OPEC bulletin

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5th Meeting of the Joint Ministerial Monitoring Committee

OPEC Day at Expo 2017

7th

OPEC International Seminar

Vienna, Austria

Petroleum – cooperation for a sustainable future

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Dialogue is alive and well

In an increasingly globalized, complex and interdependent energy industry, dialogue has become essential for any stakeholder to accomplish its goals. In times such as these, no one can go the distance alone.

OPEC has been at the forefront of international energy dialogue since the early 1990s, when it joined forces with the International Energy Agency to begin a platform for producer-consumer dialogue through the establishment of the International Energy Forum (IEF).

Since its founding in July of 1991 in Paris, the IEF has evolved to become the world's preeminent venue for dialogue between global oil and gas producing and consuming countries.

Today, its 72 Member Countries, representing all six continents, encompass nearly 90 per cent of global supply and demand for oil and gas. Its membership has expanded over the years to include transit states and other producers such as Argentina, China, India, Mexico, Russia and South Africa.

OPEC continues to play a leading role in the IEF's biennial Ministerial Meetings, which host the world's largest gathering of energy ministers.

In the years since the IEF was founded, OPEC has expanded its dialogue activities to include platforms with the European Union, the Russian Federation, and more recently, Japan, India, China and the United States.

Additionally, since 2016, intensified dialogue between OPEC and non-OPEC producing countries culminated in the historic 'Declaration of Cooperation', in which 24 producers came together to help rescue the oil market from one of the worst downturns in history, when the oil price plummeted by nearly 80 per cent in mid-2014.

This month, OPEC's dialogue efforts were in full swing as the Secretary General spoke in several of the world's capitals to promote lasting stability in the world oil market.

In Russia, on October 3, he shared a panel with President, Vladimir Putin, during the country's premier oil and gas event — Russian Energy Week.

Both leaders made comments emphasizing the ongoing importance of dialogue in the industry.

President Putin noted that the landmark OPEC and non-OPEC cooperation, in which Russia has played a key role, was helping restore stability to the oil market and providing benefits to the world economy.

"Everyone is interested in a stable market," he said. "What we did with OPEC, I believe, is beneficial for all the global economy."

The Secretary General, in his remarks, noted the important role of dialogue in increasing transparency and reducing volatility.

"Through our dialogues and cooperation, we can lessen the hills and valleys of high volatility which create instability in the market and risks for future investment," he stated. "While some ups and downs are endemic to the oil industry, we can certainly lessen their impact by sharing information and moving towards a common goal."

A week later, the Secretary General was in New Delhi to take part in the first-ever India Energy Forum. Again here, he underlined the prominent role of dialogue between OPEC and one of the world's largest consumers.

"This premier energy forum marks a new stage in the growing strategic relationship between OPEC and India, and builds on previous meetings and interactions that we have had so far," he said. "My friend, Honourable Minister Pradhan, reminded me on Sunday, during our OPEC-India bilateral meeting, that within less than a year, we have already met five times. The dialogue between OPEC and India — the relationship that we celebrate here today — is rather unique given India's role as one of the most dynamic countries in the world."

Before the end of the year, OPEC will engage in at least two more high-level dialogues with the European Union and China.

OPEC has also initiated a new era of dialogue with the United States, which began last December when an OPEC delegation, led by the Secretary General, held a series of high-profile meetings in Washington, DC and New York City.

The week-long itinerary included meetings at the International Monetary Fund, the US Energy Information Administration, the Centre for Strategic and International Studies (CSIS), the US Commodity Futures Trading Commission, Columbia University and IHS Markit.

During remarks delivered at CSIS on December 13, 2016, the Secretary General extended an invitation for the US to join OPEC's portfolio of international dialogue initiatives.

"We hope now that the United States will join us for a new era of collaboration and dialogue, so that we can work together towards our mutually beneficial goal of ensuring stability in the world energy markets," he said. "These conditions will contribute to economic growth and prosperity, two things we all desire for this and future generations."

During this month's India event, the Secretary General reinforced this message, urging producers in the US to join the collaborative efforts currently being made by OPEC and non-OPEC producers to rebalance the global oil market.

"We urge our friends in the shale basins of North America to take this shared responsibility with all seriousness it deserves, as one of the key lessons learnt from the current unique supply-driven cycle," he stated.

Only time will tell as to how the US oil industry might respond to this open invitation. One thing is certain, though: OPEC's long history of dialogue and cooperation, which is alive and well today, is bearing fruit and bringing us closer to a healthy, stable and sustainable global oil market.

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OPEC Membership and aims
OPEC is a permanent, intergovernmental Organization, established in Baghdad, on September 10–14, 1960, by IR Iran, Iraq, Kuwait, Saudi Arabia and Venezuela. Its objective — to coordinate and unify petroleum policies among its Member Countries, in order to secure a steady income to the producing countries; an efficient, economic and regular supply of petroleum to consuming nations; and a fair return on capital to those investing in the petroleum industry. Today, the Organization comprises 14 Members: Qatar joined in 1961; Libya (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, and rejoined in 2007. Indonesia joined in 1962, suspended its Membership on December 31, 2008, reactivated it on January 1, 2016, but suspended its Membership again on December 31, 2016. Gabon joined in 1975 and left in 1995; it reactivated its Membership on July 1, 2016.

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

Editorial policy
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Inset:
Issam A Almarzooq (c), Chairman of the JMMC, and Kuwait's Minister of Oil and Minister of Electricity and Water; Alexander Novak (l), Co-Chairman of the JMMC, and Russia's Minister of Energy; and Mohammad Sanusi Barkindo (r), OPEC Secretary General.

September JMMC reports highest-ever conformity level

The highest-ever conformity with voluntary production adjustments was announced at the 5th Meeting of the Joint OPEC and non-OPEC Ministerial Monitoring Committee (JMMC), which took place on September 22, 2017, at the OPEC Secretariat in Vienna.

The 24 participating countries of the 'Declaration of Cooperation', signed on December 10, 2016, showed joint conformity of 116 per cent, the highest level reached

Khalid A Al-Falih, Minister of Energy, Industry and Mineral Resources of the Kingdom of Saudi Arabia and President of the OPEC Conference.

since the Declaration came into effect at the beginning of 2017. This underscores the commitment of participants to work together in rebalancing the global oil market for the benefit of producers, consumers and investors alike.

The JMMC, established following OPEC's 171st Ministerial Conference decision and the subsequent 'Declaration of Cooperation', based its information on the August 2017 report of the Joint OPEC-non-OPEC Technical Committee (JTC).

At its meeting, the JMMC welcomed the participation of Iraq, Libya and Nigeria, and the reaffirmation of their commitment to work closely with other participating producing countries to ensure the success of the 'Declaration of Cooperation'.

