OPEC bulletin

11–12/23

Brazil joins OPEC+ Charter of Cooperation

COP28

Two weeks in Dubai

Cooperation key for global energy and climate challenges

In a historic moment at the 36th OPEC and non-OPEC Ministerial Meeting (ONOMM) on 30 November Alexandre Silveira de Oliveira, Minister of Mines and Energy of the Federative Republic of Brazil, announced that South America's largest economy would join the OPEC+ Charter of Cooperation (CoC) at the start of 2024.

Established at the 6th ONOMM in July 2019, the CoC is a permanent platform dedicated to fostering cooperation on longer-term challenges and opportunities for the oil industry, with the goal of contributing to secure energy supplies and lasting stability.

Since its inception, the CoC has facilitated ministerial- and technical-level dialogue between countries in the Declaration of Cooperation (DoC) — which celebrated its seventh anniversary on 10 December 2023 — on a plethora of issues, including supply and demand outlooks, investments, technology, climate change and energy transitions, to name a few.

Ministers from the group's 23 participating countries met de Oliveira's membership announcement with a standing ovation, delivering a warm welcome to a country whose oil production continues to go from strength to strength on the world stage. OPEC's 2023 World Oil Outlook sees Brazil's output rising from 3.7 million barrels per day (mb/d) in 2022 to 4.8 mb/d in 2028, and anticipates that Brazil will be one of the key contributors to non-OPEC liquids supply growth in the medium term.

Along with its prominence in oil production, Brazil is also a leader in renewable energy, thereby demonstrating a pragmatic 'all-fuels and all-technologies' approach to tackling emissions and fostering energy security, affordability and sustainability.

Brazil's example demonstrates that it is possible to invest heavily in renewables while producing the oil the world needs today, and will continue to need in the years ahead, with its energy investments over the next five years totaling over $100 billion.

Against a global backdrop of looming population and energy demand growth, prudent energy policies and corresponding levels of investments like those espoused by Brazil underline that oil and renewables are not competitors in a zero-sum game.

Indeed, the reality is that the mass production of renewable energy technologies is currently not even possible without oil or its derivatives. Wind turbines cannot be produced without petroleum end-use products like fibreglass, resin and plastic; petrochemical products like ethylene are needed in copolymers that cover the photovoltaics on solar panels; and lithium-ion batteries in electric vehicles are made of graphite, which rely on calcined petroleum coke.

This reality and the sentiment related to cooperation among all stakeholders is apparent in the consensual and positive 'UAE Consensus' that emerged at COP28 in Dubai. OPEC is proud of its Member Country, the UAE, for its excellent organization of COP28, which saw record participation and numerous global milestones.

In his remarks at the Closing Plenary, the COP28 President, Dr Sultan Ahmed Al Jaber, noted that the 'UAE Consensus' had been "built on common ground … strengthened by inclusivity… and reinforced by collaboration".

Dialogue and cooperation also lie at the forefront of OPEC's *modus operandi*, and the Organization is proud of its role in helping to foster market stability and deliver energy security while reducing emissions.

In this respect, OPEC Member Countries will continue to invest in upstream and downstream operational efficiencies; deploy their vast expertise to decarbonize the oil industry; mobilize innovative technologies like carbon capture utilization and storage; make major investments in renewables and hydrogen; and promote the circular carbon economy.

In doing so, they will seek to contribute to just, orderly and inclusive energy transitions that take into account all national circumstances, pathways and approaches. Indeed, as underlined by Brazil joining the CoC, OPEC+ will continue to seek the means to build and evolve cooperation in order to deliver the sustainable market stability and energy security that is vital for both producers and consumers.

Addressing the world's looming energy and climate challenges must continue to put pragmatism and realism front and centre. All stakeholders need to look to deliver reliable energy for all, alongside reductions in emissions, and in a nationally determined manner that befits a country's circumstances. We owe it to future generations to do so.

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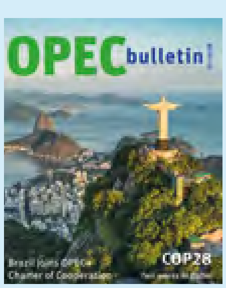

Cover
This month's cover highlights Brazil (see story on page 12).

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OPEC Membership and aims
OPEC is a permanent, intergovernmental Organization, established in Baghdad, on 10–14 September 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 31 December 2019. Qatar joined in 1961 and left on 31 December 2018. Indonesia joined in 1962, suspended its Membership on 31 December 2008, reactivated it on 1 January 2016, but suspended its Membership again on 31 December 2016. Gabon joined in 1975 and left in 1995; it reactivated its Membership on 1 July 2016. The Republic of the Congo joined the Organization on 22 June 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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OPEC+ continues its support for balanced and stable markets

The 36th OPEC and non-OPEC Ministerial Meeting (ONOMM), alongside the 51st Meeting of the Joint Ministerial Monitoring Committee (JMMC), and the 187th Meeting of the OPEC Conference, convened virtually on 30 November 2023. The OPEC Bulletin *reports.*

Meeting for the first time since June, the 36th ONOMM saw ministers gather virtually to review the current market situation and the outlook for 2024.

Following the discussions, the meeting reaffirmed the continued commitment of the Participating Countries in the Declaration of Cooperation (DoC) to ensuring a stable and balanced oil market.

In view of current oil market fundamentals, the Meeting also reaffirmed the framework of the DoC, signed on 10 December 2016 and further endorsed in subsequent meetings including the 35th ONOMM on 4 June 2023; as well as the Charter of Cooperation (CoC) signed on 2 July 2019.

It also noted — in accordance with the decision of the 35th ONOMM — the completion of the assessment by three independent sources (IHS, Wood Mackenzie and Rystad Energy) for production levels that could be

(L–r:) Shakir Mahmoud A Alrifaiey, Head, Secretary General's Office; Dr Abderrezak Benyoucef, Head, Energy Studies Department; Dr Ayed S Al-Qahtani, Director, Research Division; Haitham Al Ghais, OPEC Secretary General; and Behrooz Baikalizadeh, Head, Petroleum Studies Department.

(L–r:) Dr Aziz Yahyai, Senior Research Analyst; Huda Almwasawy, Head, Data Services Department; and Mhammed Mouraia, Statistical Systems Coordinator.

achieved in 2024 by Angola, Congo and Nigeria. These are Angola at 1,110 thousand barrels a day (t/bd), Congo at 277 t/bd and Nigeria at 1,500 t/bd.

Following the meeting, the OPEC Secretariat also noted the announcement from a number of OPEC+ countries of additional voluntary adjustments totaling 2.2 million barrels per day, aimed at supporting the stability and balance of oil markets.

These adjustments were calculated from the 2024 required production level as per the 35th ONOMM, and were in addition to the voluntary adjustments previously announced in April 2023 and later extended until the end of 2024.

The additional voluntary adjustments starting from 1 January until the end of March 2024 were: Saudi Arabia (1,000 tb/d); Iraq (223 tb/d); United Arab Emirates (163 tb/d); Kuwait (135 tb/d); Kazakhstan (82 tb/d); Algeria (51 tb/d); and Oman (42 tb/d).

Afterwards, in order to support market stability, these voluntary adjustments will be returned gradually, subject to market conditions.

The noted adjustments are in addition to the announced voluntary adjustment by the Russian Federation of 500 tb/d for the same period (starting from 1 January until the end of March 2024). This will be made from the average export levels of the months of May and June of 2023, and will consist of 300 t/bd of crude oil and 200 t/bd of refined products.

The meeting also welcomed Alexandre Silveira de Oliveira, Minister of Mines and Energy of the Federative Republic of Brazil, which will join the OPEC+ CoC starting in January 2024. Silveira delivered a speech to the meeting (see page 12).

It was agreed that the 37th OPEC and non-OPEC Ministerial Meeting would be held on 1 June 2024 in Vienna.

The 187th OPEC Conference saw remarks delivered by Marcel Abeke, Minister of Petroleum of Gabon, who will be the President of the Conference in 2024.

Gabon first joined OPEC back in 1975, almost 50 years ago, and while it had a brief period away from the Organization from 1995, it rejoined in 2016.

At the 187th OPEC Conference, Abeke noted that "Gabon's ongoing support for the Organization is unwavering", with the country being supportive of OPEC's objectives and the role of the Declaration of Cooperation, and recognizing the value of all of OPEC's decision-making bodies.

Gabon chaired the Board of Governors in 2020, a challenging period that saw the onset of the COVID-19 pandemic. However, with the help of Gabon's Governor, the Board was able to deliver effectively for the Organization.

In addition, Gabon continues to contribute to OPEC's Economic Commission Board, which is a vital cog in the research and analysis provided to OPEC Member Countries.

Against this successful backdrop, Abeke stated that "in looking back at the history of OPEC, and the many great Conference presidents that have gone before, I stand ready to provide what guidance, support and direction is required when I assume the positon [of OPEC Conference President] at the beginning of 2024."

Abeke closed by thanking the outgoing President of the Conference in 2023, Antonio Oburu Ondo, Equatorial Guinea's Minister of Mines and Hydrocarbons, praising him as "a great ambassador for the Organization, and a steadfast and dependable President over the past year."

Marcel Abeke, Minister of Petroleum of Gabon, President of the Conference in 2024.

In memoriam:
HH Sheikh Nawaf Al-Ahmad Al-Jaber Al-Sabah

*His Highness **Sheikh Nawaf Al-Ahmad Al-Jaber Al-Sabah** played major and pivotal roles in the state of affairs of Kuwait for many decades and assumed the role of Amir on 29 September 2020. He was viewed as a wise and thoughtful leader, and a staunch supporter of OPEC and the Declaration of Cooperation (DoC).*

"With great sadness and sorrow, we — the Kuwaiti people, the Arab and Islamic nations, and the friendly peoples of the world — mourn the late His Highness the Amir, Sheikh Nawaf Al-Ahmad Al-Jaber Al-Sabah, who passed away to his Lord today," Sheikh Mohammed Abdullah al-Sabah, the Minister of his Amiri court, said in a statement aired on state television on 16 December.

On the sad passing of such a great leader at the age of 86, OPEC offered its deepest and heartfelt condolences to the leadership of the State of Kuwait, its ruling family and its people.

OPEC Secretary General Haitham Al Ghais said: "It is with great sadness and sorrow that we, at OPEC, have learnt of the passing of His Highness Sheikh Nawaf Al-Ahmad Al-Jaber Al-Sabah, Amir of the State of Kuwait. His Highness was a distinguished leader that graciously provided guidance and support to the Organization, the DoC and the global oil market."

Sheikh Nawaf had a long and illustrious career spanning many roles and many decades in support of the development and progress of Kuwait. This included as Minister of Interior, Minister of Defense, Minister of Social Affairs and Labor, Deputy Chief of the Kuwait National Guard and First Deputy Prime Minister. He became Crown Prince in 2006.

After assuming the position of Amir in September 2020, Sheikh Nawaf focused fully on issues pertaining to Kuwait and its people, and channeled his energies and vision to help develop the State of Kuwait, and support and encourage its people. According to KUNA, "he called on state institutions to heed the aspirations of the Kuwaiti

HH Sheikh Nawaf Al-Ahmad Al-Jaber Al-Sabah on 19 July 2020.


Reuters

Sheikh Nawaf Al-Ahmad Al-Sabah, as Kuwait's Crown Prince, arrives for the opening session of Parliament in Kuwait City, 16 December 2012.

people, enabling young and old to excel and achieve their dreams for the development and progress of Kuwait in all possible domains and spheres."

His time as Amir was also a period of great upheaval for the global oil industry, particularly given the challenges related to the severe impacts of the COVID-19 pandemic. His astute leadership and wise counsel helped guide his country and the Organization through these difficult times.

Over the last six decades, Sheikh Nawaf has also continuously advocated for just and inclusive solutions to regional and international issues. He was a bridge builder, a statesman, and a leader who continually looked to enhance dialogue and understanding among all countries.

Global tributes

The high esteem Sheikh Nawaf was held in was reflected in the respects paid by world leaders. These included:

Saudi Arabia's King Salman bin Abdulaziz and Crown Prince Mohammed bin Salman offered their condolences to the people of Kuwait and announced a three-day period of mourning. "The Kingdom of Saudi Arabia and its people share the sorrows of the brothers in Kuwait" said a statement by the Saudi Royal Court.

In a presidential statement, United Arab Emirates President Sheikh Mohammad bin Zayed Al Nahyan prayed to Allah Almighty to rest his soul in Paradise and to grant patience and solace to the Al Sabah family, the State of Kuwait, and its people.

Kuwait's Amir Nawaf Al-Ahmad Al-Sabah gestures as he attends a parliament session, in Kuwait City, on 20 October 2020.

Sheikh Nawaf Al-Ahmed Al-Sabah, then Kuwait's Crown Prince (r), walks with Britain's Prince Charles and Camilla, Duchess of Cornwall, upon their arrival at Kuwait Airport in 2007.

US President Joe Biden described Sheikh Nawaf as a "valued partner and true friend of the United States", and pledged to "continue to strengthen the longstanding ties" between the countries. "Today, we mourn his passing and we honour his life and the vision we shared for greater peace and stability across the Middle East."

UK Prime Minister Rishi Sunak said: "I am saddened to hear of the death of His Highness the Amir of Kuwait, Sheikh Nawaf Al Ahmad Al Jaber Al Sabah … His Highness was a great friend of the UK and we will remember fondly all he did for our bilateral relationship and his work to promote stability in the Middle East."

United States Secretary of State Antony J. Blinken (l) meets with Kuwaiti Amir Sheikh Nawaf Al-Ahmed Al-Jaber Al-Sabah (r) and Kuwaiti Crown Prince Sheikh Mishal Al-Ahmed Al-Sabah (second r), in Kuwait City, on 29 July 2021.

Kuwaiti journalist Ahmed Al-Jarallah (r) with His Highness Sheikh Nawaf Al-Ahmad Al-Jaber Al-Sabah, Amir of the State of Kuwait.

Brazil joins OPEC+ Charter of Cooperation

At the 36th OPEC and non-OPEC Ministerial Meeting (ONOMM) on 30 November Brazil announced its intention to join the OPEC+ Charter of Cooperation (CoC) at the start of 2024.

A month or so after his official visit to Brazil (see page 14), the OPEC Secretary General, Haitham Al Ghais, introduced Alexandre Silveira de Oliveira, Minister of Mines and Energy of the Federative Republic of Brazil, to the 36th ONOMM.

In a sign of the group's expanding platform, Silveira announced that Brazil would join the OPEC+ CoC starting January 2024 and conveyed to all present the greetings of the President of the Federative Republic of Brazil, Luiz Inácio Lula da Silva.

The CoC was established at the 6th ONOMM on 2 July 2019 and provides a platform to facilitate dialogue and exchange views regarding conditions and developments in the global oil and energy markets.

Silveira noted that in Brazil "we have followed with great enthusiasm, the valuable work developed by the 23 countries participating in the OPEC+ agreement since its foundation in December 2016 (Declaration of Cooperation).

"The OPEC+ agreement has effectively preserved the stability of oil and energy markets. This stability brings benefits not only to producing countries, but also to consuming countries, directly affecting the global economy."

Cooperation is vital

In talking about Brazil, Silveira stated that the country was a leader in renewable energy and was also prominent in oil production, with energy investments scheduled for the next five years of approximately $102 billion. He added that "Brazil benefits significantly from the stability of oil and energy markets."

In talking of the CoC, Silveira recognized its broad platform and its establishment of "an inter-global platform to facilitate countries participating in the Charter, which strengthens the coordination of policies and technological development, aimed at promoting oil market stability for producers, consumers and the global economy."

He said: "In this way, this group of 23 countries has become strategic, not only for market stability, but also as a cooperation and exchange platform that benefits business and investment opportunities in the energy field.

"Brazil will certainly benefit from such opportunities in its country and will always be open to welcoming your investments in the energy sector with the clear objective of ensuring the economic and social development of millions of Brazilians," he added.

Historic moment

Silveira underlined that "this is a historic moment for Brazil and the energy industry, opening a new chapter in the history of international dialogue and cooperation in the energy field. We look forward to joining this distinguished group and working with all 23 countries in the coming months and years."

He added that, as Minister of Mines and Energy, he looked forward to delving deeper into energy issues with the OPEC+ group. In this regard, he also noted that he would be presiding over the G20 Energy Ministers' group in 2024, with Brazil chairing the G20, as well as hosting COP30, and emphasized the importance of just and inclusive energy transitions.

Alexandre Silveira de Oliveira, Minister of Mines and Energy of the Federative Republic of Brazil.

Olá Brasil

*In a first formal visit by an OPEC Secretary General to Brazil, **Haitham Al Ghais** met with many high-level government and oil industry representatives, including **Luiz Inácio Lula da Silva**, President of the Federative Republic of Brazil. He also held talks covering a plethora of oil and energy industry issues, and was briefed on what Brazil and its national oil company, Petrobras, are planning for the years ahead.*

The Alvorada Palace, or what is known locally as the Palácio da Alvorada, is the official residence of the President of Brazil in its capital Brasilia and was the location for the meeting between President Luiz Inácio Lula da Silva and the OPEC Secretary General.

Al Ghais was greeted warmly on his arrival at the palace and thanked the president for the audience. He highlighted the importance of advancing dialogue with industry stakeholders, and with regard to Brazil, said, "Our cooperation continues to grow with the objective of addressing key industry issues, such as energy security, underinvestment and energy transitions."

Secretary General Al Ghais also praised Brazil's leadership role in addressing issues of global concern. "Holding the Presidency of the G20 next year and hosting COP30 clearly demonstrates Brazil's unwavering commitment to finding solutions to issues of great importance and scale."

Luiz Inácio Lula da Silva, President of the Federative Republic of Brazil (l), and Haitham Al Ghais, OPEC Secretary General.

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View of Corcovado near Copacabana in Rio de Janeiro.

At the closing of the G20 Summit in New Delhi in September 2023, the Brazilian president underscored three key priorities for his country's presidency. These were social inclusion and the fight against hunger, and energy transition and sustainable development in its three aspects, namely social, economic and environmental, and reform of global governance institutions.

Palácio da Alvorada

The city of Brasilia was planned and developed by Oscar Niemeyer as principal architect and Lucio Costa as chief urban planner. The city was founded on 21 April 1960, and at its heart lies the Palácio da Alvorada, the residence of the president.

The palace sits on a peninsula close to the Paranoá Lake and was designed by the legendary architect, Niemeyer, who is considered to be one of the key figures in the development of modern architecture.

Built between 1957 and 1958, Niemeyer used a combination of marble, glass and water. The symmetry of the marble columns is said to combine with the reflex in the glass facade and in the water mirror. Its columns emblematize the city and are present in the flag and coat of arms of the city of Brasilia.

Earlier in 2023, the palace celebrated its 65th anniversary and according to a report from *Agência Brasil*, there are plans by the president and Brazil's first lady, sociologist Rosângela Lula da Silva, usually referred to by Brazilians as Janja, to reopen its doors to visitors.

The first lady told *Agência Brasil*, "It's impactful every day I spend here. Living here is remarkable. This is the historical building where so many former presidents have lived and countless historical decisions have been made."

She added that she hoped the palace could welcome the public back early in 2024 at the latest, stating she would like its reopening ceremony to feature an exhibition of contemporary artists, particularly women. "I really like Djanira [1914–79] and Tarsila do Amaral [1886–1973]. My dream is to have the Alvorada open again after we manage to bring Tarsila do Amaral's Abaporu back to Brazil," she said.

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Geraldo Alckmin, Vice President of Brazil (r), with Haitham Al Ghais, OPEC Secretary General.

He added that all of these priorities were part of the Brazilian presidency motto, 'Building a fair world and a sustainable planet'.

Ministerial meetings

Al Ghais also met with a number of government ministers during his week in the country. This included meetings with Rodrigo Pacheco, President of Brazil's Federal Senate, Geraldo Alckmin, Vice President of Brazil and Ambassador, Mauro Vieira, Brazil's Minister of Foreign Affairs.

The talks focused on the energy industry and key relevant issues and challenges, the role of Brazil as a leading energy provider in supporting energy security worldwide, and ways to strengthen collaboration between Brazil and OPEC.

The Secretary General also met with Alexandre Silveira de Oliveira, Minister of Mines and Energy, at

Rodrigo Pacheco, President of Brazil's Federal Senate (c); Haitham Al Ghais, OPEC Secretary General (l); and Jean Paul Prates, CEO of Petrobras.

As part of the mission to Brazil, OPEC Secretary General Haitham Al Ghais (c) met with Alexandre Silveira de Oliveira, Minister of Mines and Energy (second r), at the Ministry's Headquarters in Brasilia. In attendance were Jean Paul Prates, CEO of Petrobras (second l), and senior officials from the Ministry.

Mauro Vieira, Brazil's Minister of Foreign Affairs (l) and Haitham Al Ghais, OPEC Secretary General.

the Ministry's Headquarters in Brasilia, with Jean Paul Prates, CEO of Petrobras, and senior officials from the Ministry in attendance.

The meeting was an opportunity to drill down a little further into oil and energy market developments and explore possible avenues to enhance cooperation. It also built on talks Al Ghais held with Prates and Petrobras, as well as a fireside chat organized by the Brazilian Petroleum and Gas Institute in Rio de Janeiro to discuss the outlook for oil and gas industries.

Petrobras and research

Alongside meeting with Members of the Board of Directors of Petrobras at the company's Headquarters in Rio de Janeiro, the Secretary General's visit also coincided with events to mark the company's 70th

A tour of the CENPES facility with Maiza Pimenta Goulart, Research Manager at CENPES (fourth l).

anniversary. Al Ghais, alongside an accompanying an OPEC delegation, attended a special celebration at the National Congress of Brazil to mark the occasion.

In welcoming the Secretary General, Prates underscored the importance and symbolism of the two events. "The acceptance of the OPEC Secretary General of our invitation, as we celebrate Petrobras' 70th anniversary, demonstrates the company's global importance. This further encourages us to strive to be a paradigm, an example, and a partner to other countries in the energy transition."

The joint activities with Petrobras also saw Al Ghais visit the Leopoldo Américo Miguez Research, Development, and Innovation Centre (CENPES) and the Alberto Luiz Coimbra Institute for Postgraduate Studies and Research in Engineering (COPPE/UFRJ).

The CENPES visit included lunch with Petrobras and research center executives, as well as a tour of the rock laboratory and refining pilot plant. CENPES

OPEC Secretary General Haitham Al Ghais, and Jean Paul Prates, CEO of Petrobras at the CENPES rock laboratory.

Visit to COPPE/UFRJ.

is responsible for developing research that turns into business strategy and creates value for Petrobras, society, and the global energy segment.

Al Ghais was welcomed by the research centre's manager, Maiza Pimenta Goulart, and said that he was impressed by the dedication and professionalism of the staff.

"We need to be agile, flexible, and innovative, and that is what I see in Petrobras. The technical and market research you conduct is what matters the most. The Brazilian people are very innovative, so I am not surprised by the creativity I have seen here. The world will need energy — all forms of energy. We have to transition carefully, without sacrificing energy security and global economic growth. The transition must be fair, leaving no one behind. As I advocate, we need to transition with realism," he added.

After CENPES, Al Ghais visited COPPE/UFRJ, a partner of Petrobras in technology development. The delegation was received by Director-General Suzana Kahn, followed by a meeting and discussions with researchers from the energy sector.

The Secretary General, alongside Prates, also visited the Ocean Tank, designed to conduct tests on models of structures and equipment used in offshore oil and gas exploration and production activities.

Itamaraty Palace in Brasilia.

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OPEC Secretary General receives highest rank of Brazil's Order of Rio Branco

During his visit to Brazil, OPEC Secretary General, Haitham Al Ghais, was presented with the highest rank of the Order of Rio Branco (rank: Grand Cross) of the Federative Republic of Brazil.

The award was given in recognition of the Secretary General's distinctive achievements in the fields of energy and international cooperation, as well as the exceptional efforts exerted to promote dialogue and cooperation between OPEC and non-OPEC oil-producing countries in the interests of global oil market stability.

The honour was conferred by Ambassador Mauro Vieira, Brazil's Minister of Foreign Affairs, during a ceremony held at the Itamaraty Palace in Brasilia.

The prestigious Order is bestowed by the President of the Federative Republic of Brazil, who serves as the Grand Master of the Order, through a presidential decree. It was created in memory of the Brazilian diplomat and former Minister of Foreign Affairs, Jose Maria da Silva Paranhos Junior, who is widely regarded as the father of Brazilian diplomacy, to recognize distinguished individuals with outstanding merits that have provided meritorious service, and carried out actions and deeds worthy of honourable mention.

In his acceptance speech, Al Ghais thanked the Government of Brazil led by President Luiz Inácio Lula da Silva for the recognition, noting that receiving such an acknowledgement was a testament to the efforts undertaken by the Organization and its 13 Member Countries in the interest of sustainable stability in the global oil market and energy security.

"I am deeply honoured and humbled to receive this distinction on behalf of OPEC from a leading oil-producing country and influential player in the global energy industry like Brazil," Al Ghais stated, adding, "Brazil possesses a long-standing history in the energy markets and will continue to enjoy a bright future as a leading global energy provider.

"We look forward to working closely together with Brazil as we continue investing in the industry to ensure energy security, reduce emissions and eradicate energy poverty in just, inclusive energy transitions that leave no one behind."

The Secretary General added: "I wish to thank the dedicated staff of the OPEC Secretariat in Vienna, as they continue to exceed all expectations every day. It is my colleagues' team spirit, competence and remarkable knowledge that allowed us to reach today's milestone."

Mauro Vieira (r), Brazil's Minister of Foreign Affairs, presents the award to Haitham Al Ghais, OPEC Secretary General.

Petrobras: vital to Brazil, and the global oil industry

Brazil's national oil company, Petrobras, has been a key driver of Brazil's economy since it was formed over 70 years ago and an ever-expanding presence in the global oil market. This has been particularly apparent in recent years with the company's production from its' offshore pre-salt basins, which was in evidence at Brazil's Offshore Technology Conference (OTC) 2023 in October. The OPEC Bulletin *reports on remarks to the conference from OPEC Secretary General* ***Haitham Al Ghais****, as well as recent developments for Petrobras and Brazil's oil sector.*

In his speech to Brazil's OTC 2023, Al Ghais recalled the honour of meeting Luiz Inácio Lula da Silva, President of the Federative Republic of Brazil, and the positive talks and discussions held with government ministers and many oil industry representatives during his visit to Brazil (see page 14).

What was clear over the week, he said, "was the importance of Brazil's oil industry to the country, and more broadly, to the wider world."

He added that Brazil was the seventh largest global liquids producer and "also has the largest recoverable ultra-deep oil reserves in the world, and I am sure many of those in the audience today have played crucial roles in the huge production expansion seen in the country's offshore pre-salt basins.

"I have no doubt that Brazil will continue to be at the forefront of the global oil industry in the decades ahead to help meet the expanding need for energy."

During his visit to Brazil, Al Ghais also highlighted the importance of Petrobras to the country, and emphasized the professionalism and creativity of the company's staff he had met. He also praised Petrobras President Jean Paul Prates, stating that the company had achieved much under his capable and distinguished stewardship.

Haitham Al Ghais, OPEC Secretary General, participated in a fireside chat to discuss the outlook for the oil and gas industries. The event was organized by the Brazilian Petroleum and Gas Institute in Rio de Janeiro and attended by industry executives.

Petrobras breaks records

The expansion and importance of Petrobras was emphasized most recently in a company report that showed the company had broken a quarterly record of operated oil and gas production in the third quarter of 2023. It reached 3.98 million barrels of oil equivalent (mboe), 7.8 per cent above the second quarter.

Furthermore, it then went on to reach a monthly record of operated production in September, with a volume of 4.1 mboe, 6.8 per cent above the August volume. The operated production in the pre-salt in September was also a record, reaching a mark of 3.43 mboe in this layer.

The result was mainly due to the ramp-up in production at the Almirante Barroso platform, which operates in the Búzios field, and the P-71 platform, in the Itapu field — both in the Santos Basin pre-salt, as well as the Anna Nery and Anita Garibaldi units, in the Marlim and Voador fields, which operate in the Campos Basin.

Underlining the significance of these numbers, Prates said: "In the year that Petrobras turns 70, we have many reasons to celebrate. We broke our quarterly and monthly records in operated production and our results show the high productivity of the pre-salt, this giant that amasses exceptional results. In addition, since December last year, we have already put four new production platforms in operation."

Petrobras said that with the Floating, Production, Storage and Offloading (FPSO) Sepetiba terminal in the Mero field starting production at the end of 2023, the company had deployed five platforms successfully within a period of 12 months, which it described as "a true milestone".

Prates added that "our production began in 1953, with only 3,000 barrels per day, and now we produce more than a thousand times that volume. And we will continue to contribute to the country's growth. Petrobras will deploy half of all FPSOs in the world in the next few years, always focusing on our commitment to safety, diversity and sustainability."

> "I have no doubt that Brazil will continue to be at the forefront of the global oil industry in the decades ahead to help meet the expanding need for energy."
>
> *— Haitham Al Ghais, OPEC Secretary General.*

Decarbonizing

According to Petrobras, a key commitment to sustainability can be viewed in the 15 years that the company has been operating in the pre-salt layer, with significant progress made towards decarbonizing its operations there.

In a press release, Petrobras said: "The Tupi and Búzios fields, for example, located in the pre-salt of the Santos Basin, have produced benchmark results for the

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oil and gas industry. In 2022, the company achieved a rate of less than 9.5 $kgCO_2e$ for each barrel of oil equivalent produced from these assets, which represent around 51 per cent of Petrobras' production; an amount below the world average."

The company states that the carbon efficiency of its oil and gas production in the pre-salt is due to a portfolio of projects that have focused on operational excellence and, as a consequence reduced greenhouse gas emissions.

It adds that these projects have included the latest technology and have succeeded in generating power on platforms more efficiently, which has led to less fuel gas being used and less associated emissions. Other initiatives that have also been relevant have been the reduced burning of gas (flaring), the controlled release of gases (venting) and reducing leaks (fugitive emissions).

CCUS

Another key technology being deployed to reduce emissions from oil and gas production in the pre-salt layer is carbon capture, use and storage (CCUS). For Petrobras, the solution combines CCUS with advanced oil recovery (CCUS-EOR), which the company says was essential in making production possible in the pre-salt fields of the Santos Basin.

Petrobras says its CCUS operations in the pre-salt layer have become increasingly significant and are now the largest in the world in terms of annual CO_2 injection capacity. Last year, Petrobras says it broke a world record by injecting 10.6 million tons of CO_2 (tCO_2) into pre-salt reservoirs; the equivalent of 25 per cent of the total injected by industry around the world in 2022, according to the Global CCS Institute.

