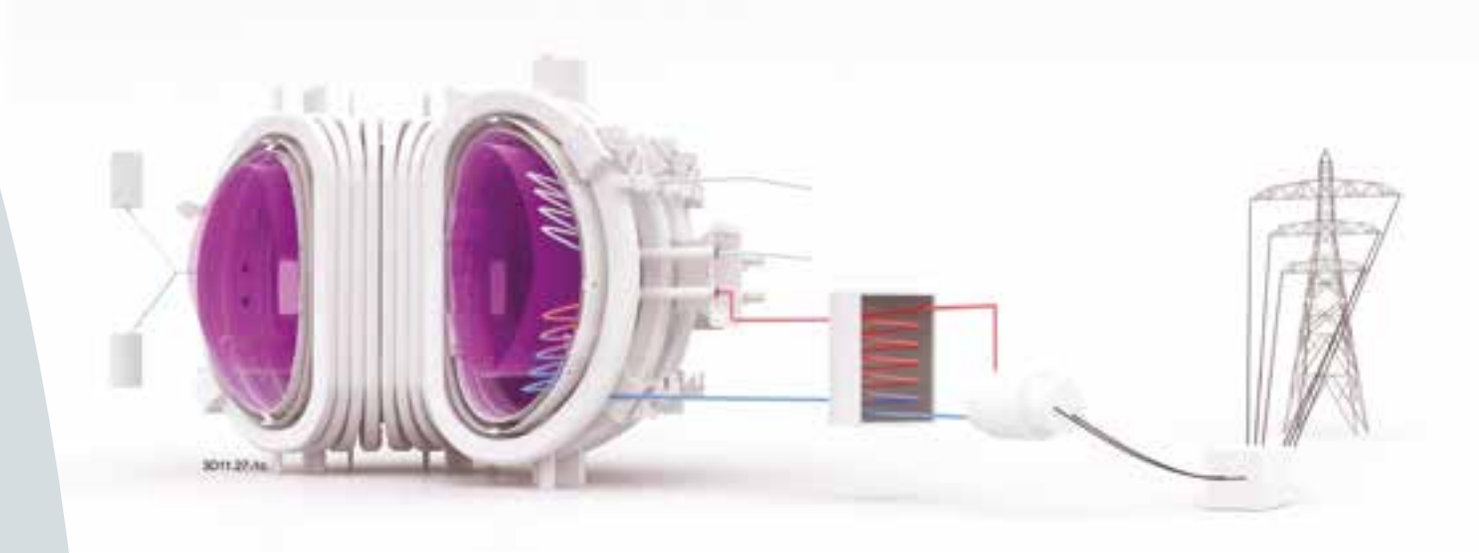
The EUROfusion programme has two aims, which, to a large extent, rely on successful JET outcomes: preparing for ITER operation and exploitation, and developing a validated viable concept for the future European demonstration fusion power plant EU DEMO. The plan is to continue with experiments at JET until 2023.

ITER, currently 80 per cent built, will demonstrate the scientific and technological feasibility of fusion power production. It will be the world's largest experimental fusion facility and first-in-kind global collaboration. EU DEMO would be a next step.

Funding stems primarily from Europe, which is contributing almost half of the costs towards ITER's construction, while the other six members in the joint international venture (China, India, Japan, the Republic of Korea, the Russian Federation and the US), are contributing equally to the rest.

Professor Volker Naulin, Head of the Fusion Science Department at EUROfusion, stated at the press conference: "The experiments confirmed our predictions, motivating us in doing our best to ensure timely success of the ITER operation. The results are support for an early decision for the European DEMO power plant, as fusion is needed for long-term decarbonization of our energy supply."

Over the last six months, the deuterium-tritium (D-T) fuel mix used at JET, along with the know-how from



Schematic representation of energy extraction and conversion in a fusion power plant.

past decades, was engineered to create a plasma in five-second pulse discharges. This is the longest time it could operate because of heat developing in the copper magnetic coils used to produce the magnetic field necessary to confine the plasma.

"There was a sustained fusion process using the same fuels that will be used in the mix of future (fusion) power plants. We are closer to clean, safe and abundant energy for future generations," says Naulin.

He highlighted that the experiments were conducted under difficult circumstances — mostly remotely — because of the COVID-19 pandemic.

UK Minister for Science and Research, George Freeman, reacting to the EUROfusion news, said science is a collaborative venture and "Europe wants to be in the middle of that. It is a magnet for talent, collaboration and international science.

"They [EUROfusion consortium] are the modern-day Knights of the Roundtable. This science has shown that fusion is within our grasp and can play a role in the energy mix. The urgency of finding other energy sources was highlighted at the Conference of the Parties" (COP 26 in Glasgow, Scotland, October 31–November 13, 2021).

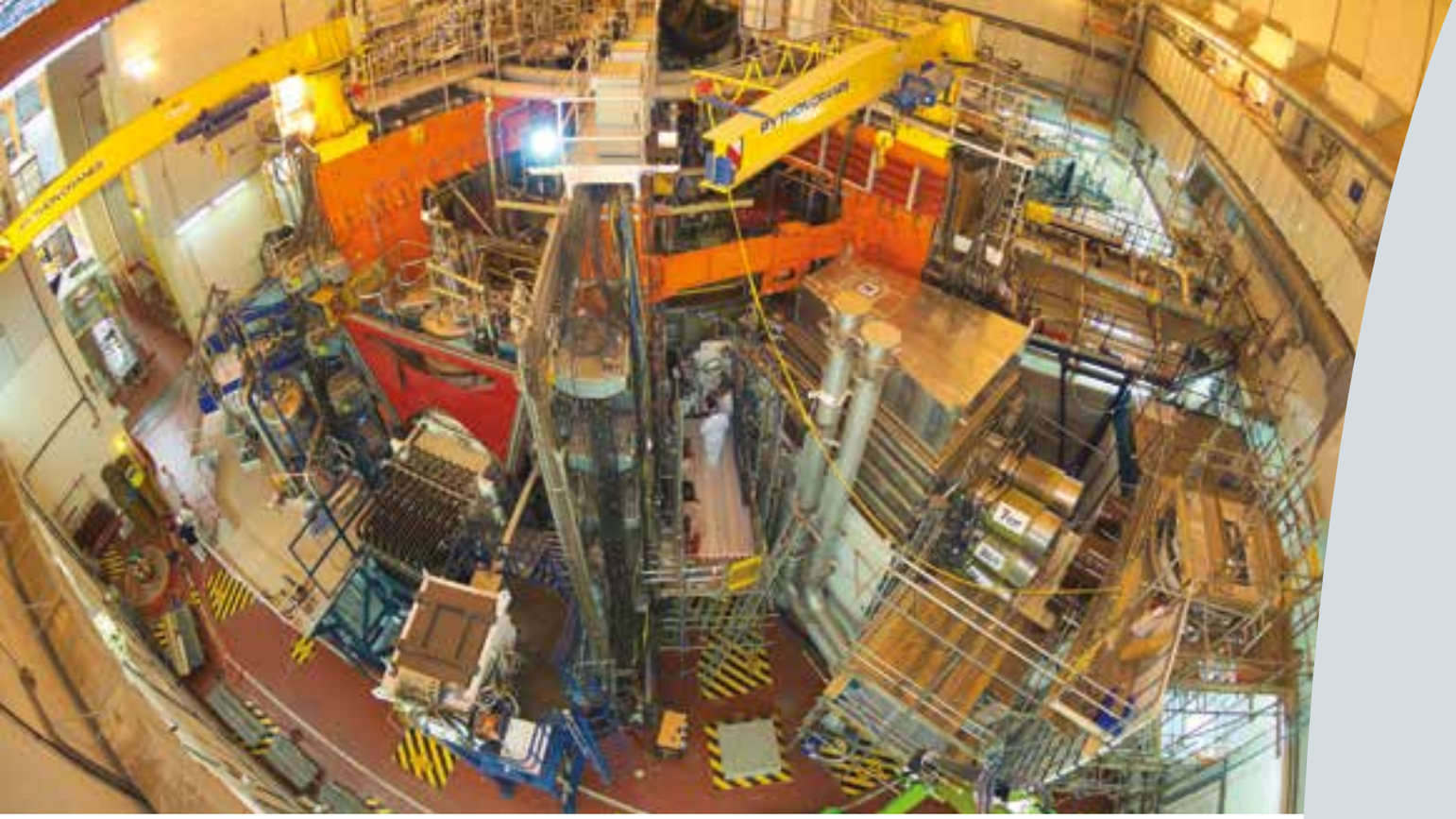
He added that the approach of the public and private sectors working together has seen prior success in the UK with the genomics life science programme, which was able to trace 100,000 genes and triggered huge investment into genomics.

Ambassador of the EU to the UK, João Vale de Almeida, also commented on the consortium's results, saying: "We share the obligation of cooperation among scientists in whatever framework necessary … this spirit unites us here today.

"This low-carbon, safe energy is the power of the sun on earth. The work builds on the work of many fusion scientists over the past 40 years," he said, adding it paves the way for the next generation to advance fusion science at ITER. A quarter of the 300+ scientists who delivered this result are from the younger generation, he added.

Over the years, the EU has funded 80 per cent of the costs to

View of the JET control room.



The JET torus hall.

exploit JET and will continue to provide support, added Vale de Almeida. "We are happy and proud to see the results."

He recalled the opening of JET in 1984 by Her Majesty the Queen of England, together with French President François Mitterrand, who had the presidency of the European Commission at the time.

"Over 40 years ago, this tale started and now it's coming true," Her Majesty said when opening JET. "We will have something to tell our grandchildren. We want the younger generation to reap the benefits. Let's continue to cooperate as scientists, engineers and countries."

Ian Chapman, CEO of the UK Atomic Energy Authority, which operates JET on behalf of EUROfusion, stated, "Fusion is a quest that is noble and matters, characterized by challenges to hurdle. Fusion will always be there at the right time, because energy consumption is always growing."

The power needed for JET is far greater than the power produced, he added. Currently the Q-ratio (the amount of power gotten out of plasma compared with the amount put in) is at 0.33, which means it requires three times more power than it delivers.

Although 59 MJ at five seconds doesn't seem long, it "allows us to see how the fuels operate," stated Chapman.

Material difficulties were also overcome. "For the first time ever we have compatible metals inside a power plant we could use. It is genuinely a landmark in the quest for fusion power."

He added that although there are many hurdles yet to overcome, and "we don't even know what they are," the project will go as far as possible to address climate change.

"It will be a valuable asset regardless of when it comes. We aim to produce electricity by 2050. This is bold and ambitious."

ITER's chief scientist, Tim Luce, said two-thirds of the world have joined together to support fusion as an energy source under ITER, adding that when the plant can reach 500 MW for 300 seconds, it will place ITER in the power plant class. "It is not a power plant, but places it in this category (in that it is a plant on the size and scale of a power plant)."

ITER is reaching many firsts, including being the first fusion device to achieve nuclear licensing, he added.

The requirements placed on materials are grueling. Luce said temperatures need to reach 100–200 million degrees Celsius in the core of the fusion device, while the surrounding cooling structure is as low as four degrees Kelvin: these extreme conditions have to be separated.

The machine itself has been challenging to build, with the heaviest part weighting in at 2,050 tonnes and measuring 30 m in diameter. The machine's vacuum vessel is being constructed in sectors like the slices of an orange, with nine pieces that need to be put together, he said.

"ITER is different from other big projects because it doesn't have a long-term life," explained Luce. "It is focused on achieving objectives. JET helps us to know how and to hear about

EUROfusion member countries.

what doesn't work, and we need to find our way around obstacles."

"If we are talking about a timeline, the first plasma in ITER is expected by 2025," said Luce, and he expects it to be operating with D-T fuels in full power mode by the end of 2035.

"I daily see the construction, it is a reality," he stated, adding that the pandemic has led to extra complications such as the delivery of components and supply chain issues.

A panel of EUROfusion scientists, consisting of Fernanda Rimini, Dr Costanza Maggi and Dr Athina Kappatou, provided more specific details on the latest record-breaking experiments at JET.

Rimini explained that the original carbon JET walls were trapping fuel. Since 2011, JET uses the same combination of wall materials as ITER, which do this a lot less. "It impacted the behaviour of the hot plasma. We spent the last ten years re-optimizing the plasma and machine operation."

She added that the last 25 years have seen great progress in theory and numerical modelling, which has allowed for better interpretation and prediction. "This is European collaboration at its best!"

Maggi added that the main results using D-T fuel have confirmed modelling predictions. "We have achieved and surpassed the 50 MJ target. It was very important to know that a change in the mass of fuel in the plasma changes the properties of the plasma."

The plasma reached temperatures of up to 200 million degrees Celsius, stated Maggi, adding it is crucial to understand the interaction between the hot plasma and the wall for future power plants.