Conference President satisfied with progress

Khalid A Al-Falih, Minister of Energy, Industry and Mineral Resources of the Kingdom of Saudi Arabia and President of the OPEC Conference, took part in the meeting by telephone. He reiterated his country's commitment to the success of the 'Declaration of Cooperation'.

Overall, the JMMC expressed satisfaction with overall conformity levels and again emphasized that all countries should focus on reaching or exceeding 100 per cent conformity.

The JMMC also recommended that the JTC continue building on the progress made at its extraordinary session held in Abu Dhabi on August 8, to support participating countries in their efforts towards achieving full conformity with the 'Declaration of Cooperation'.

Data shows that oil demand growth is expected to be strong in the second half of 2017, by up to 2 million barrels/day, which is expected to support the drawdown of excess barrels in storage. Commercial oil stocks both onshore and offshore saw significant drops and were reported to be on a declining trend at the time of the meeting.

Issam A Almarzooq, Chairman of the JMMC, and Kuwait's Minister of Oil and Minister of Electricity and Water.

JMMC Chairman: market on road to rebalancing

The Chairman of the JMMC, Issam A Almarzooq, who is also Kuwait's Minister of Oil and Minister of Electricity and Water, thanked the JTC for its efforts and asked the Committee to keep up its great work.

He stated that the oil market situation had markedly improved since the last meeting of the JMMC in St Petersburg in July, and that the market seemed to be well on the way to rebalancing. This was due to both the accelerated destocking process in recent months and rising demand, according to Almarzooq, as well as a slight deceleration in expected 2018 non-OPEC supply growth.

The most recent data for August 2017 showed that OECD commercial oil inventories were around 170 million barrels above the five-year average, compared with 340m b at the beginning of the year.

The hurricanes which struck the US Gulf Coast had some short-term repercussions on rising US stock levels, he stated. The market structure has also distinctly changed over the past few months, starting with a narrowing contango, which, shortly before the meeting, had flipped into backwardation.

He added that despite these improvements, participating countries to the 'Declaration of Cooperation' should not be complacent, but continue to focus on reaching unprecedented high conformity levels and lowering inventories to return sustainable stability to the market.

Alexander Novak, Co-Chairman of the JMMC, and Russia's Minister of Energy.

Journalists attend press conference after the 5th Meeting of the Joint Ministerial Monitoring Committee.

Almarzooq reiterated the importance of each country remaining resolute to achieve 100 per cent conformity.

"We need to remain steadfast and resolute in seeing through this market rebalancing process, in the interests of both producers and consumers, and the global economy as a whole," he proclaimed. "It is vital in helping to ensure a stable and secure energy future."

In closing, he stated that the actions of the JMMC were being watched closely by the international community and that the Committee had a great responsibility to do its job well.

JMMC Co-Chairman: fundamentals normalizing

The Co-Chairman of the JMMC, Alexander Novak, Russia's Minister of Energy, thanked the countries that were showing high conformity levels or over-conforming. He added that it was necessary not just to continue fully with coordinated efforts, without slowing the pace, but also to develop strategies for the future.

Novak commented that market fundamentals were returning to normal. He added that the efforts of the participants to the 'Declaration of Cooperation' were a decisive factor in restoring a healthy balance of supply and demand to the oil market, sustaining investment attractiveness of the industry and countering speculative activity.

Secretary General: getting closer to our goal

The OPEC Secretary General, Mohammad Sanusi Barkindo, stated that the continuous engagement of the

JMMC would be essential in order to fulfill the decisions taken last year and to restore stability.

He praised the tireless work of the JTC, which met for the eighth time shortly before the JMMC meeting, stating it had become the "umbilical cord" connecting the 24 participating countries.

He said that participants had every reason to be pleased with the steady progress made in the collective efforts to overcome challenges within the current market cycle, which has been one of the most challenging cycles in history.

Barkindo praised the extra efforts made by over-conforming OPEC and non-OPEC participants and encouraged all participating countries to press onwards to achieve 100 per cent conformity without delay. "I urge all of us not to be side-tracked from the critical task at hand," he stated. "We should focus on the now, and ensure that each step we take moves us closer to our stated goal."

Members of the Joint Ministerial Monitoring Committee held their 5th Meeting at the OPEC Secretariat on September 22, 2017.

Nigerian oil minister optimistic on oil market in 2018

Dr Emmanuel Ibe Kachikwu, Nigeria's Minister of State for Petroleum Resources.

Dr Emmanuel Ibe Kachikwu, Nigeria's Minister of State for Petroleum Resources, took time to speak to the* OPEC Bulletin *on the sidelines of the JMMC in September. He says that he expected the rate of recovery in the market seen so far in 2017, and that OPEC's moves were carefully orchestrated and well planned. He believes this bodes well for a positive oil market outlook in 2018.

"We had the benefit of some natural factors here and there, but just the consistency and adeptness of the response OPEC has given was enough to begin to carry the market," stated the Minister.

He added that he is optimistic about 2018, looking at the current depletion of reserves and the slowing rate of US tight oil growth, as well as the positive performance in terms of conformity with the 'Declaration of Cooperation'.

"It all leads to the fact that 2018 should be okay. A lot of us are going through very difficult times in our economies, and we need the volumes. But if you get the volumes, you lose the price.

Staying the course

"I think we are all committed to staying the course. We are going to do everything we need to do to make sure it works, and I think that 2018 will respond appropriately."

When discussing the 'Declaration of Cooperation', Dr Kachikwu stated that Nigeria, technically exempt from the

production adjustment decision, has already been contributing to the stabilization of the market.

A lot of work has been done to improve the security situation in the Niger Delta. Confidence in the system is building, and the economy is coming back, he said.

"The reality is that for nearly two years, Nigeria has contributed all the volumes needed to stabilize the market. We had below one million barrels out of the market completely. Everyone benefited from that, but we are suffering."

Dr Kachikwu supports of the process that has been built up within OPEC to deal with the oil market crisis over the past year, including OPEC and non-OPEC talks and the building of a monitoring mechanism.

"First, I like the concept; it brings confidence to the market. Above and beyond the usual resolutions we have in our general assemblies, we have been able to put an enforcement team behind it. I think it's a model that we will always adopt going forward, once things begin to fall out of place. I think it's worked very well for everybody."

Plans at home

Back in Nigeria, deepwater projects — for which investment was long suspended due to fiscal and security challenges — are being revived again, according to the Minister. In order to help this, oil and gas policy has to be defined to create some predictability. About 250,000 deepwater barrels are potentially ready to come online sometime late next year, he explained.

"We have three or four such deepwater projects. It's just a matter of finding new funding, then they are ready to go."

One of the things the government undertook, which has been very helpful, is a cash call policy to deal with debts.

"We signed agreements on how to pay off existing backlogs, and this brought back confidence. We have a new model on how to deal with the cost of oil," he stated, adding that these policies have helped boost funding.