Since Petrobras started using CCUS in 2008, the cumulative total injected is now 40.8 million tons. Currently, the 23 platforms operating in the pre-salt fields are all equipped with CCUS.

The pioneering nature of the company's CCUS project in the pre-salt layer was in June 2023 recognized by the world body, the 'Carbon Sequestration Leadership Forum', the first time a Latin American company had won this award.

Energy security and reducing emissions

The company's focus on energy security and reducing emissions will be vital in the years and decades ahead, particularly given the expected increase in energy demand.

In OPEC's World Oil Outlook (WOO) 2023, energy demand is set to increase by 23 per cent to 2045, with the world population rising to 9.5 billion and the global economy almost doubling in size over this period. There also remains a critical need to bring modern energy services to those billions who continue to go without.

In his remarks, Al Ghais said that "for the oil industry alone, we see oil demand reaching 116 million barrels a day (mb/d) in 2045, which is more than 6 mb/d higher than our forecast last year given significant energy policy and economic-related developments." Moreover, to meet this demand, "oil sector investment requirements out to 2045 total $14 trillion, or around $610 billion per year."

He also highlighted the need to subscribe to global best practices and cutting edge, best-in-class technologies, such as CCUS, direct air capture, carbon

Oil exploration platform in Niterói, Rio de Janeiro, Brazil. Several companies operate in the Guanabara Bay area.

dioxide removal, and many others.

It is clear that as a company Petrobras is well set to add to its oil production and reduce emissions at the same time.

In OPEC's WOO 2023, Brazil's output, led by Petrobras, is set to rise to 4.8 mb/d in 2028 and then to 5.3 mb/d by the 2030s, adding much needed supply to meet future global demand.

Complementing this is the company's drive to reduce emissions and contribute to what it calls "a safe and fair transition". In this regard, it has various goals, including reducing total operational absolute emissions by 30 per cent by 2030, consolidating a 55 per cent reduction in the intensity of methane emissions in the upstream by 2025, zero routine flaring by 2030, and the reinjecting of 80 million tCO_2 by 2025 in CCUS projects.

Petrobras CEO Jean Paul Prates speaks at his company's 70th anniversary celebration at the National Congress of Brazil.

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Pelé (r) in action against a Swedish player in the 1958 World Cup final in Stockholm.

Maracanã Stadium in Rio de Janeiro.

Brazil's footballing icons

There are very few people or landmarks that can be described as truly iconic, but in Brazil, there are two distinctly associated with its national game, football. The Maracanã Stadium in Rio de Janeiro is a genuine historical monument for sporting arenas, and its story is also inextricably linked with one of Brazil's and, indeed, the world's greatest players, ***Edson Arantes do Nascimento****, better known as Pelé. The* OPEC Bulletin *charts the history of these two footballing giants.*

When a football fan speaks of the footballing cathedral that is the Maracanã, it can elicit stories of myth, magic and misery. It is a stadium of superlatives. Its majestic architecture, its enormous expanse, the stories of more than 200,000 people attending a game, and the chronicle of great players that have graced the stadium.

The Maracanã, formally the Estadio Jornalista Mario Filho, was conceived in the 1940s in anticipation of the 1950 FIFA World Cup in Brazil. It was designed by two Brazilian architects, Raphaël Galvão and Pedro Paulo Bernardes Bastos, and became known as the Maracanã in reference to the nearby river of the same name.

Construction did not start until the beginning of 1948 and over 100,000 labourers are said to have toiled to get it ready in time for the tournament. The world's largest stadium, then surpassing Hampden Park in Glasgow, was opened on 16 June 1950, just days before the games began.

In reality, many say that the Maracanã was not just built as a venue for the 1950 World Cup, it was the stage on which Brazil would win it. Things, however, did not quite go to plan.

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A final letdown

Brazil would play five of its six games at the Maracanã, while the other game took place at the Pacaembu stadium in São Paulo. The finals that year, also remembered for the US beating England 1–0, were played out in groups, including the final round that comprised four teams: Brazil, Spain, Sweden and Uruguay.

Brazil had swept past Sweden and Spain, by scores of 7–1 and 6–1, respectively, and in its last game it only needed a draw against Uruguay to take home its first World Cup. Uruguay had been behind in both of its final round group games, but had come back to draw with Spain and defeat Sweden.

Few gave Uruguay a chance, with Brazil the firm favourites, and on the morning of 16 July 1950, the streets of Rio de Janeiro were a hive of activity, with locals convinced that Brazil's name was on the trophy.

The fervor continued into the match at the Maracanã and went into overdrive when Brazil took the lead at the start of the second half through Friaça. The official attendance of 173,850 (some estimates suggest the actual attendance was 220,000), were expectant of more goals to come and wild celebrations at the final whistle.

Uruguay, however, had other ideas, with the team slowly taking control of the game and Juan Alberto Schiaffino scoring an equaliser in the 66th minute. It was then left to Alcides Ghiggia to score the winning goal for Uruguay with 11 minutes remaining on the clock.

It has been labelled the saddest moment in the history of Brazilian football, and reports from the time recall a haunting silence in the huge new football stadium. The term Maracanaço (Portuguese) or Maracanazo (Spanish), which roughly translates as 'The Maracanã Smash', has now become synonymous with the match.

However, Brazil's time would come, with its run of World Cup success driven by brilliant teams and the indomitable force of one man, Pelé.

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Pelé

Pelé was born Edson Arantes do Nascimento on 23 October 1940 in Três Corações, Minas Gerais, and he was not even ten years old when Brazil lost the 1950 World Cup Final.

At this age, Pelé was living in poverty and polishing shoes to help contribute to his family's income. However, his prowess on the football field was already being noticed and in 1956 he joined Santos Football Club, scoring his first professional goal before he even turned 16.

By the tender age of 17, his performances and scoring exploits were catching the attention of the national team, leading to his selection for the 1958 World Cup Finals in Sweden.

Pelé made quite an entrance onto the world stage. His vision, his agility on the field, his powerful shots, his mesmerizing dribbling, and despite being only 5 foot 8 inches, his formidable heading ability, were all on display.

He scored the only goal of the game to help Brazil beat Wales in the quarter final, a hat-trick as Brazil thrashed France 5–2 in the semi final, and a further two goals as Brazil beat Sweden by the same 5–2 margin in

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The inside of the Maracanã Stadium.

the final to win the World Cup for the first time.

At 17 years old, he had achieved superhero status in Brazil and was becoming a household name around the world. The Brazilian government also honored him as a 'national treasure,' which further elevated his status at home.

Pelé aggravated a groin injury two games into the 1962 World Cup in Chile, sitting out the final rounds. Despite this, Brazil went on to claim its second straight title, and Pelé his second winners medal.

1970 triumph

Four years later, at the 1966 FIFA World Cup in England, Brazil failed to make it out of the group stage, with a series of brutal tackles forcing Pele out of games. "The 1966 World Cup was the toughest experience I have ever had in football," recalled Pelé in an interview with FIFA.com years later.

It was a different story in 1970 in Mexico, with Pelé entering the tournament in great form for his club Santos, and Brazil with a formidable squad playing football that captivated the world. It was the first World

Pelé before facing Boca Juniors in the second leg of the 1963 Copa Libertadores Finals at La Bombonera.

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Pelé being held aloft after winning the 1970 World Cup final in Mexico City. He is the only player to win three World Cups.

Cup broadcast in colour, and Brazil's joyous, free-flowing, imaginative, attacking side played a kind of football that no one had witnessed before.

It was a triumphant return for Pelé, who scored four goals in the tournament, including one in the final to give Brazil a 4–1 victory over Italy.

It also left indelible impressions of Pelé, ones that would be replayed repeatedly in the decades after. His audacious lob from the halfway line that almost went in against Czechoslovakia, his towering header that England goalkeeper Gordon Banks somehow saved, and his incredible runaround move on Uruguayan goalkeeper Ladislao Mazurkiewicz that eventually led to another narrow miss for Pelé.

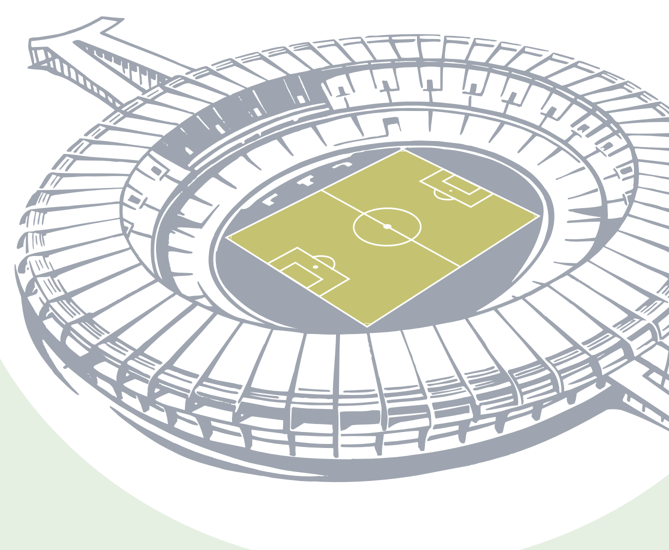
He also laid on the ball for Carlos Alberto to hammer home Brazil's fourth in the final, widely regarded as one of the greatest football goals of all time and one that graces the highlight packages of past World Cups.

The final, iconic images of the World Cup are of Brazilian fans rushing onto the field and swamping the Brazilian team. By the time Pelé is hoisted aloft by fans and paraded around the stadium, he no longer has his shirt.

Icons of Brazil

Pelé helped lead Brazil to three World Cup triumphs, scoring 12 goals in World Cup play, and left a legacy

Maracanã



World's largest attendance

173,850 in 1950

15 World Cup matches

198,000 watched A-ha in 1991

of greatness in the tournament that is unmatched to this day. Overall, in his career, he scored 1,280 goals, including 92 hat tricks and 97 international goals, and in 1999 was named ‘Athlete of the Century’ by the International Olympic Committee and ‘Co-Player of the Century’ by FIFA, along with Argentina’s Diego Maradona.

He is also inextricably linked with the great Maracanã. It was at the stadium that Pelé made his debut for the Brazilian national team against Argentina at in 1957, scored the 1,000th goal of his career in 1969, and played his last game for Brazil in 1971.

The Maracanã has over the years hosted many events, including masses by Pope John Paul II, Olympic Games and Paralympics Games ceremonies, and in 1991 set the world record for the largest paying audience for a single music band when 198,000 people came to see pop group A-ha.

Avenue King Pelé at the Maracanã Stadium.

However, it is football that the world knows it for, and this was further reinforced in 2014 when it became only the second stadium to host two World Cup finals. Following renovation work, the Maracanã had a stadium capacity of 78,838 when it hosted the final between eventual winners Germany, and Argentina, adding a new chapter to its history. In total, it has held 15 World Cup matches.

Following the sad passing away of Pelé at the age of 82 in December 2022, it was announced that the road leading up to the Maracanã would be officially renamed Avenida Pelé (Pele Avenue) from Avenida Radial Oeste, in honour of the great man.

It is a fitting tribute to bring together again these two Brazilian footballing icons. Revered at home and legendary worldwide too.

Pelé

12 World Cup goals

1,280 goals scored

97 international goals

92 hat tricks

Samba —

the heartbeat of Brazil

The União da Ilha samba school performs its dance routine in Rio's famous Sambódromo, a 90,000-seat stadium built in 1984 to host the city's annual carnival parade competition.

Samba is generally known around the world as a type of dance and a genre of music, but in Brazil, it is much, much more — it is a way of life and the heartbeat of its people. The OPEC Bulletin*'s* ***Scott Laury*** *files this portrait of Brazil's lasting cultural legacy to the world.*

Samba is Brazil's most popular music and dance style, and certainly one of its greatest cultural exports around the world. With its polyrhythmic tempo, joyous melodies and infectious dance moves, it has become one of the most famous music and dance styles from South America.

It developed in Rio de Janeiro in the late 19th and early 20th centuries and evolved to become the centerpiece of the city's now world-renowned carnival.

The word "samba", according to scholars, can be linked back to Angola and the term "semba", a

word from the Kimbundu language that describes an invitation to dance.

History

The music form became popular at the turn of the century with the release of the first recordings in around 1911. Paving the way was samba's first pioneer, Alfredo da Rocha Vianna Jr., who was known familiarly as Pixinguinha.

A gifted singer, composer, saxophonist and flautist from Rio de Janeiro, he was known for his lush harmonies and saxophone accompaniment, which were driven by the seductive samba rhythms.

In the 1920s and 1930s, samba adapted to the radio era, which was at its apex, and took on more of a melody-driven romantic feel, resulting in a sub-genre called samba-canção (vocal samba). This format was popularized by singer Ismael Silva, whose lyrics tended to be more sentimental and at times melancholy in tone.

In the 1950s, samba continued to evolve with samba-canção giving way to a more percussive and energetic style, which was called samba de morro, or samba of the hills, due to its popularity in the hilly neighborhoods surrounding Rio.

This version came to be known as samba de batucada, the polyrhythmic form played on multiple percussion instruments, which would eventually be the driving force behind the carnival marching bands, or escolas de samba (samba schools).


Arquivo Nacional Collection

Alfredo da Rocha Vianna Jr., also known as Pixinguinha and the pioneer of samba music, performing in 1959.


Arquivo Nacional Collection

Samba singer Ismael Silva plays the Brazilian tambourine ("o pandeiro") and sings.

Carnival

Samba schools were born in Rio during the late 1920s as community groups, which were established to rehearse for both the percussion and dance segments to be performed during carnival.

Today, these carnival societies have become some of the most important cultural institutions in the

Members of the Ilê Aiyê group perform in Salvador.

The Império da Tijuca samba school parades during carnival in Rio.

country. Their preparations for carnival are a year-long commitment, as hundreds of percussionists (known as the "bateria"), dancers, costume and float designers and choreographers all contribute in representing their society in front of hundreds of thousands of revelers, as well as national and global media .

Although Rio's world-famous carnival is perhaps what makes most headlines, Salvador, the capital of Brazil's northeast region of Bahia and the country's first capital, has become a favorite amongst Brazilians and international visitors thanks to its more popular, roots-oriented carnival focused on Brazil's rich African heritage.

Many other exciting carnivals are celebrated around the country with a regional focus, including in Recife and Olinda in the northeast, Belém on the Amazon river and in São Paolo, Brazil's largest urban centre.

Bossa Nova and música popular Brasileira

In the late 1950s, samba experienced a revival of sorts with the advent of bossa nova, which gained worldwide popularity. Considered a cousin of samba-canção, bossa

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The Bahian afro-samba group Timbalada performing atop its carnival truck ("trio elétrico") in Salvador.

nova is slow, vocal-driven and melodic, fusing samba with American jazz music.

Antônio Carlos Jobim and João Gilberto were the defining forces behind bossa nova, with their compositions becoming massive hits, including the "Girl from Ipanema", "Corcovado", "Insensatez" and "Desafinado", to name just a few.

Their music was also featured in movies, perhaps the most famous of which was the 1959 classic movie "Black Orpheus" ("Orfeo Negro") by director Marcel Camus. The film's plot is set during carnival time in Rio and portrays the myth of Orpheus and Eurydice.

The samba of the 1970s was characterized by música popular Brasileira (MPB), which integrated elements of rock, jazz and soul. Leading artists of MPB were Milton Nascimento, Djavan and Ivan Lins.

Subgenres of MPB included the more experimental tropicália movement and samba rock. The tropicália movement was spearheaded by a group of talented musicians from Bahia, namely Caetano Veloso, Gilberto Gil, Gal Costa, Tom Zé and Torquato Neto, all of whom would go on to have highly successful solo careers.

Other varieties of samba would later come to the fore, including partido alto, influenced by R&B and funk, and pagode, which was characterized by small groups of musicians playing festive music at informal gatherings.

Samba Reggae

One of the major turning points for samba came in the 1980s with the emergence of samba reggae.

The new style featured a swinging percussive rhythm akin to Jamaican reggae and the lyrics extolled Brazil's African heritage and culture.

Members of the band Olodum perform in Pelourinho, the historic center of Salvador.

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Although there are a host of bands, called bloco afro, that play this style of music in Bahia, the group most famous for bringing it to the international stage was Olodum.

In 1996, pop singer Michael Jackson filmed a music video with Olodum for his song "They don't care about us." The video was shot in Salvador's quaint old city centre, which is a UNESCO World Heritage Site renowned for its colonial architecture.

Olodum became de facto ambassadors of samba reggae, touring the world to promote this unique style of music and its positive message regarding Brazil's African roots.

Other prolific samba reggae blocos, many of them with African names, include Ilê Aiyê, Timbalada, Malê de Balê, Muzenza, Filhos de Gandhi and Ara Ketu.

This fresh new version of samba also gave birth to a wave of community development initiatives in Bahia with cultural organizations being founded to help educate youth on afro-Brazilian music, culture and history.

Samba in lyrics

Although the best way to truly understand samba is through personal experience — that is listening to the music and dancing to its groove — one can learn much about it through the eloquent and expressive lyrics composed by the musicians.

These are often poetic stories expressing both the joy and sadness of life with its many ups and downs. At a deeper level, they also provide unique insights into the Brazilian mind and soul.

The first known recording of samba was in 1916 by Rio native Ernesto Joaquim Maria dos Santos, also known as Donga. The song was entitled "Pelo Telfone", or "On the telephone".

In this pivotal song that launched samba onto the world stage, Donga anticipates the coming of carnival and urges everyone to join in the festivities and revel in the joy of the occasion.

On the telephone

Show yourself willing
Don't look for a backrest
Have a laugh
Make your face happy
No regrets

Oh, oh, oh
Dance the samba
With energy, my love
Whether you want it or not

Joining the parade
Is being a carnival reveler
From the heart
Because this samba
That gives goosebumps
Leaving the legs wobbly
Makes one delight

Antônio Carlos Jobim statue at Ipanema Beach.

Perhaps the most well-known samba song around the world is "The Girl from Ipanema" ("Garota de Ipanema"), which was released in 1962. It rose to international stardom in the mid-1960s, winning a Grammy award for record of the year in 1965. Bossa nova pioneer Antônio Carlos Jobim wrote the song, while Vinícius de Moraes composed the lyrics.

Ipanema is a coastal neighborhood in Rio that is home to a famous beach. The romantic narrative in the song is about a local girl walking along the beach to the delight of male onlookers. One of them notices her and smiles, but, to his disappointment, she keeps walking without noticing him.

The Girl from Ipanema

Tall and tan and young and lovely
The girl from Ipanema goes walking
And when she passes
Each one she passes goes "Ah"

When she walks, she's like a samba
That swings so cool and sways so gentle
That when she passes
Each one she passes goes "Ooh"

But I watch her so sadly
How can I tell her I love her?
Yes, I would give my heart gladly
But each day, when she walks to the sea
She looks straight ahead, not at me

Tall and tan and young and lovely
The girl from Ipanema goes walking
And when she passes, I smile
But she doesn't see
She just doesn't see

Legendary samba singer Martinho da Vila has hundreds of recorded songs and over 40 solo albums in his repertoire. He released his album “Canta Canta, Minha Gente” (“Sing, Sing, My People”) in 1974, with the title track becoming a hit. The song encapsulates the recurring sentiment of rising above the cares of the day through the singing and dancing of samba.


Arquivo Nacional Collection

Martinho da Vila during a performance in 1973.

Another iconic song that has become an anthem for lovers of samba is Caetano Veloso’s “Desde que o Samba é Samba”, or “Since Samba is Samba”, which was released in 1973. The composition is Veloso’s tribute to samba music and its profound impact on Brazil and the world. Thematically, he captures the transformative and healing aspects of samba as a music and dance that can turn sadness into joy.

Musicians perform on the boardwalk of Ipanema beach in Rio.


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Sing, Sing, My People

Someone who sings scares his troubles away
There, high on the hillside
Or by dancing samba on the pavement
I sing the samba-enredo
A little slow samba and a partido alto

Sing the samba de roda
The samba-canção and the samba de breque
Modern samba and square samba
Sing ciranda, the frevo
The coconut, the maxixe, the baião and the xaxado

Sing, sing, my friends
Set sadness aside
Sing strong, sing loud
So that life gets better

Since Samba is Samba

Loneliness terrifies us
Everything lingering in being so bad
But something happens
In the present time inside of me
Singing I turn sadness away

Samba will still be born
Samba hasn’t arrived yet
Samba won’t die
See, the day still hasn’t risen
Samba is the father of pleasure
Samba is the son of pain
The great transforming power

Sadness is the ruler
Since samba is samba it’s like that
But something happens
In the present time inside of me
Singing I turn sadness away

Candeia performing in 1974.

Sou Mais o Samba

We will not deny our origins
But we are Brazilians

I'm not African, neither am I
North American
To the sound of the guitar and tambourine
I'm more Brazilian samba

Samba is our joy
Lots of harmony to the sound of the tambourine
Those who play in the samba circle
Don't imitate foreigners
We are Brazilians

In 1977, samba singer and composer Candeia released a song called "Sou Mais o Samba" in which he sings proudly of his identity being firmly rooted in samba music. The song evokes the great pride and love samba musicians have for their beloved music and dance.

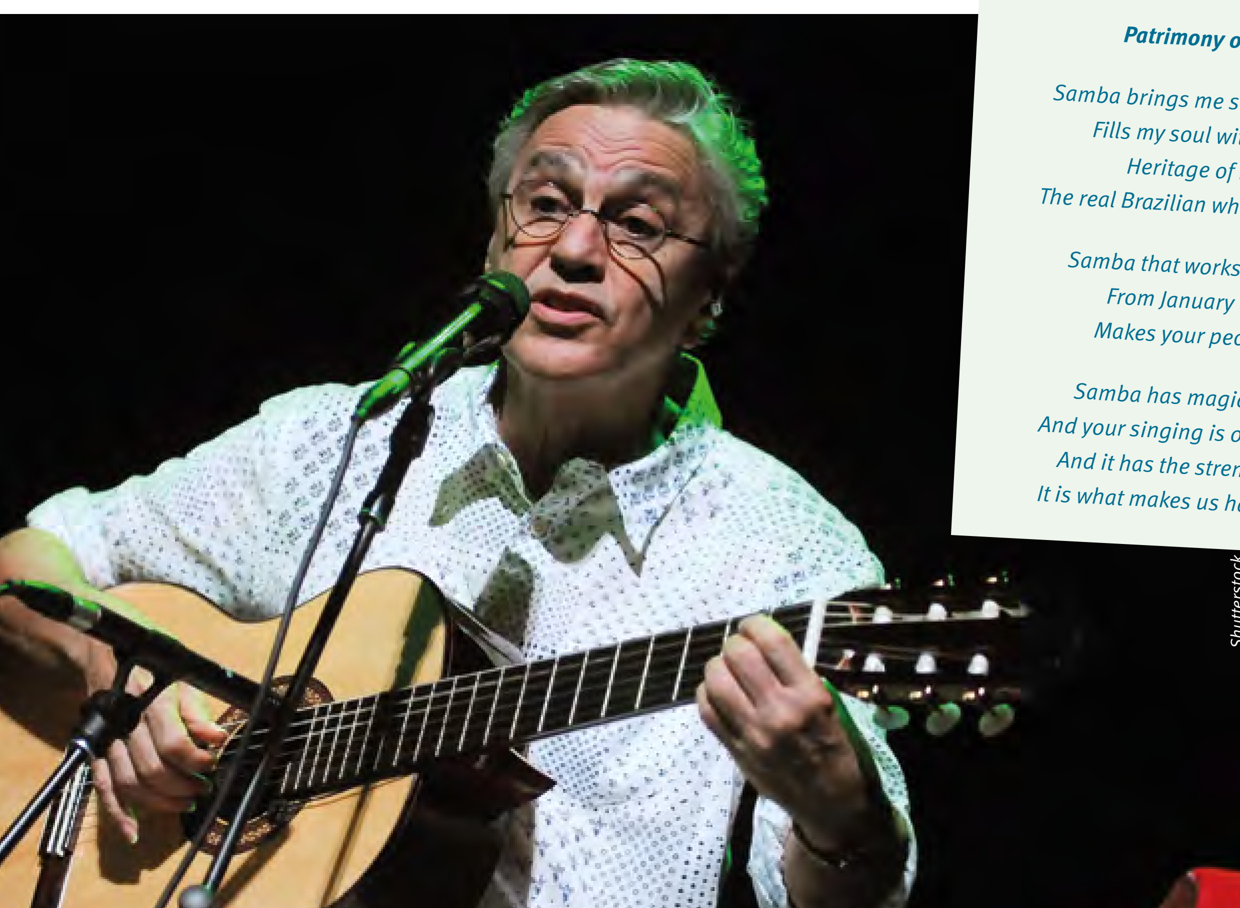
Finally, in 2008, the samba group Quinteto em Branco e Preto wrote a poignant song about the lasting legacy of samba for Brazil, its culture and its people. It is appropriately entitled "Patrimônio dá humanidade" ("Patrimony of humanity") and is the perfect way to wrap up our ode to Brazil's most treasured art form.

Patrimony of humanity

Samba brings me so many memories
Fills my soul with inspiration
Heritage of humanity
The real Brazilian who lives in my heart

Samba that works all year round
From January to January
Makes your people rejoice

Samba has magic and beauty
And your singing is of great strength
And it has the strength of nature
It is what makes us have love to give



Caetano Veloso performs in 2012 at the Casa Grande Theater in Rio.

UNFCCC

Two weeks of COP28 in Dubai

With COP28 convening in Dubai, United Arab Emirates (UAE), from 30 November to 13 December, the OPEC Bulletin *provides an overview of the OPEC Secretariat's presence at the meeting, the outcome of the global stocktake, as well as a number of events that took place on the sidelines with Secretariat participants.*

Dr Sultan bin Ahmed Al Jaber, COP28 President, delivers his concluding remarks.

Under the leadership of the COP28 Presidency, the UAE, the world convened in Dubai at COP28 to chart the way forward on just, orderly and inclusive climate action.

It was a packed two weeks of high-level events and negotiations, with the OPEC Secretariat also present with a pavilion at the event (see page 47). The gavel finally came down on the text of the global stocktake (GST) and other decisions on matters related to mitigation, adaptation and means of implementation on 13 December.

COP28 President, Dr Sultan bin Ahmed Al Jaber, said in his concluding remarks: "From the bottom of my heart, thank you. We have travelled a long road together in a short amount of time. We have worked very hard to secure a better future for our people and planet. We should be proud of our historic achievements. My country, the UAE, is proud of its role in helping you move forward."

He stated that COP28 had delivered a comprehensive response to the global GST, a robust action plan to keep 1.5°C in reach and a balanced plan that addresses global emissions, one that is built on common ground. He added: "It is strengthened by full inclusivity. It is a historic package to accelerate climate action."

Together with the decisions adopted on the Youth Climate Champion, the loss and damage fund, the mitigation work programme and the global goal on adaptation, he called the GST decision 'the UAE Consensus'.

The GST decision recognizes the need for deep, rapid and sustained reductions in greenhouse gas emissions in line with the 1.5°C pathways and calls on

UNFCCC

Parties to contribute to various global efforts (https://unfccc.int/sites/default/files/resource/cma2023_L17_adv.pdf). This should be done in a nationally determined manner, that takes into account the Paris Agreement and Parties' different national circumstances, pathways and approaches.

Other key takeaways from COP28 include:

On 30 November, the first day of the conference, nearly 190 countries finalized the terms for the framework of a loss and damage fund to assist developing countries that are particularly vulnerable to the impacts of climate change.

On 2 December, some 50 oil and natural gas producers, including from OPEC Member Countries, signed an agreement to reduce their carbon emissions to net zero by 2050 and curb methane emissions to near-zero by 2030. Following the announcement, Dr Al Jaber said that the pledges were part of his efforts to proactively engage with oil and gas companies during the talks.

OPEC statement

As has been the practice since the very first COP event, OPEC and the Secretariat were present at the Summit, with a statement delivered at the High-level Segment of the UN Climate Change Conference on 9 December.

Speaking on behalf of the OPEC Secretary General, Haitham Al Ghais, the Director of OPEC's Research Division, Dr Ayed S Al-Qahtani, conveyed the following remarks.

Haitham Al Ghais, OPEC Secretary General.

"Mister President, distinguished delegates,

It is a great honour to deliver these remarks in an OPEC Member Country, the UAE.

Holding COP28 here underscores the UAE's role as a climate leader, and its capabilities in the realm of providing energy.

The interwoven nature of reducing emissions and energy security is now 'rightfully' at the forefront of global discussions about energy transition pathways. For this:

We need an all-energies approach.

Otherwise, the world cannot meet rising energy demand, maintain energy security and ensure affordable universal energy access.

The Paris Agreement also focuses on reducing emissions, rather than choosing certain energy sources.

We need an all-peoples approach.

The capacities, national circumstances, and development priorities of all countries must be taken into account to ensure that no one is left behind.

And, we need an all-technologies approach.

The world needs to develop and finance all forms of technologies to help reduce emissions while meeting demand.

Technological innovation is a key focus for OPEC. It is why our Member Countries are investing heavily in hydrogen projects, CCUS, CCS and DAC facilities, the circular carbon economy, and renewables.

I hope that you have visited the OPEC Pavilion here at COP28 to see this firsthand.

The oil industry is also taking a proactive approach here at COP28, with 50 oil companies representing nearly half of global production, including many from OPEC Member Countries, pledging to reach near-zero methane emissions and end routine flaring in their operations by 2030.

Ultimately, this 'all-energies, all-peoples and all-technologies' approach needs to adhere to the principles of equity and common but differentiated responsibilities.

This means ensuring:

That the first global stocktake under the Paris Agreement concludes with equitable and inclusive outcomes;

That developed countries fulfil their long overdue climate finance commitments;

And that funding arrangements for loss and damage enable adequate and accessible financing that does not increase liabilities.

There is no single solution or path to achieve a sustainable energy future.

We need nuanced and realistic approaches to tackle emissions; ones that also enable economic growth, help eradicate energy poverty, and increase resilience at the same time.

In this respect, I wish COP28 every success in going down in history as a 'COP of Unity, Action and Delivery'. Thank you."

Dr Ayed S Al-Qahtani, Director of OPEC's Research Division, delivering a statement on behalf of OPEC Secretary General Haitham Al Ghais.

COP28 sidelines

Haitham Al Ghais, OPEC Secretary General (r), with moderator Eithne Treanor, CEO of ETreanor Media.

On the sidelines of COP28, the OPEC Secretary General, Haitham Al Ghais, and staff from the Secretariat also participated in a number of other meetings and initiatives, alongside hosting various events at the OPEC Pavilion.