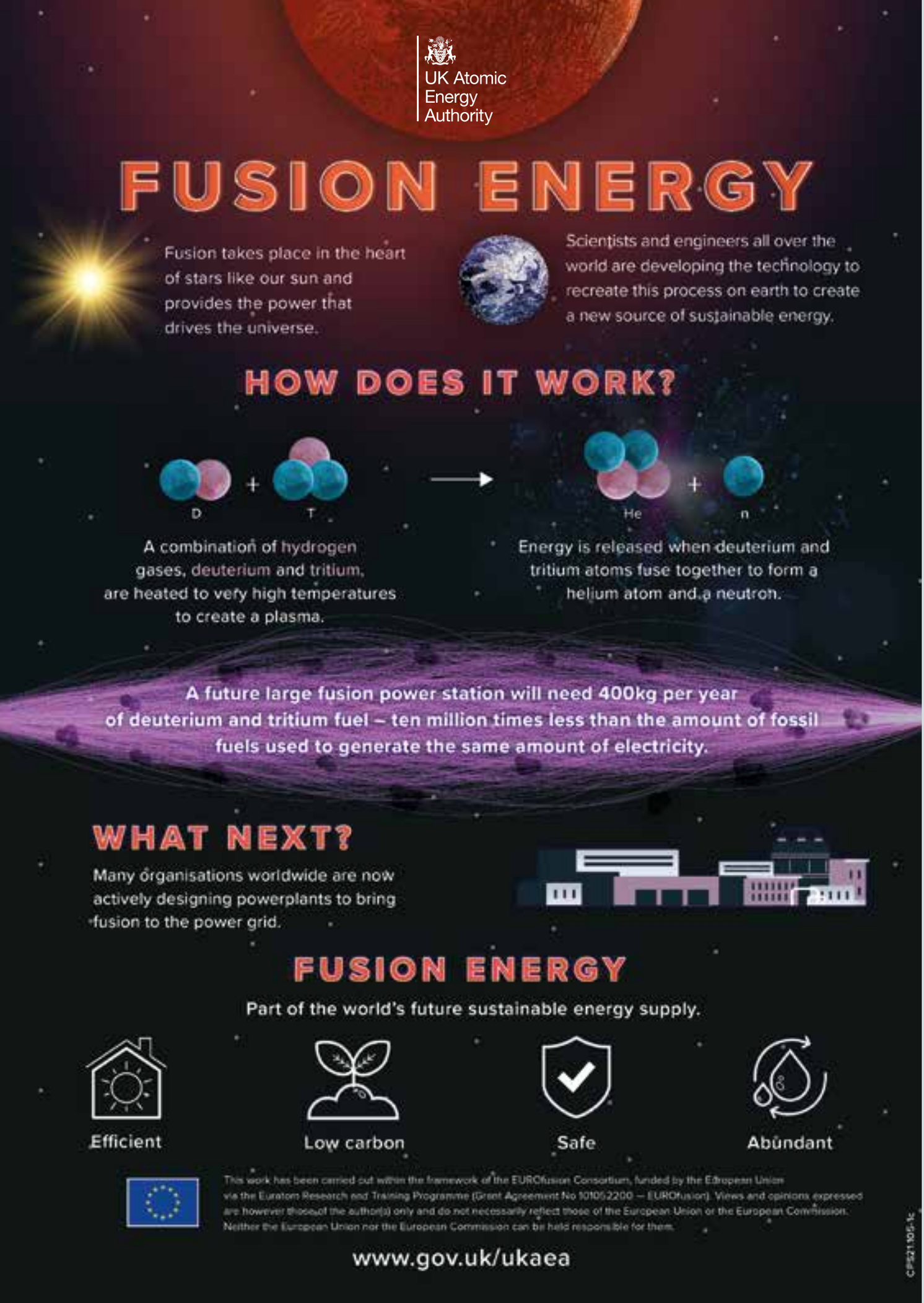
"We didn't have diagnostics like we do now. We couldn't measure the edge of the plasma. Now we can, and that's very important to understand and predict its behaviour."

Kappatou added they were experimenting with a 50:50 deuterium and tritium fuel mix, but with more tritium, they achieved better results, allowing them to create the 59 MJ pulse. "It all advances our predictions."

"Fusion power output does depend on how plasma behaves, but also on the power we put in. Pulses drive the system to its limit. What we see here is that the plasma manages to stay sustained for a long time," added Kappatou.

"JET is a huge risk mitigator for ITER," said Maggi. "We are finding out a lot of things that will help ITER progress faster and cheaper."

Although the ITER research plan draws heavily on JET, Rimini explains other machines and other countries are


UK Atomic Energy Authority
FUSION ENERGY
Fusion takes place in the heart of stars like our sun and provides the power that drives the universe.
Scientists and engineers all over the world are developing the technology to recreate this process on earth to create a new source of sustainable energy.
HOW DOES IT WORK?
D
T
He
n
A combination of hydrogen gases, deuterium and tritium, are heated to very high temperatures to create a plasma.
Energy is released when deuterium and tritium atoms fuse together to form a helium atom and a neutron.
A future large fusion power station will need 400kg per year of deuterium and tritium fuel – ten million times less than the amount of fossil fuels used to generate the same amount of electricity.
WHAT NEXT?
Many organisations worldwide are now actively designing powerplants to bring fusion to the power grid.
FUSION ENERGY
Part of the world's future sustainable energy supply.
Efficient
Low carbon
Safe
Abundant
This work has been carried out within the framework of the EUROfusion Consortium, funded by the European Union via the Euratom Research and Training Programme (Grant Agreement No 101052200 – EUROfusion). Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Commission. Neither the European Union nor the European Commission can be held responsible for them.
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also providing information. Kappatou added, "We are all in this together. It's not a competition, but science."

Historical development

EUROfusion physicist Richard Kamendje, who has been at JET for several years as scientific assistant to the JET director provided an interview to the *OPEC Bulletin*.

Kamendje said he left JET to work at the International Atomic Energy Agency (IAEA) for some years, then returned to EUROfusion, managing international collaboration. Kamendje said he came to his career in nuclear fusion back in his university days when he became attracted to plasma physics and nuclear fusion research after seeing the breadth of the subject.

Nuclear fusion was discussed even before WWII, he said, back in the 1920s and 1930s. It emerged as a potential quick solution to be developed and marketed, but the real push came in the 1950s, when it became clear that no single nation could on its own develop the physics and technology basis for a fusion power plant.

The leaders of the world decided it would make sense to collaborate in 1958 at the 2nd United Nations International Conference on Peaceful Uses of Atomic Energy called Atoms for Peace. Fusion research became declassified at the time based on the understanding that it would be used for strictly peaceful purposes, and it was agreed that significant progress could only be made if scientists and nations could collaborate, said Kamendje.

"In the following years, the IAEA played a big role in this landmark collaboration," he added, "Laboratories around the world were looking at how to create and improve devices to make fusion reactions take place indefinitely and harness their energy for the benefit of mankind."

Initial claims included statements that fusion energy could be made available in 20 years, but as research progressed, more issues came up that needed to be addressed. Confining the fuel particles in a plasma state and the energy in the plasma appeared to be a real challenge. Several approaches were tried, including, in particular, the use of magnetic fields to create a confining bottle, he said.

A major contribution came from the Russians in the 1960s, when they invented the so-called tokamak device concept, which immediately took off. "Nearly all countries abandoned their own experiments and went with the Russian tokamak," he stated.

Up until the tokamak design, scientists were frustrated because no system had been found that could, for a sufficiently long period of time, minimize the particles and energy losses so as to allow fusion reactions to occur in a sustainable manner. The tokamak consists of magnetic fields that confine particles so they have sufficient time to meet and fuse without touching the surrounding surface.

Based on the Russian tokamak, the EU decided to create a machine that could aid the understanding of physics and enable the development of power plants. JET came to light in the early 1970s, with construction taking place in the late '70s and the first operation was in 1983.

"It is truly a European endeavour, it was conceived in the EU and build as a joint project to demonstrate the ability to produce and, in particular, confine alpha particles as a product of D-T fusion reactions. A key physics piece was to determine if the tokamak could be a viable path towards a fusion reactor," said Kamendje. "This is the key aspect of what JET brought to the world."

Experiments using D-T as a fuel, which could be used in future power plants, started in 1991.

Once it was clear that nuclear fusion products could be confined, it was determined that ITER could be designed.

The idea for ITER stretches back to the Reagan-Gorbachev summit of 1985 in Geneva, according to Kamendje. Gorbachev suggested the two countries collaborate on scientific topics, and from this, ITER was born. Since then, different parties have joined, including the initial working parties Russia, the EU, Japan and the US. South Korea, China and India came into the efforts later.

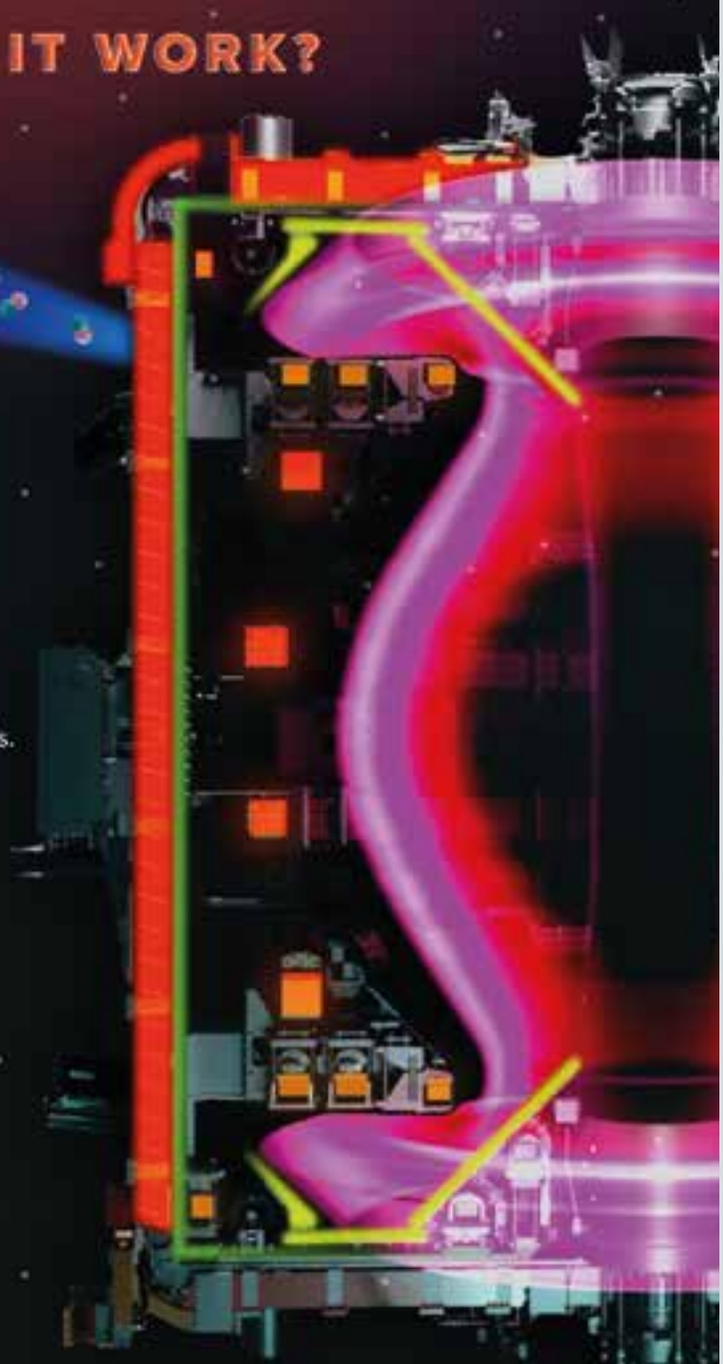
EUROfusion physicist, Richard Kamendje.

UK Atomic Energy Authority

THE TOKAMAK

There are many approaches to making fusion happen on earth. The most developed is the 'tokamak', which uses powerful magnetic fields to confine a fusion plasma.

HOW DOES IT WORK?



FUSION FUELS

Fusion gases – deuterium and tritium – are injected into the vacuum vessel.

THE PLASMA

The fuel is heated to around 150 million degrees Celsius, and changes from a gas into a plasma.

VACUUM VESSEL

A ring-shaped vacuum vessel is used to contain the plasma.

MAGNETIC FIELDS

Magnet coils create fields that hold and shape the plasma, keeping it away from the chamber walls.

PLASMA EXHAUST

The plasma exhaust removes the fusion-produced helium from the chamber.

MEASUREMENT SYSTEMS

Systems measure and monitor properties including plasma density and temperature.

HEATING SYSTEMS

Systems heat the plasma using an electrical current, powerful particle beams and radio waves.

ENERGY

Energy is released when two atoms fuse together into a new, heavier atom. A plasma with millions of these fusion reactions happening every second will generate a huge amount of energy from less than a gram of fusion fuel.

This work has been carried out within the framework of the EUROfusion Consortium, funded by the European Union via the Euratom Research and Training Programme (Grant Agreement No 101052200 — EUROfusion). Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Commission. Neither the European Union nor the European Commission can be held responsible for them.

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A huge difference to JET is that ITER is being built at power plant scale in terms of thermal energy production, while JET was not designed to be at this scale.