"On the back of this certainty, we need to go back to look at costs. We have one of the highest production costs among OPEC Countries, and we need to work on that."

Bringing back the refineries

He stated another area requiring his urgent attention is in the downstream sector whereby a ministerial directive has been issued to have all refineries up and running by 2019. Many teams have been set up to deal with the issue, and there is a lot of financing interest, he added.

"I hope that by the end of December, we will attain the financing we need. But infrastructure is a major gap in the oil industry in Nigeria, so we need to think outside of the box."

He said plant life is about 40 years, and most refineries are in dire need of replacement, but there is no money in reserve for that. Price models from the private sector are the only alternative.

"We have to tariff them or concession them and be able to move forward. We need to do that like yesterday."

As to changes in the country's policy structure, the all-embracing petroleum policy is moving ahead, and all indications are that a rudimentary Petroleum Industry Bill (PIB) should be passed by the end of the year, he said.

The first two deadlines are complete, and, "Once we do that, we will capture the A–Z of all the policies we need. Now we need to move from policies to directives, and regulation of these policies. We work so often with National Assembly to finalize work on the PIB," he said, adding the whole house is working on the PIB. "This will show the business models we are going to embrace, and how we will deal with environmental issues."

The shift to gas

Gas policy is also being taken into account, he stated, adding "the business model is going to change from being an oil producer to being a gas producer with a lot of oil reserves, because that's really what we are." He said that a gas bill to power the country has already been approved.

"Incentives are underway for gas produced on a non-associated basis, most of which now goes to associated plants," he stated. Proper incentives will aid in gas exploration.

"Regarding gas flaring, great progress has been made," he said. "A 2020 deadline has been set, and the country is already 70 per cent compliant with expectations, and is hoping to be 100 per cent compliant by the 2020 deadline.

"Part of that is a gas commercialization programme, which was launched as a policy in the Ministry. Gas is taken straight from the flare and put into practical use. It's going very well, faster than we thought, so we are happy about it."

Libya's NOC Chair says cooperation will benefit all stakeholders

In an interview held after the 5th Meeting of the Joint Ministerial Monitoring Committee (JMMC), Mustafa A Bulgasm Sanalla, Chairman of Libya's National Oil Company, discussed with the *OPEC Bulletin* the current outlook for Libya's oil sector and plans for the country to return to a healthier level of production.

He began by thanking the OPEC Secretary General, Mohammad Sanusi Barkindo, and the OPEC staff for inviting him to the meetings of the JMMC and JTC.

Mustafa A Bulgasm Sanalla, Chairman of Libya's NOC.

A historic time

He commended the Secretary General on the leadership he has shown in promoting cooperation between OPEC and non-OPEC producers and running the Organization during a challenging period.

He added that he was pleased with the report of the JMMC stating that there had been improvement in the market regarding demand, and that markets were steadily rebalancing.

"It's really a historic time, and all of the countries would like to keep this cooperation at this level to benefit producers and the market as well."

Greater transparency

Libya's oil industry would be strongly supported through greater transparency, he added.

"We have to be very transparent with our plans and outlook. This would be one of the catalysts to stabilize the market, understanding what is going on."

"If you are working in the dark, nobody knows what you are doing, but if you work in a transparent way, it sends a good message to all. I think Libya is very keen to stabilize the market and give a good message to all."

Infrastructure remains a difficult challenge in the country, which still faces many issues related to security and investment, according to Sanalla.

"Our staff works very hard with minimum investment. Unfortunately, there is not too much investment, but we try to get the best use of whatever we have in the budget to meet the requirements and keep oil flowing in the pipeline."

The country has plans in place to address these challenges, he explained.

Sanalla concluded by saying that Libya will continue to focus very hard on improving investment and protecting the country's oil sector to promote stability.

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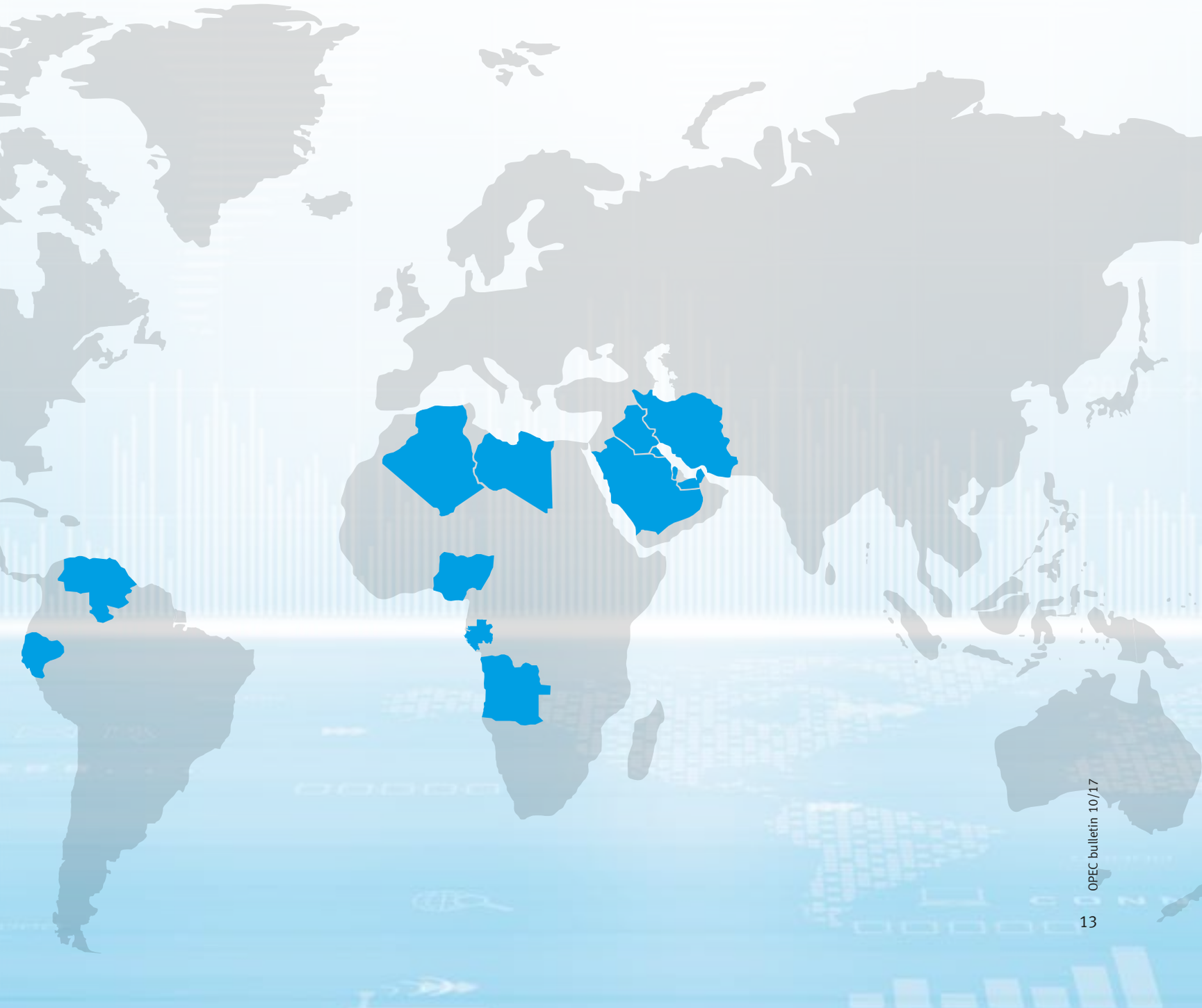