Al Ghais took part in the 2023 edition of the Saudi Green Initiative Forum on 4 December. In a one-on-one chat with Eithne Treanor, CEO of ETreanor Media, the Secretary General praised the initiatives undertaken by OPEC Member Countries to support climate change mitigation efforts. He also highlighted the significance of the Saudi and Middle East Green Initiatives, noting that the Kingdom of Saudi Arabia has a leader on this front.

He also emphasized that energy transitions must be “just and inclusive and that all voices must be heard” given the need for affordable, accessible and reliable energy for all.

He stated that the oil industry was playing a role in terms of reducing emissions and “can present many solutions to the challenges we face.” He added that OPEC had been at all climate meetings since 1990, and involved at all past COPs, so the Organization understood the issues.

The Second Joint OPEC-GECF Coordination Meeting on Climate Change in session.

Oil is part of the future

Al Ghais was asked about the International Energy Agency's recent report — 'The Oil and Gas Industry in Net Zero Transitions' — that states that the oil and gas industry faces a 'moment of truth' and must "choose between fueling the climate crisis or embracing the shift to clean energy."

He said that "vilifying and demonizing the oil and gas industry is not the right approach … and it is vital to look at the realities on the ground", when it comes to such issues as energy security, energy poverty and reducing emissions.

He also noted that with energy demand continuing to increase, and with oil making up around 30 per cent of the energy mix today, to "say that oil is not part of the future is not constructive."

Al Ghais added that OPEC Member Countries are also investing in renewables, alongside oil, and the "OPEC approach is that we need to do both."

Going forward, he reiterated the importance of "continuous dialogue among all."

Mohammad Hassani, Head of OPEC's Environmental Matters Department.

Dialogue meetings

Several key dialogue meetings also took place during COP28. This included the Second Joint OPEC-GECF Coordination Meeting on Climate Change that focused on discussing developments related to COP28 and the ongoing negotiations.

In his remarks, Al Ghais re-emphasized the importance of a balanced and all-inclusive outcome. "Our goal must be to reduce emissions, which is the core objective of the Paris Agreement, while ensuring energy security and universal access to affordable energy." He added that "all types of energy and the deployment and transfer of all relevant technologies will be required."

Mohammad Hassani, Head of OPEC's Environmental Matters Department, chaired two Coordination Meetings on Climate Change for OPEC Member Countries and non-OPEC countries participating in the Declaration of Cooperation related to COP28. Members of the OPEC Secretariat delegation also participated as panelists in two separate events on decarbonization of the oil and gas industry, and clean cooking, organized by the Clean Air Task Force and the Gas Exporting Countries Forum, respectively.

OPEC Pavilion:
An impactful presence at COP28

The 2023 United Nations (UN) Climate Change Conference marked the first time that OPEC hosted a dedicated pavilion at a COP meeting. OPEC Secretariat representatives welcomed visitors on a daily basis to present the significant efforts undertaken by the Organization and its Member Countries in developing and adopting various sustainable development and climate change mitigation initiatives and projects, especially those related to the energy industry, as well as technologies to help reduce emissions.

Upon approaching the pavilion, delegates were greeted by a timeline of OPEC's involvement in the global climate agenda and more than 30 years of relevant milestones following the 88th Meeting of the OPEC Conference in 1990, where Member Countries called for strengthened participation in UN climate processes.

The pavilion itself featured various activities to raise awareness of OPEC's mission and objectives, as well as the Organization's viewpoints on such issues as energy security, emissions reduction, and the crucial role of oil in helping achieve just and sustainable energy transitions. Furthermore, visitors could acquaint themselves with the latest editions of the Secretariat's publications, such as the World Oil Outlook, Annual Statistical Bulletin and the OPEC Bulletin.

OPEC delegation in front of the pavilion.

Hasan AlHamadi, Head of OPEC's Administration and IT Services Department and Officer-in-Charge of the PR & Information Department, holds a presentation.

The external engagement programme was adapted to suit the theme of each day, incentivizing delegates to revisit the pavilion and uncover the crucial role that oil plays in our everyday lives, and in areas such as industry, urban planning, transportation, healthcare, agriculture, education and biodiversity conservation. Guests could inform themselves on how the sector actively contributes to the realization of all 17 UN Sustainable Development Goals, acting as a driver for growth and impactful change.

There was also specific attention placed on the work undertaken by the Secretariat's Environmental Matters Department, covering the multitude of in-house reports and studies developed by OPEC to inform Member Country decision-making processes in the run-up to COP28.

Spotlight on Member Country achievements

The pavilion provided a platform to spotlight the strides taken by all 13 OPEC Member Countries in adapting their industries to the dual challenge of ensuring sustainable development and addressing contemporary exigencies. The following provides some highlights.

Algeria has an ambitious renewable energy programme that aims to auction 4 gigawatts (GW) of solar capacity by 2024 and reach 22 GW of installed renewable capacity by 2030. Angola has announced several green hydrogen projects, including Sonangol's 300 megawatt (MW) green ammonia facility with an expected export capacity of around 280,000 tonnes per year.

Congo is currently developing several large-scale hydropower projects, with almost all of the

Dr Eleni Kaditi, Senior Research Analyst at OPEC's Environmental Matters Department, speaks at the pavilion.

country's electricity generated from renewable energy sources. Equatorial Guinea and Libya aim to generate 55 per cent and ten per cent of their electricity, respectively, from renewable energy sources by 2025.

Both Gabon and Venezuela consider biofuels and other low-carbon fuels as viable solutions to realize their Nationally Determined Contributions, and have been enacting relevant regulatory measures to meet their emission reduction targets.

Kuwait is expecting to reach a 15 per cent renewables share in installed power generation capacity by 2030, with the Shagaya Renewable Energy Park acting as a linchpin in the country's green hydrogen production aspirations.

IR Iran has been implementing a carbon management plan to limit gas flaring through technical and regulatory means, while Iraq plans to reach 12 GW of installed renewables generation capacity by 2030.

In a presentation organized within the OPEC pavilion, representatives of the Nigerian National Petroleum Corporation outlined the key aspects of the company's sustainability programme developed in support of Nigeria's climate change mitigation commitments and national Energy Transition Plan, which highlights the country's targets for emission reductions in power, transportation, industry, cooking, as well as the oil and gas sector.

Saudi Arabia has committed to having 50 per cent of its power generated from renewable sources by 2030. Beyond a domestic energy mix transformation, the Saudi Green Initiative involves a range of ambitious projects encompassing investments in new energy sources, energy efficiency improvements, and the development of a carbon capture and storage (CCS) program which will include the establishment of one of the largest CCS

Representatives of OPEC's PR Team at the OPEC pavilion.

Eng. Salim bin Nasser Al-Aufi, Minister of Energy and Minerals of the Sultanate of Oman (c), paid the OPEC pavilion a visit.

hubs in the world, where 44 million tonnes of CO_2 will be mitigated annually by 2035. Furthermore, the Kingdom generously provided an interactive touchscreen-based presentation to highlight various ongoing and future projects related to carbon capture, utilization and storage (CCUS) and blue ammonia production.

The COP28 host, the UAE, has taken a number of significant steps in realizing its decarbonization plans with a focus on key technologies such as CCUS and direct-air-capture. The UAE's updated national energy strategy aims to triple the supply of renewable energy over the next seven years, with the country investing $40 to $54 billion during the same period.

Alexandre Silveira de Oliveira, Minister of Mines and Energy of the Federative Republic of Brazil.

A lodestone for meaningful engagement

Throughout the two weeks of COP, the OPEC pavilion acted as a veritable magnet, attracting hundreds of delegates representing governments, businesses, academia and civil society for thought-provoking interactions.

High-level visitors included Eng. Salim bin Nasser Al-Aufi, Minister of Energy and Minerals of the Sultanate of Oman, Alexandre Silveira de Oliveira, Minister of Mines and Energy of the Federative Republic of Brazil, and Jean Paul Prates, CEO of Petrobras.

In order to highlight the key role that younger generations will play in shaping a sustainable energy future, a separate day was devoted exclusively to youth-related activities. Young delegates participated in a candid campfire chat with OPEC Secretary General Haitham Al Ghais and discovered for themselves the science-based reasoning behind OPEC's "all-energies, all-technologies and all-peoples" approach.

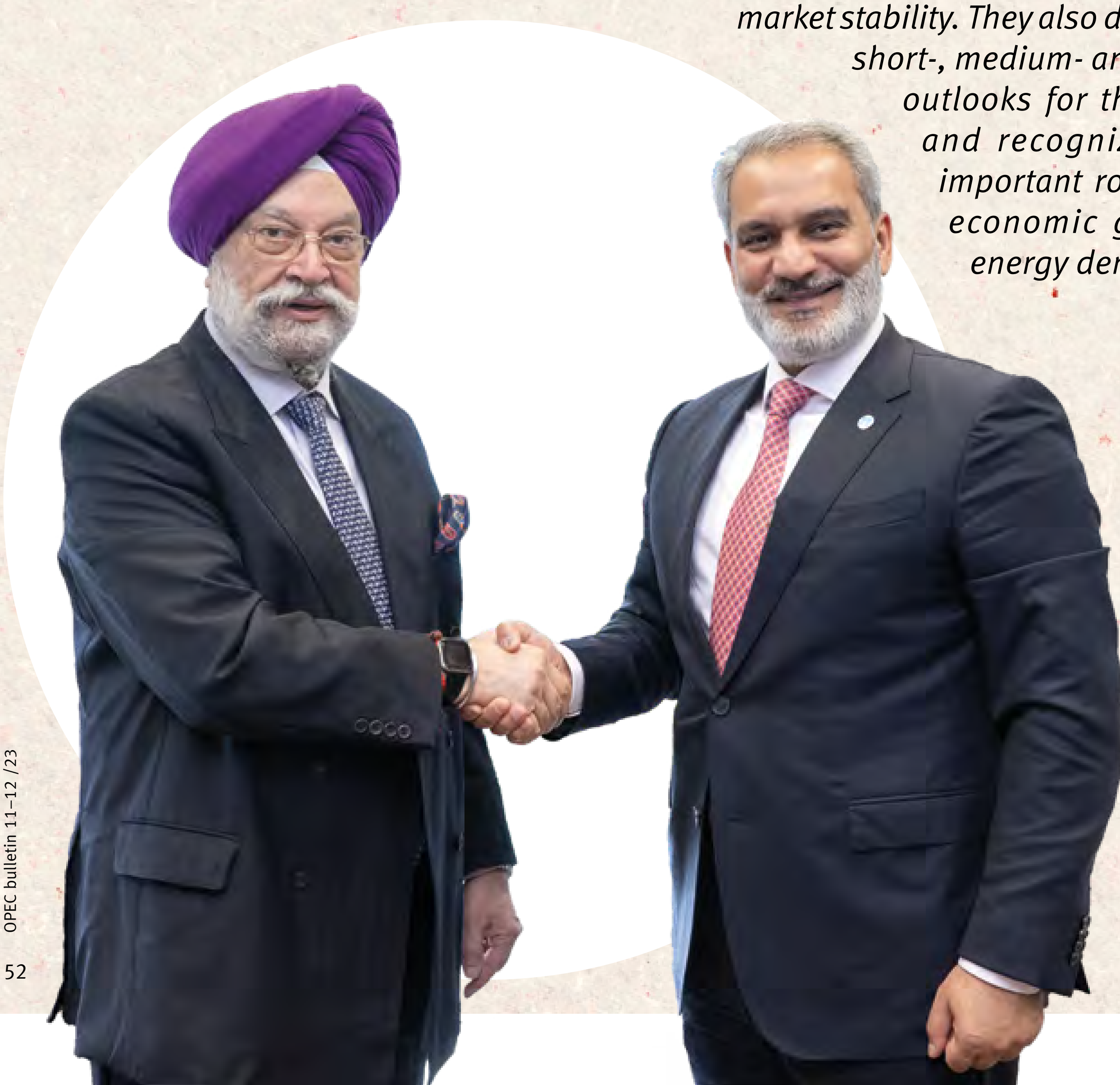
Furthermore, the Secretariat organized a simulation of UN climate negotiation processes, taking into consideration the draft rules of procedure under the United Nations Framework Convention on Climate Change. Two separate youth groups representing developing and developed countries experienced first-hand the complexities of reaching consensus on pressing issues such as technological transferals, development financing and enacting common but differentiated strategies to help tackle the climate challenge.

OPEC Secretary General Al Ghais, and Jean Paul Prates, CEO of Petrobras.

Haitham Al Ghais, OPEC Secretary General, holds a campfire chat with young delegates.

OPEC's relationship with India continues to go from strength to strength

*The 6th High-level Meeting of the OPEC-India Energy Dialogue took place at the OPEC Secretariat on 9 November 2023, co-chaired by OPEC Secretary General **Haitham Al Ghais** and **Hardeep Singh Puri**, Minister of Petroleum and Natural Gas and Minister of Housing and Urban Affairs of the Republic of India. Constructive discussions between the parties focused on key issues related to oil and energy markets, with a specific emphasis on ensuring availability, affordability and sustainability — key factors in ensuring energy market stability. They also discussed the short-, medium- and long-term outlooks for the industry, and recognized India's important role in global economic growth and energy demand.*



Hardeep Singh Puri, Minister of Petroleum and Natural Gas and Minister of Housing and Urban Affairs of the Republic of India (l), and Haitham Al Ghais, OPEC Secretary General.

A lot has changed in the world since the first high-level dialogue took place in New Delhi in December 2015, but one constant has seen OPEC's relationship with India continuously going from strength to strength.

Earlier in 2023, this excellent cooperation was underscored during two fruitful visits of OPEC Secretary General Al Ghais to India to participate at India Energy Week in February and at the G20 Energy Ministerial Meeting in July in Goa.

In addition, Al Ghais met Minister Puri on the sidelines of both events, as well as at ADIPEC 2023 in October.

At the technical and research levels, OPEC and India have also achieved remarkable progress, epitomized by experts from both meeting under the umbrella of the 5th Technical Meeting of the OPEC-India Energy Dialogue on 27 October via videoconference.

In his remarks at the 6th High-level Meeting, Al Ghais said: "OPEC's relationship with India has continued to go from strength to strength", noting that "the excellent state of the OPEC-India Dialogue also extends to the development of positive relationships between OPEC, its Member Countries and major Indian oil companies."

Minister Puri highlighted that, as the third-largest energy consumer, crude oil importer and the fourth-largest global refiner, "close ties between India and OPEC are not only essential but also natural," and "deeper collaboration for the mutual benefit of both parties has the potential to contribute significantly to the long-term prosperity and stability of the global oil markets."

In this context, he called on OPEC to continue playing its key role in "maintaining and ensuring market stability for the benefits of consumers, producers and the global economy."

India: flourishing present, promising future

The year 2023 was an exciting one for India, with the country inspiring the world to reach new heights in a number of fields — aptly symbolized by the remarkable Chandrayaan-3 moon landing.

India's heading of the G20 was similarly impressive, with the country's able leadership steering this year's G20 discussions to a successful outcome, including on key energy issues. Indeed, upon reading the G20 New Delhi Leaders' Declaration, it is hard not to agree with the emphasis placed on "the importance of maintaining uninterrupted flows of energy… [and] exploring paths of enhanced energy security and market stability, including through inclusive investments to meet growing energy demand".

Towards this end, investments in energy capacity and technologies are more vital than ever, with necessary oil sector investment requirements out to 2045 alone totalling $14 trillion — or around $610 billion on average per year — if the world is serious

about maintaining energy security and market stability, and reducing emissions.

Energy action is also acutely necessary, with global efforts to meet SDG 7 targets on affordable and clean energy lagging. About 675 million people remain without access to electricity, while 2.3 billion still lack access to clean cooking solutions.

Narendra Modi, the Honourable Prime Minister of India.

It is clear that meeting the sizable challenges before us will require the type of sound governance and ambition regularly displayed by the Honourable Prime Minister of India, Narendra Modi.

Earlier this year, Prime Minister Modi called on India's citizens to make the 21st century the 'century of India'. This is certainly conceivable, especially when considering that India's GDP expanded by a staggering 70 per cent over the past decade.

Over the next five years, the IMF sees India as one of the fastest growing top-20 economies; similarly, OPEC's 2023 World Oil Outlook, or WOO, sees India's growth averaging 6.1 per cent in the period to 2028, with its economy benefiting from population growth, a rising middle class and major infrastructural projects.

The long-term growth average to 2045 is also 6.1 per cent per annum, which points to India being an ever-stronger global economic powerhouse.

By 2045, India's economy is expected to nearly quadruple in size, adding about $29 trillion to its economy. Correspondingly, India's energy consumption will also clearly rise.

Fueling India's future

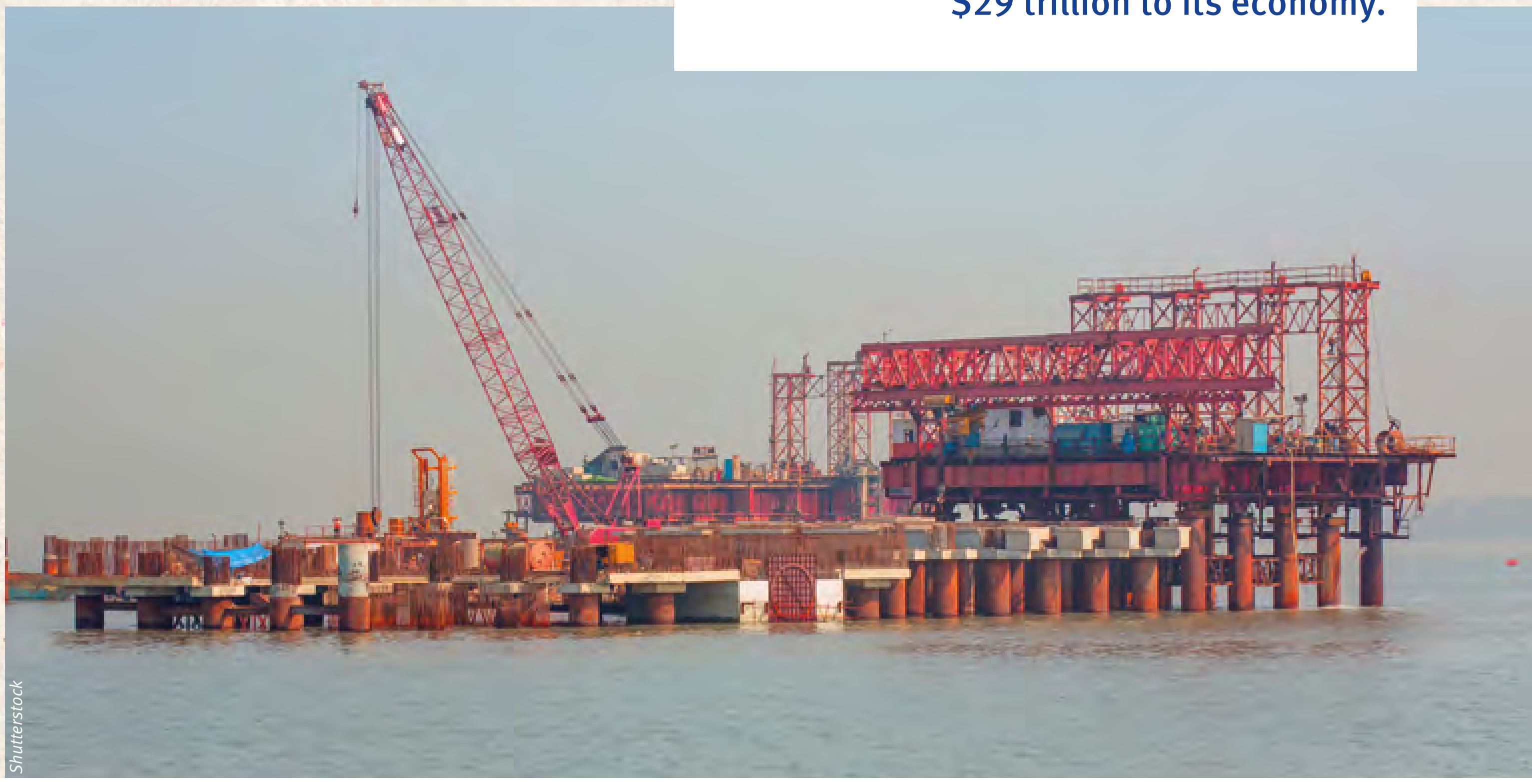
The WOO forecasts that India will be the single largest contributor to energy demand growth over the period from 2022 to 2045, with incremental demand of 19.3 million barrels of oil equivalent per day. Remarkably, the expansion in India's energy demand will account for around 28 per cent of global energy demand growth through 2045.

As the Indian government has said constantly, this will require all forms of energy. This is a message that OPEC supports too, as the world looks to meet future energy requirements.

From the perspective of oil, India's demand alone is set to rise steeply from 5.1 million barrels per day (mb/d) in 2022 to 11.7 mb/d by 2045. It will be the country with the largest oil demand growth over this period.

By 2045, India's economy is expected to nearly quadruple in size, adding about $29 trillion to its economy.

Offshore oil platform in Mumbai, India.



Delegates at the 6th High-level Meeting of the OPEC-India Energy Dialogue.

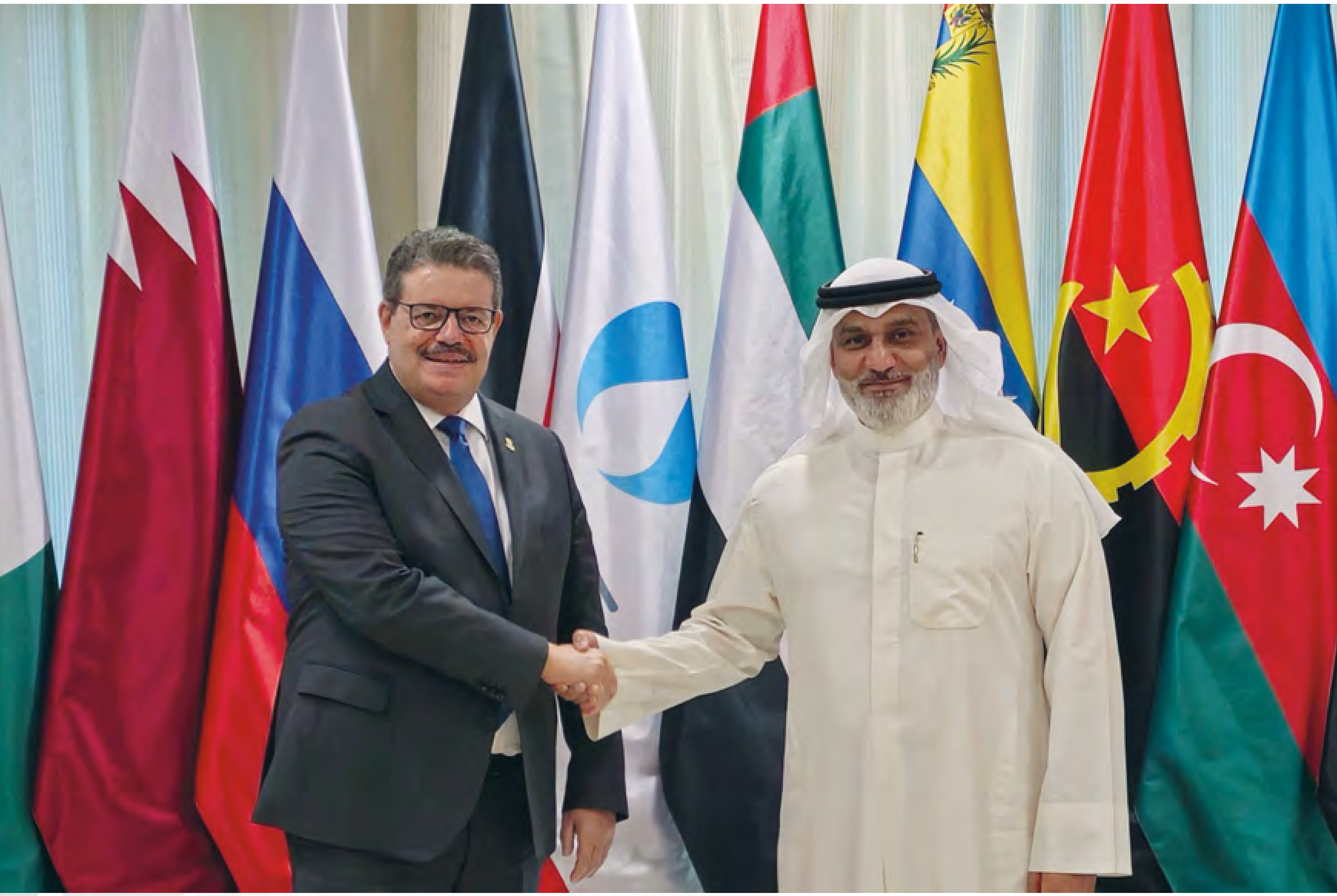
OPEC Member Countries today provide approximately 60 per cent of India's total crude oil imports, and the significance of this trade relationship will continue to be vital in the years and decades ahead as the world seeks to foster global energy security, deliver energy affordability and reduce emissions

In this respect, Prime Minister Modi has astutely taken a middle-of-the-road track that underscores his commitment to mitigating climate change while supporting national interests and meeting energy demand. India's broad diversification of its energy policy will help facilitate enhanced energy security going forward.

As Al Ghais noted at the 6th High-level Meeting: "By working together and embracing the underlying values of dialogue, cooperation and unity that underpin the Sanskrit phrase 'vasudhaiva kutumbakam' — which means that the world is one family — OPEC and India can, and will, meet the challenge of building a sustainable energy future that leaves no-one behind."

The meeting concluded with both parties underscoring the importance of fostering enhanced cooperation moving forward. In this respect, the next High-level Meeting of the OPEC-India Energy Dialogue will take place in India in 2024.

4th OPEC-GECF Energy Dialogue convenes in Doha



Haitham Al Ghais, OPEC Secretary General (r), with Eng. Mohamed Hamel, Secretary General of the GECF.

OPEC and Gas Exporting Countries Forum (GECF) officials gathered in the Qatari capital on 13 December 2023 to compare notes on their respective outlooks as part of the 4th High-level Meeting of the OPEC-GECF Energy Dialogue. The OPEC Bulletin*'s* ***Scott Laury*** *reports.*

The proceedings were opened with brief remarks by the meeting's co-chairs: Haitham Al Ghais, Secretary General of OPEC; and Eng. Mohamed Hamel, Secretary General of the GECF.

Hamel began by welcoming the OPEC delegation to the GECF Headquarters in Doha, where the event was hosted, and then delivered his opening remarks.

"Since the previous high-level meeting held in Vienna on 10 October 2022, there have been many activities jointly undertaken, contributing positively to expanding our fruitful cooperation," he said. "It is of the utmost interest that the GECF and OPEC work hand in hand to face the challenges of the evolving energy landscape and seize the opportunities that lie ahead. We need to leverage our resources and expand our reach."

OPEC Secretary General Al Ghais, in his opening remarks, emphasized the importance of OPEC's cooperation with the GECF as part of the Organization's wider dialogue programme.

"OPEC remains fully committed to this cooperation with the GECF, and it will remain a high priority within the framework of our ongoing global energy dialogues," he said. "I believe that open and transparent dialogue with our industry partners is a win-win proposition as together we seek to address the complexities of the rapidly changing energy markets."

The GECF is located at the Tornado Tower in Doha.

Common goals

Secretary General Al Ghais underlined that both OPEC and the GECF share common goals and must face similar challenges in the energy industry, reinforcing the need to collaborate on various fronts.

"Firstly, both organizations are tasked with meeting the world's rapidly growing demand for oil and gas," he pointed out.

"With rapidly expanding populations and growing economies, we expect to see global energy demand rise by 23 per cent from now until 2045. This demand will be driven by the non-OECD region, with approximately 28 per cent of it coming from India alone."

He added that, despite some unrealistic projections for an imminent peak in demand, oil and gas would still make up over 50 per cent of the world's energy mix in the period to 2045, and meeting this rising demand would require unprecedented levels of industry investment.

"We estimate that oil sector investment requirements from now until 2045 will amount to roughly $14 trillion," he said. "Our organizations must work together to help promote investment-friendly policies. The fact is, without adequate levels of investment, the future of our industry is in jeopardy."

If these investments were not made, he added, there could be an increased risk of market volatility, jeopardizing energy security.

Environmental matters

To secure these investments and ensure a balanced and realistic approach to climate change, Al Ghais emphasized the need for energy producers to ensure accurate and timely messaging.

"Part of this effort entails ensuring a balanced narrative on energy transitions and, when necessary, correcting misguided messages related to both hydrocarbon fuels and our industry," he said.

COP28, which wrapped up on 12 December, was a strategic event for OPEC to promote its key messages.

The High-level Meeting in session.

"We have just returned from COP28, which was hosted by the United Arab Emirates in Dubai," Al Ghais stated. "OPEC and its Member Countries were well represented at the event, and OPEC hosted an impressive pavilion. Our main message was that we need a balanced, inclusive and realistic approach to addressing climate change."

> *"Our goal is to ensure affordable and sustainable access to energy for all people. No one should be left behind in any energy transition."*
>
> *— Haitham Al Ghais, OPEC Secretary General.*

Both leaders expressed their congratulations to the United Arab Emirates, which is both an OPEC and GECF Member, for the excellent organization of COP28, as well as for its record level of participation and its consensual and positive outcome.

Finally, the importance of technology was highlighted, with the leaders noting that the oil and gas industry had always been an important technological innovator, and would continue to play a key role in this respect moving forward. Enhancing efficiencies while developing and deploying high-tech solutions, such as carbon, capture utilization and storage, would be a priority, they added.

Energy poverty

Energy poverty, which was also on the agenda in Dubai, is another key issue of keen interest to both OPEC and the GECF.

The meeting's co-chairs emphasized that oil and gas would remain essential to economic development and energy security, which, in turn, would help combat energy poverty.

"Although progress has been made in narrowing the disparities between the OECD and non-OECD regions, there is still much work to be done," Al Ghais stated. "Our goal is to ensure affordable and sustainable access to energy for all people. No one should be left behind in any energy transition."

Halul Island, Qatar.

Shutterstock

Haitham Al Ghais, OPEC Secretary General (r), with Eng. Mohamed Hamel, Secretary General of the GECF.

Group photograph at the 4th OPEC-GECF Energy Dialogue held in Doha.

A global response

To address these issues adequately, both organizations underlined the need for heightened stakeholder dialogue and cooperation at all levels around the world.

"These global challenges warrant a global response," Al Ghais proclaimed. "There must be a united front among all industry stakeholders to make inroads in addressing these concerns."