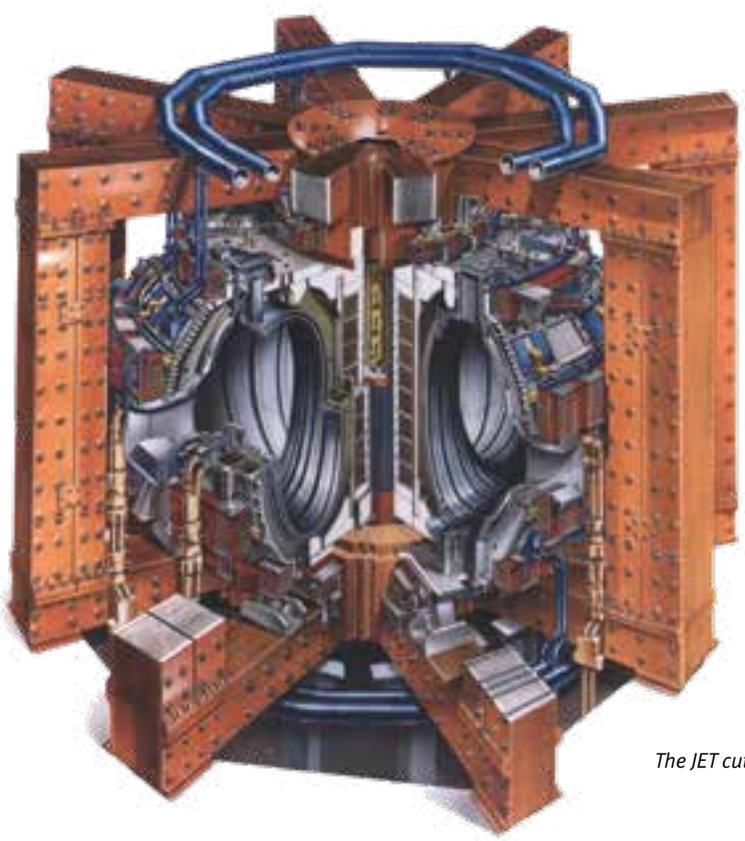
"JET did not need to be a nuclear installation due to its mission goals," stated Kamendje. "ITER is the first nuclear installation to be licensed as such and representative of power plants in terms of thermal energy production."

The three main goals of ITER are the following:

- Integrate physics and technologies developed over the years into a single device;
- Produce 500 MW for 300 seconds, thereby achieving a net energy gain factor of ten (producing ten times more energy than is used);
- Demonstrate steady-state operation up to 1,000 seconds.

ITER will not demonstrate power extraction, conversion and feed into the electricity grid, he continued. The conversion of fusion energy into electricity will be the next step, and will take place using EU DEMO, which is now being designed. Just as ITER is taking on the lessons learned from JET, successes brought by ITER will be used to feed the construction of DEMO. Construction is expected to start around 2040, with the hope that it will be in use by mid-century, said Kamendje.

"That will close the gap to electricity production and put it on the grid."



The JET cutaway.

Safety

The safety of fusion plants is intrinsic, explained Kamendje, because the fusion reaction is complex to maintain and if one condition is not met, it will only stop.

"There is no possibility for a runaway reaction. The amount of fuel is so small, even if a runaway could occur, it wouldn't last more than a second."

Further, he continued, of the deuterium and tritium that would be used, only tritium is radioactive, and it would be produced and consumed in the reactor. Deuterium and tritium produce helium.

"There would be nuclear waste both with tritium and the activation of components. Taking advantage of the fact the products of fusion reactions are not radioactive, efforts are being made to ensure that within nuclear fusion power plants, there are no long-lived nuclear elements that may result from the activation of materials used for components."

Additionally, tritium's half-life is only 12.5 years. The decontamination of components is an element that has to be addressed, and this can be done through heat, he said, adding tritium is diffusive and needs containment.

"It is a safety risk that is very manageable."

Climate change

Although fusion energy did not start with climate change in mind, it is drawing much more attention now due to growing discussions on climate change and the energy transition, confirmed Kamendje.

When it is ready, it will be a question of how strongly the world wants it, stated Kamendje. Even in recent weeks, interest has skyrocketed, he said. In certain countries, there are already clear structural lines and clear environmental investments with a perspective to make it happen.

"A good example is the UK from a regulatory perspective. You need to have an appealing environment for investment. You need an environment conducive to investors and actors in the field and an intent to develop the best solution."

The UK is very aggressive, as is the rest of the EU, he said, adding that the European Commission is working towards regulatory guidelines that will foster the establishment of a framework for licensing in member states. One of the keys to success is to connect industry to government-funded efforts, he said. Fusion research was previously solely government funded, but industry funding has been skyrocketing in recent weeks.

Currently the European roadmap has an eye on 2050 as a date to start using fusion power, but this could be sped up if there is enough investment, stated Kamendje.

EUROfusion employees seen in the JET control room.

"Countries like the UK are going bold and hope to have fusion power coming on the grid within 10–15 years," he added. "The US government is pushing public-private partnerships and structural capabilities of the government to be flexible for industry development to occur in a short period of time."

The only limit to how much power nuclear fusion could provide to the grid is the time and money it takes to build plants. "The capability of industry to build is the main limiting factor. We don't have people to work and build. We could have 500 plants — it's a question of industry and investment. It has to be attractive for utilities to invest."

Although there are still solutions to be found, there is no intrinsic limitation to the amount of fuel that can be produced. Once you start the process, it runs forever, he explained. "Uranium fuel is limited ... this problem doesn't exist with fusion."

Maintenance of fusion power plants will be very design-specific, said Kamendje, adding that fast particles in the tokamak erode components within the vacuum vessel, which would need to be replaced. Maintenance schemes have to be designed according to a complex environment, and this is still being established, he said.

"Maintenance would be done remotely because of the nuclear environment."

The lifetime of a fusion power plant will depend on the damage components are exposed to in a set period of time, materials used and neutron power. "The first power plants may have a lifetime of around 20 years based on the materials available today," stated Kamendje, adding that there is a lot of ongoing research on materials with different properties.

Different countries are using different materials (in particular for structural components) — and unfortunately, not a lot of information is shared in this area due to intellectual property considerations, he added.

Tomorrow's leaders

"In the nuclear field, it is claimed your staff is your asset," stated Kamendje. "Knowledge is important. You can't create a successful branch of the economy without having strongly qualified personnel. It is complex technology, and talented people need to be aware what is being done and dedicate their career path to this.

"There are specific programmes with structural elements that attract this generation. Many fields are suffering from a drain of young talent. We start at the university level to groom people to be interested to invest their career in this," said Kamendje, who has been in the field since 1999.

"The international aspect is very interesting. We work on a daily basis with people from around the world, with English as the working language."

All images and illustrations courtesy EUROfusion.

UK Atomic Energy Authority

WHY IS THE WORLD INVESTING IN FUSION ENERGY?

LOW CARBON

- By 2040 the planet is predicted to be using twice as much electricity
- Fusion can provide reliable, continuous electricity with no greenhouse gas emissions

ABUNDANT

- Fusion fuel reserves will last for many tens of thousands of years
- Deuterium is extracted from small amounts of water
- Tritium will be produced inside fusion machines from lithium which is abundant on earth

SAFE

- The challenge of fusion is sustaining, not containing, a reaction
- Unlike traditional nuclear fission, fusion cannot produce runaway chain reactions
- Irradiated machine parts can be processed using technology already used successfully around the world

EFFICIENT

- A few hundred kgs of fusion fuel could power a large powerplant for a whole year
- The deuterium in a bathtub of water when fused with tritium will provide all energy use for one person for 60 years

INNOVATIVE

- Uses in aviation, elder-care, environmental clean-up and medical diagnosis
- Spin off technology sectors include advanced computing, materials research and robotics
- Bringing economic benefit, jobs and skills to markets around the world

This work has been carried out within the framework of the EUROfusion Consortium, funded by the European Union via the Euratom Research and Training Programme (Grant Agreement No 101052200 — EUROfusion). Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Commission. Neither the European Union nor the European Commission can be held responsible for them.

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Globeleq


Globeleq

Temane power plant in Mozambique reaches financial close

Mozambique is ready to take a major step on its energy transition after funding has been completed for the 450 MW combined cycle gas-fired thermal plant in Temane in Inhambane Province. The new facility with the capacity to meet the electricity demand of up to 1.5 million households is expected to start generating power in 2024.

The OPEC Fund joined a consortium of international lenders including the IFC and the US International Development Finance Corporation to support the project and contributed a $50 million loan. Investment Manager, Fatimah Ademoh, participated in a ceremony to mark financial close.

The new plant by the power producer Globeleq, the energy company Sasol and Mozambique's national electricity utility Electricidade de Mozambique will support the country's planned transition to net zero by 2050. The total project cost of $2 billion will also include the development of the national grid.

OPEC Fund Director-General, Abdulhamid Alkhalifa, said: "The OPEC Fund supports the development of the Temane power plant, as well as the complementary transmission infrastructure through its private and public sector loan facilities.


OPEC Fund

Fatimah Ademoh, Investment Manager at the OPEC Fund.

Our assistance reflects our commitment to SDG 7 — Affordable and Clean Energy. Once completed, Temane will increase the supply to households, businesses, and industries, contributing to the social and economic development in Mozambique and the region."

Total project cost, including the development of the national grid:
$2bn

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Promoting sustainable energy and supporting small enterprises in Armenia

$30 million OPEC Fund loan to Ameriabank will promote private sector development in the country

The OPEC Fund is providing a $30 million loan to Ameriabank, the largest bank in Armenia, supporting small- and medium-sized enterprises (SMEs) and green projects. The financing is in line with the partners' commitment to SDG 7 — Affordable and Clean Energy, and SDG 8 — Decent Work and Economic Growth.

Tareq Alnassar, OPEC Fund Assistant Director-General, Private Sector and Trade Finance Operations, said: "We are happy to continue our successful cooperation with Ameriabank with a new facility to finance SMEs, energy efficiency and renewable energy projects in Armenia. Our new loan will provide working capital, promote sustainable energy and contribute to economic resilience."

The OPEC Fund and Ameriabank have been cooperating since 2015, contributing to the Armenian economy through SME financing and trade finance facilities. The first financing ($20m) supported private businesses across a diverse range of sectors including wholesale trade, material production, food production and hospitality. The second loan ($25m) helped fund the expansion of Ameriabank's international trade portfolio. The two facilities supported over 130 businesses in Armenia.

Artak Hanesyan, CEO of Ameriabank, commented: "I would like to express my gratitude to the OPEC Fund for our well-established and fruitful cooperation. SME financing has been our strategic focus, and we are happy to join forces again to offer long-term financing to our small business clients. In line with our green strategy the funds will be primarily directed to energy efficiency projects, further improving Ameriabank's environmental footprint."

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ABOUT AMERIABANK

Ameriabank is the largest bank in Armenia by key indicators and rapidly growing its business with a special focus on green financing. Since 2009, the bank has financed more than $250 million in renewable energy projects including solar photovoltaic and wind power.

> **Our new loan will help to provide working capital, promote sustainable energy and contribute to economic resilience.**
>
> **Tareq Alnassar, OPEC Fund Assistant Director-General, Private Sector and Trade Finance Operations**


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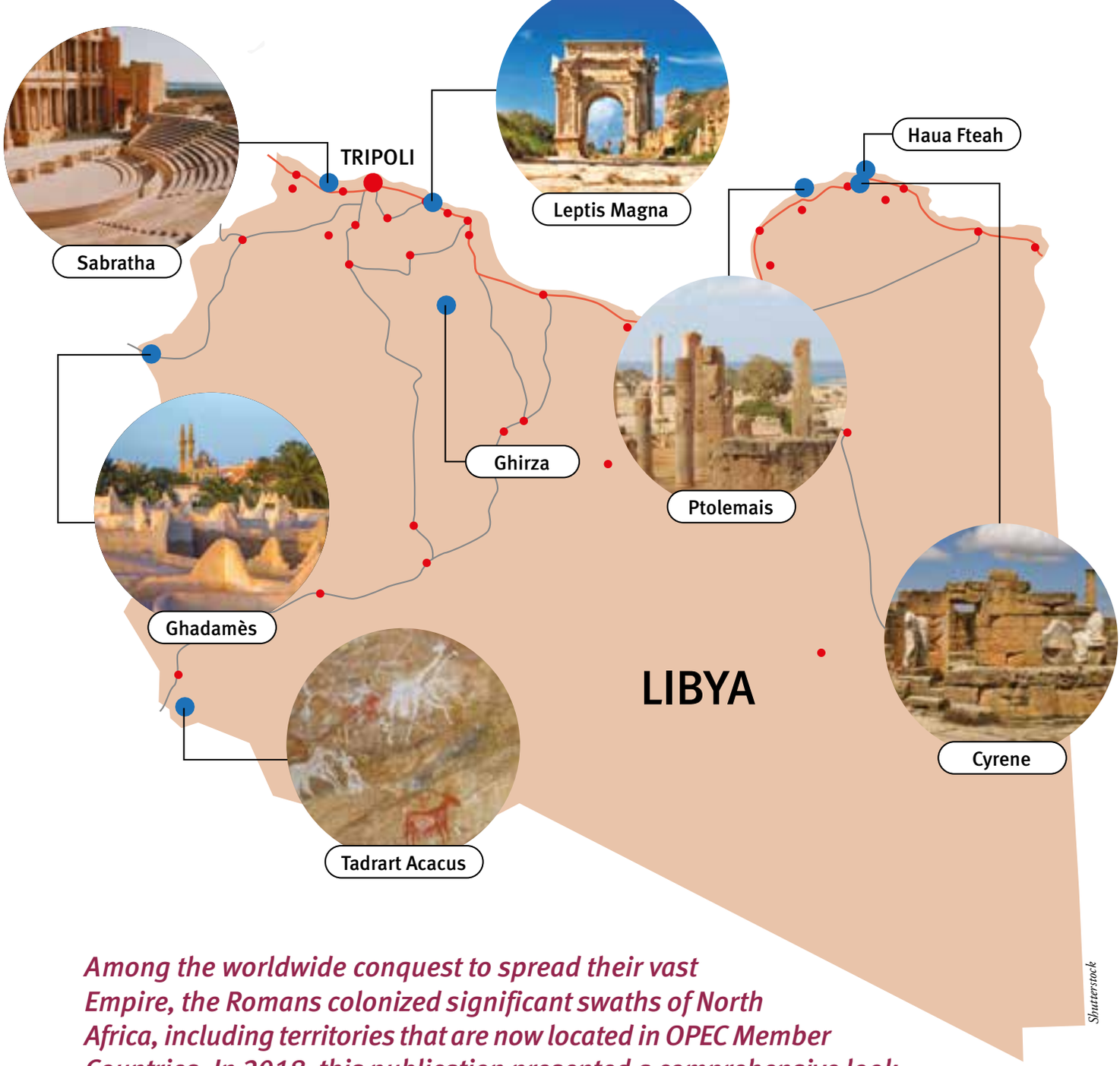
Roman ruins at the archaeological site of Leptis Magna, which became a UNESCO World Heritage Site in 1982.