Venezuelan Oil Minister pays special visit to OPEC Secretariat

by Scott Laury

*In the midst of an international tour for meetings with oil and energy ministers from both OPEC and non-OPEC oil producing countries, **Eng Eulogio Del Pino**, People's Minister of Petroleum of Venezuela, made a special visit to the OPEC Secretariat in Vienna on September 15, 2017. After being personally welcomed by the OPEC Secretary General, **Mohammad Sanusi Barkindo**, upon arrival at the Secretariat, the Minister was invited to a private meeting with the Secretary General during which the two men conferred on the current situation in the oil market and prospects for future developments.*

Eng Eulogio Del Pino, People's Minister of Petroleum of Venezuela, attends meeting at OPEC Secretariat.

Eng Eulogio Del Pino (l), People's Minister of Petroleum of Venezuela, with Mohammad Sanusi Barkindo, OPEC Secretary General.

Back at the helm

The Secretary General began by congratulating Minister Del Pino on his recent re-appointment as Venezuela's Minister of the People's Ministry of Petroleum. This was his first visit to the Secretariat after being re-appointed to the post on August 24, 2017.

Del Pino had previously served in the role of People's Minister of Petroleum and Mining from November 2015 until January 2017. During that time, he was also President of Venezuela's national oil company, Petróleos de Venezuela SA (PDVSA). In 2016, he played a key role in helping OPEC reach the landmark decisions that led to the 'Declaration of Cooperation'.

Key consultations

The Minister briefed the Secretary General on the outcome of the consultations he had been conducting over the previous days with several oil and energy ministers of OPEC and non-OPEC oil-producing countries.

Afterwards, in a separate meeting, the Minister received a detailed briefing on the latest developments in the global oil market and an update on the conformity levels of the participating countries of the 'Declaration of Cooperation'.

Both the Secretary General and the Minister confirmed their satisfaction with the continued high level of commitment of the 24 participating countries to achieve the full and timely implementation of the 'Declaration of Cooperation'.

Proactive and engaged

Before the meeting concluded, the Minister expressed his appreciation to the Secretary General and the Secretariat staff for the warm reception and the informative and insightful presentations and meetings that had been arranged for his visit. He also commended the OPEC Secretariat, under the astute leadership of the Secretary General, for enhancing the level of excellence in its work.

In his parting words, he encouraged the OPEC Secretariat, as the face of OPEC's Member Countries, to remain engaged and proactive in its efforts, including through the participation at major international energy fora.

Venezuelan Oil Minister shares vision for OPEC

*At the conclusion of his visit to the OPEC Secretariat, **Eng Eulogio Del Pino**, People's Minister of Petroleum of Venezuela, sat down with the* OPEC Bulletin's ***Scott Laury*** *to discuss the ongoing 'Declaration of Cooperation' and Venezuela's longstanding role as a founder and leader of OPEC. He also spoke about Venezuela's long-term vision for the Organization.*

Question: Since your re-appointment as Venezuela's Minister of the People's Ministry of Petroleum on August 24 2017, you have embarked on a world tour of both OPEC and non-OPEC oil-producing countries to speak with oil and energy ministers about the ongoing situation in the global oil market. What has the outcome of these meetings been?

Answer: I have been able to meet with oil and energy ministers in several countries.

In Kazakhstan, I had the opportunity to meet with three Ministers at the same time — from the Kingdom of Saudi Arabia, the United Arab Emirates and, of course, the Minister from Kazakhstan.

Afterwards, I travelled to the Russian Federation to meet with the Minister of Energy and then continued my meetings by travelling to the Middle East, where I met with the Ministers in IR Iran and Kuwait.

When you look at the combined production of the countries with whom I met, it totals more than half of the overall production of the participating producers of the 'Declaration of Cooperation', which was signed last year.

In our meetings, we discussed the current status of the Declaration, which is currently in effect for nine months, until the end of March of 2018.

The overall opinion was that the decisions made last year have been effective and that if, in fact, they had not been made, the market would have been in much worse condition than it is today. As a result, we have seen around an 18 to 20 per cent improvement in the oil price this year, as compared to last year.

This level of cooperation between OPEC and non-OPEC producing countries has never been seen before, and has been praised by the Ministers. During these latest meetings, they expressed their satisfaction with the progress being made and their hope that this unprecedented cooperation will continue in the future.

How this cooperation would continue in the future is yet to be fully determined. This needs to be discussed. It could take the form of a permanent monitoring committee, or could take another form, but these initiatives send a positive message that this is a cooperative effort open to any oil producing country that voluntarily wants to contribute to lasting stability in the global oil market.

Venezuela, as a Founding Member of OPEC, fully supports these ongoing joint efforts and is proud that so many countries are now agreeing to fight against volatility and speculation, in favour of stable prices for our oil and products in the world markets.

How is Venezuela coping with the current oil price range between $50 and $55/barrel?

In Venezuela, we have more than 100 years of experience producing oil, although, for approximately the first 80 years, the benefits of producing this natural resource did not fully reach the people of the country. There was a deviation in the way in which these benefits were distributed. It was only in the last 18 years or so, since President Chávez came into office, that the situation changed.

In the year 2000, President Chávez was a champion of bringing together the Member Countries of OPEC during the OPEC Summit in Venezuela, helping revive the spirit of the Organization. Then during the OPEC Summit in Riyadh in 2007, he again was a force for unity within the Organization, working with the King of Saudi Arabia and other heads of state to help restore the spirit and

Eng Eulogio Del Pino (r), People's Minister of Petroleum of Venezuela, with the OPEC Bulletin's *Scott Laury.*

unity of OPEC, which helped re-establish a stable and fair price for our natural resources.

After this, we had several great years of stability in the oil market, until 2014, when we saw volatility and speculation return. This has caused disequilibrium in our economy and affected our capex levels, making it more difficult to sustain production at previous levels. This has been the case with many other oil producing countries as well.