In conclusion, both organizations reiterated their commitment to strengthening cooperation and dialogue on all of these areas.

"Whether it is sharing our respective oil and gas outlooks, coordinating our efforts on environmental matters or cooperating to enhance data transparency in the industry, we have much to learn from one another and much to gain in working together," Al Ghais stated. "It is a great pleasure to see this dialogue flourish and to witness the strong bonds of cooperation that have developed between the OPEC and GECF teams. Indeed, these positive relationships are the glue that holds us together and the building blocks of our future success."

The 5th High-level Meeting of the Dialogue is scheduled to take place in the second half of 2024.

Argus hosts European Crude Conference

*In early November, the Argus European Crude Conference took place in London, with OPEC Secretary General **Haitham Al Ghais**, the keynote speaker. The event also saw the launch of a new grade of crude called Nembe through a joint venture between Nigeria's NNPC and Aiteo. The* OPEC Bulletin *reports.*

Under the theme 'From changing trade flows to transition initiatives — the new oil playbook', the two-day Argus European Crude Conference 2023 kicked off in London on 7 November.

Bringing together energy majors, refiners, national oil companies, traders, financial institutions and other representatives from across global oil markets, the event saw delegates discuss a variety of challenges and opportunities in global oil markets, including changing crude supplies, evolving demand trends, global trade relations and the shifting dynamics of the move towards net-zero.

OPEC focus

Introduced by Adrian Binks, Chairman and CEO of Argus Media, OPEC Secretary General Haitham Al Ghais began by referencing the then upcoming OPEC and non-OPEC Ministerial Meeting (see page 4). He stressed that OPEC and OPEC+ be fully open and transparent and "we continue to monitor supply and demand fundamentals on a daily basis."

Throughout 2023, he said OPEC+ had taken a proactive and pre-emptive approach to achieve and

Haitham Al Ghais, OPEC Secretary General with Neil Fleming, Global Head of Editorial at Argus.

sustain a stable oil market, and provide long-term guidance for the market. He added that we "recognize how important short-term stability is for the long-term future of this vital global industry." This was also underscored in a Q&A session that followed with Neil Fleming, Global Head of Editorial at Argus.

Al Ghais added that "the actions of OPEC and OPEC+ today, are a platform to help enable the huge investments required in the decades to come for an industry that is so pivotal to our daily lives. The world needs more crude oil and the products derived from it for energy and economic security, not less."

Intertwined narrative

Al Ghais continued: "At the same time, as an industry we recognize the importance of continually advancing operational efficiencies and reducing emissions. This past year or so has seen a significant shift from policymakers in recognizing this intertwined narrative."

It is evident that governments everywhere are reevaluating their sustainable energy pathways, taking into account the realities on the ground and the views of their citizens.

"There is now a more nuanced understanding of the scale of the energy challenges as initial net-zero policies stutter, targets for other energies falter due to costs, and concerns rise about access to critical minerals" said Al Ghais.

In referencing the UK, he highlighted the government announcing new oil and gas production licenses, the scrapping of a number of proposals and targets related to net-zero, and the UK Prime Minister calling for a "more pragmatic, proportionate, and realistic approach".

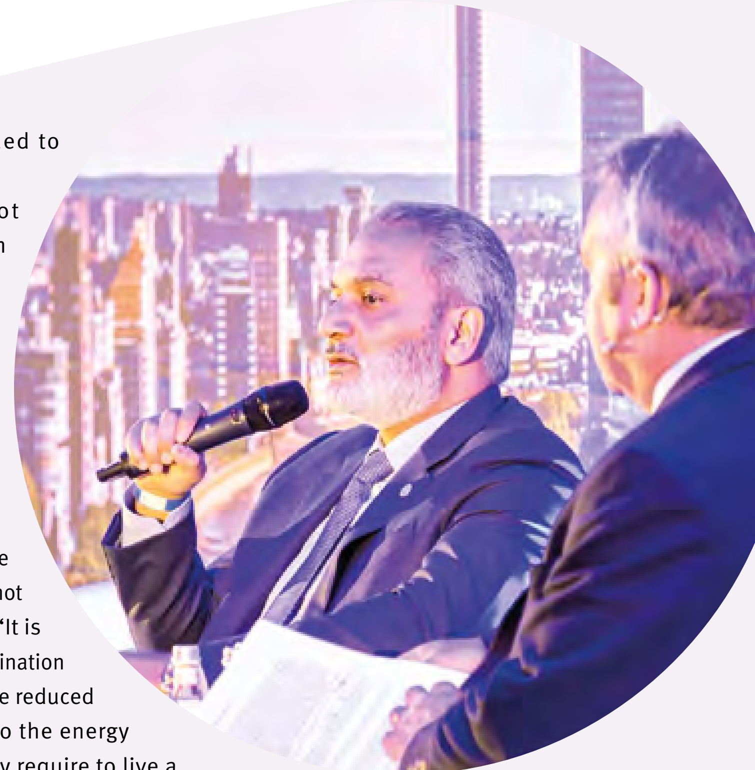
Al Ghais also noted that oil demand continued to grow year-on-year, and highlighted that in the period to 2030 alone it was expected that another half a billion people would move into cities across the world as the global economy continued to expand.

"Being in London, and to put this in an understandable context, this urbanization drive will require the addition of approximately 50 new Londons. Let us just pause for a second, and imagine how much energy that requires."

— Haitham Al Ghais, OPEC Secretary General.

It is clear we cannot replace an energy system overnight, he said, or even in two-to-three decades. "We should remember that 30 years ago fossil fuels made up over 80 per cent of the energy mix, and this remains the same today."

Al Ghais underlined that the world had to focus on the task of reducing emissions, not choosing energy sources. "It is important to act with determination to ensure that emissions are reduced and people have access to the energy products and services they require to live a comfortable life. These twin challenges should not be odds with each other."



Haitham Al Ghais talks to delgates about the need to focus on the task of reducing emissions, not choosing energy sources.

Nembe crude grade

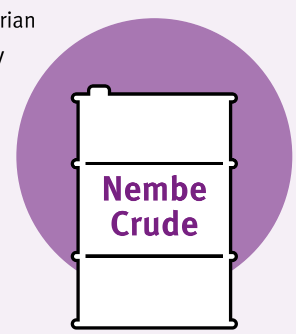
The event also saw Nigeria's NNPC and Aiteo launch a new grade of crude called Nembe through a joint venture, as Africa's largest oil producer looks to increases its oil output.

Nembe Crude was previously blended with the Bonny Light grade and exported via the Bonny Oil & Gas Terminal.

The addition of the new grade allows Nigeria to export another two cargoes of 950,000 barrel each of crude each month, NNPC said in a statement. The first cargoes of Nembe were traded in October, with two 950,000 barrel shipments sold to France and the Netherlands.

NNPC said that this development also signals the commencement of activities at Nigeria's newest crude oil terminal, the Nembe Crude Oil Export Terminal. The terminal was conceived as a Floating Storage and Offloading Vessel with a storage capacity of two million barrels and the ability to offload crude oil to any export tanker from AFRAMAX to very large crude carriers.

What is also noteworthy is that it is the first such crude marketing project solely run by Nigerian entities. "It is definitely the trajectory that we are going to follow," Maryamu Idris, executive director of crude and condensate at NNPC Trading told the conference.



12th Arab Energy Conference takes place in Qatar

On 11 and 12 December, the 12th Arab Energy Conference took place in Doha, Qatar, with OPEC Secretary General Haitham Al Ghais attending the opening ceremony and participating in the First Ministerial Session, entitled 'International Developments in Energy Markets and their Implications for the Arab Energy Sector'. The OPEC Bulletin *reports.*

Under the theme 'Energy and Arab Cooperation', the two-day 12th Arab Energy Conference kicked off in Doha on 11 December.

Gathering official delegations from Arab countries, contributors invited by the conference committee, and figures concerned with energy issues, the event was held under the patronage of HH Sheikh Tamim Bin Hamad Al Thani, Emir of Qatar, and was organized by the Organization of Arab Petroleum Exporting Countries (OAPEC).

Ministerial attendees included HRH Prince Abdul Aziz Bin Salman, Minister of Energy of the Kingdom of Saudi Arabia; Mohamed Arkab, Minister of Energy and Mines of Algeria; Hayan Abdulghani Abdulzahra Alsawad, Deputy Prime Minister for Energy Affairs and Minister of Oil of Iraq; Mohammed Oun, Minister of Oil and Gas of Libya; Saad bin Sherida Al Kaabi, Minister of State for Energy Affairs of Qatar; and Tariq El Molla, Minister of Petroleum and Mineral Resources of Egypt. Mohamed Hamel, Secretary General of the Gas Exporting Countries Forum, was also in attendance.

The conference provided a platform to discuss Arab ideas and visions on oil and energy issues, coordinate relations between Arab institutions involved in energy and development activities, link energy policies to development issues, examine present and future Arab

Dignitaries gather for a group photograph at the opening ceremony of the 12th Arab Energy Conference.

HH Sheikh Tamim Bin Hamad Al Thani, Emir of Qatar.

Haitham Al Ghais, OPEC Secretary General, met with Eng. Jamal Essa Al Loughani, OAPEC Secretary General, on the sidelines of the conference.

energy needs, identify Arab capabilities and efforts in developing energy resources, and discuss international energy dimensions and their impact on Arab countries.

Speaking at the opening of the conference, Saad Al-Kaabi, Qatar's Minister of State for Energy Affairs, said that the world was in a state of conflict that intensified the importance of energy as a vital tool for sustainable economic growth and global progress. He also emphasized the importance of developing a clear vision, based on scientific data, to balance energy sources and provide low-carbon emission energy.

First Ministerial Session

Bassam Fattouh, Director of the Oxford Institute for Energy Studies, who received the OPEC Award for Research in 2018, produced a thought-provoking paper that served as background for the First Ministerial Session.

The paper discussed recent transformations in oil and gas markets, the main features of the current energy transition, and implications for Arab oil and gas exporters and strategies they can pursue.

In his remarks, Al Ghais highlighted the magnitude of the global energy challenges ahead, stressed that future energy transitions must be just, inclusive and realistic — with no one left behind — and underlined the importance of adequately and swiftly investing in all technologies to reduce emissions, ensure energy security and affordability, and promote global economic growth for decades to come.

On the margins

On the margins of the 12th Arab Energy Conference, Al Ghais was pleased to discuss developments in the global energy industry and explore possible avenues for cooperation with Eng. Jamal Essa Al Loughani, OAPEC Secretary General.

Haitham Al Ghais, OPEC Secretary General, speaks at the ministerial panel session titled 'International Developments in Energy Markets and their Implications for the Arab Energy Sector'.

Coordination Meeting on Climate Change addresses COP28 issues

The 24th Coordination Meeting on Climate Change — the first in-person meeting since COVID-19 — was held on 6 November at the OPEC Secretariat, with OPEC and Declaration of Cooperation countries in attendance.

The group discussed developments ahead of COP28, which was held from 30 November until 12 December in OPEC Member Country the United Arab Emirates (UAE).

Secretary General Haitham Al Ghais stated in his opening remarks that COP28 was a highly critical moment for energy-exporting, developing countries, and thus the Coordination meeting was of great importance.

Along with the COP28 agenda, the meeting discussed International Panel on Climate Change (IPCC) mitigation scenarios on low-emissions energy systems under its 7th cycle, along with the implications of plastic negotiations on the climate change debate. Climate litigation was also addressed, especially in light of an upcoming International Court of Justice (ICJ) advisory opinion.

At meetings held prior to COP28, including the UN Climate Summit, the G20 Summit, the 2023 UNFCCC Regional Climate Weeks and others, Al Ghais noted there had been calls to phase down or phase out fossil fuels.

Al Ghais stated that this was "creating unnecessary fear among the world's citizens. Science and research show that we will undoubtedly require fossil fuels for decades to come to ensure just and orderly transitions. The world needs these reliable and affordable sources of energy to ensure global energy security and to realize the sustainable development goals."

The 7th IPCC cycle is starting this year and will last five to seven years, informing the second global

stocktake under the Paris Agreement in 2028. He told the meeting to ensure that its members took part in guiding all relevant processes going forward in order to ensure that the UNFCCC's underlying principles of equity and historical responsibility were adhered to.

Substantive emissions and investment gaps must be addressed by developed countries, which were responsible for fulfilling commitments to supporting developing countries, including financial support, Al Ghais noted. In addition, he stated that IPCC findings also highlighted the critical role of technologies, including feasible and low-cost options available for mitigation and adaptation.

"In this regard, it is extremely positive to see that OPEC Member Countries are already investing heavily in hydrogen projects, carbon capture utilization and storage facilities, direct air capture and the circular carbon economy."

Furthermore, oil constituted a necessary part of the solution to climate change and the industry was ready and willing to provide technological solutions and innovations to ensure a sustained supply of energy to the world with a reduced CO_2 footprint, he continued. "Orderly transitions are not possible without oil continuing to support economic stability and sustainable development."

Against this backdrop, he encouraged DoC countries to continue to be the voice of reason in the face of increasing pressure. This included rallying together to ensure that enough climate finance was granted to developing countries to enable them to reach their Nationally Determined Contributions, as well as close monitoring of the New Collective Quantified Goal on climate finance.

"Our countries are particularly vulnerable in the face of climate change, with economic opportunity losses due to possible fossil fuel restrictions, as well as the damage caused by climate change itself," said Al Ghais.

"For the sake of our future, we must remain vigilantly proactive in the development of international guidelines that are sure to affect our economic wellbeing."

In conclusion, Al Ghais emphasized the importance of having a common voice and a cohesive front, which the common positions formed during the meeting had helped to support.

"Orderly transitions are not possible without oil continuing to support economic stability and sustainable development."

— Haitham Al Ghais, OPEC Secretary General.

(L–r:) Dr Ayed S Al-Qahtani, Director of OPEC's Reserach Division; Haitham Al Ghais, OPEC Secretary General; and Albara Tawfiq, Co-Chair.

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OPEC Secretariat discusses plastic negotiations at technical workshop

The 6th Technical Workshop on Climate Change was held at the OPEC Secretariat on 7 November. Entitled 'Plastic negotiations: targeting pollution or production and the question of climate change', it invited experts to share views on this important topic.

Negotiations on plastics have become an even more prominent issue since the United Nations Environment Assembly (UNEA) adopted a Resolution in March 2022 that aims to end plastic pollution by developing an international legally binding instrument.

A negotiating committee, the Intergovernmental Negotiating Committee (INC) on Plastic Pollution, was established to develop the instrument — with the ambition to complete negotiations by the end of 2024. The third session of the INC took place from 13 to 19 November in Nairobi, Kenya. At the previous session, INC-2, the Chair was asked to prepare a "Zero Draft" for the instrument. This is available and will serve as the basis for upcoming planned sessions.

"OPEC is willing to be a part of a science-based, inclusive, realistic and pro-sustainable development solution. As such, OPEC has engaged proactively with the negotiation process from the very beginning, including through providing oral and written submissions to its proceedings," stated OPEC Secretary General Haitham Al Ghais to the assembled members of the Charter of Cooperation (CoC).

"We believe it is critical that the future instrument focuses on plastic pollution, including in the marine environment, and its root cause, which is the release of end-of-life plastics into the environment. It is expected that the instrument will be based on the principles of sustainable production and consumption of plastics in the context of circularity."

Al Ghais also noted that in order to support sustainable development, the instrument should use sustainable, affordable, innovative, cost-efficient and evidence-based approaches to ensure effective and environmentally sound management of end-of-life plastic waste without unduly undermining the substance's innumerable benefits.

Part of the solution should include replacing known hazardous additives with environmentally sound alternatives. Al Ghais added that putting

Plastic polymer granules in a laboratory.

restrictions on non-hazardous chemicals, including polymers that are inevitable in a circular system, was not advisable.

"Creating potential restrictions without expansively evaluating alternatives could cause plastics to face a disadvantage compared with more emission-intensive materials, for which there are no such instruments. The sustainable production and consumption of plastics can both reduce emissions and support sustainable development."

The specific circumstances and capacities of developing countries, which may be lacking in required technical and financial capacity, must be taken into account too, and anything that hinders their right to development avoided, continued the Secretary General.

International cooperation is essential, and required technologies, finance and expertise should be provided to developing countries to create an enabling environment for them to meet the goal of the instrument.

In addition, all solutions must take into consideration the principles of common but differentiated responsibilities and respective capabilities under the United Nations Framework Convention on Climate Change (UNFCCC) and embrace the UN Sustainable Development Goals (SDGs).

Developed countries must take the lead in addressing plastic pollution, said Al Ghais, emphasizing the necessity of ensuring that the instrument is well-balanced and has a realistic chance of implementation.

"Innovative and sustainable technological solutions for recycling and waste management should additionally be promoted, as they can provide long-term solutions," he stated.

Meanwhile, possible overstretching of the instrument's scope from the original mandate contained in the UNEA resolution should be avoided.

"All voices need to be heard to ensure the best outcome for the instrument… we want to make sure [negotiations] progress in a way that is fair, inclusive, open and equitable."

With only a few sessions left before the INC creates a legally binding instrument, it is essential to maintain a laser focus on this topic, added Al Ghais at the close of the meeting.

"OPEC remains committed to the protection of the environment and ensuring sustainable development in all its dimensions. We are of the view that the issue of plastic pollution needs to be addressed in a balanced manner based on realities on the ground.

"We have a lot of input to consider … One of the key issues will be how this binding instrument should be implemented, considering gaps in finance, technological development and transfer, and capacity-building. However, the most important issue is to progress in an inclusive manner that leaves no one behind."

The OPEC Secretariat will continue to examine this matter and provide relevant information and analysis to OPEC Member Countries and countries participating in the CoC.

Canada's leading role in carbon capture and storage development

The focus has increased in recent years on the role of carbon capture (utilization) and storage (CCS/CCUS) as a method to reduce carbon emissions and tackle the complex issue of climate change. Canada was an early adopter of CCS/CCUS and global players recognize its experience. Vice-President of Policy, Regulatory and Stakeholder Relations ***Beth (Hardy) Valiaho*** *at the International CCS Knowledge Centre, based in Regina, Saskatchewan, Canada — just back from COP28 — talked with the* OPEC Bulletin *about CCS in the context of COP discussions, as well as Canada and the Knowledge Centre's role in the development of CCS. By Maureen MacNeill*

Beth (Hardy) Valiaho, Vice-President of Policy, Regulatory and Stakeholder Relations at the International CCS Knowledge Centre.

"We went to COP looking to … share a story about the ability to do large-scale CCS as part of the (climate change) solution. You know we need everything: renewables, nuclear, along with others, and CCS is one of those things," says Valiaho, who has taken the Knowledge Centre's CCS platform to the COP under the United Nations Framework Convention on Climate Change (UNFCCC) seven times.

This year stood out for her.

"It became readily apparent that CCS was more a part of the conversation than in the past. That is a good thing for our industry but also for climate change. Getting to net-zero targets we really think [requires] more and more CCS in the mix and that was evident at the COP."

She states that the Carbon Management Challenge shows that developed and developing countries alike are acknowledging the need for carbon management solutions like CCS. This type of commitment, buy-in and political will drive a lot of investment, she adds.

This was the busiest COP yet for the Knowledge Centre, states Valiaho. "We had 12 different panels and — with our partners — held the only official UNFCCC side event on CCS. I think that being part of that dialogue, meeting with our collaborators and partners but also sharing that message with a broader audience is integral to getting the message out that this is part of the solution."

There is recognition that transitioning to net-zero has to be done in a just fashion and CCS plays an important role in that, adds Valiaho. Everybody relies on heavy industries for the products we all continue to need, like cement, steel and other products. These industries have a large impact on jobs and economies not just in Canada, but around the world, she says.

Canada's role in CCS

Canada has been a leader in the first generation of global CCS development, and is home to five of the 41 commercial CCS projects running in the world today. These include SaskPower's Boundary Dam Unit 3 CCS Facility — which is the world's first fully integrated CCS facility on a coal-fired power plant; the Alberta Carbon Trunk Line — the largest CO_2 pipeline on the planet;

and the world's largest storage project for human-made CO_2 at the Weyburn-Midale region of southeast Saskatchewan.

The latter has permanently sequestered more than 38 million tonnes of CO_2 since 2000. (*OPEC Bulletin Vol XLV – No 7, August/September 2014* — contains an article on the Boundary Dam project at its inception.)

Canada was a forerunner in CCS initially, says Valiaho, and now stands before the next generation of CCS projects. "Now that there are different policy levers, like the investment tax credit and the Alberta Climate Change Incentive Program…we see that the opportunity to take that next step is really right in front of us," she says, which has the potential to propel Canada into a leading role in the future once again.

Although Canada generates less than two per cent of global CO_2 emissions, it accounts for approximately 15 per cent of current global CCS/CCUS capacity, with about seven million tonnes of CO_2 per year, according to the Knowledge Centre. Since 2000, CCS projects in Canada have stored more than 52 million tonnes of CO_2 securely, or the equivalent of removing over ten million cars from the road.

Canada's 2030 goal is to cut its emissions by 40 to 45 per cent below 2005 levels and reach net-zero emissions by 2050. The country's current federal emissions reduction plan sees national CCS capacity more than tripling, with facilities added to capture and store at least 15 million tonnes per year by 2030, states the Knowledge Centre.

In order to reach this objective, CCS will have to be implemented in heavy industries across the country, including oil and gas production, power generation, cement, steel, fertilizer manufacturing, mining and petrochemical processing. Canada's heavy-emitting industries contribute heavily to the country's GDP and government revenues, and provide millions of jobs.

Against this backdrop, the US and Canada have the largest number of planned CCS projects in development in the world, according to the Global CCS Institute. In fact, Canada ranked second for CCS deployment based on the number of CCS facilities announced and in development worldwide in the Institute's 2023 report, according to an Institute spokesperson. Canada increased its facilities count from 13 in 2022 to 48 in the 2023 reporting period.

International CCS Knowledge Centre

A view from inside the Boundary Dam Unit 3 CCS plant.

"Canada could be considered a forerunner in CCS globally based on the number of CCS facilities announced and in development and CCS-specific law and regulation," states the spokesperson.

The spokesperson continues that Canada has had several key global achievements, including Boundary Dam as the first commercial CCS facility on power generation; the IEAGHG's Weyburn-Midale CO_2 Monitoring and Storage Project — the longest-running CO_2 monitoring programme, with the first phase starting in July 2002; and Aquistore, one of the only CO_2 measurement, monitoring and verification focussed pilot operations in the world.

The CCS Institute spokesperson goes on to say that "the Canadian-government-funded Boundary Dam and Quest projects resulted in many, very detailed real-world feasibility and FID reports being made public — which were a great advancement in the world of CCS.

"The Canadian CO_2 storage regulations (CSA Z741) became the basis for future standards around the world."

Further, says the Institute spokesperson, the findings, outcomes and learnings from the projects/programmes mentioned above have also been published in numerous international reports and journals, and presented at global conferences — informing ongoing development and deployment of CCS research and technology.

In terms of upcoming projects in Canada, Capital Power announced a limited notice to proceed with its \$2.3 billion (\$ bn) Genesee CCS project last December, and Heidelberg Materials is advancing the world's first CCS project on a cement plant in Edmonton. In Alberta, construction has started by Air Products on a new \$1.6 bn net-zero hydrogen complex using CCS that will support renewable diesel production. Dow Chemical has announced it will proceed with a new \$6.5 bn net-zero petrochemical plant that will incorporate CCS.

Meanwhile, the oil sands industry, through the Pathways Alliance, is spending tens of millions of dollars on the environmental assessments, early-stage

A tour of the Boundary Dam Unit 3 CCS plant.

International CCS Knowledge Centre

The Boundary Dam Power Station with the carbon capture facility in the foreground.

engineering work and stakeholder engagement needed to receive permits for construction on one of the world's largest CCS projects, known as the Pathways Alliance.

Valiaho presented on the Heidelberg cement project at COP28. "We did the feasibility study for that project originally and it was really building off the experience and lessons learned from the Boundary Dam project, so a nice example of how the world's first CCS project on a power plant is providing useful information and valuable learnings for other projects beyond just power generation, for other heavy industry, like cement."

The Knowledge Centre

The Knowledge Centre, which Valiaho has been a part of since its inception in 2017, sprang out of the Boundary Dam project, which started in 2014, with a design capacity of a million tons per year.

"SaskPower had the world's first post-combustion carbon capture and storage facility on a coal fired power plant. It is actually a big deal as well … BHP Billiton at the Paris COP heard … SaskPower at the time talking about this project and they said the world needs to know that this is proven in order for people to adopt this technology … And so that was the inception of the Knowledge Centre."

BHP provided $20 million over five years for the Knowledge Centre to go around the world and talk about the proven nature of CCS at Boundary Dam.

"Nobody can rebut that it exists, when it has been there since 2014. There is still a lot of work to do to optimize and scale up to a more readily deployable technology, but I think that is what we are seeing right now. With incentives behind it, as well as industry having targets they have to meet, it is kind of marrying the need to have CCS go forward."

She says that although the levelized price of CCS has come down, inflation and other considerations are affecting the cost. This is where the Knowledge Centre hopes to play a role. Cost reductions are not seen with iterations of one-of-a-kind projects, she states. The Knowledge Centre is hoping to insert knowledge at the front end of projects and ensure they reduce costs each time.

"These are expensive projects, they're not necessarily going to do multiples of them right away, so you need to share your lessons learned across the industry, sometimes with your competitors in fact, as well as from sector to sector. It is the same with any technology like cell phones, or solar panels. You need more of them to understand cost."

Valiaho adds that CCS technology is not something that can be bought off a shelf and put into a facility; not customizing it may render it less effective. "That is where we think understanding how to aggregate those lessons learned, knowledge management and shared knowledge becomes pivotal."

The Knowledge Centre started out traveling the world to show how the technology has been proven,

CO_2 *capture facility at Boundary Dam Unit 3.*

including going to developing countries, along with Germany and Poland, for example, to spread the word. It later helped Senate staffers create the 45Q incentives (Section 45Q Tax Credit for carbon oxide sequestration) in the US, helped Canada design the investment tax credit and advocated for CCS projects to go forward.

"I think we are considered experts because of that vast knowledge that we have touching many different dimensions. I think it is valuable that we are recognized as international experts and we can be a fact-based, neutral voice for all industry and government."

The Centre collaborates with many different parties, including the University of Texas at Austin; the Carbon Capture and Storage Association from the UK; the Global CCS Institute; the International Energy Agency Greenhouse Gas R&D Programme (IEAGHG); and other Canadian organizations.

In order for CCS to accelerate internationally, global storage opportunities must be understood and multilateral bank financing must be in place, especially for developing countries, says Valiaho. The speed of acceleration will depend on where a CCS site is, who is involved, and what targets look like.

"For me the opportunity is vast, there are enough sequestration opportunities in the world that we can store for eons to come but right now we are figuring out how to pair those sources of emissions to sequestration opportunities or how to partner across countries if we need to take it offshore.

"There are many, many conversations to try and accelerate deployment and frankly the new Carbon Management Challenge is going to do a great job of trying to marry those things together."

Developed countries should play a big role in transferring technologies and knowledge to developing countries, adds Valiaho. As countries strive to become developed, they want to have the same opportunities that developed countries have, which is largely related to industrialization, "which means a lot of emissions. It is an interesting dynamic to try to figure out how we can help these countries emerge while still ensuring emissions are reduced. There is a big role for places like Canada and the US to play."

Ground zero for CCS knowledge sharing

Valiaho says that the Knowledge Centre is a leader for knowledge sharing, and its role is set to expand in the future. It has recently received money from the Government of Alberta to create a knowledge-sharing hub.

"We're just creating the last elements of our implementation plan, which we are submitting to the government at the end of this year. We hope from there to move forward, and have more formalized government support from Alberta, Saskatchewan, other provinces and maybe even the federal government."

If it is successful, it will start to involve international partners as well, she says. Valiaho hopes the sharing hub will be in the implementation phase in the next year or so, and formalized by 2025.

"That being said, it doesn't mean we won't be sharing knowledge in the interim. We will continue to share knowledge during its ramp up."

The intention is that the hub will be accessible to anyone worldwide who is planning a CCS project. "It is not just going to be a portal that you have to navigate yourself. One of the things we think is really important is that knowledge has to be tour guided. We want to make sure that people aren't starting at 101 all the time. If we are going to get to net-zero we can't start from ground zero."

Other organizations will be encouraged to use the hub as a repository also, as the Knowledge Centre strongly believes that if public dollars are going into a project, knowledge sharing should be attached.

CCS concerns

A concern about CCS is its alleged potential to trigger earthquakes. Valiaho says she does not lose any sleep about this.

"For two decades we've been sequestering CO_2 in the Weyburn-Midale field and since Boundary Dam has been operational, it is sending CO_2 to an Aquistore site nearby. At that Aquistore site, all the CO_2 is monitored and measured … and there's been no seismicity recorded at all."

Valiaho rephrases information from Katherine Romanak, a senior research scientist at the Bureau of Economic Geology at the University of Texas in Austin, who has worked extensively with the Knowledge Centre and CCS projects around the world, including Quest in Alberta and Weyburn-Midale in Saskatchewan.

The CO_2 goes into the ground in a liquid state, and it is in pores in the ground, summarizes Valiaho, "… and you can't get that out. Some of it is shifting, but it is absolutely minimum. This question about earthquakes, we would really like to put a stop to that because we have been monitoring and measuring it. We know where the CO_2 is … over 42 million tons over two decades is safely stored, it can't get better than that."

CO_2 becomes mineralized into rock over time, Romanak explained to a panel at COP28. She stated that studies have shown that CO_2 leakage is unlikely, but that any leakage into drinking water would lead to carbonation of the water — which is benign. Regarding impact on terrestrial organisms, she noted that plants with developed root systems are more resilient, and that microbes' diversity tends to change towards acid-tolerant species.

"CO_2 in the air is way more dangerous for us than CO_2 in the ground…The problem is most people are not exposed to [CCS] so they can't see risk other than in terms of potential disasters and destruction," Romanak says in an earlier article.

"They view carbon dioxide as pollution and don't want it in the ground. I tell them, you are drinking carbon dioxide when you drink cola. It is a natural part of our world. There is just too much of it in the air and we need to take it out of the active carbon cycle.

It will take decades, if not centuries, to wean ourselves off oil and gas and we need to stop emissions now. To do that, you need to expand CCS, not stop it."

CCS is going to be needed to meet climate targets, says Valiaho.