Discovering Libya's deep Roman roots



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Among the worldwide conquest to spread their vast Empire, the Romans colonized significant swaths of North Africa, including territories that are now located in OPEC Member Countries. In 2018, this publication presented a comprehensive look at Algeria's UNESCO World Heritage Sites, many of them being Roman archaeological sites. In this issue, the* OPEC Bulletin's *Scott Laury takes a look at Libya's rich cultural heritage and its significant Roman footprint that has dazzled visitors for years.

In 46 BC, the Romans continued to expand the reach of their growing empire, stretching their influence into North Africa to establish what they called Africa Proconsularis, or the Province of Africa. The conquest came about after the Roman military defeat of Carthage in the Third Punic War.

The newly founded province would go on to span the northern Mediterranean coast of Africa comprising territories located in present-day Tunisia, Algeria, Libya, Morocco and Egypt.

These newly designated Roman provinces in what is modern-day Libya were called Tripolitania, or the Africa

The archaeological site of Leptis Magna is known to have some of the most well-preserved Roman ruins in the Mediterranean, including this impressive amphitheater.

Province in the west and Pentapolis, comprising Creta et Cyrenaica in the east.

Tripolitania would go on to play a prominent role as a significant trading hub in the region. Its capital city was named Leptis Magna, which means Greater Leptis, a title that was chosen to differentiate it from the Lesser Leptis located closer to Carthage in what is today Tunisia. The Greeks also called Leptis Magna Neápolis or New Town.

The African Emperor

The Roman province spanning today's Libyan coast was also notable as the birthplace of Septimius Severus, who went on to become Roman Emperor and served in that capacity from 193 AD until 211 AD.

During his reign, he raised the profile of Leptis Magna by investing lavishly in the city's buildings and infrastructure. The city thus rose to become one of the most prominent in Africa during this period along with rivals Carthage and Alexandria.

In AD 205, Severus and the imperial family conducted an official visit to the city, giving it great accolades. Among Severus' embellishments of the city were the creation of a splendid new forum and a rebuilding of the docks.

Many of the ruins harking back to this golden age of the Roman period in Libya remain today and have been preserved as World Heritage Sites as designated by the United Nations Educational, Scientific and Cultural Organization (UNESCO).

The goal of the World Heritage Site designation, according to UNESCO, is "to encourage the identification, protection and preservation of cultural and natural heritage around the world considered to be of outstanding value to humanity."

This foundations of this worldwide UNESCO programme are enshrined in an international treaty called the Convention concerning the Protection of the World Cultural and Natural Heritage, which was adopted in 1972.

There are currently 1,154 cultural and natural properties listed as UNESCO World Heritage Sites across 167 countries, with 8.49 per cent or 98 of these located in 35 African countries. Libya is home to five World Heritage Sites, in addition to three that are on UNESCO's tentative list of World Heritage Sites.

Archaeological site of Leptis Magna

Leptis Magna could be called the crown jewel of the Roman territories located in present-day Libya. The town was enlarged and embellished by native son Septimius

A Roman theater in the ancient city of Sabratha, Libya, which became a UNESCO World Heritage Site in 1982.

Severus, who went on to become Emperor. The town rose to prominence, hosting a harbour, a splendid forum and market place, storehouses, shops, residential districts and ornate public monuments.

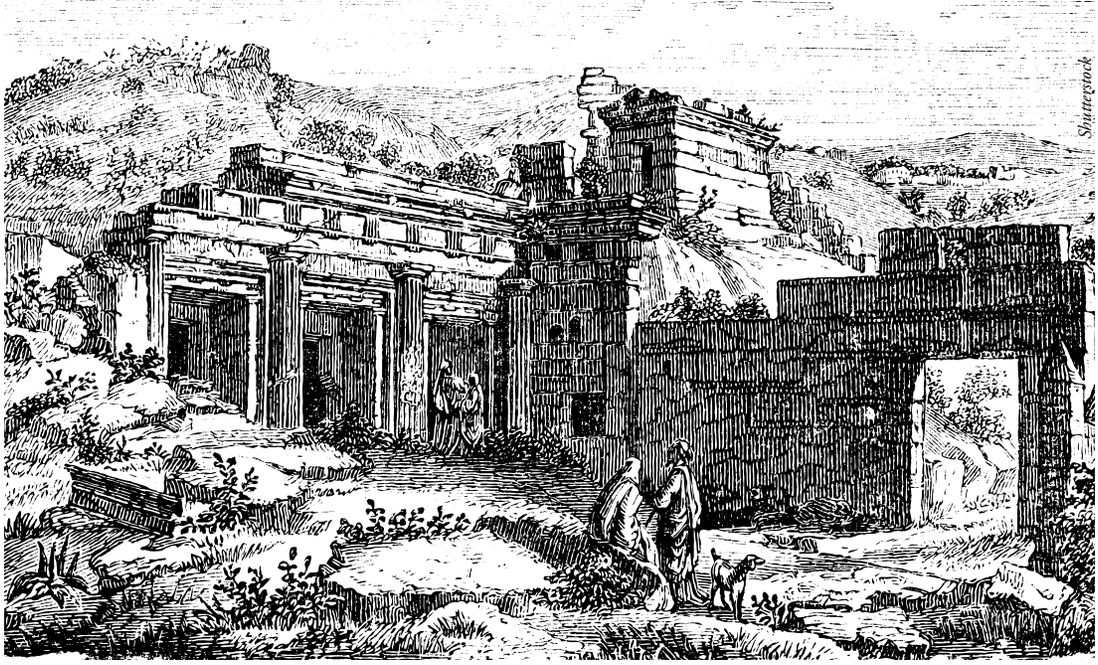
The archeological site is located in present-day Khoms, Libya, which is 130 km east of Tripoli. The site is known to have some of the most well-preserved Roman ruins in the Mediterranean. It was granted World Heritage status by UNESCO in 1982.

Archaeological site of Sabratha

Established in about 500 BC, the Sabratha archaeological site was originally a Phoenician trading hub for products from the African hinterland. Following the Punic Wars, Sabratha was part of the short-lived Numidian Kingdom of Massinissa before the Romans colonized it and rebuilt it during the second and third centuries AD. During the reign of Emperor Severus, Sabratha flourished and nearly doubled in size.

The archaeological site is located on the Mediterranean coast about 70 km west of Tripoli in the Zawiya district. It was inscribed as a UNESCO World Heritage Site in 1982. One of the centerpieces includes the spectacular remains of a Roman theatre that boasts a three-story high backdrop, in addition to various temples to Roman mythical figures, including Liber Pater, Serapis and Isis.

Also on the site are a Christian basilica dating to the time of Justinian and remains of elegant mosaic floors that were used in noble Roman dwellings. A museum housing some of Sabratha's valuable treasures is located next to the site, while other relics can be viewed at the national museum in Tripoli.



An illustration of a vintage engraving depicting the Roman ruins in Cyrene during the 1890s.

A temple of Zeus from around the 6th century BC located at the archaeological site of Cyrene, which became a UNESCO World Heritage Site in 1982.

Archaeological site of Cyrene

Originally a prominent Greek city in the Hellenic world, Cyrene was taken over by the Romans in 74 BC. Located in present-day Shahhat, Cyrene is nestled within a lush valley in the Green Mountains.

The city was named after a flowing spring named Kyre, which the Greeks dedicated to Apollo. In the fourth century BC, the city became home to the Cyrenaics, a prestigious school of philosophy founded by Aristippus, who was a disciple of Socrates.

Since 1982, Cyrene has been a UNESCO World Heritage property. The site features a temple of Apollo, which was originally constructed as early as the seventh century BC, as well as a temple to Demeter and a partially unexcavated temple to Zeus. Additionally, a large

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Affectionately nicknamed 'the pearl of the desert', Ghadamès is one of the oldest and best-preserved pre-Saharan cities and a typical example of a traditional North African settlement.

necropolis is located roughly ten kilometres between Cyrene and its ancient port of Apollonia.

Old town of Ghadamès

Ghadames is an oasis town located approximately 462 km southwest of Tripoli, near the borders with Algeria and Tunisia.

Affectionately nicknamed 'the pearl of the desert', it is one of the oldest and best-preserved pre-Saharan cities and a typical example of a traditional North African settlement. The old section of the town was designated as a UNESCO World Heritage Site in 1986.

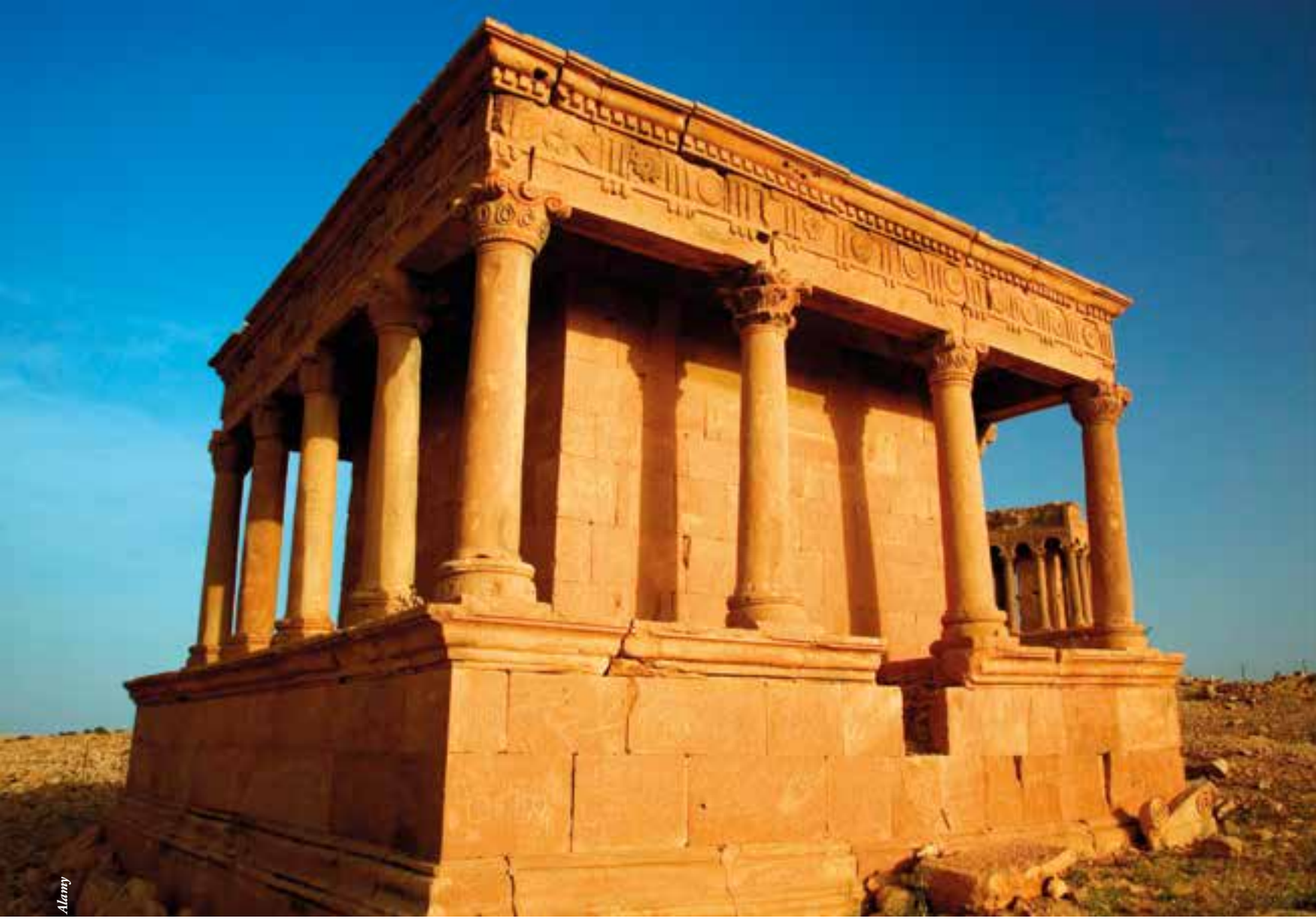
The old town settlement was constructed around the Ain al-Faras spring in a circular formation, providing inhabitants easy access to water. The design, layout and materials used for inhabitable structures were determined by climatic conditions and optimized use of the precious water resources provided by the oasis.

Surrounded by palm groves, the dwellings are also protected by the reinforced outer walls of the houses, some of them painted in white to deflect the simmering rays of the sun. All these architectural features were geared towards minimizing the adverse impacts of the often harsh arid Saharan climate.

The city was an important hub for caravan trade along the trans-Saharan network and played a vital role in the cultural and economic life of the region.

Dramatic ochre and pink-hued canyons form the backdrop to the rock art sites in the Acacus Mountains of Libya's Saharan desert.