The Venezuelan government, under the leadership of President Maduro, is doing all it can to ensure that the needs of the Venezuelan people are taken care of, even in these tough times. And this is part of what I am trying to do with my latest round of meetings: to help regain momentum and rally support for stability in the global oil market. This will then help boost our economies and support the further development of our countries.

Venezuela, as a Founding Member, has been here since day one and played an important role during the entire history of this Organization. So, now, with that perspective, looking forward, what is Venezuela's vision for OPEC in the long term?

Venezuela has always been proud of OPEC. It is like our child. If you conducted a survey in Venezuela on how they feel about OPEC, you would find that everyone in Venezuela feels proud of this Organization. They are proud that OPEC exists, and that Venezuela is an active Member Country promoting cooperation, not only inside the Organization, but outside as well, with non-OPEC producers.

We feel like this is a dream come true that we now have cooperation among OPEC and non-OPEC countries with more than half of the world's oil production that have agreed to take voluntary action to restore stability and protect our natural resources.

So, what is the future? We really believe that we are in a transition for the sustainability of the world's energy, and we need equilibrium to go through that transition without disruptions in price. The low-price cycle we have seen in the last three years is affecting that equilibrium because the reduction in investment of more than half a trillion dollars will produce a gap in the energy requirements for human beings that is not going to be filled by renewables or by non-conventional energy.

We have the responsibility to create the sustainability of production that is going to fill the gap and create a transition to lasting stability in the global oil market.

What happened over the last three years goes against stability, and that's the reason we asked from the very beginning to look for an equilibrium not only between the oil business, with exploration and production, and the price of oil, but also between all different sources of energy in order to ensure a smooth transition while avoiding volatility in the market.

OPEC Secretary General addresses the Oxford Energy Seminar

Mohammad Sanusi Barkindo, OPEC Secretary General.

The OPEC Secretary General, Mohammad Sanusi Barkindo, was invited to the hallowed grounds of academia to address the Oxford Energy Seminar, which was held on the campus of St Catherine's College at Oxford University on September 11, 2017. The Seminar, now in its 39th edition, is an annual educational conference for government officials, industrialists, corporate executives and other professionals in the global energy industry. Since its founding, the event has become an important date on the international energy event calendar.

In a special dinner address entitled 'Reflections on recent market challenges,' the Secretary General provided an exhaustive and thoughtful review of the oil market price cycles that have challenged the global oil industry at many junctures in the past.

He began his remarks by expressing his pleasure in coming to speak at one of the world's most prestigious institutions of higher learning.

"It is a great pleasure to be here this evening in a place of such great learning," he stated. "It is the oldest university in the English-speaking world; a place renowned for its great scholars, its stimulating intellectual debate and its teaching and research that has produced ideas and visions that have greatly impacted the world we live in."

Tribute to Robert Mabro

He then took a few moments to pay tribute to Robert Mabro, founder of the Oxford Institute for Energy Studies who passed away last year, and shared some personal memories.

Professor Robert Mabro.

"It was through Mabro's pioneering work and determination that the Institute was started, and it is his spirit that continues to inspire the discussions that have been central to this Seminar since it began in 1979," he said. "This year is the Seminar's 39th edition. I fondly recall my first visit to this Seminar back in 1986, and I can honestly say that it has had a positive and lasting impact."

"He was an influence on many of us, including my humble self," he continued. "I met with him on many occasions to brainstorm ideas and to garner advice on my career. He was always friendly and accommodating, open-minded to ideas that might conflict with his own, and willing to offer guidance, both personally and in terms of his views on the global energy landscape.

The Secretary General went on to describe him as a visionary with keen insight into the workings of the global oil market.

"In his many writings and talks, Mabro sought to provide a view of the oil market in the 21st century," he explained. "It is one that many of us have come to recognize today. In fact, his understanding of the central role that oil would have in both industrialized and developing countries was in advance of his peers. In many ways, he was a visionary."

The Secretary General made reference to the 2005 book Mabro edited on behalf of OPEC entitled *Oil in the 21st Century,* in which Mabro displayed true expertise and foresight into some of the future challenges the oil market would end up having to face in the years ahead.

In the book, the editor also highlighted the importance of communication and dialogue between the wide range of energy industry stakeholders.

"He was a very early advocate of the producer-consumer and producer-producer dialogue, following the oil price crash in 1986 and his excellent work and analysis on the genesis of this dramatic event," the Secretary General pointed out. "I am pleased to say that at OPEC, we have taken this lesson on dialogue to heart, as recent developments have demonstrated."

The Secretary General's tribute concluded with a call to learn from the contributions made by Mabro and to follow his good example.

"As the 39th edition of this Seminar proceeds with discussions and deliberations, let us remember the important contributions of the late Robert Mabro," he asserted. "We should look to recall the impetus he gave to this annual Seminar, and seek to emulate the vigour and spirit with which he always carried out his work."

History of price cycles

The Secretary General then went on to provide a historical look at the role and effects of oil price cycles, both booms and busts, through the years, adding that these cycles have always been part and parcel of the oil market's cyclical nature.

"The reality is that price cycles have always been part of the market," he stated. "They are part of its evolving nature; and as the market dynamics and structures change, so do the characteristics of those price cycles."

OPEC's research has identified six major price cycles since the early 1970s, revealing both similarities and differences between the various cycles.

At varying times through history, the driving factor has been related to demand, supply or a combination of both. Speculative financial activity has also played an increasing impactful role in recent years.

Recent price crash

The latest cycle has been supply side in nature, and is considered one of the worst price cycles in history as the world witnessed the OPEC Reference Basket price fall by an extraordinary 80 per cent between June 2014 and January 2016.

"Despite some existing parallels with previous cycles, the magnitude of the price drop in the current cycle is the highest of all cycles in real terms," the Secretary General explained. "In addition, the recent drop in oil prices has been considerably sharper than the decline in prices for other commodities — which is in stark contrast to, for example, the oil price collapse of 1985-1986 when all commodity prices saw a steep decline."

He pointed out that extreme prices have resulted in unwanted volatility, which are detrimental to all industry stakeholders' interests.

"Regardless of what the exact nature of the drivers is, in all cases extreme prices created boom and bust cycles. These have often had quite negative implications and have contributed to the creation of extremely volatile price environments, which is not in the interest of either producers or consumers," he stated. "We need to remember that low oil prices are bad for producers today and lead to situations that are bad for consumers tomorrow. And high oil prices are bad for consumers today and lead to situations that are bad for producers tomorrow."

Impact on industry

He said that the current downward price cycle had resulted not only in a vast number of lost jobs and the discontinuation of crucial long-term projects and investment, but also in increasing stock builds.

"The recent price crash led to nearly $1 trillion in investments being frozen or discontinued, and many thousands of jobs were lost," he pointed out. "It also choked off investments, with exploration and production spending falling by a massive 27 per cent in both 2015 and 2016. Moreover, it was a period that saw major stock builds, with the OECD stock overhang increasing to a level of 380 million barrels above the five-year average at the end of July 2016."