The Intergovernmental Panel on Climate Change, the IEA and others state that by 2030 the world needs CCS to store one gigatonne of CO_2 per year, rising to 10 gigatonnes by 2050. Currently, CCS projects around the world have the capacity to store around 50 million tonnes of CO_2 per year.

Valiaho goes on to say that every project obviously needs to be well studied, with regulations in place for measuring and long-term monitoring of the plume underground. "That is necessary, and we have a lot of experience doing it."

There is also a lot of accumulated underground experience through general oil and gas developments over the last century, she adds.

Technical meeting examines China and India's economic and oil demand potential

In November, the OPEC Secretariat hosted the 14th Technical Meeting of OPEC and non-OPEC countries participating in the Charter of Cooperation (CoC), with discussions centering on the underlying macroeconomic fundamentals of Asia's two major oil demand growth engines, China and India.

The technical meeting brought together a host of experts to examine particular developments China and India have undergone in recent years, as well as their current challenges and future potential. The experts also added insights into how these economies are expected to drive oil demand growth in the non-OECD region in the year ahead.

Speaking on behalf of the OPEC Secretary General, Dr Ayed S Al-Qahtani, Director, Research Division, began by emphasizing the importance of the Charter of Cooperation. He noted: "The Charter is the longer-term accompaniment to the Declaration of Cooperation … [and] provides a platform to facilitate dialogue and exchange views regarding challenges and opportunities in global oil and energy markets".

For the oil industry, he added: "It is vital we work together, and continually build bridges with other stakeholders. This is to ensure the world understands just how important this industry is, and will continue to be, in terms of helping facilitate energy security on a large scale, and in enabling the development and deployment of technologies to reduce emissions."

Asian growth centres

In referencing recent and near-term growth, Al-Qahtani stated that "our most recent Monthly Oil Market Report (MOMR) for November sees India and China as key drivers for economic growth in 2023, with expected year-on-year GDP increases of 6.2 per cent and 5.2 per cent, respectively. For 2024, the figures are set to remain robust, at 5.9 per cent for India and 4.8 per cent for China."

This also translates into significant oil demand growth, with November MOMR levels seeing China expanding by more than 1.1 million barrels a day (mb/d) in 2023, a strong recovery following the abandonment of its COVID-19 lockdown measures. India too exhibits a healthy oil demand increase, with growth expectations of 230 thousand barrels a day (tb/d) in 2023, following already strong growth in 2022.

In 2024, both countries will see further healthy oil demand expansion, with China at 600 tb/d and India at 220 tb/d.

In highlighting both countries' strong relationships with OPEC Member Countries, Al-Qahtani said that "more than 50 per cent of the total crude oil imports to both countries in 2022 came from Member Countries. India at close to 2.8 mb/d, or around 60 per cent of its total, and China at slightly above 50 per cent, or around 5.1 mb/d."

Looking longer term too, India's oil demand is set to rise to 11.7 mb/d in 2045, an increase of 6.6

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

Haitham Al Ghais, OPEC Secretary General.

Sarah Emerson, ESAI Energy.

mb/d over 2022, and China's oil demand is set to rise to 18.8 mb/d in 2045, an increase of almost 4 mb/d over 2022.

Discussions

This background provided a platform for discussions, held under the Chatham House Rule, with some of the key points highlighted below:

- India's economy has displayed remarkable resilience since the onset of the pandemic, expanding by around 15 per cent.
- There is a lot of optimism around India's future outlook, despite vulnerabilities in the banking sector and the impact of generative artificial intelligence on the business process outsourcing sector. Projections indicate that India is poised to become the world's third-largest economy within the next decade.
- The country's expanding and upwardly mobile population is seen as a driving force behind increased demand for various goods and services, including vehicles.
- Overall, India's economic dynamics are poised to have a growing impact on global financial and commodity markets.
- For China, the post-COVID-19 recovery, increased domestic demand, and new refining capacities have contributed to a substantial rebound in Chinese crude oil demand.
- One speaker noted that China's medium-term outlook suggested a possible slowdown in the country's industrial sector, posing challenges for diesel and fuel oil demand.
- The petrochemical and aviation sectors are poised to be key future drivers of oil demand expansion in China.

Delegates at the 9th Technical Meeting on Asian Energy and Oil Outlook took time out for a group photograph.

OPEC and Asia continue to enhance dialogue

The 9th Technical Meeting on Asian Energy and Oil Outlook convened on 14 November 2023 at the OPEC Secretariat in Vienna. Research experts from the OPEC Secretariat joined together with their Asian counterparts to assess current and future oil and energy market developments, with a special focus on Asia. The OPEC Bulletin*'s* ***Scott Laury*** *reports.*

Oil rig in the middle of the Sea of Yokohama, Japan.

Shutterstock

The annual event provides a highly valuable platform for dialogue and technical exchange on energy and oil outlooks between OPEC and Asia's major energy and oil consuming countries.

This year's ninth iteration of the event was well attended and provided a diverse range of perspectives from Asia, including China, India, Japan and Korea. These experts were from public and private sector organizations, as well as academia and research institutions.

After warmly welcoming the delegates to Vienna, OPEC Secretary General Haitham Al Ghais emphasized the importance of the event as part of OPEC's ongoing strategy to promote oil market stability through open and transparent international energy cooperation.

"We are very pleased to have a distinguished line-up of guest speakers who will be sharing their valuable views and expertise with us, some of whom have been collaborating with us for a long time," Al Ghais said. "Since its establishment in 2015, this technical meeting has become a regular part of our growing energy dialogues with both consumers and producers."

Driving future growth

A key message during the event was that Asia will remain an engine for long-term economic and oil demand growth, playing a fundamental role in the future of the energy industry.

"We estimate that India and China alone will account for roughly 37 per cent of global GDP in 2045, with India seeing the greatest gains by far at 6.1 per cent per year in this timeframe," Al Ghais stated. "As far as energy demand goes, Asia will be one of the fastest growing regions in the medium to long term due to a rapidly rising population and robust economic expansion."

According to OPEC's 2023 World Oil Outlook (WOO), nearly 28 per cent of non-OECD growth is expected to come from India alone. Other Asia and China will also be leading contributors.

"This data underlines the strategic importance of Asia for OPEC as an energy provider," he added. "Our Member Countries have been and will continue to be reliable energy partners to help Asia meet its growing energy needs in the decades ahead."

Long-term outlooks

In Session 1, which was moderated by Dr Ayed S Al-Qahtani, Director of the OPEC Research Division, delegates heard presentations on the long-term oil and energy outlooks for Asia from the perspectives of both the OPEC Secretariat and Japan's Institute of Energy Economics (IEEJ).

Dr Abderrezak Benyoucef, Head of OPEC's Energy Studies Department, presented some of the key outcomes from OPEC's latest WOO, including forecasts related to developments in Asia.

This was followed by a presentation from Dr Ken Koyama, Senior Managing Director and Chief Economist from the IEEJ, entitled: "A Japanese view on world energy future: IEEJ 2024".

In Session 2, which was moderated by Dr Koyama, the focus shifted to the topic of hydrogen and the role it might play in Asia as the continent ramps up its efforts to mitigate the adverse effects of climate change.

Throughout both sessions, the presentations and ensuing discussions provided attending delegates with a valuable opportunity to compare notes on their respective outlooks and engage in deeper discussions on key issues that are poised to shape the future of the global oil and energy industries.

Dialogue and cooperation essential

Secretary General Al Ghais, in sharing some closing thoughts, underlined the crucial nature of continued dialogue amongst energy producers and consumers.

"To meet Asia's significant requirements for energy in the decades ahead, we will need to continue prioritizing the strong and stable producer-consumer relationship we have successfully cultivated to date," he said. "Through events such as this one, knowledge and data exchange matched with open and transparent dialogue will continue to flourish. I am confident that, in terms of OPEC and Asia relations, our best days are yet to come."

Haitham Al Ghais, OPEC Secretary General (l) with Ken Koyama, Senior Managing Director and Chief Economist at the Institute of Energy Economics, Japan (IEEJ).

5th Technology Workshop convenes in Vienna

The importance of technology in energy transitions was a recurring theme as experts and industry analysts compared notes at the 5th Technology Workshop, held on 25 October at the OPEC Secretariat in Vienna. The Bulletin's ***Scott Laury*** *reports.*

Dr Ayed S Al-Qahtani, Director of OPEC's Research Division, kicked off the proceedings with opening remarks delivered on behalf of OPEC Secretary General Haitham Al Ghais who was travelling on mission.

After welcoming the distinguished guest panellists, moderators and OPEC Secretariat officials in attendance, he noted that the swirling narratives on the subject of climate change and energy transitions had reached new heights, in particular in the lead-up to COP28.

"Once again, world leaders will gather, this time in Dubai, to discuss how the world can best address climate change while also meeting the burgeoning energy requirements of a rapidly rising global population," he said. "A key aspect of the discussions in Dubai will focus on the role of technology in helping to mitigate climate change and provide clean energy solutions."

> *"The oil industry has historically been a key player in developing innovation and technology, and it will continue to do so well into the future."*
>
> *— Dr Ayed S Al-Qahtani, Director, Research Division*

In this regard, he stated that the timing of the workshop could not be more appropriate.

"Today, we will be taking a "deep-dive" into the key topic of energy technology and what solutions and expertise the oil and gas industry might be in a position to offer," he said. "In our two sessions today, we will hear from our guest experts on the important issues of digitization of the oil and gas sector and how the latest technologies can contribute to a less carbon-intensive industry."

Meeting sessions

The first session, entitled "Digitization of the oil and gas sector", covered a wide spectrum of digital technologies that are geared towards helping the industry increase efficiency and lower downtime in operations while improving environmental performance and reducing operational costs.

Presentations were delivered on drilling optimization and automation, digital transformation, artificial intelligence, automated reservoir management, computing through "green data" and AI applications, integrated performance workflows in electronic submersible pump operations and autonomous robotic applications in oil and gas platforms.

In session 2, under the theme "Technology paving the way to decarbonize the oil and gas sector," the focus was on innovative solutions that will be essential in enabling the industry to achieve a lower carbon footprint in the coming decades.

Topics discussed during the session included zero flaring technologies, the role of hydrogen in powering oil and gas operations, direct air capture technology, low carbon solutions and carbon transport and storage, lifecycle thinking and decarbonization in the energy sector, as well as the role of augmented reality in modelling and simulation.

OPEC Member Countries investing in technology

In wrapping up the day's proceedings, Al-Qahtani remarked that OPEC's Member Countries continued to invest significantly in cutting-edge technologies

Dr Ayed S Al-Qahtani, Director, Research Division, OPEC (c); Ákos Kiss, Production Technologist for OMV (r); and Dr Abderrezak Benyoucef, Head, OPEC Energy Studies Department.

and innovation for the development of clean energy solutions.

These include many of the technologies discussed during the workshop, including hydrogen, carbon capture utilization and storage, carbon dioxide removal, direct air capture and the circular carbon economy.

"The industry must continue to ramp up these technologies, but to do so will require significant investments," he said. "In fact, according to our World Oil Outlook 2023, industry investment requirements to 2045 are estimated to be $14 trillion, or around $610 billion on average per year."

To reach these ambitious targets and meet future energy demand, he added that industry stakeholders must work together to ensure that the necessary investments were secured.

"It is in the interest of both producers and consumers, and the global economy," he added.

Crucial role of industry

Finally, Al-Qahtani underlined the crucial and historical role the oil and gas industry has played — and will continue to play — as a leading provider of global technological expertise and know-how, especially in today's rapidly evolving energy environment.

"The oil industry has historically been a key player in developing innovation and technology, and it will continue to do so well into the future," he stated. "When all is said and done, the question we must ask is not whether fossil fuels will be needed or not, it is how we can adapt these products to make them cleaner and less carbon intensive."

Secretariat hosts workshop with energy companies

In late October, the OPEC Secretariat hosted the 3rd Technical Workshop with Energy Companies. The event focused on a number of pertinent issues, including the role of energy companies in developing the oil sector of OPEC Member Countries, and industry strategies and technologies aimed at reducing carbon footprints in exploration and production operations.

What was clear from those attending the workshop was that energy companies are taking great strides to reduce greenhouse gas emissions, while also providing the energy security and affordability the world needs. However, it was also recognized that there was still more to be done to develop innovative approaches, advance sustainability and enable best-in-class technologies to support economies, energy security and reduce emissions.

The role of the industry and companies in investing and harnessing the advanced skills and knowledge at their disposal to implement low-emissions solutions and mobilize state-of-the-art cleaner technologies, was highlighted by Dr Ayed S Al-Qahtani, Director, OPEC Research Division, in his opening remarks.

He emphasized such technologies as carbon capture utilization and storage, clean hydrogen technologies, direct air capture, and carbon dioxide removal, as well as the concept of the circular carbon economy.

From the perspective of OPEC Member Countries, he said that, “Saudi Arabia has set the bar high in cutting emissions, with a carbon-capture target of 44 million tonnes per year by 2035. Its efforts to develop effective CO_2 capture and sequestration techniques will see the Kingdom create one of the largest carbon capture, utilization and storage hubs in the world in the Jubail Industrial City.”

Earlier in October, he added, “the Abu Dhabi National Oil Co., or ADNOC, and Occidental, announced an agreement to undertake a joint preliminary engineering

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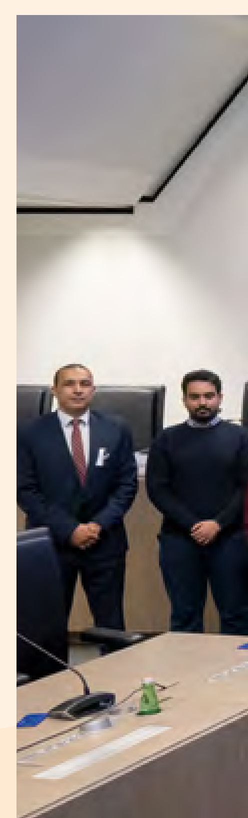


study for the construction of the first megaton-scale direct air capture facility outside of the US."

From the perspective of African OPEC Member Countries, he continued, "Sonangol in Angola has set out specific decarbonization goals, related to such areas as reducing flaring, advancing its' fleet efficiency and improving power generation systems. In Algeria, its 2023 Hydrogen Development Roadmap aims to make the country a pioneer at the regional and international level in the production and commercialization of this energy."

More oil, more technologies

Al-Qahtani also noted that the world will need more oil in the years ahead. "In our recently released World Oil Outlook (WOO), we see oil demand reaching 116 million barrels a day (mb/d) by 2045, an increase of 6 mb/d from our previous WOO," he said.

This development is on the back of policymakers reevaluating their sustainable energy pathways to take into account the realities on the ground. "What this means is that energy companies will need to produce more oil, and at the same time constantly improve operational efficiencies and reduce emissions in terms of exploration and production," he added.

The role of technologies, with a key emphasis on digitalization, was a main focus of speakers at the workshop.

This included presentations on digital transformation as a key enabler for decarbonizing the energy system, utilizing digitalization to manage wells more efficiently, with the associated impacts on efficiency, and automated reservoir management.

Other areas discussed included the impact of advanced analytics in enabling zero flaring, the role of hydrogen in powering oil and gas operations, and the advanced integration of workflows.

Bringing experts together

In closing, Al-Qahtani highlighted that as an industry "it is vital we continue to share best practices, reference our state-of-the-art cleaner technologies and our ever improving operational efficiencies, and ensure our voices are heard in the discussions about energy transition pathways."

He added that the industry should be proud of what it was doing to foster global energy security and deliver on reducing emissions, and reiterated again the importance of events such as this workshop to bring energy companies together.

He thanked the moderators and speakers for their time, and praised the high level of participation in the question and answer sessions. "Interaction is key to these workshops, and we have certainly benefitted from that today."

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

The OPEC-OPEC Fund Legal Workshop convenes in Vienna

The fifth edition of the OPEC-OPEC Fund Annual Legal Workshop took place on 23 October at the OPEC Secretariat in Vienna. Legal officials from both organizations joined together with Member Country delegations and guest speakers to consider important legal aspects of international legal advisory opinions on climate change.

OPEC's General Legal Counsel, Leonardo Sempértegui, opened the event with some brief remarks in which he welcomed participants to the event and emphasized the timeliness of its theme pertaining to the International Court of Justice's (ICJ) advisory opinion on "Obligations of States in respect of Climate Change".

The workshop was attended by the legal teams from OPEC and the OPEC Fund for International Development, OPEC Member Country legal experts, prominent academic scholars on climate change and international law, as well as other legal experts from law firms, international organizations and academia.

Sempértegui, alongside the Chairman of the OPEC Legal Defence Team, acknowledged the successful partnership between OPEC and the OPEC Fund, which had resulted in the success of the Annual Legal

Workshop since its debut in 2019. The event provides a valuable platform for the exchange of knowledge and lessons learned on key regulatory and legal matters.

International Legal Advisory Opinion on Climate Change

Through the Advisory Opinion, international tribunals are providing their positions on what the obligations of states are regarding climate change and what legal consequences may result from not observing these obligations. These tribunals include the ICJ, the International Tribunal for the Law of the Sea and the Inter-American Court of Human Rights.

In light of the importance of this issue to OPEC, its Member Countries and to the wider industry, OPEC has requested the submission of a written statement to the ICJ to ensure its views are considered in this advisory opinion.

"It is crucial that OPEC's voice, which reflects the voice of its Member Countries, be heard loud and clear, not only in this important Advisory Opinion, but across all global discussion platforms, including COP28," OPEC's General Legal Counsel stated. "Our goal is to ensure energy security and affordable access, while also lowering global emissions in line with the Paris Agreement. To do this, we will need all energies, all technologies and unprecedented investment and collaboration, including in the legal sector. Adjudication is a part of the legal toolbox that is at the service of a just energy transition, but it is certainly not the first to be considered."

With that in mind, the event's panelists delved right into the controversies and difficulties that international tribunals may face when addressing obligations of states regarding climate change and the legal consequences thereof.

Common but differentiated responsibilities

A key point that was considered during the workshop's discussions was related to the special needs of developing countries as outlined in the principles of common, but differentiated responsibilities and respective capabilities in light of national circumstances.

"There must be an understanding of the realities developing countries continue to face and how to ensure that these countries get the support and financing they have been promised and that they need to do their part," Sempértegui added. "Our concern is that no one should be left behind in any energy transition, and everyone should have the right to access energy."

Discussions also focused on obligations of states pertaining to climate change and their legal consequences; non-treaty sources for climate change obligations; and, finally, on whether climate change obligations are in fact considered human rights obligations.

Attendees emphasized that state obligations to address climate change should fall more heavily on energy-consuming, developed countries which bear the largest share of historical responsibility for the rise in global temperatures.

"The theme of today's workshop is not only timely, but highly impactful as our industry continues to grapple with meeting the parallel demands of providing energy security while also addressing climate change in an inclusive and balanced manner," Sempértegui said.

After thanking the workshop's participants and guest speakers for their excellent contributions, the OPEC General Legal Counsel concluded by saying: "What we need from the regulatory perspective is a set of inclusive, balanced and fair solutions that work for both producers and consumers, as well as for developed and developing countries".

Leonardo Sempertégui, General Legal Counsel, OPEC.

Violet Onyemenam, General Counsel, OPEC Fund.


Braves
13

Venezuela's Acuña receives baseball's prestigious MVP award

Major League Baseball bestowed its prestigious Most Valuable Player award on Venezuelan baseball star Ronald Acuña Jr. for his outstanding performance with the Atlanta Braves during the 2023 season. The OPEC Bulletin*'s **Scott Laury** files this report.*

On 16 November, the big announcement was finally made. In front of a worldwide television audience on the Major League Baseball (MLB) cable network, it was made official. Ronald Acuña Jr. was selected as the most valuable player (MVP) in the National League for the 2023 season.

As soon as Jack O'Connell of the Baseball Writers' Association of America announced Acuña as winner, live images appeared from Venezuela, showing the player with his family and friends celebrating back home.

He was not, however, celebrating at his house or in a bar. He was actually getting ready to do what he loves best — play baseball.

In fact, he was already at the stadium preparing to play a game with his hometown team — the Tiburones de La Guaira (The Sharks of La Guaira). The Tiburones are part of the Venezuelan Professional Baseball League, whose season is played during the winter.

To give you an idea of how important this day was in Venezuela, the Tiburones' scheduled game was delayed by an hour so that the MVP announcement could be viewed live there.

Venezuela celebrates

When it was made, the team set off fireworks in the stadium and a party got underway to fete this great achievement of their hometown hero.

The MLB Network broadcast of the announcement was shown live in the stadium, and the commentators interviewed Acuña to get his reaction on the milestone achievement.

"From the day that I got to the league, I always knew I wanted to win the MVP," Acuña said in Spanish. "It was always a dream of mine, and I'm living a dream come true."

The Tiburones posted this message on X (formerly Twitter) that read:

"El MVP unánime de la Liga Nacional está listo para la acción," which in English means "The National League MVP is ready for action".

After the celebratory fist-bumps, high-fives and hugs were finished, Acuña took the field and got down to business.

He made a smashing debut, literally, with a single and a scored run in the first inning and a two-run homer in the sixth inning, which sent the passionate Tiburones fans into a frenzy. The team went on to win decisively 11–4 over los Tigres de Aragua.

Again, the team posted on X:

"Cayó el primero de la temporada para El Abusador", which in English means "The first of the season fell for 'the Abuser'", referring to the first home run of the season for Acuña, who is nicknamed "the abuser" in Venezuela for his powerful skills as a slugger.

"The chemistry that is being experienced in this club house is extremely important," Acuña said enthusiastically after the victory in a post on the Tiburones website. "We have to continue with this enthusiasm to be able to achieve more victories from now on."

Unanimous decision

This year's voting for the MVP award was historic in that it was the first time since balloting began in 1931 that the National League and American League winners won unanimously.

Ronald Acuña Jr. rounds the bases after hitting a home run against the St. Louis Cardinals on 7 September 2023 in Atlanta, Georgia.

An entrance to Truist Park, home of the Atlanta Braves.

Ronald Acuna Jr. hits his 39th home run of the season during a game against the Philadelphia Phillies on 19 September 2023 in Atlanta.

The MVP Award for the American League went to Los Angeles Angels star pitcher and hitter Shohei Ohtani. This was a record-breaking second time that he received a unanimous MVP award, the first being in 2021. In 2022, he came second in the voting.

Runners-up in the National League voting were Dodgers outfielder Mookie Betts in second, Dodgers first baseman Freddie Freeman in third and Braves first baseman Matt Olson in fourth.

Acuña's selection made him only the third Venezuelan player after Miguel Cabrera (2012, 2013) and José Altuve (2017) to receive the award. He is also the eighth player from the Braves to earn this honor and the first since Freeman received it in 2020, when he was the Braves' first baseman. The other winners from the club were Jonny Evers (1914), Bob Elliott (1948), Hank Aaron (1957), Dale Murphy (1982 and 1983), Terry Pendleton (1991) and Chipper Jones (1999).

Acuña, at 25 years of age, is the second-youngest Braves player to win the MVP award behind the legendary Hank Aaron, who was 23.

"I feel great," Acuña said. "I'm just thankful for the support that I got from the organization. I'm happy to be a member of the Braves organization. I just want to thank everyone and the fans as well for the entire season."

Coming back from injury

Acuña's stellar season in 2023, which culminated in his receiving the MVP Award, is even more remarkable when you consider what happened to him in 2021.

That year, he was performing at an elite level for the Braves and was on the road to being an MVP candidate when he tore his right anterior cruciate ligament two days before the 2021 All-Star break.

This was a crushing disappointment for Acuña, who had to watch from the bench as the team went on to advance in the playoffs, win the National League championship and beat the Houston Astros to win the World Series.

He was, of course, elated for his team and this massive achievement, but naturally was dejected that he was unable to contribute to the victory.

"In all of the moments, even in the key ones, I'm imagining myself there taking that at-bat," Acuña said before Game 2 of the

Ronald Acuña Jr. slides into first base during a game against the Colorado Rockies on 29 August 2023 in Denver.

World Series in Houston. "It feels weird. I feel like totally upset because I'm part of this team and I would love to be out there playing and giving my best and my 100 per cent. But God's time is perfect, and it's my turn to be on the bench supporting my teammates."

After a prolonged recovery, he returned about a month after the 2022 season started. It took him the rest of that season to fully recover from his knee surgery and regain his confidence.

A record-breaking season

In 2023, a new chapter began for Acuña, who was now 100 per cent healthy and ready to make up for lost time.

And that he did, going on to break a number of records as the season progressed.

He led the National League in runs scored (149), hits (217), stolen bases (73), on-base percentage (.416) and on-base plus slugging (1.012). He ranked second in slugging percentage (.596) and batting average (.337).

He hit 41 home runs and had 106 runs batted in (RBIs), ranking him among the top six in the league.

However, perhaps his greatest feat was becoming the first player to hit 40-plus home runs and steal more than 70 bases in a season. Prior to this, no player had stolen more than 46 bases with a 40-home run season. Additionally, this was the first time a player had surpassed 52 stolen bases during a 30-home run season.

Acuña was the driving force behind the Braves winning a record number of games in 2023 at 104 and was a key factor in the offense becoming the first MLB club to produce a .500 slugging percentage.

"It meant a lot to me to be able to bounce back after I was hurt," Acuña said, when asked about his remarkable comeback from injury to receive the MVP. "There was some doubt about my ability to do what I accomplished. It meant a lot to me to come back and have that kind of success."

Venezuelan winter league

Having reached this MVP milestone in his career, one might expect Acuña to take some time off and savour the moment. However, he is not resting on his laurels.

Acuña's return home to play for the Tiburones after receiving his MVP makes him the first player from Latin America to participate in his country's winter league since Vladimir Guerrero Sr. of the Dominican Republic played for the Tigres del Licey in the 2004–05 season after earning the American League MVP with the Los Angeles Angels.

Ronald Acuña Jr.'s stellar season

41 home runs

73 stolen bases

217 hits

149 runs scored

106 runs batted in (RBI)

.337 batting average

.416 on-base percentage

This is not, however, Acuña's first time playing in both the MLB and the Venezuelan league. Last year, he played 12 games with the Tiburones. Ten of these were in the regular season, and two came afterwards in the final round. He batted 15-for-34 with a double, two home runs, ten runs scored and six RBIs in the regular season, and was 2 for 7 in post season with a home run and two walks.

This year, he started practicing with the Tiburones two days before the MVP announcement and made his debut against los Tigres de Aragua.

Acuña credits this experience in the Venezuelan league as a contributing factor to his successes with the Braves in the MLB and to his winning the MVP Award.

"I am extremely happy to again live another experience in Venezuelan baseball," he said in an interview posted on the Tiburones X site. "There's always time to learn, there's always time to improve, and that's one of the reasons why I'm here, to improve every day — as a person, as a ballplayer — and have a great year the [upcoming] season, God willing, [just] like this one."

The one from La Sabana

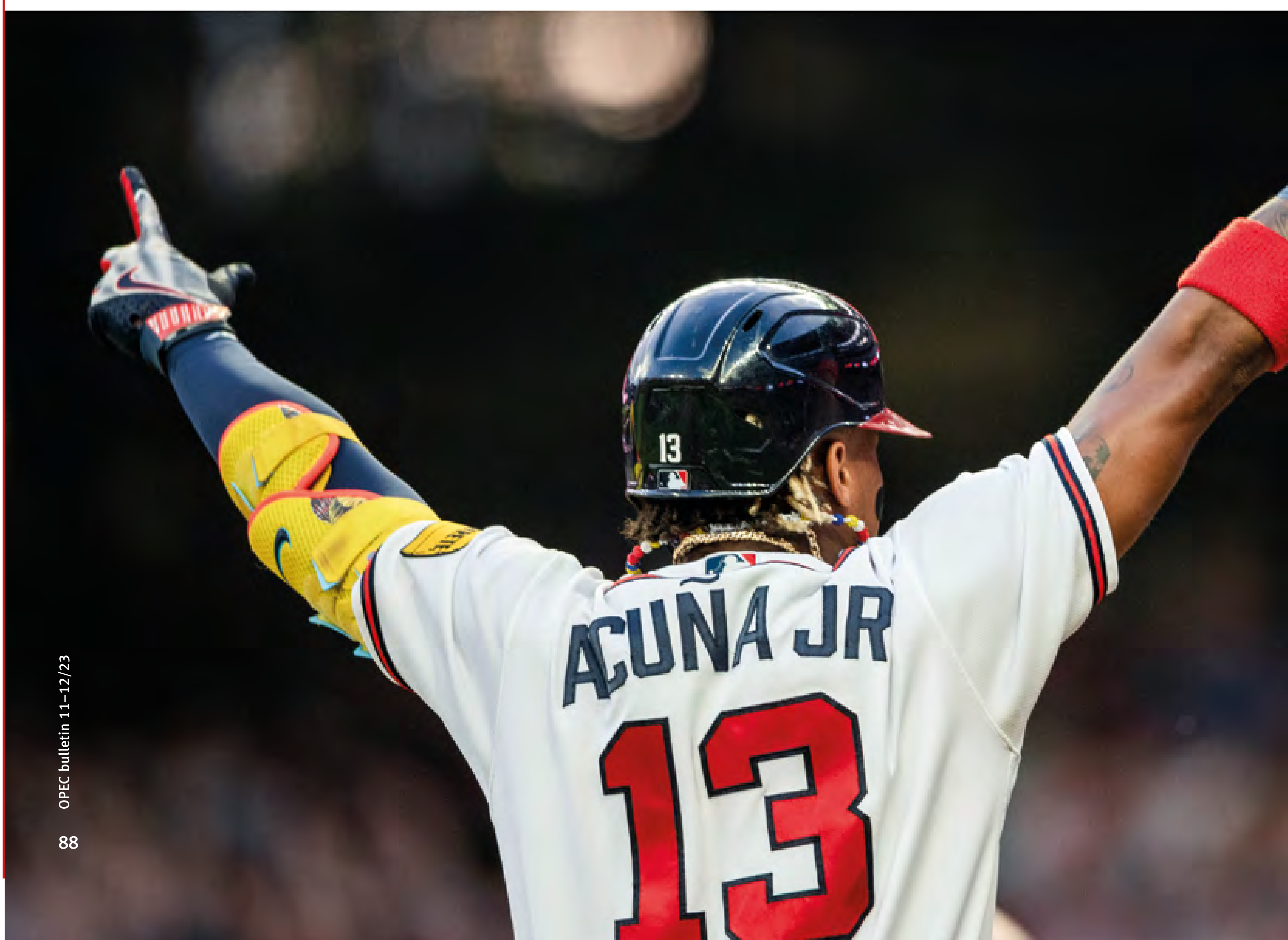
In addition to his on-field nickname "El Abusador", Ronald Acuña Jr. has another nickname — "El de la Sabana". This one clues you in to his roots.