Dating from 12,000 BC to AD 100, the prehistoric petroglyphs depict the evolution of human and animal life in the Acacus Mountains.



Alamy

The archaeological site of Ghirza features two burial grounds with decorative mausoleums (seen here), large fortifications, a temple and small buildings that may have been used as inhabitations.

Rock art sites of Tadrart Acacus

Located near the border with Algeria, this rocky massif located in the Acacus Mountains is dotted with thousands of ancient cave paintings in a diverse range of styles. The sites were given World Heritage status by UNESCO in 1985.

Dating from 12,000 BC to AD 100, the paintings and carvings document the evolution of human and natural life in the region. In addition to depictions of local populations living out their daily routines, there are also images of animals such as camels, elephants, giraffes, horses and ostriches.

Two of the principal landmarks include the arches of Afzejare and Tin Khlega, which are in a dramatic geological setting with multi-coloured ochre and pink-hued Saharan sand dunes, gorges, rocks and ravines. Despite its arid dessert climate, the area is able to grow vegetation thanks to a number of springs and wells in the surrounding area.

Archaeological site of Ghirza

The archaeological site of Ghirza is on the tentative list to be nominated as a UNESCO World Heritage Site.

Located in Western Libya, about 250 km southeast from the coast, Ghirza consists of the ruins of a Roman frontier town. The site features about 40 structures, including two burial grounds with decorative mausoleums, large fortifications, a temple and small buildings that may have been used as inhabitations.

Some evidence suggests the settlement may have been active during the first century AD, however many of the structures that exist today, including the funerary monuments, are estimated to be aged between the late third and fourth century AD.

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The ancient ruins of Ptolemais near Benghazi, Libya.

During the time of Emperor Septimius Severus, Ghirza was at its peak prosperity, becoming an important military outpost as part of the Limes Tripolitanus, a defense frontier zone set up to protect the protect the Roman cities of Leptis Magna, Sabratha and Oea.

Archaeological site of Ptolemais

The archaeological site of Ptolemais is also on the tentative list to be nominated as a UNESCO World Heritage Site.

It was one of the five major cities making up the so-called Pentapolis, with the other four being Cyrene, Apollonia, Taucheira and Berenice/Euesperides.

Located along the Mediterranean coast about 110 km east of present-day Benghazi, the site is wedged between the sea and the foothills of the Green Mountains.

Founded in the 7th century BC by the Greeks, the city's port helped supply goods to the town of Barka located 24 km inland. The city later became a transit lifeline for the Romans in connecting it to Cyrene.

The site contains well-preserved public and private buildings in addition to remains of an amphitheater, a hippodrome and three theaters. Excavations have revealed what was a prosperous urban center replete with impressive mosaics, stone sculptures, ceramics, statues, reliefs and sarcophagi, in addition to ancient coinage. Ptolemais offers a prime example of ancient Greek urban planning that was then adopted and in some cases adapted by the Romans.

Wikimedia Commons/G Barker

Wikimedia Commons/G Barker

The massive Haua Fteah limestone cave is located in the Cyrenaica region of northeastern Libya at the foot of the Green Mountains.

Haua Fteah cave

Located in the Cyrenaica region of northeastern Libya at the base of the Green Mountains, the Haua Fteah cave is a massive limestone cave shelter that is semi-circular in shape.

The structure reaches upwards around 50 metres above the ground, with the diameter of the semi-circular roof measuring roughly 80 metres.

The cave, like Ghirza and Ptolemais, is on the tentative list for nomination as a UNESCO World Heritage Site. First discovered in 1948 by archaeologist Charles McBurney, initial excavations took place from 1950 to 1955 and have continued, on and off, ever since.

Many of the excavations were spearheaded by teams from the University of Cambridge, and have significantly increased knowledge and deepened understanding regarding the environmental and human evolution of the area dating back to pre-historic times.

Sources: United Nations Educational, Scientific and Cultural Organization; Charles River Editors, 'The Roman Provinces of North Africa: The History of the Region and Its Rulers After the Punic Wars', CreateSpace Independent Publishing Platform, November 7, 2018.

High flying

The OPEC Bulletin's ***Timothy Spence*** *considers the ups and downs of air travel during the pandemic.*

As a fair-weather flier, I was especially nervous as I prepared for my first flight since the onset of COVID-19, and even more so about my destination — the US.

With cases surging in many areas at the beginning of this year, including in the US, I was deeply concerned about flying into a brewing Omicron storm. News reports about the shortage of COVID-19 testing facilities in parts of the US were not reassuring, and I was on the verge of cancelling my trip. I did not want to risk visiting family and friends after a long plane ride without first being tested, nor did I want to be bounced from my return flight to Europe for lack of a current test result.

For all the nail-biting moments and pre-boarding angst, I was relieved by how well the aviation industry has adapted to one of the worst crises in its history. The day before flying, I was able to upload my test certificate, vaccination passport and other data on an easy-to-use web platform, saving time at the three airports I travelled through.

Moreover, the airline — one of Europe's best-known legacy carriers — emailed updated guidance on travel rules in the US and, on the return flight, notices about changes in regulations in Germany (my transit point) and at home in Austria. Even the check-in, security clearance and immigration processes were noticeably more efficient, friendlier and less stressful than on previous trips.

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Of course, wearing a protective mask at airports and on a nearly nine-hour transcontinental flight was not an experience I want to repeat anytime soon. And some things never change aboard passenger aircraft — the seats felt narrower, the legroom more confining, the meals less palatable. Turbulent weather over the North Atlantic and Canada added uncomfortable minutes to a flight that was already delayed by a shortage of ground crew at our departure airport.

A hard landing in 2020

Prior to COVID-19, I was one of the frequent fliers who helped fill the world's rapidly growing numbers of aeroplanes. Airlines carried a record 4.5 billion passengers in 2019, a 3.6 per cent increase from the previous year and double the number in 2009, according to data from the World Bank and the International Civil Aviation Organization (ICAO), a specialized UN agency with more than 190 member states.

New records were expected again in 2020 on the promise of an upturn in global economic activity along with high-profile events like the Tokyo Olympics and Expo 2020 Dubai, the first world exposition to be held in an OPEC Member Country. Airlines were projected to increase international seat capacity by 3.2 per cent and domestic capacity by 3.7 per cent, for an overall rise of 3.5 per cent in 2020 compared to 2019, according to ICAO.

And then came COVID-19. Economic lockdowns,

border closures and rising infections sent the passenger aviation industry into a tailspin. Images of sparkling new jetliners parked in desert storage lots haunted airlines and the companies involved in building those planes.

As lockdowns spread, air passenger volumes (measured by revenue passenger kilometres, or RPKs) plunged more than 94 per cent year-on-year in April 2020, with international markets down by 98.4 per cent and domestic travel by nearly 90 per cent, the International Air Transport Association (IATA), a trade group representing around 290 airlines worldwide, reported at the time.

"We have never seen a downturn this deep before," Alexandre de Juniac, who was then IATA's Director General and CEO, said on April 14, 2020, echoing his counterparts in many other industries, including oil.

For all of 2020, ICAO figures show the number of air passengers fell by an unprecedented 60 per cent globally, followed by a 49 per cent decline in 2021, both compared to 2019 results. For 2022, the organization expects passenger traffic to fall by 29 to 33 per cent compared with the pre-pandemic figures.

As a consequence, airlines cut overall seating capacity by half in 2020 and by 40 per cent in 2021 compared to 2019, triggering revenue and job losses in the industry.

Spill-over impact on other sectors

The aviation slump has battered associated industries, including many airports, which have operated well below capacity, and contributed to the oil demand shock. According to OPEC's *World Oil Outlook (WOO),* demand in the sector fell to around 3.5 million barrels/day (m b/d) in 2020 from 6.7m b/d in 2019, a drop of nearly 50 per cent on an annual basis.

Aviation's recovery from the meltdown in 2020 is an important contributor to the oil sector's future growth. Oil demand in the aviation sector is projected to reach 7.1m b/d by 2025 and rise to 9.3m b/d by 2045 — a sizeable increase of 5.8m b/d between 2020 and 2045.

Overall, the transportation sector is expected to be the major contributor to future incremental demand, "adding around 13m b/d to global oil demand between 2020 and 2045," the 2021 edition of the *WOO* notes, noting that the sector will account for almost 58 per cent of overall oil demand by 2025 and remain in a range of 57 to 58 per cent through to 2045.

"More than 90 per cent of this massive demand increase is projected to come from the road transportation and aviation sectors, with each contributing around 6m b/d, although a large part of these increases will be due to the recovery from the sharp demand declines experienced in these two sectors in 2020," according to the WOO.

Homeward bound

The purser on my homeward journey is optimistic that airlines are vectoring towards a recovery. "The travel business is never predictable," she told me in the aircraft's galley. "I do think most people are excited to travel again and I would not be surprised if, in the next couple of years, our problem will no longer be filling seats but having enough seats for all those who want to fly."

Returning to the air myself, I was fortunate to have an empty seat next to mine on the outbound trip from Europe. I did, however, have a neighbour heading back home to Austria, even though, on both jogs across the Atlantic, the Airbus 330-300s appeared to be well short of their listed 255-seat capacity. Before taking off in the US, I was notified that my connection to Vienna was changed (due to lack of passengers on the original flight, the gate agent told me).

Based on my travel experience, the aviation industry is working hard to adapt and improve the overall flying experience during difficult times. But the return journey to pre-pandemic passenger traffic may still face delays.

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Review of global oil demand trend

February 2022

Global oil demand in 2021 saw a strong recovery, increasing by 5.7 million barrels/day (m b/d), supported by a solid economic rebound. Oil demand growth was led by the non-OECD region, which saw an increase of 3.1m b/d y-o-y, with China and India contributing the bulk of additional oil requirements. Oil demand in the OECD region also rebounded by a strong 2.6m b/d y-o-y.

In the OECD, the Americas saw the largest growth among the sub-regions in 2021, growing by 1.7m b/d, with gasoline leading in terms of product categories, and LPG even surpassing pre-pandemic levels. In OECD Europe, oil demand growth of 600,000 b/d, y-o-y, was led by diesel for manufacturing and road transportation. OECD Asia Pacific grew by 400,000 b/d, y-o-y, and saw strong demand from manufacturing and petrochemicals.

In the non-OECD, China and India saw a strong economic recovery, supporting demand for industrial/petrochemical feedstock, including naphtha and LPG. Moreover, rebounding mobility in both countries supported healthy demand for gasoline and diesel, mainly in transportation. China's oil demand grew by 1.0m b/d y-o-y, while India saw an increase of 300,000 b/d, y-o-y.

Looking ahead, global oil demand growth in 2022 is forecast at 4.2m b/d to average 100.8m b/d, surpassing the level seen in 2019.

The OECD region is forecast to grow by 1.8m b/d, although not yet reaching pre-pandemic levels in absolute volumes. OECD Americas is forecast to grow by 1.1m b/d, driven by a continued improvement in mobility, as well as accelerated manufacturing activity and demand for petrochemical feedstock, driving consumption of gasoline, diesel oil and LPG. In OECD Europe, an expected pick-up in regional, local and international air traffic is projected to support the jet/kerosene demand in the region, while solid manufacturing activities, particularly from Germany and other big economies in the region, are expected to drive the demand for diesel. Overall, growth in the region is forecast at 600,000 b/d. In OECD Asia Pacific, Japan announced subsidies for gasoline, which along with a healthy petrochemical sector are anticipated to support oil demand. The region is projected to grow by 200,000 b/d in 2022.

The non-OECD region is forecast to grow by 2.3m b/d in 2022, surpassing the pre-pandemic level of 2019 by around 2m b/d for total demand. Within the region, China, India and Other Asia are the main drivers, making up more than two-thirds of the growth volumes. In China, the ongoing return of mobility is forecast to back gasoline demand, which is projected to grow by around 200,000 b/d y-o-y, with diesel and jet/kerosene adding support. India is similarly expected to see added mobility resulting in forecast y-o-y growth of roughly 200,000 b/d for gasoline and 100,000 b/d for jet/kerosene, with upwardly revised economic growth for the country supporting diesel growth of around 100,000 b/d. Outside Asia, resumption of international travel is likely to be a key driver of oil demand in the Middle East, with expected total demand growth forecast at 300,000 b/d. Latin America oil demand is driven mainly by diesel and gasoline with overall oil demand forecast to grow by 200,000 b/d y-o-y.

The main challenges for 2022 remain the containment of the COVID-19 pandemic and any resulting restrictive measures, supply chain disruptions, inflation, and labour shortages that could dampen economic growth. Nevertheless, upside potential to the forecast prevails, based on an ongoing observed strong economic recovery with the GDP already reaching pre-pandemic levels, supported by fiscal stimulus, and global trade levels reaching an all-time high in volume terms. Moreover, mobility is expected to gain further momentum, particularly with regard to the travel and tourism sector. Given the experience of the past two volatile years, vigilant monitoring of pandemic developments, along with a highly flexible approach, will remain key to successfully maintaining oil market stability.