Landmark cooperation

The direness of the situation required a response, and OPEC embarked on a whirlwind of consultations among its Member Countries and also with non-OPEC producers in order seek ways and means to help bring order and stability back to the global oil market.

"These consultations eventually led to the historic production adjustment decisions reached by OPEC and participating non-OPEC producers at the end of 2016 and then extended in May 2017, for a further period of nine months till the end of March 2018," he explained. "This has been a major commitment from 24 producing countries as we look to see the return of sustainable market stability."

This unprecedented cooperation helped prevent what may have ended up becoming a crisis in the global oil market had no action been taken.

"There was then, and continues to be now, global recognition that without such adjustments, the market would have experienced further extreme volatility, which would have had far-reaching negative consequences for producers, consumers, investors, the industry, and the global economy at large," he stated.

Restoring investment

The market is starting to show signs of rebalancing, but there is still work to be done to reinstate the required investment levels to the industry.

"While investments are expected to pick up slightly this year and in 2018, it is clear that this is not anywhere close to past levels and it is more evident in short-cycle, rather than long-cycle projects, which are the industry's baseload," he said. "Additionally, we should remember that the actual volume of conventional oil discovered across the globe has halved over the past four years, compared to the previous four-year period."

This is a major concern especially in terms of securing future supply to ensure that rising demand can be satisfied in the long term.

"As we have all learned from previous price cycles,

The Oxford Energy Seminar was held on the campus of St Catherine's College at Oxford University.

such pronounced and long-term declines in investments are a serious threat to future supply," he underlined. "But given our projected future demand for oil, the world simply cannot afford a supply crunch. Thus, we need to continue to make every effort to make sure that future supply is not jeopardized. Recognizing and respecting the link between long-term security of supply and short-term conditions is critical. In other words, we all need to work hard for sustainable market stability."

Cooperation and dialogue

He then went on to emphasize the importance of international cooperation and dialogue among all industry stakeholders in addressing these challenges.

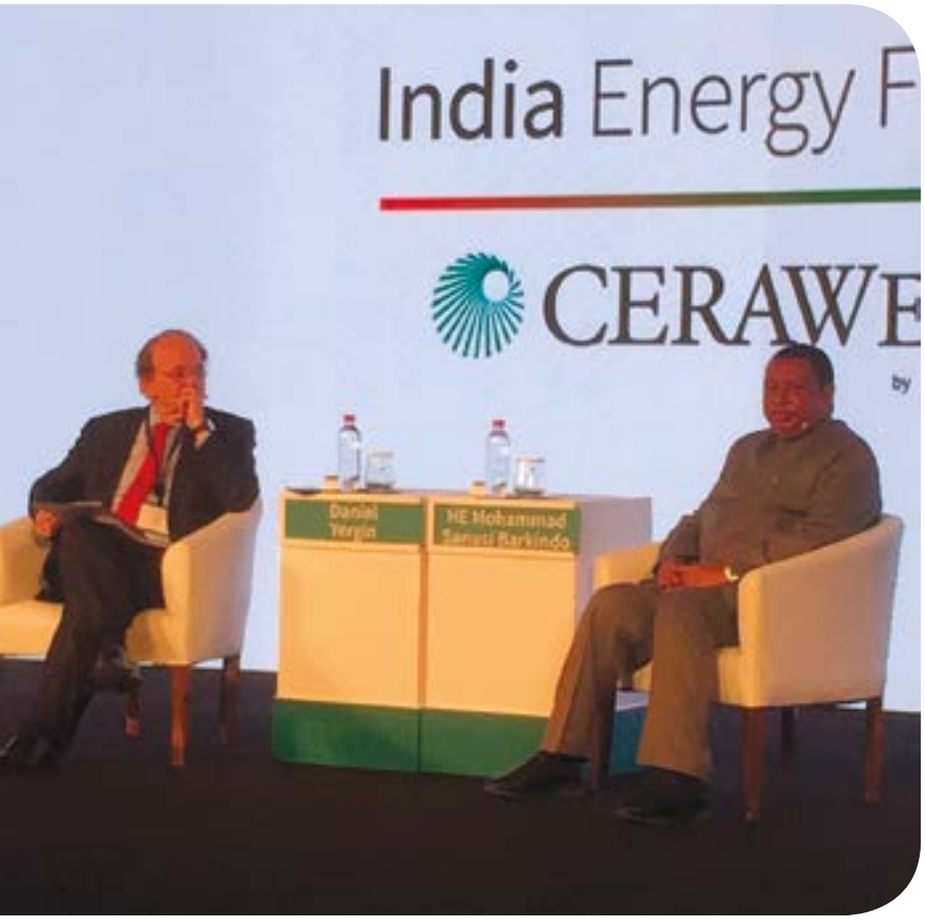
"The only way to strive for this market stability is to do so collaboratively, in consultation with other energy stakeholders," he proclaimed. "We have done so — and, as part of this, we continue to emphasize the need for better information about energy and environmental policies in consuming countries, as well as of energy trends worldwide. Such issues are of common concern and, as such, cannot be pursued in isolation. They require common and collective responses."

In closing, the Secretary General alluded once more to Robert Mabro, praising his collaborative work ideals as an example for all industry stakeholders.

"We should remember that it is not the actual finding of a permanent solution to any one challenge that makes us successful, rather, it is the way we act and respond to each and every new challenge, and the way we work together and collaborate that will really determine whether we have learned anything from the late Robert Mabro's vast learning, collaborative nature and generous spirit."

Secretary General addresses first India Energy Forum

OPEC Secretary General, Mohammad Sanusi Barkindo, delivered the remarks published below in a plenary session of the India Energy Forum in New Delhi on October 10, 2017.



Mohammad Sanusi Barkindo (r), OPEC Secretary General, with Daniel Yergin (l), Vice Chairman, IHS Markit.

I should first like to thank the Government of India, under the able leadership of Prime Minister Narendra Modi, for hosting this prestigious, high-level gathering here in New Delhi. It is always a great pleasure to return to your great country, with its rich history, culture and traditions. On behalf of OPEC, kindly accept our best wishes for the forthcoming Du Vali.

This inaugural forum is the first 'CERA Week' to be held in India, marking a new promising phase of India's transition to a global economic powerhouse — a new India.

This premier energy forum also marks a new stage in the growing strategic relationship between OPEC and India, and builds on previous meetings and interactions that we have had so far.

My friend, Hon Minister Pradhan, reminded me during our OPEC-India bilateral meeting, that within less than a year, we have already met five times.

As Secretary General, I visited New Delhi on the occasion of the 2016 Petrotech Conference in December of last year. Along with some of my colleagues from the OPEC Secretariat, we had a series of high-level productive meetings with government and industry leaders.