Although he was born in the coastal port town of La Guaira, about a half-hour's drive north of Caracas, his hometown is La Sabana, located roughly an hour and 45 minutes' drive east of La Guaira on the coast.

La Sabana is also the hometown of Acuña's cousin Alcides Escobar, who has played for various clubs in the MLB since 2008.

Born on 18 December 1997, Acuña grew up in a family that was fully involved with the game of baseball.

His father, Ronald Acuña Sr., played as an outfielder in the minor leagues for three different organizations (New York-NL from 1999–2004, Toronto in 2005 and Milwaukee in 2006) and his grandfather, Romualdo Blanco, was a pitcher in the Houston Astros system. His father also represented Venezuela at the 2011 Pan American Games.



His uncle, José Escobar, played for the Cleveland Indians in 1991, and his cousins Vicente Campos, Alcides Escobar, Edwin Escobar and Kelvim Escobar have played for MLB clubs.

And finally, Acuña has two brothers who are actively playing: Luisangel is a shortstop in the New York Mets franchise and Bryan is an infielder with the Minnesota Twins organization.

A big year, on-field and off

Acuña's MVP season in 2023 could only be topped by a significant milestone in his personal life. And this did happen.

After announcing their engagement in January 2023, Acuña married his longtime sweetheart Maria Laborde on 31 August 2023.

They tied the knot in Los Angeles on the same day that Acuña hit a grand slam home run to propel the Braves to a spectacular 8–7 win over the Dodgers in Dodger Stadium. Maria and their two children — two-year-old Ronald Daniel and 11-month old Jamall — were in the stands to cheer Acuña on to victory.

That night was made even more special when he became the first player in the MLB to ever achieve 30 home runs and 60 stolen bases in one season. Acuña would go on to break further records in this category later in the season.

In an interview with sports cable network ESPN, Acuña expressed his joy about marrying his girlfriend of four years and about becoming a family.

"We're a family," he told ESPN in Spanish. "Since we've known each other, we've wanted to be together. We have two kids. Family is meant to be together. That comes before anything else."

Acuña reportedly kept a ticket from that fateful Dodgers game, and wrote a special note on it in Spanish for his new wife.

"For the rest of my life, I hope you never forget this incredibly special day for us."

For this star player from La Sabana, there appear to be many special days ahead, both on and off the baseball field.

"I'm not saying what's going to happen next season," Acuña said speaking to media and with his comeback from injury still fresh in his mind. "I'm not trying to predict anything. But as long as I'm healthy, I feel like anything is possible."

Photos courtesy of Major League Baseball, unless otherwise credited.
Sources: Major League Baseball, www.tiburones.net, Wikipedia.

Overhead shot of Truist Park, which has been home to the Atlanta Braves since 2017 and has a seating capacity of more than 41,000 spectators.

Ronald Acuña Jr. celebrates after hitting a home run.

Luis Aparicio Award

The Luis Aparicio Award is given each year to a Venezuelan player in Major League Baseball who is judged to have achieved the best individual performance that season.

Venezuelan sport journalists and international Spanish-language media vote to select the winner.

The award is named after legendary MLB shortstop Luis Aparicio, who is the only player from Venezuela to be inducted into the National Baseball Hall of Fame.

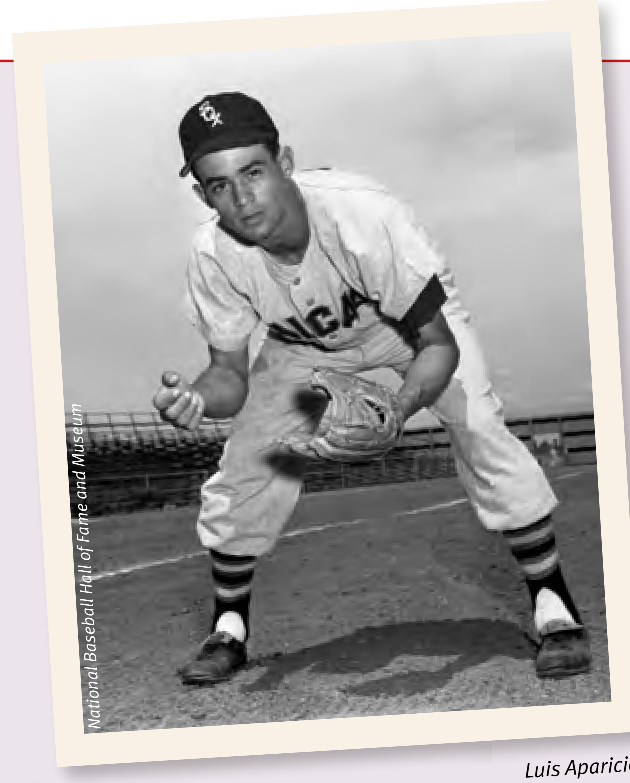
First presented in 2004, the award was established initially to honour Aparicio's major league career and in remembrance of his father, who died 13 years before his son was elected into the Hall of Fame.

Nicknamed "Little Louie", Aparicio had an illustrious career starting in Venezuela and then continuing in the MLB where he played as a shortstop from 1956 to 1973 for the Chicago White Sox, the Baltimore Orioles and the Boston Red Sox.

Aparicio was inducted into the National Baseball Hall of Fame in 1984. In honour of this achievement, that same year, the White Sox retired his uniform number (11). In 2010, Aparicio asked the White Sox to give the number to shortstop and fellow Venezuelan Omar Vizquel.

"If there is one player who I would like to see wear my uniform number with the White Sox, it is Omar Vizquel," Aparicio said at the time. "I have known Omar for a long time. Along with being an outstanding player, he is a good and decent man."

In addition to his excellent hitting skills, Aparicio was known as an exceptional defensive player in the infield and a talented base stealer.


National Baseball Hall of Fame and Museum

Luis Aparicio.

Awardees

This year's award went to National League MVP Ronald Acuña Jr. of the Atlanta Braves. Like Aparicio, Acuña was awarded for his base stealing prowess in addition to his powerhouse hitting.

Several players have won the award more than once, including Johan Santana, José Altuve, Miguel Cabrera and Ronald Acuña Jr.

Cabrera has received the award on a record five occasions. The veteran superstar retired this season after a highly successful 20-year career in the MLB, first with the Florida Marlins and then the Detroit Tigers. The Detroit club honored Cabrera with a rousing farewell ceremony before his last game with the team on 1 October 2023.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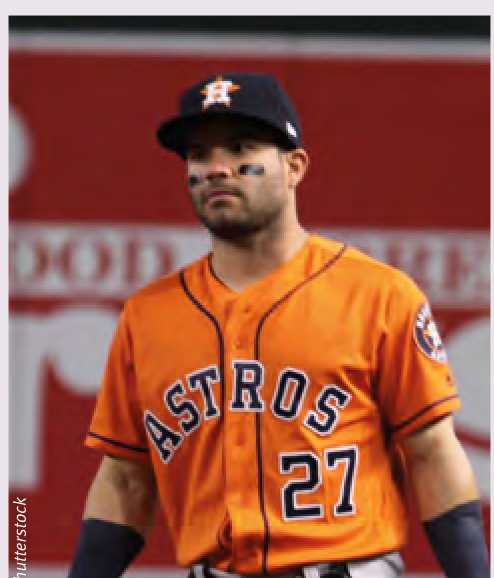
Johan Santana of the New York Mets pitches during a spring training game against the Houston Astros on 24 March 2010.



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José Altuve, second baseman of the Houston Astros, at Chase Field in Phoenix on 15 August 2017.


Shutterstock

Detroit Tigers first baseman Miguel Cabrera batting during a game against the Dodgers in Los Angeles on 20 June 2011.

Career highlights for Cabrera include winning the MVP and Hank Aaron Awards along with the Aparicio Award in 2012 and 2013. This was the first time a Venezuelan player was selected for the coveted MVP Award. In 2012, Cabrera became the first player in 45 years to win the batting Triple Crown by leading the league in batting average, home runs and runs batted in.

Ace pitcher Johan Santana, the 2004 and 2006 recipient of the Aparicio Award, also received the prestigious Cy Young Award during those same two years. The Cy Young Award is given each year to the best pitcher in both MLB leagues and is named after the winningest pitcher of all time, Cy Young. Santana also achieved a Triple Crown for his pitching by leading the league in wins, strikeouts and earned run average during the 2006 season.

José Altuve has the distinction of being the only player to win the Aparicio Award, the MVP award and to achieve a World Series championship in the same season (2017).

In 2008, in addition to winning the Aparicio Award, pitcher Francisco Rodríguez achieved a major league record 62 saves in a single season and won the Rolaids Relief Man Award, which recognized the best relief pitchers of the regular season.

And finally, five Aparicio Award winners were also batting champions in their leagues during the same year: Cabrera, Altuve, Magglio Ordóñez, Carlos González and Luis Arráez.

Other noteworthy achievements this year for Venezuelan players included Andrés Giménez and Gabriel Moreno receiving Golden Glove Awards for their excellent defensive play in 2023.

Giménez, who plays for the Cleveland Guardians, led all second basemen in the Defensive Runs Saved category with 23 runs saved. Moreno is the catcher for the Arizona Diamondbacks, who made it to the 2023 World Series but lost to the Texas Rangers. He had a superb season, helping defend against opposing teams' base stealing attempts, converting 48 per cent of these for outs, the best in the MLB.

Aparicio Award Ceremony

Each year on 18 November, the Aparicio Award is presented before a baseball game held in the Hall of Famer's hometown of Maracaibo in the northwestern province of Zulia.

The local team, Águilas del Zulia, hosts the ceremony on the day marking the anniversary of Aparicio's professional debut.

The Águilas are part of Venezuela's professional baseball league, which operates during the winter months.

Sources: Major League Baseball, National Baseball Hall of Fame and Museum, www.tiburones.net, Wikipedia.

Luis Aparicio Award Winners

Year	Player	Position	Team
2004	Johan Santana	Pitcher	Minnesota Twins
2005	Miguel Cabrera	Outfielder	Florida Marlins
2006	Johan Santana	Pitcher	Minnesota Twins
2007	Magglio Ordóñez	Outfielder	Detroit Tigers
2008	Francisco Rodríguez	Pitcher	Los Angeles Angels
2009	Félix Hernández	Pitcher	Seattle Mariners
2010	Carlos González	Outfielder	Colorado Rockies
2011	Miguel Cabrera	First baseman	Detroit Tigers
2012	Miguel Cabrera	Third baseman	Detroit Tigers
2013	Miguel Cabrera	Third baseman	Detroit Tigers
2014	José Altuve	Second baseman	Houston Astros
2015	Miguel Cabrera	First baseman	Detroit Tigers
2016	José Altuve	Second baseman	Houston Astros
2017	José Altuve	Second baseman	Houston Astros
2018	Ronald Acuña Jr.	Outfielder	Atlanta Braves
2018	Jesús Aguilar	First baseman	Milwaukee Brewers
2019	Eugenio Suárez	Third baseman	Cincinnati Reds
2020	Ronald Acuña Jr.	Outfielder	Atlanta Braves
2021	Salvador Pérez	Catcher	Kansas City Royals
2022	Luis Arráez	Second baseman	Minnesota Twins
2022	José Altuve	Second baseman	Houston Astros
2023	Ronald Acuña Jr.	Outfielder	Atlanta Braves

Major League Baseball

Ronald Acuña Jr. after hitting a homerun against the Baltimore Orioles on 6 May 2023 in Atlanta.

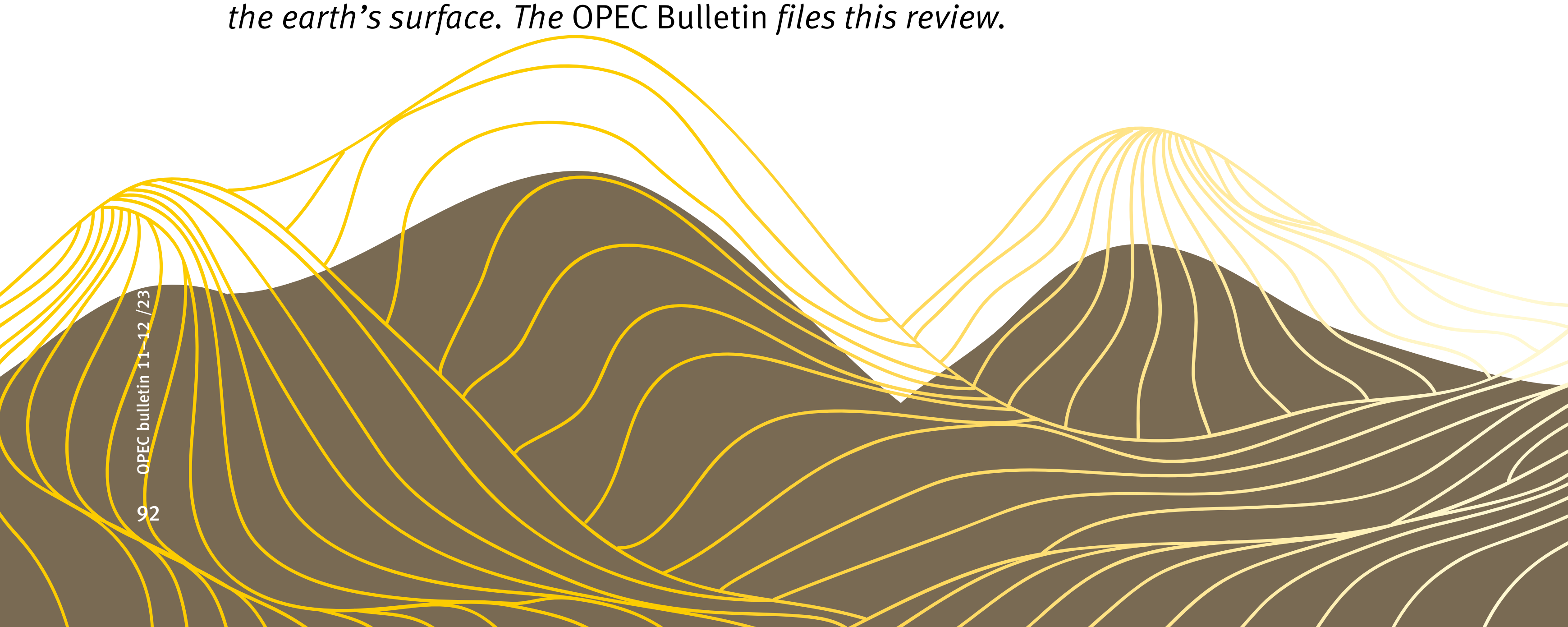

Iron

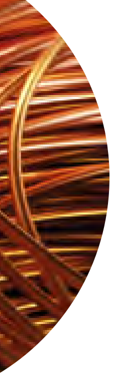

Sand


Copper

Book Review: Ed Conway's 'Material World: A Substantial Story of Our Past and Future'

Early in his book, 'Material World,' ***Ed Conway*** *notes that modern life is often stratified into two worlds: the material and the ethereal. The ethereal world is one of ideas, where services, management and administration take place. It is a world of apps and websites, money transfers, e-banking, online shopping and smartphones. However, the ethereal world depends on another world to be able to function: the Material World. It is the world of the physical resources and materials extracted from the earth in order to power phones, provide energy, supply medicine, and ensure homes and buildings stand. Most of us take the Material World for granted, but Conway has done a tremendous job in highlighting the essential role that six materials play in our daily lives. A thought-provoking work, this book has much to say about energy transitions and humanity's continuous desire to harness the potential of materials extracted from the earth's surface. The* OPEC Bulletin *files this review.*





Salt

Lithium

Oil

An Age of Stone?

Sand. Salt. Iron. Copper. Oil. Lithium. These are the six materials that Conway selects to illustrate his fundamental argument that, "far from being independent from the physical world around us, we have never been more reliant upon it." Conway has a keen eye for some fascinating facts: "In 2019….we mined, dug and blasted more materials from the earth's surface than the sum total of everything we extracted from the dawn of humanity all the way through to 1950."

The book offers an opportunity to consider the extraction of materials from the earth's surface more holistically. Conway writes, "Oil and fossil fuels have only ever represented a fraction of the total mass of resources we are extracting from the earth. For every tonne of fossil fuels, we exploit six tonnes of other materials — mostly sand and stone, but also metals, salts and chemicals."

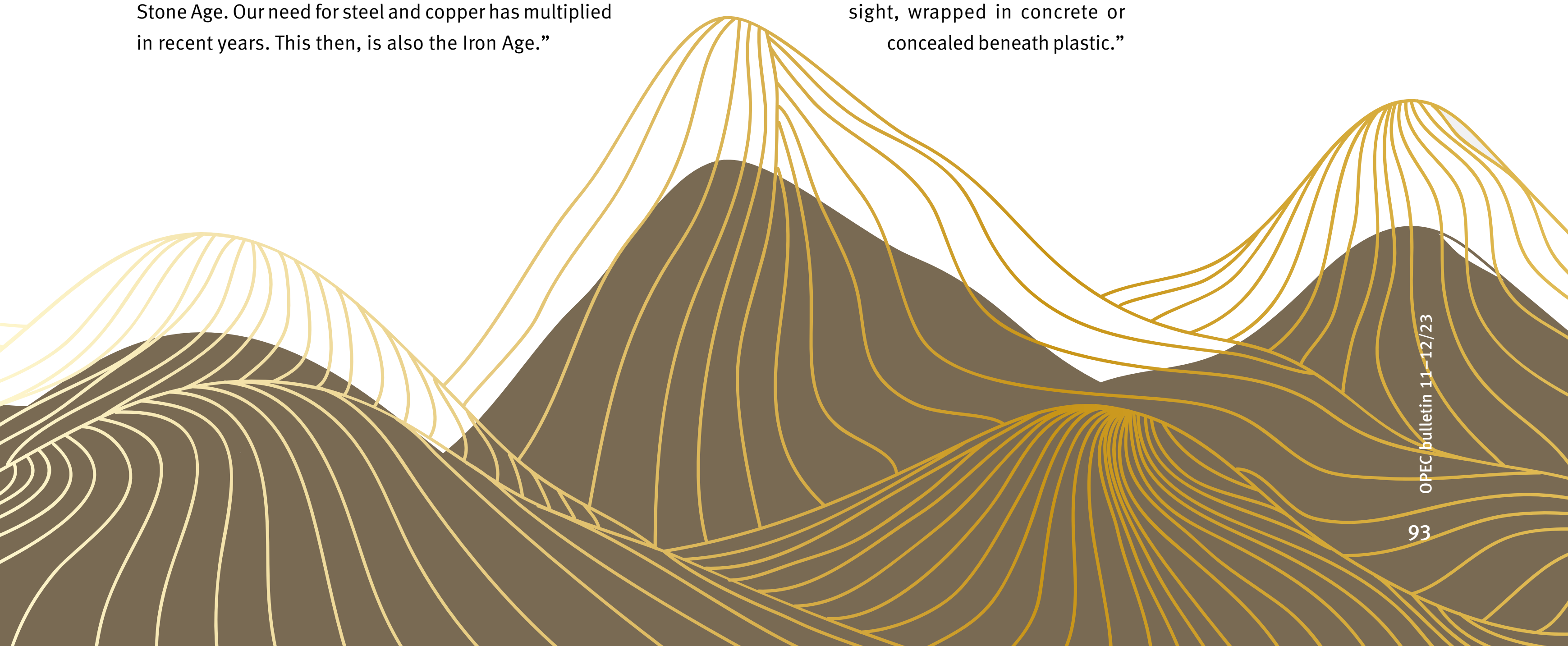
Appreciating how dependent we are in the current world on many of these materials even allows us to re-conceptualize our understanding of time. The Stone, Bronze and Iron Age descriptors usually denote bygone eras, however, "given how much sand and rock we still blast from the planet, we are still firmly embedded in the Stone Age. Our need for steel and copper has multiplied in recent years. This then, is also the Iron Age."

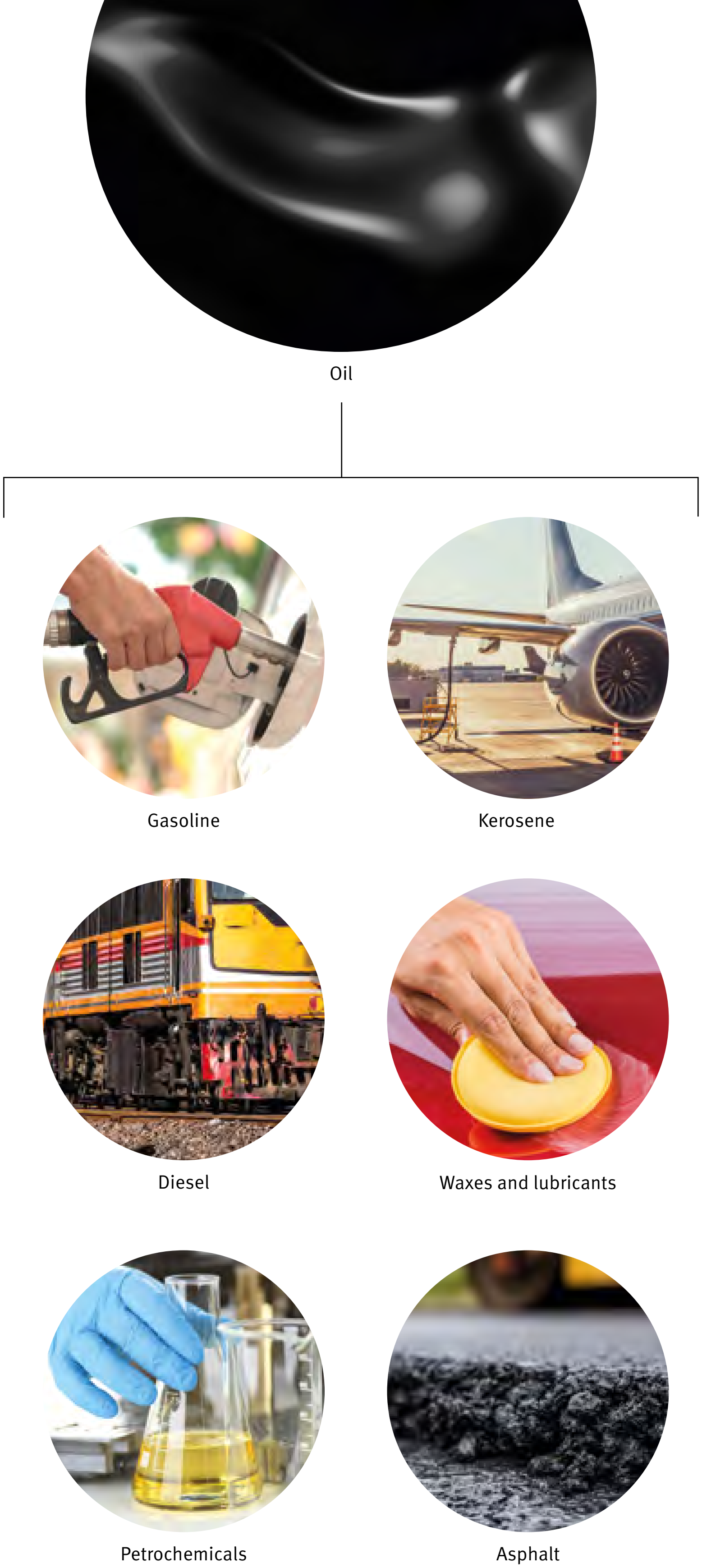
Sand-Salt-Iron

The opening section of the book focuses on sand — "the most ancient and the most modern substance of all" — and its role in the production of glass, silicon and cement. The author makes the reader appreciate the chemistry and the ingenuity of the ways humanity has managed to utilize this material successfully. The main ingredient in most sands is silica and Conway has a fascinating subsection on the supply chain voyage that turns silicon into silicon chips.

Conway outlines the integral role that salt has played in history, noting that it was so precious and crucial a material that it even effected language — the word 'salary' comes from the Latin salarium, as Roman soldiers were paid in an allowance for salt. Furthermore, various salts have played a critical role as fertilizers and in enabling the world to feed itself.

The author subsequently demonstrates the key role of iron in our lives by using some very telling statistics. Iron accounts for roughly 95 per cent of all the metal the world produces and uses. As Conway writes, "if you live in a developed country like the US, Japan, the UK, or most of Europe, you have roughly 15 tonnes of steel in your life. This steel is often out of sight, wrapped in concrete or concealed beneath plastic."





The end products of crude oil can be roughly divided into the six categories pictured above.

This also leads into the issue of ‘steel inequality.’ The average person living in sub-Saharan Africa has less than a tonne of steel per capita. A dearth of iron means less hospitals, homes, shelter, bridges and roads can be built. As Conway notes, “We talk frequently about income gaps between nations but what about silicon inequality, fertilizer inequality, copper inequality and yes, steel inequality?”

“Reducing our carbon footprint will mean increasing our copper footprint”

In his section on copper, Conway raises interesting points about the enormous amounts of copper that will need to be extracted to enable the surge in electric cars that are involved in some net zero targets. Conway writes, “The average car already contains about a mile of copper wire connecting the sensors and electrical components that help it function. In electric cars, we need three or four times the amount of copper, with about half of that going into the motors and the rest into the wiring harness and battery.”

He continues, writing, “conventional power stations are actually comparatively copper-light. But solar panels need roughly seven times as much as conventional power stations while offshore wind needs about ten times as much copper to generate the same amount of power…If we are to fulfil the various promises in recent years to get to net zero we will need staggering amounts of this metal. Reducing our carbon footprint will mean increasing our copper footprint.”

Countries with large copper deposits are also concerned about the environmental costs of copper mining. Furthermore, seabed mining for copper has the potential to have severe impacts on the ocean and sea life.

The greatest energy force of the past century

Conway includes a very powerful quote on the importance of crude oil to modern life: Oil “provides us with energy, with the chemicals from which we make the fertilizers that keep half the planet alive. It is the great accelerator of life, sparking a powered transportation revolution that began with the motor vehicle and reached its apotheosis in the jet aircraft.

“The oil age…delivered humankind from much of the drudgery of manual labour; it lifted incomes around the world and helped us live longer lives. Petroleum products and energy helped us mitigate infant death and fight malnutrition." Conway described it as "the greatest energy force of the past century."

The book contains an interesting description of the geological formation of the Ghawar oilfield in Saudi Arabia. "No other oilfield on earth — nor for that matter any coal pit, any uranium mine or nuclear plant, any wind or solar farm, however massive — produces as much of this planet's energy." Conway also notes that in 1990, just over 80 per cent of the world's primary energy came from coal, oil and gas. As of 2023, the figure is roughly the same.

In describing the process of refining crude oil, Conway notes that the end products derived from crude oil can be divided into roughly six categories, gasoline for cars; diesel for trucks, trains and other heavy transport; petrochemicals; kerosene; waxes and lubricating oils; and asphalt. "Yet this is an enormous oversimplification since a barrel of oil can yield hundreds of end products, without which we are all stuffed," Conway writes.

Pertinent points on energy transitions

The final section of the book covers lithium, a material set to play a crucial role in energy transitions as a vital component in batteries that are part of plans to increase the electrification process that is key to many net zero plans. However, again there will be environmental, social, and ecological consequences to mining this material at the scale envisaged.

Many net zero targets are incredibly ambitious, especially if they seek net zero before 2050. As Conway states, "No energy transition of this sort has ever been achieved as quickly." During previous transitions, there were clear incentives to shift from a resource, namely, that manufacturers could benefit from cheaper, more energy-dense fuels. As Conway writes, "Each previous shift made their lives easier, this time around, the opposite is often the case."

Thought-provoking questions

Humanity's desire to extract resources from the ground seems inexorable and insatiable. Conway's book raises many questions about the nature of the next energy transitions. Given the quantities of critical earth minerals needed to power the mass electrification envisaged under net zero plans, the reader cannot help but wonder if one form of extraction will be replaced by another? Or as Conway puts it, "Are we constantly fated to keep digging and blasting our way deeper into the earth until nothing is left?"

In addition, as fossil fuels remain critical components of many renewable sources, calls for divestment in coal, oil and gas could impact the world's ability to produce solar panels, batteries and wind turbines. It is a massive challenge with no easy solutions. Conway's work is a critical contribution to ensuring that more nuance and realism enter into discussions on the world's sustainable energy future.

All pictures are courtesy of Shutterstock.

Long-serving OPEC employees recognized

OPEC Secretary General Haitham Al Ghais honoured eleven OPEC Secretariat employees during the Long Service Award Ceremony, held on 7 December 2023. The InterContinental Vienna— festively festooned for the year-end holidays — provided a backdrop for the ceremony and buffet dinner. The award recipients were Category II employees who have achieved career milestones, ranging from ten to a remarkable 40 years of service.

In opening the event, Secretary General Al Ghais told all staff that they had gathered in celebration of the high standards of excellence that OPEC Secretariat staff consistently deliver. "We celebrate your service. We celebrate your dedication. We celebrate your teamwork. We also thank our families and friends for the support and love they have given us in being able to complete our work," he said. In addition, he stressed that the contributions of all staff members enabled the Organization to fulfill its objectives, and described how the work of Secretariat staff was set in the broader context of ongoing discussions on the future role of oil in the energy mix.

The award was introduced by the 102nd Ordinary Meeting of the Board of Governors in February 2001 and is granted for every five years of service to staff following their tenth year of employment at OPEC.

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OPEC Secretary General's diary

In the course of his official duties, ***Haitham Al Ghais****, OPEC Secretary General, visits, receives and holds talks with numerous dignitaries. The following records some of those events.*

8 November: Al Ghais (fourth l) met with Ambassador Li Song, Permanent Representative of China to the United Nations (fifth l), at the Embassy and Permanent Mission of China in Vienna, which hosted a dinner in the OPEC Secretary General's honour. In attendance were Dr Ayed S Al-Qahtani, Director of OPEC's Research Division; Dr Abderrezak Benyoucef, Head of OPEC's Energy Studies Department; Dr Mohammad Abdulhameed Alkazimi, Chief Upstream Oil Industry Analyst at OPEC; and high-ranking Chinese officials Shen Gang, Minister Counsellor; Shi Zhanzhuan, First Secretary; and Li Zhengxin, Third Secretary.

16 November: Al Ghais (l) was received by Nelson Antonio Tabajara de Oliveira, Ambassador of Brazil, during his courtesy visit to the Embassy of Brazil in Vienna.

17 November: Al Ghais (r) with Ambassador Suleiman Dauda Umar, during his courtesy visit to the Embassy of the Federal Republic of Nigeria in Vienna.