MOMR ... oil market highlights

February 2022

Crude oil price movements — Crude oil spot prices rebounded in January, compared to the previous month, as oil futures markets surged. Crude prices were supported by strong global oil market fundamentals amid dissipating fears about the impact of the COVID-19 Omicron variant and geopolitical risks, which raised concerns about near-term oil supply. The OPEC Reference Basket increased $11.03, or 14.8 per cent, to settle at $85.41/b in January, its highest monthly value since September 2014. Similarly, crude oil futures prices increased on both sides of the Atlantic with the ICE Brent front month up $10.77, or 14.4 per cent, in January to average $85.57/b and NYMEX WTI rising by $11.29, or 15.7 per cent, to average $82.98/b. As a result, the Brent/WTI futures spread narrowed by 52¢ to an average of $2.59/b. The market structure of all three crude benchmarks — ICE Brent, NYMEX WTI and DME Oman — strengthened significantly in January over the previous month as market perception of the outlook for the supply-demand balance improved. Hedge funds and other money managers turned more positive about oil prices, increasing net long positions to their highest level since last November.

World economy — Results for 4Q21 have been reported for major economies, with particularly better-than-expected growth levels in the US and China. Consequently, the world GDP growth estimate for 2021 is revised up to 5.6 per cent from 5.5 per cent in the previous assessment. Global growth for 2022, however, remains unchanged at 4.2 per cent. US GDP was reported at 5.7 per cent for 2021, while the growth forecast for 2022 remains unchanged at four per cent. Euro-zone economic growth for 2021 and 2022 remains at 5.2 per cent and 3.9 per cent, respectively. Japan's economic growth forecast for 2021 and 2022 is unchanged at 1.8 per cent for 2021 and 2.2 per cent for 2022. China's 2021 growth was reported at 8.1 per cent and the forecast for 2022 remains at 5.6 per cent. India's forecast for 2021 is unchanged at 8.8 per cent, while the 2022 forecast was revised up to 7.2 per cent from seven per cent previously, taking into account the acceleration in growth levels in 2H21 and an expected carry-over into 1H22. Russia's GDP growth forecast remains at four per cent for 2021 and 2.7 per cent for 2022. Brazil's economic growth forecast for 2021 is unchanged at 4.7 per cent and remains at 1.5 per cent for 2022. Key uncertainties remain the spread of COVID-19 variants and the effectiveness of vaccines, as well as the pace of vaccine rollouts worldwide. Moreover, supply chain bottlenecks and sovereign debt levels in many regions, together with rising inflationary pressures and the responses of central banks, also require close monitoring.

World oil demand — World oil demand growth in 2021 is revised up slightly by 170,000 b/d, reflecting the latest data trends across the regions, to now stand at 5.7m b/d. Both 3Q21 and 4Q21 figures for OECD Americas are revised higher, mainly as a result of the better performance in the US, confirming the upward revisions taken last month. Overall, non-OECD growth in 2021 increased by 3.1m b/d while the OECD recorded growth of 2.6m b/d. In the OECD, the US continued to be the major driver of oil demand, recording growth of 1.6m b/d. In 2022, oil demand growth is expected at 4.2m b/d unchanged from last month, with OECD and non-OECD projected to grow by 1.8m b/d and 2.3m b/d, respectively. In the OECD, optimism arises from economic growth with the supportive effects of fiscal and monetary policies expected to more than offset the negative effects from Omicron on oil demand. Industrial activities are also anticipated to accelerate, boosting diesel demand. Meanwhile, mobility has recovered substantially with domestic, regional and international flights already showings signs of recovery.

World oil supply — Non-OPEC liquids supply growth in 2021 is revised down by 60,000 b/d to around 600,000 b/d y-o-y, to average 63.6m b/d. An upward revision, mainly to the US, was offset by downward revisions in the supply forecasts of other countries such as Brazil, China, Canada, Ecuador and the UK due to unexpected lower output in 4Q21. The 2021 oil supply forecast primarily sees growth in Canada, Russia, the US, China, Guyana, Argentina, Qatar and Norway, while output is projected to decline in the UK, Brazil, Colombia and Indonesia. For 2022, non-OPEC supply growth remained unchanged at 3.0m b/d y-o-y, to average 66.6m b/d. The main drivers of liquids supply growth are expected to be the US and Russia, followed by Brazil, Canada, Kazakhstan, Norway and Guyana. OPEC NGLs are forecast to grow by 100,000 b/d both in 2021 and 2022 to average 5.1m b/d and 5.3m b/d, respectively. In January, OPEC crude oil production increased by 60,000 b/d m-o-m, to average 27.98m b/d, according to available secondary sources.

Product markets and refining operations — Refinery margins on the US Gulf Coast versus WTI and in Singapore versus Oman showed strong performance in January, gaining $1.42/b and 50¢/b, respectively, m-o-m, as global product inventory levels reached multi-year lows. However, in Europe refinery margins lost $1.20/b versus Brent, as they were affected not only by higher crude prices, but also record-high natural gas prices, as nearly 80 per cent of all European refineries depend on natural gas to power their plants. In all regions, the strongest positive margin contributor was gasoil, as inventories for that product continued to fall, leading to a higher premium relative to crude oil. At the same time, preliminary data shows global refinery runs rose only slightly, limited by a winter storm that affected operations in parts of the US, hampering a higher upturn in total refinery intakes.

Tanker market — Coming off a year that saw multi-decade lows, dirty tanker spot freight rates began 2022 close to the bottom end of the five-year range, even as rising bunker fuel prices weighed on earnings. VLCC rates in particular continued to languish in the doldrums while Suezmax and Aframax rates came down from an improved performance at the end of last year. Clean spot freight rates also experienced a similar decline from a slight lift seen at the end 2021 driven by heating demand and weather-related delays that reduced tanker availability.

Crude and refined products trade — Preliminary data shows US crude imports rose three per cent m-o-m in January to average 6.5m b/d, the highest since June 2021. US crude exports fell to the lowest since December 2018, averaging 2.4m b/d in January. US product imports and exports fell to the lowest since May 2020, the month hit hardest by the pandemic. Meanwhile, the latest data for China shows the country's crude imports continued to recover from lows seen in October to reach a nine-month high of 10.9m b/d in December. China's product exports contracted 24 per cent, m-o-m, in December to the lowest since January 2017, amid government directives to limit the outflow of clean products. India's crude imports averaged 4.6m b/d in December, the highest for the year, as refiners looked toward higher runs in 1Q22. India's product exports reached levels last seen in April 2020, with increases across all major products, except jet fuel, which remained at the still-high level seen in the previous month. Japan's crude imports have seen a 26 per cent increase over the last two months to average 3.0m b/d, the highest since December 2019, amid higher refinery runs to meet winter demand and increased use of crude for direct burning.

Commercial stock movements — Preliminary December data shows total OECD commercial oil stocks down by 31.2m b m-o-m. At 2,725m b, inventories were 311m b lower than the same time a year earlier, 210m b lower than the latest five-year average, and 202m b below the 2015–19 average. Within components, crude and products stocks fell m-o-m by 18.3m b and 12.9m b, respectively. At 1,330m b, crude stocks in the OECD were 99m b less than the latest five-year average and 100m b below the 2015–19 average. OECD product stocks stood at 1,395m b, representing a deficit of 111m b compared with the latest five-year average and 102m b below the 2015–19 average. In days of forward cover, OECD commercial stocks in December rose by 0.1 day m-o-m to stand at 61.1 days. This is 10.6 days below December 2020 levels, 2.9 days less than the latest five-year average and 1.3 days lower than the 2015–19 average.

Balance of Supply and Demand — Demand for OPEC crude in 2021 is revised up by 100,000 b/d from the last month's assessment to stand at 27.9m b/d, around 5.0m b/d higher than in 2020. Demand for OPEC crude in 2022 was also revised up by 100,000 b/d from the last month's report at 28.9m b/d, around 1.0m b/d higher than in 2021.

The feature article and oil market highlights are taken from OPEC's Monthly Oil Market Report (MOMR) for February 2022. 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 the OPEC Reference Basket and crude and oil product prices in general.

Assessment of the global economy

March 2022


OPEC Monthly Oil Market Report

15 March 2022

Feature article:
Assessment of the global economy

The year 2022 began with the expectation of underlying global economic recovery towards mid-year. The outlook also anticipated gradual monetary tightening, continued improvement in global labour markets and an easing of supply-chain disruptions. Similarly, global oil demand growth was forecast to continue to recover, fueled by pent-up demand both in the global goods and particularly services sectors.

However, while the drag of the pandemic was still being felt in major economies in 1Q22, the war in Eastern Europe has led to a level shift in global economic uncertainty. This conflict has so far led to a number of issues, including rising commodity prices, which are further escalating global inflation. Moreover, heavily impacted trade flows and transportation logistics are — in part — offsetting the gradual easing of global supply chain bottlenecks.

Thereby, the effects of the conflict and especially the impact of rising inflation, if sustained, will lead to a decline in consumption and investments to varying degrees. Finally, financial conditions of the various asset classes are impacted, such as in currency markets, equities and an ongoing repricing of debt.

Clearly, this will impact economic activities in 2022, though to what exactly extent remains to be seen. Given the complexity of the situation, the speed of developments, and fluidity of the market, with so far limited data to understand the far-reaching consequences of this conflict, projections are changing almost on a daily basis, making it challenging to pin down a single number with reasonable degree of certainty. However, with more data and hence a deeper understanding of the unravelling events over the next few weeks, the global GDP growth forecast for 2022 remains under assessment at 4.2 per cent, and will be reviewed and adjusted, when there is more clarity on the far-reaching impact of the geopolitical turmoil. With this, all headline economic forecast numbers for 2022 remain under assessment.

In addition the potential impact of the conflict in Eastern Europe, the COVID-19-related 1Q22 impacts are also expected to impact forecasts for the major OECD economies accordingly. Furthermore, non-OECD economies are forecast to be impacted rather selectively, and to varying degrees. Indeed, the pandemic has led to some 1Q22 downward momentum in the US, the Euro-zone and Japan, in addition to negative 1Q22 consequences of the zero-COVID-19 policy in China. For now, the pandemic is assumed to be largely contained. Nonetheless, numerous challenges remain, including virus mutations and the effectiveness of vaccines against variants. Moreover, sovereign debt levels in most economies have risen to a point where interest rate increases could cause severe fiscal strain. The expected further rise in inflation, especially in the US and the Euro-zone, is forecast to keep gradual monetary tightening on track, albeit with flexibility about the timeline and magnitude.

Looking ahead, and given the latest developments, which are still only beginning to unfold, it is clear that uncertainty will dominate in the remaining months of 2022: ie: uncertainty with regard to the scope and impact of the current geopolitical turmoil, restrictions and restructuring of production and trade flows, uncertainty on to what degree this will impact inflation and oil demand, and how this will serve to accelerate the drive towards energy transition, particularly in Europe.

Given this unprecedented level of uncertainty, the forecast for total global oil demand growth for 2022 also remains under assessment at 4.2 million b/d, until more clarity prevails. In light of these highly volatile times, the safeguarding of market stability will remain paramount to both oil producing and consuming countries.

MOMR ... oil market highlights

March 2022

Crude oil price movements — Crude oil spot prices increased strongly in February compared to the previous month, supported by strong physical crude market fundamentals, dissipating fears about COVID-19, and an escalating geopolitical conflict in Eastern Europe that raised concerns about a near-term oil supply disruption resulting in a rally in oil futures markets. The OPEC Reference Basket rose by $8.81, or 10.3 per cent, to settle at $94.22/b. Crude oil futures prices rose on both sides of the Atlantic with the ICE Brent front month up $8.53, or 10.0 per cent, to average $94.10/b and NYMEX WTI rising by $8.65, or 10.4 per cent, to average $91.63/b. Consequently, the Brent-WTI futures spread narrowed by 12¢ to an average of $2.47/b. The market structure of all three crude benchmarks — ICE Brent, NYMEX WTI and DME Oman — moved into deeper backwardation as investors were anticipating a potential supply disruption. Strong demand in the spot market added support to the market structure. Hedge funds and other money managers raised their net long positions in anticipation of higher oil prices.

World economy — The conflict in Eastern Europe has added more downside risk to the performance of world economy in 2022. So far, and in addition to the ongoing pandemic, the conflict has led to a number of key issues including rising commodity prices, which are further escalating global inflation. The effects of the conflict, especially the impact of rising inflation, if sustained, will lead to a decline in consumption and investments to varying degrees. Moreover, financial conditions of the various asset classes, such as in currency markets, equities and an ongoing repricing of debt are being impacted. Clearly, this will impact economic activities in 2022, though to what exactly extent remains to be seen. Given the complexity of the situation, the speed of developments, and fluidity of the market, with so far limited data to understand the far-reaching consequences of this conflict, projections are changing almost on a daily basis, making it challenging to pin down numbers, with reasonable degree of certainty. However, with more data and hence a deeper understanding of the unravelling events, over the next few weeks, the global GDP growth forecast for 2022 remains under assessment at 4.2 per cent, and will be reviewed and adjusted, when there is more clarity on the far-reaching impact of the geopolitical turmoil. Similarly, all headline economic forecast numbers for 2022 remain under assessment.

World oil demand — World oil demand growth in 2021 is revised up by 50,000 b/d, reflecting the actual data across the regions, to now stand at 5.7 million barrels/day. The 4Q21 figure for all OECD region is revised higher, as a result of the better performance. The OECD in 2021 increased by 2.7m b/d, while the non-OECD showed growth of 3.1m b/d. Given the above mentioned developments and the extremely high uncertainty surrounding global macroeconomic performance, the 2022 forecast for global oil demand growth remains under assessment at 4.2m b/d, with OECD forecast at 1.9m b/d and non-OECD at 2.3m b/d. However, this forecast is subject to change in the coming weeks, when there is more clarity on the far-reaching impact of the geopolitical turmoil.