We again learnt of India's solid and steadfast support for the work of the Organization, particularly its ongoing efforts seeking oil market stabilization, and noted its deep appreciation for the value of the ongoing OPEC-India Dialogue.

This was followed, earlier this year, on May 22 in Vienna, by the 2nd High-level Meeting of the OPEC-India Energy Dialogue. Attended by India's Minister of Petroleum and Natural Gas, Dharmendra Pradhan, and joined by Indian oil industry leaders, it built on earlier high-level gatherings in a solid and substantive way.

The dialogue between OPEC and India — the relationship that we celebrate here today — is rather unique given India's role as one of the most dynamic countries in the world.

The oil and gas industry, in particular, is expanding rapidly. It is not only fuelling the country's vibrant economy, enticing investors and oil producers from near and far. It is also serving as a 'focal point' for some of the leading joint projects being undertaken by OPEC's Member Countries, who recognize India's unprecedented growth potential.

Such projects signal India's rapidly growing importance on the global energy scene.

India's economy has been experiencing some of the greatest structural changes in a generation. A slate of bold new reforms, embarked upon under the visionary leadership of Prime Minister

Modi, has put the country firmly on a sustainable dynamic growth path — particularly when it comes to energy.

These reforms have included demonetization policy, the goods and services tax (GST), and efforts to diversify the energy mix. They have all been designed to move the country toward sustainable growth and stability.

Additionally, the country's expanding middle class represents a growing source of demand — and not just for energy but for goods and services from around the world.

Comprised of a young and increasingly educated population, India's middle class is vigorous, fast moving and upwardly mobile — all key elements for long-term sustainable growth.

In addition, during this period, India is expected to see major growth in the transportation sector, as well as an expansion in exports of numerous goods and services. It has a world-renowned IT sector, which today is one of the leading global start-up hubs for technology companies, as well as a strong services sector and solid manufacturing base.

India's role in the global marketplace and its growing involvement in international trading networks are admirable signposts for a country undergoing a great economic transformation.

At OPEC, we have been paying close attention to these macroeconomic and business trends in India. Some of them shall directly benefit the growing populations of OPEC's own Member Countries.

In particular, we have been working to better understand the potential impacts that such beneficial economic changes may have on future oil demand.

OPEC even sees world oil demand growth increasingly shifting to India. We anticipate, in fact, that by 2040, India's oil demand will increase by more than 150 per cent to 10.1 million barrels/day from around 4m b/d currently.

The country's total share of global oil demand is also seen rising to over nine per cent by 2040 from four per cent now.

The data clearly points to expanded energy use, as Minister Pradhan himself has stated recently, which shall include roles for other energy resources as well.

Relationship between OPEC and India

There are many factors helping to foster, strengthen and support the deepening relationship between OPEC and India. In fact, since 2000, trade between India and OPEC Member Countries has grown substantially.

In the period from 2000–15, overall imports of India from OPEC Member Countries increased from $2 billion in 2000 to nearly $140bn in 2015. OPEC Member Countries imports from India increased from $5bn in 2000–01 to $56bn by 2015.

In terms of crude oil, what we see is similarly impressive in terms of growth. India's total imports have risen to close to 4.3m b/d in 2016 from around 1.5m b/d in 2000. Nearly 80 per cent of these total imports came from OPEC Member Countries.

Underlying all this, of course, is demand, which in India has been remarkable in recent years. Last year, India had the fastest rising oil demand growth in the world, with an increase of close to 340,000 b/d or 8.3 per cent. It is currently the world's third-largest oil consumer, with continued and sustained growth prospects in the medium- to long-term.

Dharmendra Pradhan (r), Minister of Petroleum and Natural Gas, India, with the OPEC Secretary General.

In the downstream, India is already a major producer and net exporter of refined petroleum products, with output of close to 5m b/d, according to our latest *Monthly Oil Market Report*.

As a large oil consumer, India thus shares with OPEC, and with oil producers and consumers around the world, a common interest in oil market stability on a sustainable basis. Along with other oil producers, we have all seen that constructive dialogue and flexible cooperation can play an important role in maintaining stable oil markets.

The historic 'Declaration of Cooperation' signed by 24 countries demonstrated that, with firm resolve and broad consensus, the instability seen in the oil markets, as well as the sharp contraction of investments in the industry, the multiplier effect that low oil prices have had on deflation, and the acute financial stress of companies and steep reductions in export revenues of producing countries, all of which have characterized the current and most vicious of all oil cycles, could be overcome.

Given recent data, it is clear that the efforts of OPEC and non-OPEC producers to conform to the production adjustments of the 'Declaration' have been fruitful and worthwhile. Let me share with you the key oil market highlights from our latest *Monthly Oil Market Report:*

The global economic recovery has gained traction. OECD economic growth in the 1H17 was better than expected. Moreover, the good momentum and the potential tax reform in the US, the ongoing dynamic in the Eurozone and, to some extent, in Japan, solid growth in China and India and an improving situation in Russia are all lifting the growth forest to 3.6 per cent in 2017 and 3.5 per cent in 2018.

The global oil demand growth in 2017 is better than expected — to grow at 1.45m b/d — and the demand outlook for 2018 is anticipated to be quite robust at similar levels — of above 1.4m b/d.

The commercial oil stocks in the OECD have continued to fall. At the start of 2017, the OECD stock overhang was at 338m b above the five-year average. This has since then fallen by 167m b at a faster pace — by 130m b alone during the last five months — which was attributed mainly to high conformity levels, above 100 per cent, of participating OPEC and non-OPEC countries, and stronger oil demand in the second half of the year. The overhang in stocks nevertheless stood at 171m b for the month of August. Of this, 146m b constitutes crude and 25m b products, almost converging with the five-year average.

In addition, floating storage has also been on a declining trend during the first eight months of 2017 and is down by an estimated 40m b since the start of the year, supported by a narrowing contango. In fact, Brent has flipped into backwardation for the first time since the second half of 2014.

Just a few days ago, I attended first Russian Energy Week in Moscow, where I shared a speaking platform with President Vladimir Putin, and held talks on oil market developments with Alexander Novak, Minister of Energy of the Russian Federation, Khalid Al-Falih, Saudi Arabia's Minister of Energy, Industry and Mineral Resources and also the President of the OPEC Conference, as well as other OPEC and non-OPEC Ministers, all of whom are part of the historic 'Declaration of Cooperation'. The statements reaffirmed the broader commitment to joint action by all for the market stability beyond the short-term.

We all remain confident that the recent extension of the terms of the 'Declaration' — through to early 2018 — is already accelerating the rebalancing process as confirmed by the latest monthly data.

The oil supply and demand variables are fast returning to balance after a record three years of unprecedented downturn, as evidenced by the continuously positive fundamentals, due largely to the full and timely implementation of supply adjustments by OPEC and non-OPEC countries.