22 November: Al Ghais (r) welcomed Dr Abdulhamid Alkhalifa, Secretary General of the OPEC Fund, to the OPEC Secretariat.

7 December: Al Ghais (r) was visited by Carl Hallergard, EU Ambassador and Permanent Representative to the UN in Vienna, Head of Delegation to the International Organizations, at the OPEC Secretariat.

12 December: Al Ghais (r) met with Abdullah bin Hamad Al-Attiyah at the headquarters of the Abdullah bin Hamad Al-Attiyah International Foundation for Energy and Sustainable Development in Doha, Qatar.

13 December: Al Ghais (l) with Saad Sherida Al-Kaabi, Minister of State for Energy Affairs of the State of Qatar and Deputy Chairman, President and CEO of QatarEnergy, in Doha, Qatar.

Visits to the Secretariat

20 October

Attendees from the German Federal Ministry of Eduction and Research, Bonn.

Students and professional groups wanting to know more about OPEC visit the Secretariat regularly in order to receive briefings from the Public Relations and Information Department (PRID). PRID also visits schools under the Secretariat's outreach programme to present on the Organization and the oil industry. Here we feature some snapshots of such visits.

23 October Visitors from Franklin University, Switzerland.

9 November Students from different universities in the US, organized by DIS Copenhagen.

johntallboy/Shutterstock.com

IN THE FIELD

A new ring road in the southeastern Indian metropolis Chennai will improve commercial traffic and support the growth of vital businesses

Simply CVR

> Beyond its economic impact, the project will ease congestion, reduce CO_2 emissions and improve road safety.

Driss Belamine,
OPEC Fund Country Manager

CHENNAI:

LORD OF THE RING ROADS

In April 2023, India overtook China as the most populous country in the world with a population of more than 1.43 billion. This is nearly four times larger than the 361 million tallied in the 1951 census, the first count after independence. The rapid growth puts huge demands on the country's infrastructure. A 2022 World Bank report says: "India will need to invest US$840 billion ($bn) over the next 15 years — or an average of $55 bn per annum — if it is to effectively meet the needs of its fast-growing urban population."

One of the most dynamic metropolitan areas in India is Chennai, located in the southeast and capital of the state of Tamil Nadu. Formerly known as Madras, the city today has a population of 12.4 million and is one of the largest urban economies in India with a broad industrial base and a strong IT and business services sector. Three ports are serving not only Chennai but India as a whole, among them the country's second-largest container hub.

The rapid growth of Chennai is mirrored in the development of its road network. The city's first ring road was 25.2 kilometres (km) long. Now a fourth circular, the Chennai Peripheral Ring Road, is under construction with a planned total length of 133.4 km. The OPEC Fund is joining the Asian Infrastructure Investment Bank in supporting the development of sections II and III with a $100 million loan.

The joint project will include the construction of a 56.2 km six-lane dual carriageway with a two-lane service road on each side. Completion of the sections is scheduled for 2026. Overall, the Peripheral Ring Road is being delivered in five sections, of which section I has been completed, while construction work on sections II and III has started.

The new road will bring multiple benefits, says Driss Belamine, OPEC Fund Country Manager: "Beyond its economic impact, it will ease congestion, reduce CO_2 emissions and improve road safety. All these are issues of major concern and here the project will have a significant impact." Road traffic remains the predominant means of transport in India as 65 per cent of all goods are shipped by road. The improved connectivity between the industries in the region and ports will facilitate more efficient movement of goods.

The Chennai Peripheral Ring Road under construction

wuserPlaneMad

Furthermore, it will decongest the city due to traffic diversion and reduced travel time. Improved connectivity to the ports and national highways will stimulate industrial growth resulting in new jobs. These better and more efficient connections will support businesses and allow them to fully realize their potential.

Shorter travel times with less congestion will also benefit the environment. CO_2 emissions for sections II and III are expected to drop by 74 per cent and 53 per cent, respectively. Equally, the new connection will dramatically increase road safety with incidents forecast to fall by half from 103 in 2022 to 52 in 2027.

In addition to the project's significant development impact, the engagement is also an opportunity for the OPEC Fund to "reconnect with India", as Belamine puts it. "This is a special time for India with robust economic growth, strong infrastructure investment and buoyant private consumption." The G20 presidency in 2023 was a recognition of the country's growing international prominence.

Yet India remains a country of huge disparities and enormous needs. The international community is highly active, with foreign direct investment rising to $49.3 bn in 2022, the third-largest amount in the world, according to the United Nations Conference on Trade and Development World Investment Report. At the same time it is one of the largest recipients of multilateral development financing: The Asian Development Bank alone had financed 855 projects for $59.7 bn in the country by April 2023.

However, given the huge challenges, Belamine is confident that the OPEC Fund will be able to carve out its niche in India: "In addition to the growing challenge of urban mobility, the green transition, climate change and food security are examples where we can make a real difference, leveraging on our strategic partnerships," he says.

Senior Legal Advisor

Deadline: 12 January 2024 — Job Code: 1.1.08

Within the Secretariat, The Legal Office contributes to the conduct of the affairs of the Organization by overseeing the application of the rule of law principles and applicable rules, regulations and procedures within the Organization and in its relation with governments, organizations, enterprises and individuals, and by maintaining and defending the legal claims and interest of the Organization. The Office participates in the drafting and negotiations of contracts and agreements with external entities. The Office clears all documents that may generate legal obligations or risks for the Organization. It provides legal opinions and proposes amendments in respect of the Organization's regulations. It monitors developments of relevant legal aspects pertaining to energy, petroleum, environmental and energy transition, nationally and internationally, conducts research and publishes up to date legal articles on recent and emergent trends. It promotes, protects and advances the interests of the Organization and its Member Countries in international forums. It advises regarding the involvement of the Organizations in external engagements or projects.

Main Responsibilities

Provides strategic legal advice on legal matters affecting the Organization's operations, projects, and initiatives. Drafts, reviews, and negotiates complex international contracts, agreements, and partnerships, ensuring legal compliance and protection of the Organization's interests.

Identifies legal risks and opportunities, and develop proactive strategies to mitigate potential legal issues while fostering a culture of compliance.

Monitors and ensures compliance with international laws, regulations, and industry standards applicable to the Organization's operations.

Develops and implements compliance programmes as necessary.

Handles or oversees the management of disputes, litigation, and arbitration involving the Organization. Collaborates with external legal counsel and Appeals Committee, when required.

Advises on corporate governance matters, including meetings of the Board of Governors, Member Country relations, and regulatory reporting, as needed.

Contributes to the development and implementation of the Secretariat's policies, procedures, and guidelines to ensure legal compliance and best practices.

Stays updated on international legal developments, treaties, conventions, and regulations relevant to the Organization's operations.

Builds and maintains relationships with external legal partners, regulatory authorities, government agencies, and professional associations as needed for the execution of his/her tasks.

Promotes a culture of ethical behavior and legal awareness within the Secretariat, including provision of legal training and guidance to internal teams as needed.

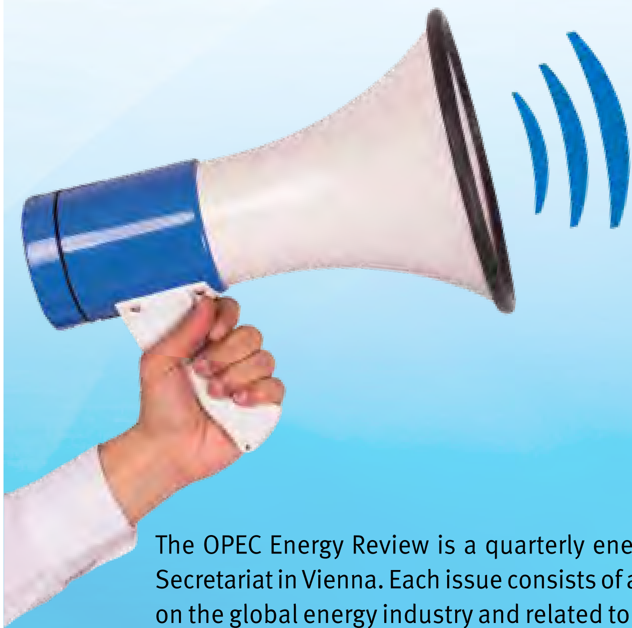
Carries out any other tasks assigned by the General Legal Counsel as pertain to his/her background, qualifications and position.

Objective of position

Under the overall supervision of the General Legal Counsel, the Senior Legal Advisor provides expert legal guidance and strategic counsel to support the legal needs of an international organization; handles complex legal matters, ensuring compliance with international laws and regulations, contributing to the Organization's overall mission and objectives.

https://www.opec.org/opec_web/en/employment/7253.htm.

More open vacancies can be found at: www.opec.org/opec_web/en/32.htm



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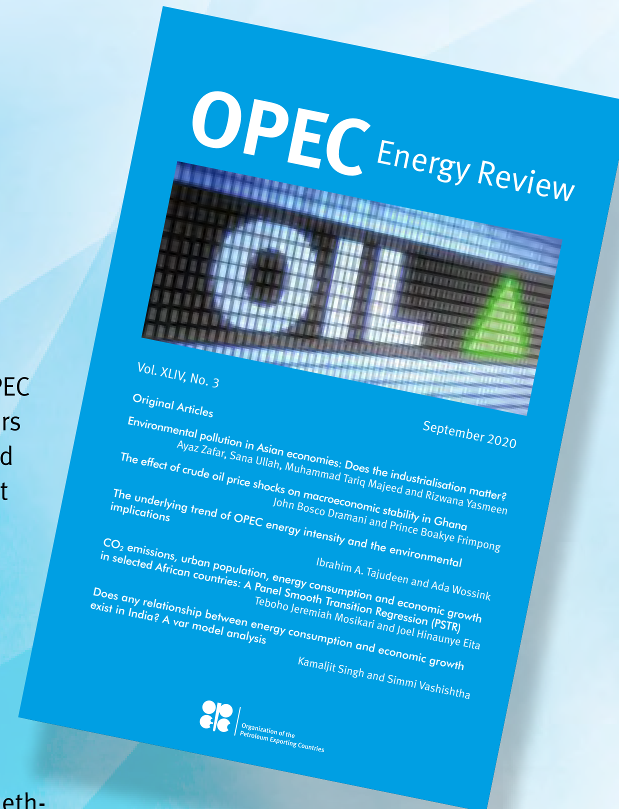

The OPEC Energy Review is a quarterly energy research journal published by the OPEC Secretariat in Vienna. Each issue consists of a selection of original well-researched papers on the global energy industry and related topics, such as sustainable development and the environment. The principal aim of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

The three main objectives of the publication are to:

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

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

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

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

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

Forthcoming events

Libya Energy and Economic Summit, 13–14 January 2024, Tripoli, Libya. Details: Energy Capital and Power, 30 Hudson St, De Waterkant Cape Town, 8001, South Africa. E-mail: sales@energycapitalpower.com; website: https://libyasummit.com.

World Economic Forum Annual Meeting, 15–19 January 2024, Davos, Switzerland. Details: World Economic Forum Headquarters, 91–93 route de la Capite, CH-1223 Cologny, Geneva, Switzerland. Website: www.weforum.org/events/world-economic-forum-annual-meeting-2024.

Americas Energy Summit and Exhibition, 16–19 January 2024, New Orleans, LA, USA. Details: dmg :: events, 6th floor, Northcliffe House, 2 Derry Street, London W8 5TT, UK. Tel: +44 20 45 66 67 83; e-mail: info@americasenergysummit.com; website: www.americasenergysummit.com.

21st International Conference on Renewable Mobility, 22–23 January 2024, Berlin, Germany. Details: Bundesverband Bioenergie e.V. (BBE), EUREF-Campus 16, D-10829 Berlin, Germany. Tel: +49 (0) 30 27 58 179 25; e-mail: kastner@bioenergie.de; website: www.fuels-of-the-future.com/en/kontakt.

Argus Americas Crude Summit 2024, 23–24 January 2024, Houston, TX, USA. Details: Argus Media, Lacon House, 84 Theobald's Road, London WC1X 8NL, UK. Tel: +44 20 77 80 42 00; e-mail: london@argusmedia.com; website: www.argusmedia.com/en/conferences-events-listing/americas-crude/agenda.

Bottom of the Barrel Technology Conference, 23–24 January 2024, Manama, Bahrain. Details: Euro Petroleum Consultants Ltd., 44 Oxford Drive, Bermondsey Street, London SE1 2FB, UK. Tel. +44 207 35 78 394; fax. +44 207 35 78 395; e-mail: enquiries@europetro.com; website: https://europetro.com/bbtcmena.

SPE Workshop: Production Optimization in Oil and Gas Assets, 23–24 January 2024, Vienna, Austria. Details: Details: Society of Petroleum Engineers, Part Third Floor East, Portland House, 4 Great Portland Street, London W1W 8QJ, UK. Tel: +44 207 299 3300; fax: +44 207 299 3309; e-mail: spelon@spe.org; website: www.spe-events.org/workshop/ProductionOptimisation.

NEXT 2024 — New Energy X Subsurface, 23–25 January 2024, Bergen, Norway. Details: GeoPublishing AS, Trollkleiva 23, N-1389 Heggedal, Norway. Tel: +47 974 69 090; e-mail: conferences@geopublishing.no; website: https://geopublishing.no/event/next.

Houston Executive Summit 2024, 25 January 2024, Houston, TX, USA. Details: Advena World LLC, 8653 16th St Ste 7603, Silver Spring, MD 20910-7620, USA. Tel +1 240 68 85 189; website: https://advenaworld.com/emsd-conference#8b5f5025-2483-432a-a9a9-06c6582c4374.

Baker Hughes Annual Meeting 2024, 28–30 January 2024, Florence, Italy. Details: Baker Hughes, 17021 Aldine Westfield Rd, Houston, TX, USA. Tel: +1 713 90 68 407; e-mail: Adrienne.Lynch@bakerhughes.com; website: https://annualmeeting.bakerhughes.com.

Talent Management Oil and Gas Conference 2024, 29 January–2 February 2024, Abu Dhabi, UAE (virtual event). Details: Oxford Management Centre, Europe Office; John Eccles House, Robert Robinson Avenue, Oxford Science Park, Oxford OX4 4GP, UK. Tel: +971 50 98 50 174; e-mail: info@oxford-management.com; website: https://oxford-management.com/course/strategic-talent-management-in-the-oil-and-gas-industry.

Energy Transition Summit, 30–31 January 2024, Amsterdam, The Netherlands. Details: Marketforce Business Media Ltd, 91 Goswell Road, London EC1V 7EX, UK. E-mail: enquiries@marketforcelive.com; website: https://futureofutilities.com.

South Asia's only Conference on Sulphur Recovery and Gas Treating, 31 January–2 February 2024, Mumbai, India. Details: Three Ten Initiative Technologies LLP, Three Ten Initiative Technologies LLP, Suite No. 313, Regus Visakhapatnam, Naga Chambers, D. No 12-1-16, Plot No. 49, Level 3 & 4, Waltair Main Road, Visakhapatnam, AP 530002, India. Tel: +91 733 087 53 10; e-mail: info@the310i.com; website: https://sulgasconference.com.

Clean Fuels Conference 2024, 5–8 February 2024, Fort Worth, TX, USA. Details: Clean Fuels Alliance, 1331 Pennsylvania Ave., NW, Suite 505, Washington DC, 2004. Tel: +1 888 24 63 437; e-mail: CleanFuelsRegistration@executivevents.com; website: www.cleanfuelsconference.org.

Global oil market fundamentals remain strong despite exaggerated negative sentiments

November 2023

Recent data confirms robust major global growth trends and healthy oil market fundamentals. On the global economic growth front, and as the US economy continues the very strong growth it experienced in 3Q23, the IMF has recently upgraded Chinese economic growth projection for 2023 to 5.4 per cent. However, potential downside risk to current robust global economic growth forecasts, although minor, may include sustained restrictive monetary policies to fight inflation, and geopolitical developments.

With this, and despite the overblown negative sentiment in the market regarding China's oil demand performance, and global oil market in general, the latest data shows Chinese crude imports increasing to 11.4 mb/d in October, and remaining on track to reach a new annual record high for this year, at around the same level.

In fact, the Chinese crude imports remained very healthy, at a record level that is well above the five-years average range, rising by around 240 tb/d, month-on-month, with year-on-year crude imports at 1.2 mb/d higher. Similarly, India's crude imports are also expected to pick up in 4Q23, reaching a record high this year.

As the global oil demand continues to demonstrate strength and resilience, with better-than-expected growth in 4Q23, mainly in non-OECD countries, the Secretariat's latest forecast for global oil demand growth for 2023 is revised up to reach at 2.5 mb/d.

Evidently, Asian refining margins remain strong compared to historical levels. Jet/kerosene crack averaged $23.77/b against Dubai in Singapore. Expectations of an increase in international air travel activity during the holidays and possibly stronger export requirements to OECD Europe and Americas will most likely support jet/kerosene markets towards the year-end. The gasoil crack spread averaged $23.67/b against Dubai in Singapore in October. Even the gasoline crack spread averaged $3.90/b against Dubai in October, and improved to around $5/b at the beginning of November.

The supply picture also remains strong with non-OPEC supply revised up slightly to reach 1.8 mb/d for 2023, the US being the main growth contributor. Clearly, the US liquids supply growth has been stronger than what is suggested by weekly data. In fact, the weekly data which has been underestimating US crude production since January, as this were followed by significant monthly data upward catch-up trend, especially since August. The more reliable monthly data indicates a very gradual increase in US crude production.

The robust physical crude market is further reflected in the strong crude differentials seen in almost all regions in October and continued in early November. At the same time, and based on the available secondary sources to date, the overall OPEC-11 crude production in October remained well-below the agreed level related to production adjustments under the Declaration of Cooperation (DoC). For example, Nigeria has seen some production increase, but remained well below its required production level. It is also important to add that the recent increase in OPEC crude exports reflects seasonal trends.

Shipments from OPEC producers in Middle East tend to decline in the summer, amid higher demand for cooling and then rise again in September and October, as these volumes return to the market. For example, Saudi crude exports increase is quite normal as local demand drops in line with expected seasonality trend.

Among non-OPEC participants in the DoC, and despite the increase in its seaborne crude exports, Russia's product exports have decreasing over the last few months.

With this supply/demand dynamics, global crude stocks have declined in 3Q23, reflecting high global crude runs, as well as the voluntary adjustments by DoC countries. Clearly, the recently overplayed observation of the increase in global inventories is simply due to the typical seasonal trends, particularly the heavy refinery maintenance. Overall, the global crude inventories remain below the 2017–22 average.

Despite the above healthy and supportive market fundamentals, oil prices have trended lower in recent weeks, mainly driven by financial market speculators, as they have sharply reduced their net long positions over the month of October, compared to the late September, particularly in the NYMEX WTI futures and options contracts.

In fact, data shows that hedge funds and other money managers have heavily cut their bullish positions over the month of October, selling an equivalent of 161 mb and 43 mb of NYMEX-WTI and ICE-Brent futures and options contracts, respectively. In total, they have sold an equivalent of more than 200 mb of oil since late September, or about 37 per cent of total bullish positions. This has fuelled market volatility and accelerated the price decline. The selloffs were also observed in speculative positions in petroleum products in October, specifically for ICE gasoil in Europe. ICE gasoil net long positions fell by an equivalent of around 28 mb since late September.

Indeed, the above strength in market fundamentals would not have been possible without the precautious, proactive, and pre-emptive approach adopted by OPEC and non-OPEC Participating Countries in the DoC. Going forward, countries participating in DoC will continue their commitment to achieve and sustain a stable oil market and provide long-term guidance for the market, in line with their decisions most recently reaffirmed during the 35th OPEC and non-OPEC Ministerial Meeting, which extended the agreement until the end of 2024. Clearly, the voluntary production adjustments by many DoC countries as of November until end-2024, along with extended Saudi Arabian voluntary crude production adjustment of 1.0 mb/d until the end of 2023 and the Russian extended voluntary adjustment of 300,000 b/d in crude oil exports over the same period, will contribute significantly to achieve and sustain global oil market stability.

MOMR … oil market highlights

November ***2023***

Crude oil price movements — In October, the OPEC Reference Basket (ORB) fell by $2.82, or 3.0 per cent, m-o-m, to an average of $91.78/b. The ICE Brent front-month contract fell by $3.89, or 4.2 per cent, m-o-m, to $88.70/b, and the NYMEX WTI front-month contract fell by $3.96, or 4.4 per cent, m-o-m, to average $85.47/b. The DME Oman front-month contract fell by $4.06, or 4.3 per cent, m-o-m, to settle at $89.31/b. The front-month ICE Brent/NYMEX WTI spread widened in October by 7¢ to average $3.23/b. The market structure strengthened further as the front end of futures forward curves for ICE Brent, NYMEX WTI and DME Oman steepened on concerns over geopolitical tensions in the Middle East. Hedge funds and other money managers heavily cut bullish positions, fuelling price volatility and contributing to the drop in futures prices.

World economy — The forecast for world economic growth remains unchanged at 2.8 per cent for 2023 and 2.6 per cent for 2024. US economic growth is revised up to 2.3 per cent for 2023 and 0.9 per cent for 2024. Eurozone economic growth is revised down for both 2023 and 2024 to stand at 0.2 per cent and 0.5 per cent, respectively. Japan's economic growth forecast for 2023 is revised up to 1.9 per cent, while growth in 2024 remains at 1.0 per cent. The forecast for China remains unchanged at 5.2 per cent for 2023 and 4.8 per cent for 2024. India's growth forecast remains unchanged at 6.2 per cent for 2023 and 5.9 per cent for 2024. Brazil's forecast also remains unchanged at 2.5 per cent in 2023 and 1.2 per cent in 2024. Russia's economic growth forecast is revised up to 1.9 per cent for 2023 and 1.2 per cent for 2024.

World oil demand — The world oil demand growth forecast for 2023 is revised up marginally from the previous month's assessment to 2.5 mb/d. Revisions to data for the OECD countries throughout the first three quarters largely offset each other. In the non-OECD, the upward revisions to China's oil demand in both 3Q23 and 4Q23 outpaced the downward revisions in the non-OECD region in 3Q23. In 2023, OECD oil demand is expected to rise by around 10,000 b/d, while non-OECD oil demand is expected to increase by 2.4 mb/d. For 2024, world oil demand is expected to grow by a healthy 2.2 mb/d, unchanged from the previous month's assessment. The OECD is expected to expand by about30,000 b/d in 2024, with OECD Americas contributing the largest increase. The non-OECD is set to drive next year's growth, increasing by about 2.0 mb/d, with China, the Middle East, Other Asia and India contributing the most.

World oil supply — Non-OPEC liquids supply growth forecast is revised up to 1.8 mb/d in 2023. Main drivers of liquids supply growth for 2023 include the US, Brazil, Kazakhstan, Norway, Guyana, Mexico and China. For 2024, non-OPEC liquids production is expected to grow by 1.4 mb/d, broadly unchanged from the previous month's assessment. Main drivers for liquids supply growth next year are set to be the US, Canada, Guyana, Brazil, Norway and Kazakhstan. OPEC NGLs and non-conventional liquids are forecast to grow by around 50,000 b/d in 2023 to average 5.4 mb/d and by another 65,000 b/d to average 5.5 mb/d in 2024. OPEC-13 crude oil production in October increased by 80 tb/d m-o-m to average 27.90 mb/d, according to available secondary sources.

Product markets and refining operations — In October, refinery margins remained strong but declined slightly, continuing the downward trend registered in the previous month. In the Atlantic Basin, the vast majority of the observed downturn is attributed to gasoline, as markets for the product weakened following the end of the summer season, amid reports of significant gasoline stock builds. In Singapore, the relatively weaker performance was also led by gasoline, although the weakness was more evenly distributed across the barrel, with naphtha seeing the smallest decline. Global refinery intake continued to decrease m-o-m in October, showing a 1.4 mb/d decline to an average of 80.1 mb/d. Y-o-y, however, intakes were 2.2 mb/d higher. In the coming months, refinery intakes are expected to start to recover as offline capacities begin to subside with the conclusion of a heavy autumn maintenance season.

Tanker market — Dirty spot freight rates began to recover in October as refiners started preparing for winter demand following maintenance. Gains were strongest in the smaller class vessels. Suezmax spot freight rates surged to a five-month high during the month, with rates on the US Gulf Coast to Europe route increasing by 98 per cent, m-o-m. Aframax spot freight rates also saw a significant increase, with rates around the Mediterranean up by around 74 per cent, m-o-m. In contrast, VLCC spot freight rates saw a more moderate increase, with rates on the Middle East-to-East route up 26 per cent, m-o-m, amid a return of long-haul demand from Asia. Meanwhile, clean rates saw mixed movement. East of Suez rates were broadly flat m-o-m, supported by an increase on the Middle East-to-East route, while West of Suez rates fell 19 per cent, m-o-m, as margins weakened in the Atlantic basin amid high inventories of key products.

Crude and refined products trade — Preliminary data shows US crude imports falling by around ten per cent, m-o-m, in October to stand at the lowest since December 2022. US crude exports increased to 4.6 mb/d, the highest since March 2023. China's crude imports fell back to 11.2 mb/d in September, after surging to the second-highest level on record the month before. China's product exports slipped five per cent in September after reaching a six-month high, as product export quotas are constrained. India's crude imports fell further to an average of 4.3 mb/d in September, the lowest in a year, although are expected to recover with the start of 4Q23. India's product imports rose to a ten-month high ahead of the festive season, while exports fell from a five-month high the month before, on an expected return of domestic demand. Japan's crude imports rose further to an average of 2.6 mb/d in September. Product exports jumped 39 per cent, m-o-m, to a seven-month high of 596,000 b/d, with gains seen across all major products, except kerosene. Preliminary estimates show OECD Europe crude imports remaining relatively stable at the start of 3Q23, while product imports are expected to trend lower.

Commercial stock movements — Preliminary September 2023 data sees total OECD commercial oil stocks down by 15.6 mb, m-o-m. At 2,783 mb, they were 184 mb below the 2015–19 average. Within the components, crude and products stocks fell by 9.3 mb and 6.3 mb, respectively, m-o-m. OECD commercial crude stocks stood at 1,336 mb in September, which is 99 mb lower than the 2015–19 average. Total product stocks fell by 6.3 mb to stand at 1,447 mb in September, which is 84 mb below the 2015–19 average. In terms of days of forward cover, OECD commercial stocks fell by 0.3 days, m-o-m, in September to stand at 60.6 days, which is 1.9 days below the 2015–19 average.

Balance of supply and demand — Demand for OPEC crude in 2023 remained unchanged from the previous month's assessment to stand at 29.1 mb/d, which is 60,000 b/d higher than in 2022. Demand for OPEC crude in 2024 is also remained unchanged from the previous month's assessment to stand at 29.9 mb/d, 80,000 b/d higher than the estimated level in 2023.

The feature article and oil market highlights are taken from OPEC's Monthly Oil Market Report (MOMR) for November 2023. 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.

Winter oil market outlook

December 2023

Economic growth seen in the first three quarters this year in most key economies had been better than expected. With this, the global economic forecast for 2023 is expected at 2.9 per cent. As this robust economic growth is expected to extend into 2024, the global economic growth is forecasted at 2.6 per cent for the year 2024.

In OECD economies, the robust growth observed in the US during 1H23 and 3Q23 is expected to moderate slightly, with a steady trajectory anticipated in 4Q23 and throughout 2024. The Eurozone that witnessed lower-than-anticipated growth up to 3Q23 is expected to see a slight pickup in 4Q23 and in 2024. Japan's economic growth exceeded its potential in 1H23, with a projected normalization in 2H23 and throughout 2024. In the non-OECD group, India, Brazil and Russia exhibited robust economic growth surpassing expectations up to 3Q23, with this trend expected to persist in 4Q23 and throughout 2024. In China, prudent government measures supported the country in achieving its 2023 growth target, with a marginal slowdown expected in 2024. Global economic challenges in 2024 remain with some upside potential, including an improved global macro environment driven by accommodative monetary policies and a more favourable geopolitical landscape.

Expectations for economic growth in 2023 and 2024 are expected to play a defining role in shaping global oil demand. The forecast for year-on-year (y-o-y) global oil demand growth in 2023 is 2.5 million barrels per day (mb/d), primarily driven by the non-OECD at a robust 2.4 mb/d, y-o-y, expansion. China's economic rebound is a major driver, following the relaxation of COVID restrictions, contributing to a leading, y-o-y, growth of 1.2 mb/d. Within the OECD region, OECD Americas is expected to expand by 0.1 mb/d, y-o-y, driven by steady jet fuel recovery, coupled with robust gasoline requirements. Conversely, OECD Europe and Asia-Pacific demand remains weak. Looking ahead to 2024, global oil demand is forecast to rise by a healthy 2.2 mb/d, y-o-y. OECD oil demand is expected to increase by 0.3 mb/d, predominantly in OECD Americas, with other regions also showing some growth. In the non-OECD, a 2.0 mb/d, y-o-y, increase is projected, with China and the Middle East leading the way, supported by Other Asia and India. This forecast centres on sustained economic and petrochemical activity across major consumer nations, which fosters demand for transportation fuels and distillates in 2024.

On the supply side, non-OPEC supply growth is forecasted at 1.8 mb/d in 2023. Notably, the US is expected to account for around 70 per cent of this expansion, with a, y-o-y, liquids production increase of 1.3 mb/d. Other key contributors to this growth include Brazil, Kazakhstan, Norway, Guyana, Mexico and China. As for 2024, non-OPEC supply is forecast to expand, y-o-y, by 1.4 mb/d. Growth drivers include US tight oil output, offshore start-ups in Latin America and the North Sea, and the expansion of oil sands projects in Canada. The US is projected again to lead the growth, comprising about 44 per cent of the total, followed by Canada, Guyana, Brazil, Norway and Kazakhstan. Non-OPEC upstream sector investment is estimated at around $487 billion (bn)in 2023, up 11 per cent, y-o-y, but this is forecast to drop slightly to around $482 bn in 2024.

As 2023 draws to an end, the OPEC Secretariat remains cautiously optimistic about the fundamental factors affecting oil market dynamics in 2024. In response to the broad spectrum of uncertainties that continues to surround the global oil market, many countries participating in the Declaration of Cooperation (DoC) announced in November 2023 additional voluntary adjustments in 1Q24 to help maintain stability and balance in global oil markets. Indeed, countries participating in DoC will continue on these commitments to achieve and sustain a stable oil market and provide long-term guidance for the market.