World oil supply — Non-OPEC liquids supply growth in 2021 remained broadly unchanged from last month's assessment at around 600,000 b/d y-o-y. Total US liquid output increased by 150,000 b/d, y-o-y. Oil supply in 4Q21 is estimated to have declined in Canada and Australia, while there have been some minor upward revisions in other countries. The 2021 oil supply estimation primarily sees growth in Canada, Russia, the US and China, while output is projected to decline in the UK, Brazil, Colombia and Indonesia. The forecast for non-OPEC supply for 2022 remains at 3.0m b/d, y-o-y. This forecast is under assessment, and will be reviewed and adjusted in the coming weeks, if deemed necessary. The main drivers of liquids supply growth are expected to be the US and Russia, followed by Canada, Brazil, Kazakhstan, Guyana and Norway. OPEC NGLs are forecast to grow by 100,000 b/d both in 2021 and 2022 to average 5.1m b/d and 5.3m b/d, respectively. In February, OPEC crude oil production increased by 440,000 b/d m-o-m, to average 28.47m b/d, according to available secondary sources.

Product markets and refining operations — In February, refinery margins on all main trading hubs improved, mainly reflecting fuel supply-side dynamics over an already increasingly tight global product balance. Most product prices in all regions soared, which in turn helped lift product crack spreads, in response to a contraction in product outputs due to maintenance, concerns about dislocations due to geopolitical developments, and stronger crude prices. In the immediate near term, refinery intakes are expected to decline further, which could exacerbate the global product shortage, and drive product prices upwards.

Tanker market — The dirty tanker market remained at muted levels for much of February, although volatility accelerated at the end of the month as geopolitical developments intervened. In monthly terms, VLCCs continued to be anchored at historically weak levels, as has been the case since mid-2020. Suezmax and Aframax rates have performed better and were slightly higher than in the previous year, registering an improvement m-o-m. Clean rates were flat to the east but picked up in the Atlantic Basin. The volatility seen at the end of the month will become more evident in March data, with upward pressure particularly concentrated in the Aframax and Suezmax classes.

Crude and refined products trade — Preliminary data shows US crude imports declined five per cent in February, m-o-m, following three months of gains. US crude exports picked up from the low levels of the previous month, rising 16 per cent, m-o-m. China's crude imports averaged 10.5m b/d in January, as flows were supported by new import quotas but capped by limited refinery runs during the Beijing Olympics and the Lunar New Year holidays. India's crude imports averaged 4.5m b/d in January, down around three per cent from the strong level the month before. Crude imports were expected to rise in February, as the economy gains momentum and refiners boost runs. Japan's crude imports declined in January from the multi-year high seen the month before. Japan's product exports in January were the highest since March 2020, with gasoline outflows at a multi-year high and gasoil at the highest since March 2020. Recent developments in Eastern Europe have created considerable dislocations, which is likely to be visible in March data, adding considerable uncertainty to crude and product trade flows.

Commercial stock movements — Preliminary data for January sees total OECD commercial oil stocks down, m-o-m, by 3.1m b. At 2,677m b, OECD commercial oil stocks were 359m b less than the same time one year ago, 280m b lower than the latest five-year average and 250m b below the 2015–19 average. Within the components, OECD commercial crude stocks fell, m-o-m, by 8.7m b, while OECD commercial product stocks rose, m-o-m, by 5.5m b. At 1,294m b, OECD commercial crude stocks were 158m b less than the latest five-year average and 139m b below the 2015–19 average. OECD commercial product stocks stood at 1,383m b, representing a deficit of 142m b compared with the latest five-year average and were 112m b below the 2015–19 average. In terms of days of forward cover, OECD commercial stocks fell, m-o-m, by 0.7 days in January, to stand at 59.3 days. This is 11.6 days below January 2021 levels, 6.2 days less than the latest five-year average, and 2.8 days lower than the 2015–19 average.

Balance of supply and demand — Demand for OPEC crude in 2021 was revised up by 100,000 b/d from the previous month's assessment to stand at 28.0m b/d, which is around 5.0m b/d higher than in 2020. In contrast, demand for OPEC crude in 2022 was also revised up by 100,000 b/d from the previous month's assessment to stand at 29.0m b/d, which is around 1.0m b/d higher than in 2021.

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Table 1: OPEC Reference Basket spot crude prices

$/b

Crude/Member Country	2021 Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2022 Jan	Feb	Weeks 5-9/2022 (week ending) Jan 28	Feb 4	Feb 11	Feb 18	Feb 25
Arab Light – Saudi Arabia	61.49	65.20	64.09	67.72	72.76	74.15	71.36	75.01	82.77	80.81	75.49	86.15	93.82	89.60	90.70	92.16	94.03	96.86
Basrah Light – Iraq	61.40	65.17	63.48	66.96	71.79	73.40	70.39	73.75	81.48	79.62	74.09	84.88	94.17	88.50	90.68	92.66	94.43	97.14
Bonny Light – Nigeria	62.24	65.57	64.17	67.61	72.21	75.37	71.23	74.09	82.90	80.73	74.43	86.85	98.76	90.87	94.49	97.57	99.10	101.68
Djeno – Congo*	54.78	58.11	57.01	61.04	65.51	67.54	63.35	66.95	76.09	73.92	66.66	79.16	90.56	83.18	86.40	89.37	90.90	93.48
Es Sider – Libya	60.83	63.56	62.11	66.16	71.01	73.64	69.45	72.75	81.59	80.32	73.35	86.16	98.06	90.18	93.80	96.87	98.40	100.98
Girassol – Angola	62.99	66.04	64.00	68.39	73.47	75.45	70.93	74.76	84.47	82.29	75.16	88.28	100.78	92.79	96.70	99.38	101.15	103.77
Iran Heavy – IR Iran	60.66	64.30	63.00	66.72	71.68	72.98	70.34	74.08	82.14	80.50	74.68	85.59	93.04	89.13	89.98	91.43	93.20	96.14
Kuwait Export – Kuwait	61.31	64.86	63.75	67.54	72.54	73.80	71.06	74.92	82.74	81.13	75.38	86.28	93.84	89.83	90.64	92.27	94.04	96.97
Merey – Venezuela	42.87	46.47	46.16	49.13	53.52	54.49	51.76	54.96	62.72	61.21	54.89	63.58	71.02	66.77	68.13	69.57	71.17	73.80
Murban – UAE	60.99	64.33	63.35	66.82	72.34	73.64	69.89	73.41	82.73	82.06	74.57	85.11	94.18	88.65	91.57	92.37	94.23	97.07
Rabi Light – Gabon	61.77	65.10	64.00	68.03	72.50	74.53	70.34	73.94	83.08	80.91	73.65	86.15	97.55	90.17	93.39	96.36	97.89	100.47
Saharan Blend – Algeria	62.38	65.76	64.01	67.81	72.31	75.34	71.05	73.85	83.54	81.97	75.50	88.21	100.71	92.23	96.33	99.52	101.05	103.63
Zafiro – Equatorial Guinea	62.46	65.99	64.75	68.49	73.50	75.66	70.41	74.03	84.12	82.25	74.35	87.28	99.51	91.93	95.35	98.32	99.85	102.43
OPEC Reference Basket	**61.05**	**64.56**	**63.24**	**66.91**	**71.89**	**73.53**	**70.33**	**73.88**	**82.11**	**80.37**	**74.38**	**85.41**	**94.22**	**89.01**	**90.89**	**92.65**	**94.43**	**97.25**

Table 2: Selected spot crude prices

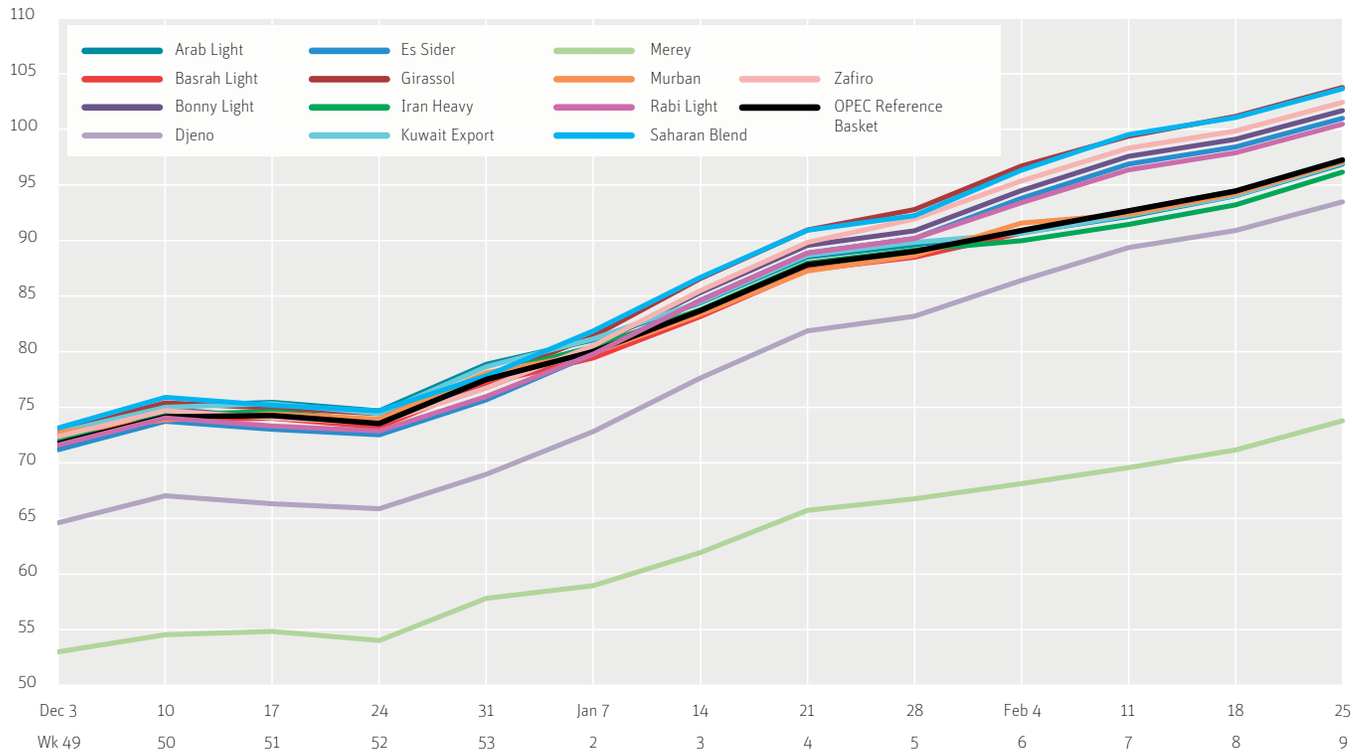
$/b

Crude/country	2021 Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2022 Jan	Feb	Weeks 5-9/2022 (week ending) Jan 28	Feb 4	Feb 11	Feb 18	Feb 25
Arab Heavy – Saudi Arabia	61.16	64.72	63.31	67.22	72.08	73.25	70.65	74.07	81.92	80.19	74.27	85.28	92.78	88.83	89.71	91.17	92.94	95.87
Brega – Libya	61.28	64.11	62.66	66.51	71.21	73.74	69.35	72.80	81.69	80.22	73.35	86.26	98.31	90.28	94.02	97.12	98.65	101.23
Brent Dtd – North Sea	62.23	65.56	64.46	68.51	72.96	74.99	70.80	74.40	83.54	81.37	74.10	86.61	98.01	90.63	93.85	96.82	98.35	100.93
Dubai – UAE	60.83	64.40	62.92	66.41	71.50	72.83	69.37	72.57	81.46	80.29	73.31	83.34	92.11	86.85	88.77	90.20	91.92	95.78
Ekofisk – North Sea	63.01	66.30	65.00	69.44	73.54	76.24	71.85	74.74	84.24	82.75	75.30	89.37	101.34	93.08	96.85	100.18	101.99	104.18
Iran Light – IR Iran	59.90	62.72	61.58	65.73	70.00	71.52	66.51	71.08	80.36	78.51	71.50	85.19	93.37	89.23	91.66	93.75	94.98	93.58
Isthmus – Mexico	58.90	61.88	60.94	64.47	68.61	69.61	65.25	68.82	78.20	75.50	68.50	79.55	89.68	82.81	86.48	88.33	90.52	91.44
Oman – Oman	60.88	64.43	63.10	66.42	71.66	72.87	69.54	72.78	81.58	80.29	73.22	83.62	92.03	87.20	88.82	90.73	92.56	94.55
Suez Mix – Egypt	59.77	62.59	61.45	65.60	69.87	71.39	66.38	70.95	80.23	78.38	71.37	85.06	93.24	89.10	91.53	93.62	94.85	93.45
Minas – Indonesia*	59.84	63.63	62.86	66.06	71.12	72.24	68.45	72.62	81.34	79.35	72.44	82.96	92.25	86.53	88.72	89.54	91.87	96.70
Urals – Russia	61.47	64.29	63.02	67.26	71.57	73.09	68.14	72.65	81.93	80.08	73.14	86.23	94.94	90.80	93.23	95.32	96.55	95.15
WTI – North America	59.08	62.35	61.71	65.23	71.38	72.58	67.73	71.46	81.36	79.11	71.87	83.16	91.70	86.30	89.44	90.66	92.80	92.39