MOMR … oil market highlights

December 2023

Crude oil price movements — In November, the OPEC Reference Basket (ORB) fell by $6.86, or 7.5 per cent, m-o-m to average $84.92 per barrel. Oil futures prices trended lower amid increased volatility, with the ICE Brent front-month contract dropping by $6.67, or 7.5 per cent, month-on-month (m-o-m) to $82.03/b, and the NYMEX WTI front-month contract dropping by $8.09, or 9.5 per cent, to average $77.38/b. The DME Oman front-month contract dropped by $6.25, or seven per cent, m-o-m to settle at $83.06/b. The front-month ICE Brent/NYMEX WTI spread widened by $1.42 in November to average $4.65/b. The market structure weakened, with the front end of the ICE Brent and DME Oman futures forward curves flattening, while the nearest NYMEX WTI timespreads flipped into contango. Over the month, hedge funds and other money managers substantially reduced bullish positions, contributing to increased price volatility and exerting downward pressure on futures prices.

World economy — The forecast for world economic growth is revised up slightly to 2.9 per cent for 2023, but remains unchanged at 2.6 per cent for 2024. US economic growth is revised up to 2.4 per cent for 2023 and one per cent for 2024. Eurozone economic growth remains unchanged at 0.2 per cent for 2023 and 0.5 per cent for 2024. Japan's economic growth is revised down to 1.7 per cent for 2023 and 0.9 per cent for 2024. China's forecast remains unchanged at 5.2 per cent for 2023 and 4.8 per cent for 2024. India's growth forecast is revised up to 6.5 per cent for 2023, while growth for 2024 remains unchanged at 5.9 per cent. Brazil's forecast also remains unchanged at 2.5 per cent for 2023 and 1.2 per cent for 2024. Russia's economic growth forecast is revised up to 2.2 per cent for 2023 and 1.3 per cent for 2024.

World oil demand — The world oil demand growth forecast for 2023 remains unchanged from last month's estimate at 2.5 million barrels per day (mb/d). Downward revisions in the OECD Europe and Asia-Pacific in 3Q23 and 4Q23 are offset by upward revisions in OECD Americas. Similarly, in the non-OECD, downward adjustments to the Middle East and Africa in 3Q23 and 4Q23 were offset by upward revisions in China, Other Asia, and Latin America. Oil demand in the OECD is expected to grow by around 100,000 b/d in 2023 and by 2.4 mb/d in the non-OECD. For 2024, world oil demand is expected to grow by a healthy 2.2 mb/d, unchanged from the previous month's assessment. The OECD is expected to expand by about300,000 b/d, with OECD Americas contributing the largest increase. The non-OECD is expected to increase by around 2.0 mb/d, led by growth in China, India, the Middle East, and Other Asia.

World oil supply — The non-OPEC liquids supply growth forecast remains unchanged at 1.8 mb/d for 2023. The main drivers of liquids supply growth in 2023 include the US, Brazil, Kazakhstan, Norway, Guyana, Mexico and China. For 2024, non-OPEC liquids production is expected to expand by 1.4 mb/d, broadly unchanged from the previous month's assessment. The main drivers for liquids supply growth next year are expected to be the US, Canada, Guyana, Brazil, Norway and Kazakhstan. The largest declines are anticipated in Mexico and Malaysia. OPEC NGLs and non-conventional liquids are forecast to grow by around 50,000 b/d to average 5.4 mb/d in 2023 and by another 65,000 tb/d in 2024 to average 5.5 mb/d. OPEC-13 crude oil production in November dropped by 57,000 b/d m-o-m to average 27.84 mb/d, according to available secondary sources.

Product markets and refining operations — In November, refinery margins decreased in the US Gulf Coast (USGC) as losses were seen across the barrel, except gasoil. US gasoline crack spreads continued to drop seasonality. This, coupled with rising refinery product output following the conclusion of heavy maintenance turnarounds, weighed on USGC refining economics. In Rotterdam and Singapore, margins remained under pressure, although slight improvements were seen m-o-m as refining margins were supported by lower feedstock prices and a positive performance at the top section of the barrel, backed by planned stock builds ahead of the year-end holiday season. Suppressed product exports from China also helped to sustain margins, particularly in Southeast Asia. Global refinery intakes witnessed a recovery in November, with a 1.7 mb/d rise to average 80.2 mb/d. Year-on-year (y-o-y), global intakes were 817,000 b/d higher. In the coming months, with refineries back online, intakes are expected to be supported, although weakening margins may limit the upside.

Tanker market — Dirty freight rates recovered further in November, on tightening availability, although they remained below the volatile levels seen in the same month last year. Very large crude carriers spot freight rates saw healthy gains, with rates on the Middle East-to-East route rising by 30 per cent m-o-m. Suezmax rates saw a more measured increase, building on a spike in rates the month before. Suezmax rates on the USGC-to-Europe route increased by nine per cent m-o-m. Aframax rates rose, although gains were more muted East of Suez. Around the Mediterranean, Aframax rates rose by around 17 per cent m-o-m. Clean rates saw mixed movement, with East of Suez rates falling by 24 per cent m-o-m, while West of Suez rates rose 28 per cent.

Crude and refined products trade — Preliminary data shows US crude imports broadly stable at an average of 6.3 mb/d in November, while crude exports increased to 4.8 mb/d, the highest since March 2022. Meanwhile, China's crude imports recovered some of the previous month's decline, averaging 11.6 mb/d in October, a gain of almost four per cent m-o-m. China's product exports slipped a further eight per cent m-o-m, with drops driven by gasoline, naphtha, and other products category. Following seven months of declines dating back to February 2023, India's crude imports increased, averaging 4.4 mb/d in October. India's product imports were the second-highest on record, driven by gains in LPG, naphtha and gasoline. Japan's crude imports declined by about 12 per cent in October to average 2.3 mb/d. Product exports, including LPG, dropped from a seven-month high in September to average 494,000 b/d. Declines were seen across most major products, except gasoline. Preliminary estimates show OECD Europe crude imports increasing slightly in November, while product imports are also seen gaining momentum.

Commercial stock movements — Preliminary data for October 2023 shows total OECD commercial oil stocks down by 12.8 mb, m-o-m. At 2,818 mb, they were 128 mb below the 2015–2019 average. Within the components, crude stocks rose by 11 mb, m-o-m, while products stocks fell by 23.8 mb, m-o-m. OECD commercial crude stocks stood at 1,342 mb in October, which is 112 mb lower than the 2015–19 average. Total product stocks stood at 1,476 mb, which is 16 mb below the 2015–19 average. In terms of days of forward cover, OECD commercial stocks in October remained unchanged, m-o-m, to stand at 61.7 days. This is 0.7 days less than the 2015–19 average.

Balance of supply and demand — Demand for OPEC crude in 2023 remains unchanged from the previous month's assessment to stand at 29.1 mb/d. This is around 0.6 mb/d higher than in 2022. Demand for OPEC crude in 2024 also remains unchanged from the previous month's assessment to stand at 29.9 mb/d, which is 0.8 mb/d higher than the estimated level in 2023.

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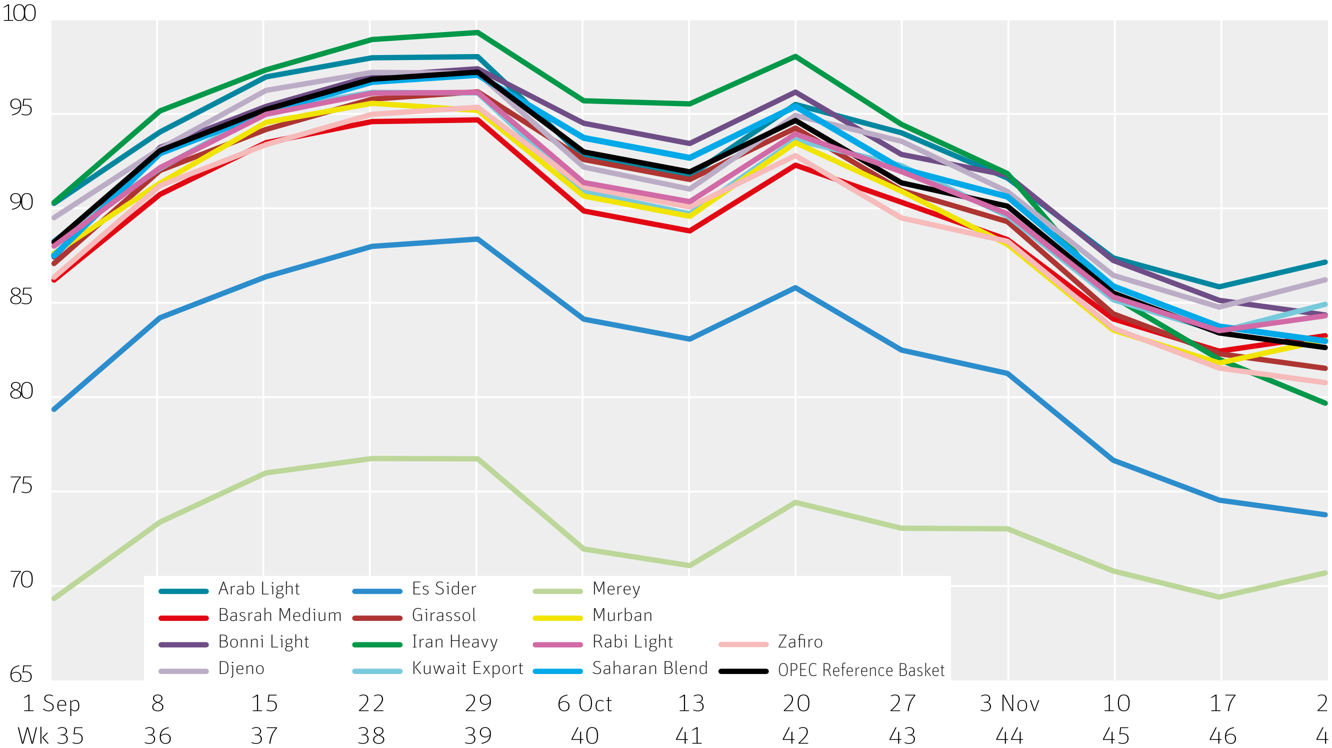
Table 1: OPEC Reference Basket spot crude prices																		$/b
	2022		2023											Weeks 43–47/2023 (week ending)				
Crude/Member Country	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**27 Oct**	**03 Nov**	**10 Nov**	**17 Nov**	**24 Nov**
Arab Light — Saudi Arabia	91.58	82.44	83.80	83.56	80.26	85.65	77.72	77.18	83.45	89.55	96.51	93.39	87.30	94.00	91.60	87.38	85.84	87.15
Basrah Medium — Iraq	85.66	76.07	77.82	78.33	75.33	81.75	73.32	73.03	78.82	85.38	93.14	90.19	83.80	90.32	88.35	84.15	82.44	83.25
Bonny Light — Nigeria	92.84	80.69	82.36	82.88	79.24	85.94	75.63	74.18	79.92	86.52	95.53	94.03	86.18	92.86	91.76	87.25	85.13	84.36
Djeno — Congo	83.65	72.93	75.41	75.05	70.84	77.45	68.37	67.28	72.64	78.69	86.51	83.67	75.60	82.50	81.27	76.67	74.55	73.78
Es Sider — Libya	91.25	77.53	81.01	81.45	77.39	84.00	75.32	74.23	79.69	86.39	94.31	92.12	83.35	90.95	89.30	84.42	82.30	81.53
Girassol — Angola	92.76	78.69	82.05	84.06	80.31	87.01	77.20	76.30	82.09	89.05	97.46	95.72	83.22	94.45	91.85	85.33	82.01	79.68
Iran Heavy — IR Iran	88.73	79.11	81.56	81.88	78.80	84.58	76.47	75.33	81.48	87.58	94.63	91.55	85.00	92.26	89.59	85.16	83.47	84.92
Kuwait Export — Kuwait	90.13	80.46	82.94	83.19	79.86	85.49	77.44	76.44	82.39	88.77	95.70	92.85	86.30	93.56	90.89	86.46	84.77	86.22
Merey — Venezuela	66.94	58.17	61.74	61.95	57.25	62.58	56.22	57.37	63.28	68.48	75.51	72.54	70.74	73.06	73.04	70.80	69.42	70.70
Murban — UAE	90.90	80.17	82.53	83.36	79.55	84.11	75.66	75.52	80.78	87.24	93.86	91.00	83.33	90.90	88.09	83.55	81.81	83.03
Rabi Light — Gabon	90.64	79.92	82.40	82.04	77.83	84.44	75.36	74.27	79.63	85.68	93.50	90.66	82.59	89.49	88.26	83.66	81.54	80.77
Saharan Blend — Algeria	93.60	83.03	83.76	84.05	80.29	85.40	76.42	75.23	80.29	86.69	95.21	93.27	84.80	92.10	90.63	85.87	83.75	82.98
Zafiro — Equatorial Guinea	92.12	80.28	81.29	82.24	79.29	85.90	76.82	75.28	81.45	87.54	95.36	92.52	84.45	91.35	90.12	85.52	83.40	82.63
OPEC Reference Basket	**89.73**	**79.68**	**81.62**	**81.88**	**78.45**	**84.13**	**75.82**	**75.19**	**81.06**	**87.33**	**94.60**	**91.78**	**84.92**	**91.94**	**89.71**	**85.31**	**83.53**	**84.32**

Table 2: Selected spot crude prices																		$/b
	2022		2023											Weeks 43–47/2023 (week ending)				
Crude/country	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**27 Oct**	**03 Nov**	**10 Nov**	**17 Nov**	**24 Nov**
Arab Heavy — Saudi Arabia	88.58	78.51	79.56	79.89	76.71	84.09	76.27	75.03	81.24	87.48	94.43	91.50	84.95	92.21	89.54	85.11	83.42	84.87
Brega — Libya	91.50	77.93	81.41	81.65	77.44	83.75	74.77	73.58	78.94	85.29	93.26	90.82	82.55	89.65	88.30	83.62	81.50	80.73
Brent Dtd — North Sea	91.10	80.38	82.86	82.50	78.29	84.90	75.82	74.73	80.09	86.14	93.96	91.12	83.05	89.95	88.72	84.12	82.00	81.23
Dubai — UAE	86.12	77.09	80.75	82.05	78.42	83.40	75.13	74.70	80.33	86.46	92.93	89.81	83.33	90.52	87.77	83.36	81.66	83.19
Ekofisk — North Sea	94.32	83.22	85.67	85.67	80.40	87.31	77.49	76.21	81.83	88.44	96.84	95.67	86.12	94.65	92.70	87.91	84.90	83.83
Iran Light — IR Iran	85.71	73.42	76.79	78.68	75.64	82.75	74.19	73.46	80.75	87.29	93.92	91.83	82.07	90.43	89.10	84.10	80.96	79.41
Isthmus — Mexico	79.26	67.48	68.82	68.27	65.13	72.61	65.78	66.31	72.56	79.56	87.24	84.04	76.76	82.92	80.31	76.29	75.95	76.70
Oman — Oman	86.15	77.43	80.87	82.23	78.49	83.28	74.91	74.65	80.54	86.49	92.73	89.79	83.17	90.49	87.91	83.46	81.77	83.13
Suez Mix — Egypt	85.58	73.29	76.66	78.55	75.51	82.62	74.06	73.33	80.62	87.16	93.79	91.70	81.94	90.30	88.97	83.97	80.83	79.28
Minas — Indonesia	89.21	79.14	81.57	81.53	77.10	81.36	73.72	72.58	77.47	84.97	91.12	88.25	81.16	88.86	86.26	81.34	79.70	80.59
Urals — Russia	67.98	52.23	52.21	51.91	49.74	59.97	55.22	56.64	65.12	74.54	84.23	83.37	74.58	82.90	81.61	77.13	74.19	72.31
WTI — North America	84.15	76.50	78.19	76.81	73.37	79.44	71.64	70.31	75.85	81.41	89.38	85.57	77.37	85.15	81.35	77.29	76.39	77.06

Notes:
Brent for dated cargoes; Urals cif Mediterranean. All others fob loading port.
Sources: Argus; Secretariat’s assessments.

Graph 1: Evolution of the OPEC Reference Basket spot crude prices, 2023 $/b



Graph 2: Evolution of selected spot crude prices, 2023 $/b

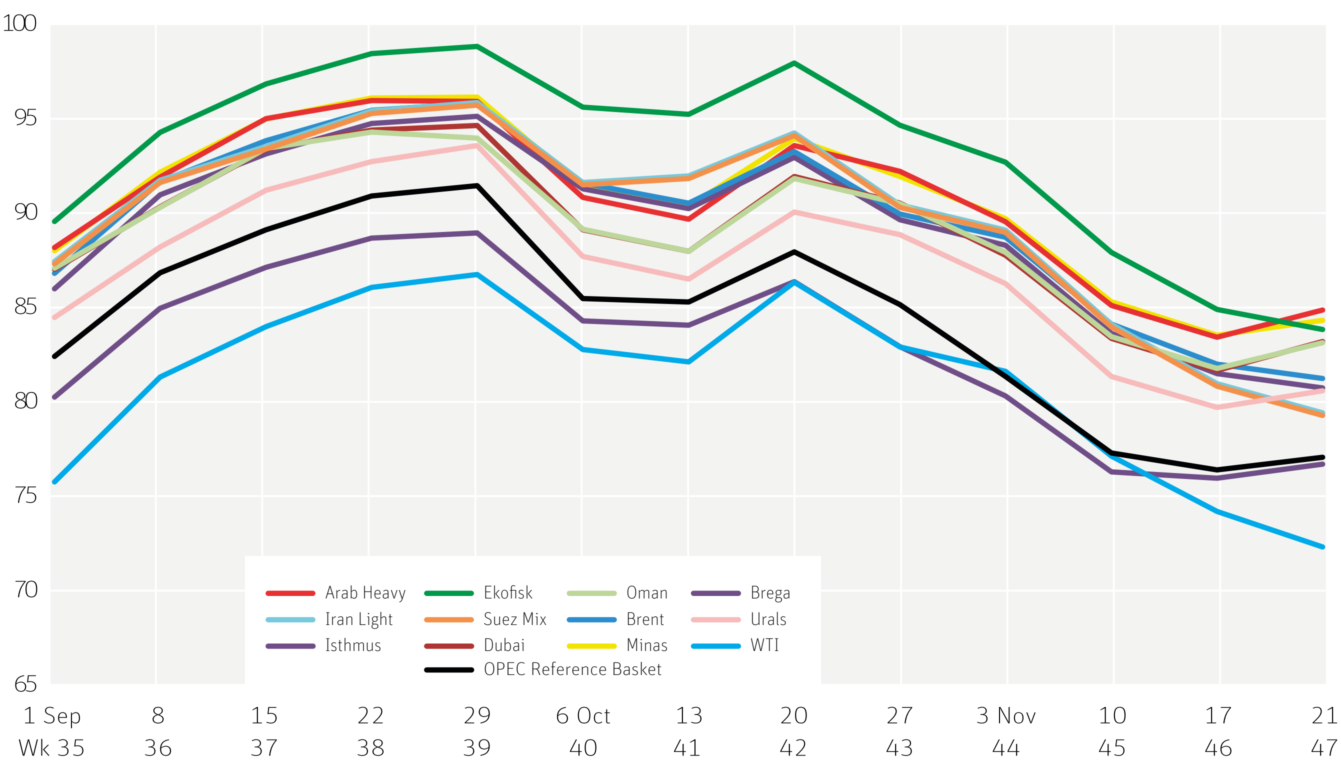


Table and Graph 3: North European market — spot barges, fob Rotterdam $/b

		naphtha	regular gasoline unleaded	diesel ultra light	jet kero	fuel oil 1 per cent S	fuel oil 3.5 per cent S
2022	November	73.87	127.89	132.26	134.93	74.32	60.78
	December	65.57	110.33	121.12	120.72	64.77	55.92
2023	January	76.21	123.20	129.05	124.90	68.38	59.39
	February	79.41	122.15	112.55	110.03	72.28	59.68
	March	74.61	120.69	103.94	107.12	65.94	59.66
	April	74.88	129.47	100.51	101.11	72.58	69.21
	May	64.70	122.85	91.46	91.64	67.86	62.98
	June	60.68	123.91	94.49	96.47	69.94	68.60
	July	63.22	131.12	106.27	105.39	75.02	72.49
	August	70.90	142.60	124.12	122.68	83.81	83.88
	September	77.27	140.69	131.21	131.91	88.83	87.55
	October	71.27	123.01	123.34	122.44	80.64	74.96
	November	69.35	119.33	116.72	114.99	75.29	68.93

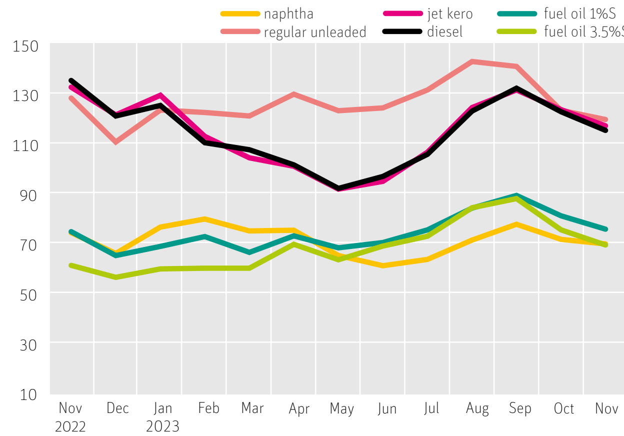


Table and Graph 4: South European market — spot cargoes, fob Italy $/b

		naphtha	premium gasoline 50ppm	diesel ultra light	fuel oil 1 per cent S	fuel oil 3.5 per cent S
2022	November	70.34	115.35	133.06	80.64	57.73
	December	60.68	93.46	116.22	71.36	52.97
2023	January	73.95	102.57	126.21	74.50	54.67
	February	76.70	102.34	110.96	76.71	55.16
	March	70.23	104.28	107.97	70.91	58.18
	April	71.54	107.49	102.24	77.13	67.38
	May	63.28	95.96	92.25	72.46	62.35
	June	59.28	99.62	96.83	74.14	63.22
	July	61.32	107.81	106.23	78.65	73.28
	August	68.74	117.34	123.03	87.46	80.86
	September	74.24	119.75	131.60	92.29	85.03
	October	69.13	99.59	122.33	85.02	72.85
	November	68.60	98.25	112.32	78.59	65.00

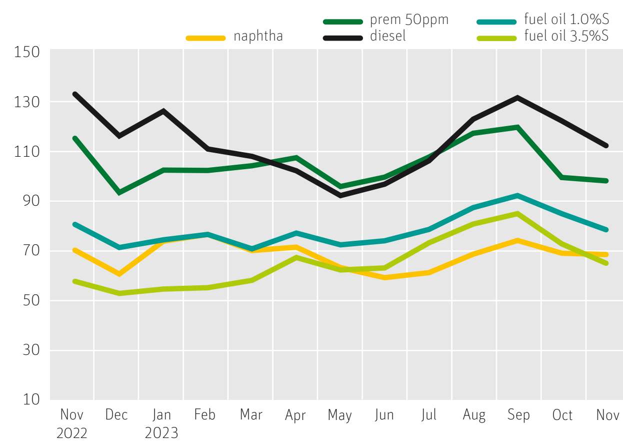


Table and Graph 5: US East Coast market — spot cargoes, New York $/b, duties and fees included

		regular gasoline unleaded 87	gasoil*	jet kero*	fuel oil 0.3 per cent S	fuel oil 3.0 per cent S
2022	November	120.38	172.17	157.91	115.52	67.01
	December	97.78	130.99	129.90	103.45	60.24
2023	January	109.67	136.95	186.70	106.68	61.47
	February	106.11	118.74	156.57	107.83	62.51
	March	106.26	115.37	125.55	101.52	62.71
	April	111.95	108.59	107.56	97.31	66.55
	May	107.12	98.56	94.23	92.24	63.65
	June	107.61	101.91	98.95	87.60	68.69
	July	115.04	112.69	107.77	92.54	75.62
	August	121.08	130.65	129.26	98.63	83.47
	September	121.76	139.20	134.55	104.00	86.78
	October	102.14	130.11	122.80	98.06	78.27
	November	96.61	121.92	125.19	92.25	75.16

* *FOB barge spot prices.*

Source: Argus. Prices are average of available days.

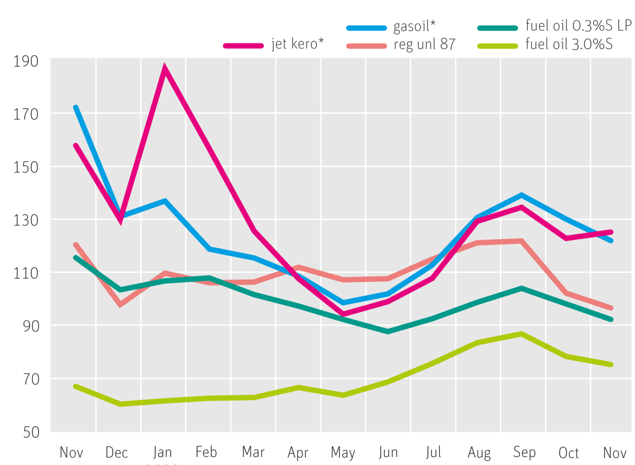


Table and Graph 6: Singapore market — spot cargoes, fob $/b

		naphtha	premium gasoline unl 95	premium gasoline unl 92	gasoil	jet kero	fuel oil 180 Cst	fuel oil 380 Cst
2022	November	74.22	98.27	93.11	125.91	125.41	121.01	60.78
	December	66.41	89.40	85.36	112.41	110.54	110.54	55.56
2023	January	72.52	98.83	95.49	113.98	111.94	115.07	57.98
	February	76.98	99.36	95.86	103.71	101.05	106.77	61.18
	March	73.19	98.59	94.25	98.85	95.33	98.86	64.39
	April	71.54	100.14	96.52	96.91	92.91	96.78	71.74
	May	62.25	90.29	85.69	88.51	86.37	88.59	65.98
	June	57.01	92.30	87.43	91.52	90.45	90.06	65.25
	July	62.43	98.60	93.13	101.02	99.55	98.85	73.39
	August	70.70	107.23	101.84	117.15	116.01	116.59	82.48
	September	74.73	109.92	104.47	122.44	121.42	122.77	81.18
	October	70.80	98.91	93.71	113.48	112.78	113.58	71.86
	November	69.57	98.00	92.36	103.21	103.06	106.63	68.43

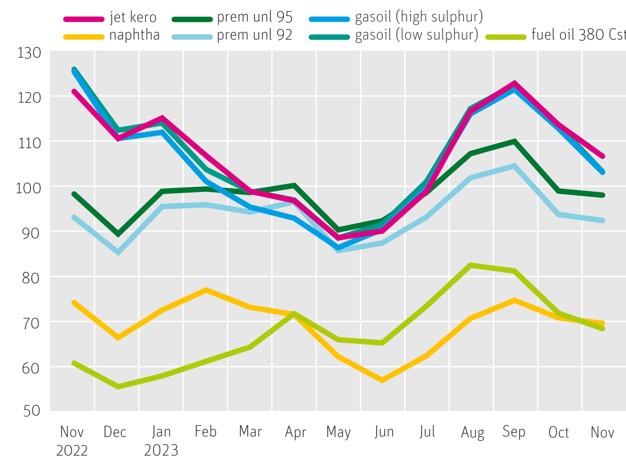
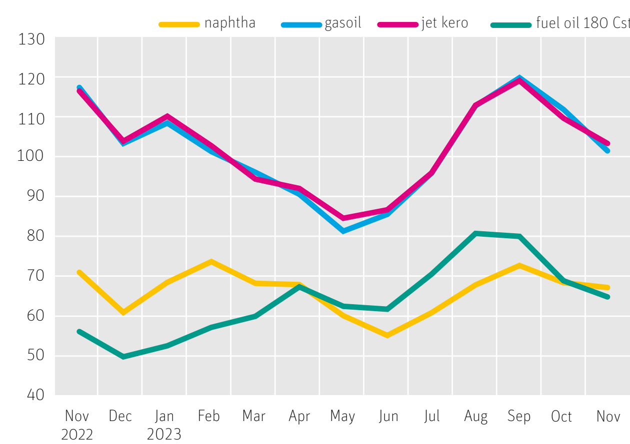


Table and Graph 7: Middle East Gulf market — spot cargoes, fob $/b

		naphtha	gasoil	jet kero	fuel oil 180 Cst
2022	November	70.93	117.34	116.48	56.07
	December	60.88	103.25	103.86	49.80
2023	January	68.47	108.38	110.11	52.57
	February	73.67	101.25	102.71	57.12
	March	68.19	96.07	94.37	59.94
	April	67.91	90.53	92.00	67.28
	May	60.05	81.31	84.52	62.44
	June	55.11	85.50	86.61	61.67
	July	60.85	95.82	95.87	70.51
	August	67.79	112.71	112.89	80.75
	September	72.70	119.81	119.02	79.94
	October	68.37	111.78	109.63	68.86
	November	67.13	101.44	103.27	64.77



Source: Argus. Prices are average of available days.

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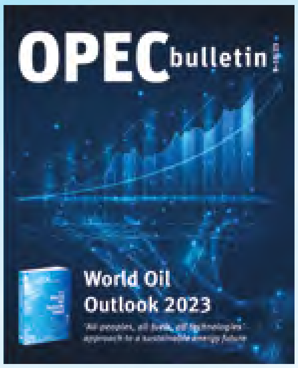

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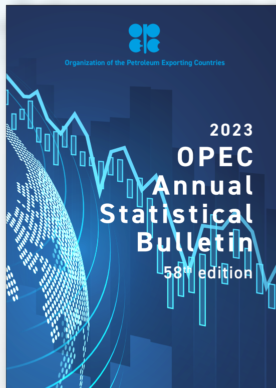

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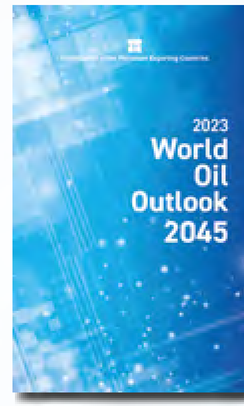

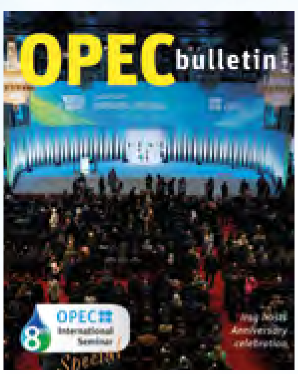

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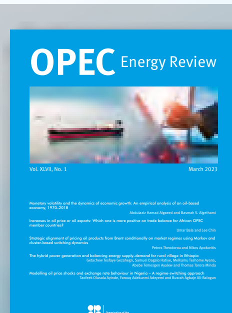

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