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, 2021

$/b



Graph 2: Evolution of selected spot crude prices, 2021

$/b

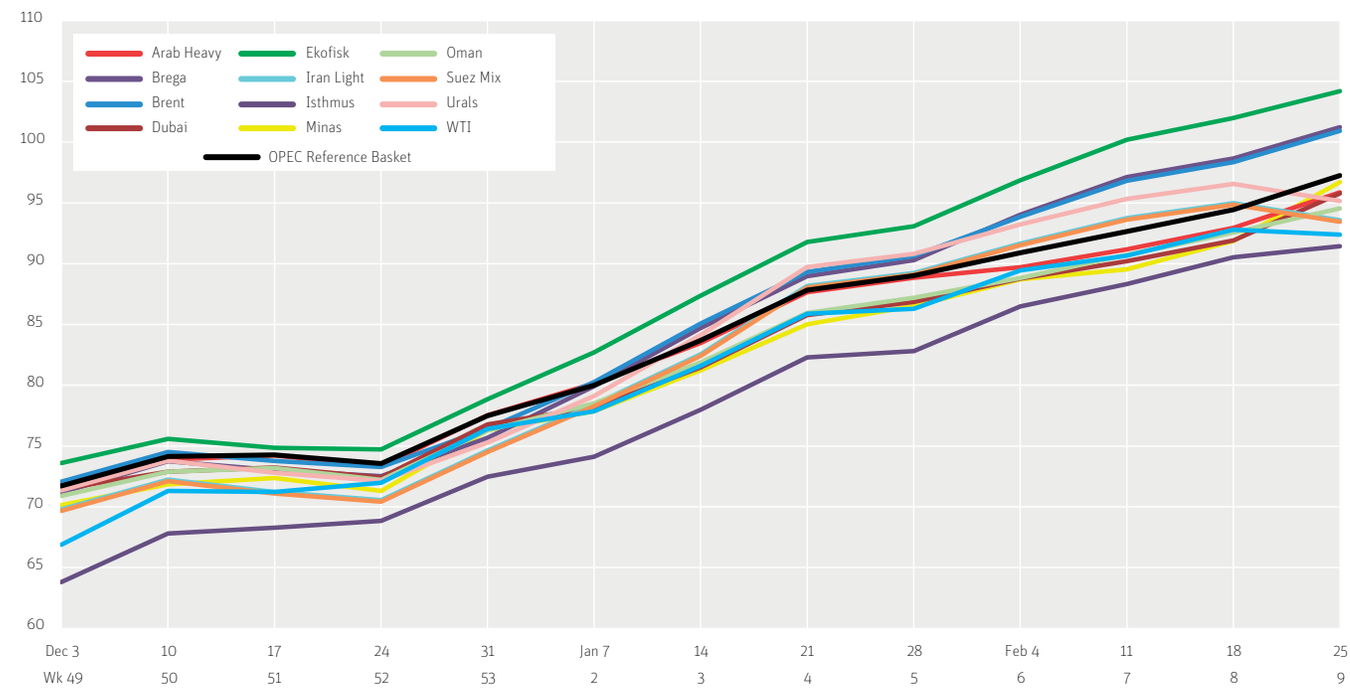


Table and Graph 3: North European market — spot barges, fob Rotterdam

$/b

		naphtha	regular gasoline unleaded	diesel ultra light	jet kero	fuel oil 1 per cent S	fuel oil 3.5 per cent S
2021	February	61.37	70.71	66.45	67.89	63.42	54.38
	March	63.36	76.83	68.66	69.93	66.22	57.31
	April	61.70	79.81	68.65	69.58	63.84	55.90
	May	65.58	83.11	73.18	74.53	65.03	57.19
	June	70.13	86.70	77.83	79.34	68.84	61.43
	July	74.43	91.10	79.27	80.29	71.11	62.09
	August	71.63	90.74	76.59	77.67	68.47	59.88
	September	75.19	93.89	82.87	84.35	73.93	64.09
	October	84.42	103.48	95.73	96.92	81.72	72.06
	November	81.41	100.77	91.26	92.83	77.65	65.40
	December	77.40	90.49	86.20	86.38	73.64	62.52
2022	January	85.91	102.47	101.51	101.18	82.97	73.18
	February	95.37	114.12	110.60	112.77	90.83	78.59

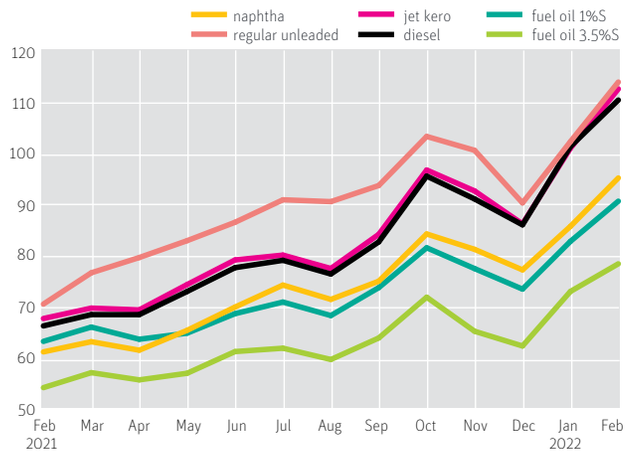


Table and Graph 4: South European market — spot cargoes, fob Italy

$/b

		naphtha	premium gasoline 50ppm	diesel ultra light	fuel oil 1 per cent S	fuel oil 3.5 per cent S
2021	February	60.28	68.13	68.54	64.62	53.13
	March	62.59	74.73	70.63	67.48	55.71
	April	60.82	75.80	70.21	65.31	54.41
	May	64.72	78.60	75.11	66.22	56.01
	June	69.56	82.43	79.92	69.97	59.94
	July	74.03	87.81	81.16	72.11	60.93
	August	71.28	85.79	78.50	70.01	58.97
	September	74.92	88.58	85.00	75.26	63.76
	October	83.83	97.74	97.63	83.38	71.40
	November	80.76	92.83	93.15	79.64	64.50
	December	75.50	86.82	87.05	75.70	61.24
2022	January	84.89	98.09	101.29	85.58	72.09
	February	93.90	109.76	112.16	92.31	77.06

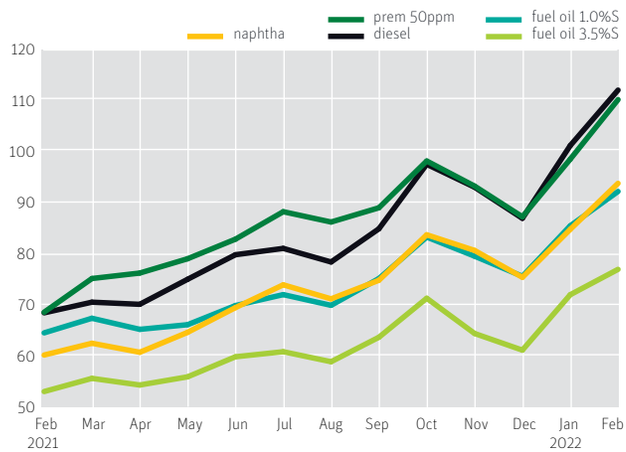
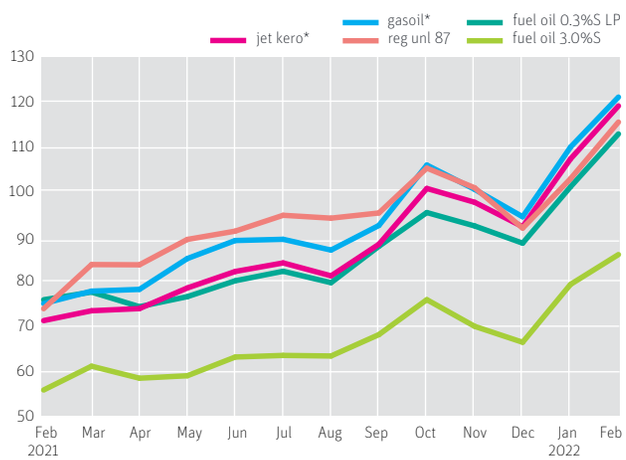


Table and Graph 5: US East Coast market — spot cargoes, New York

$/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
2021	February	73.85	75.00	71.19	75.84	55.73
	March	83.68	77.76	73.39	77.55	61.04
	April	83.63	78.15	73.87	74.30	58.36
	May	89.28	85.02	78.47	76.53	58.91
	June	91.13	89.04	82.14	80.07	63.08
	July	94.66	89.31	84.05	82.19	63.44
	August	94.02	86.91	81.17	79.64	63.31
	September	95.18	92.40	88.21	87.76	68.08
	October	105.17	105.85	100.64	95.27	75.86
	November	100.78	100.43	97.55	92.28	69.91
	December	91.80	94.33	92.12	88.45	66.37
2022	January	102.81	109.86	107.23	101.02	79.27
	February	115.43	121.00	119.03	112.79	85.91



* *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
2021	February	61.85	67.83	66.36	66.70	66.45	65.15	55.74
	March	65.03	73.43	71.47	68.75	68.39	66.82	58.97
	April	62.40	73.94	71.69	67.73	67.40	66.74	57.08
	May	65.94	76.11	74.38	72.11	71.90	71.71	57.70
	June	70.64	80.31	78.81	76.78	76.61	75.91	62.62
	July	75.57	85.14	83.08	77.93	77.72	77.25	63.53
	August	71.01	81.13	78.94	73.77	73.55	74.05	62.33
	September	75.15	84.06	82.05	79.66	79.46	79.88	69.18
	October	84.45	98.48	95.71	93.38	93.10	93.09	74.81
	November	84.21	95.01	92.15	90.84	90.65	89.09	68.76
	December	77.82	87.92	85.79	84.94	84.50	83.47	63.75
2022	January	84.56	98.04	96.18	97.84	97.43	95.78	72.97
	February	95.75	110.72	108.26	109.91	109.24	106.17	79.78

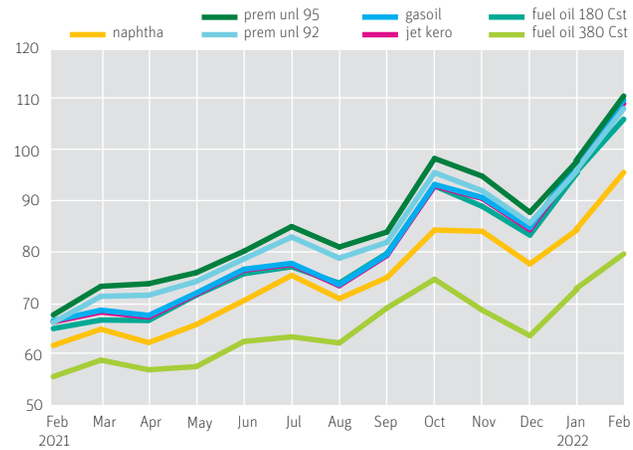
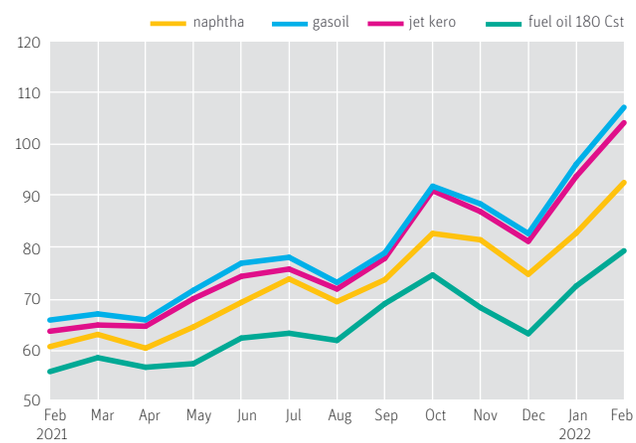


Table and Graph 7: Middle East Gulf market – spot cargoes, fob

$/b

		naphtha	gasoil	jet kero	fuel oil 180 Cst
2021	February	60.62	65.78	63.61	55.76
	March	62.99	66.98	64.82	58.47
	April	60.32	65.82	64.58	56.61
	May	64.44	71.57	69.94	57.31
	June	69.20	76.83	74.28	62.28
	July	73.78	77.98	75.70	63.22
	August	69.36	73.10	71.82	61.82
	September	73.62	78.84	77.78	68.97
	October	82.62	91.80	90.95	74.55
	November	81.38	88.36	86.86	68.20
	December	74.69	82.60	81.08	63.13
2022	January	82.69	96.06	93.69	72.39
	February	92.53	107.14	104.15	79.25



Source: Argus. Prices are average of available days.

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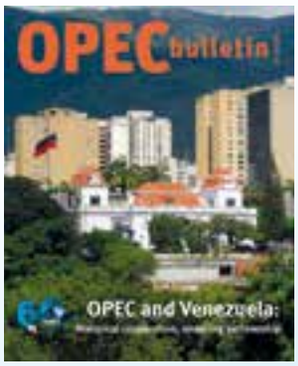

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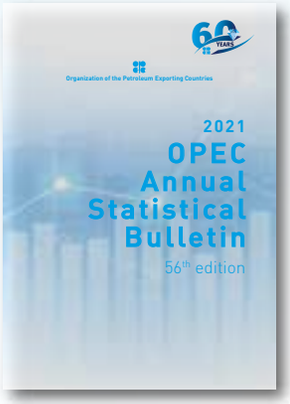

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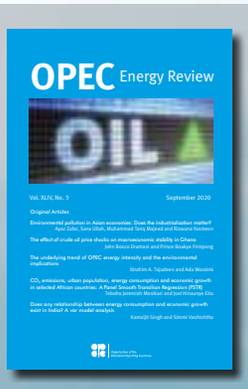

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