Shared responsibility

Emerging from this most vicious of all oil cycles, the need to sustain the rebalanced market in the medium- to long-term, some extra-ordinary measures could be considered by countries participating in the 'Declaration of Cooperation', including expanding the membership. This is a shared responsibility of all producers, be they conventional or non-conventional, short- or long-cycle investors. We all, at the end of the day, when all is said and done, belong to the same industry and operate in the same markets. We urge our friends in the shale basins of North America to take this shared responsibility with all the seriousness it deserves, as one of the key lessons learnt from the current, unique supply-driven cycle.

The IOCs, independent oil companies and others have reduced their investments by more than 50 per cent during two consecutive years in 2015 and 2016. However, NOCs have not only weathered the storm from the downturn but have also bravely continued investing across the supply chain. In this way, OPEC will continue to be a dependable and reliable supplier of first choice to rapidly growing countries like India.

OPEC has a vested interest in the sustained healthy economic growth and prosperity of India.

OPEC attends inaugural high-level oil and gas conference in China

OPEC attended the 1st International Petroleum and Natural Gas Enterprises Conference, which took place in Hangzhou, capital of Zhejiang province, in China from September 17–19.

The Conference was jointly hosted by the Zhejiang Provincial People's Government, the General Office of the China (Zhejiang) Pilot Free Trade Zone (FTZ) Leadership Group, the China (Zhejiang) Pilot Free Trade Zone Management Committee and the China Petroleum Circulation Association, and took place at Hangzhou International Expo Centre.

According to conference organizers, the Zhejiang FTZ is a regional free trade zone launched by the Chinese government in the Zhejiang Zhoushan Archipelago New Area. It is the only FTZ in China that covers both land and anchorage area, a frontier as China reaches towards the Pacific Rim economic circle, and an important window for China to engage with countries along the 'Belt and Road'.

The 'Belt and Road' refers to the Silk Road Economic Belt and the 21st-century Maritime Silk Road, better known as the One Belt and One Road Initiative (OBOR), a development strategy that focuses on connectivity and cooperation between Eurasian countries, primarily the People's Republic of China (PRC), the land-based Silk Road Economic Belt (SREB) and the ocean-going Maritime Silk Road (MSR).

Institutional innovation is seen as the core of the FTZ, and it will adapt the latest trends in global economic development, striving to become a world-class FTZ, a pioneer of international commodity trade liberalization and a resource allocation base of worldwide influence.

The FTZ has an area of 119.95 square kilometres and boasts rich port and coastline resources and a strong industrial foundation, making it "well-positioned to focus on petroleum products, whole industrial chain investment facilitation and trade liberalization, as well as to make overall improvements in global allocation capability for bulk commodities with petroleum products at the core," according to the organizers.

China hopes the Zhejiang Pilot FTZ is going to be an outstanding model and major attraction for world-class technologies, capital and people, they said.

The Conference aimed to, *inter alia,* assist the government in achieving innovation and cooperation in petroleum products through whole industrial chain investment facilitation and trade liberalization; support the government's aim to build a world-renowned integrated refining and petrochemical complex, bunkering and storage facilities in Zhoushan, Zhejiang Province; and provide much-needed aid to build a new cooperation platform for oil businesses from all over the world with a host of events including high-level forums, dialogues, business tours and negotiations.

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Hangzhou, the capital of Zhejiang province in China, venue of the 1st International Petroleum and Natural Gas Enterprises Conference.

OPEC facilitates knowledge exchange on Asian energy outlook

No discussion on the future of the energy and oil industries is complete without due regard being given to the growing importance of Asia, as the world's most populous continent will be the engine of economic growth and epicentre of energy demand. For this reason, in the last three years, OPEC has made the Technical Meeting on Asian Energy and Oil Outlook a regular feature in its calendar of events. The most recent iteration of the meeting took place in October, and the event once again underscored its value as a forum of knowledge exchange on pressing energy issues. The* OPEC Bulletin *reports from the meeting.

The 3rd Technical Meeting on Asian Energy and Oil Outlook was held at the OPEC Secretariat headquarters in Vienna. The event, organized in coordination with the Institute of Energy Economics of Japan (IEEJ), was aimed at enabling technical exchange among experts from major energy and oil consuming countries in the region.

The meeting was attended by delegates from OPEC Member Countries — Kuwait, Nigeria and Qatar — as well as representatives from leading research institutes in China, India, Japan and Korea. Experts were also on hand from Toyota and the Institute for Internal Combustion Engines-AVL (Anstalt für Verbrennungskraftmaschinen). Several research experts from the OPEC Secretariat were also active as presenters and discussants.

The discussions focused primarily on the Asian energy and oil outlook, energy and policy analyses of key countries and the region, as well as associated uncertainties within the context of global developments.

Mohammad Sanusi Barkindo, OPEC Secretary General, opened the meeting by emphasizing that strengthening and enhancing cooperation with its partners in the energy industry is a priority for OPEC.

"Such dialogue is crucial given that Asia is, and will continue to be, a major centre of economic growth, playing a pivotal role in the future of the energy industry," he stated. "OPEC is determined to have a constructive relationship with its counterparts in Asia and be regarded as a reliable partner."

The Secretary General then provided an overview of the events leading to the 'Declaration of Cooperation' and the rationale behind the historic decision. The consequences of the success of the 'Declaration of Cooperation' for Asia were also outlined.

The Secretary General went on to describe the pivotal role Asia will play in the future of the world's energy outlook. "Overall, global energy demand is expected to increase by approximately 100 million barrels of oil equivalent per day between 2016 and 2040," he pointed out. "Roughly 60 per cent of this will come from Asia. A similar pattern can be observed with oil demand, which will

grow in Asian non-OECD countries by 16m b/d between 2016 and 2040, which is substantially larger than any other region in the world."

He further articulated Asia's importance with regard to refinery capacity and trade flows.

In conclusion, the Secretary General highlighted the importance of dialogue and collaboration, especially in light of the interdependent nature of the global oil industry.

"Given the complexity of today's energy market, no one organization possesses all the solutions to the challenges which must be overcome to meet the demands of the future," he proclaimed. "Therefore, the importance of forums like this, conducted in a collaborative spirit with frank and open dialogue, is invaluable and indispensable for our industry."

Emerging trends and technologies

The first session of the meeting focused on oil and energy market developments, with an emphasis on emerging trends and technologies.

Experts from the OPEC Secretariat delivered presentations on the short-, medium- and long-term energy and oil outlooks, including scenarios. These were followed by presentations by the IEEJ, specifically focused on Asia and one from the Economic Research Institute for ASEAN and East Asia (ERIA) on ASEAN developments.

The second session examined developments in road transport technology and fuels, particularly drivers behind special technologies, prospects for their penetration and the impact of new technologies. A representative from Toyota stimulated an interesting discussion following his presentation on the future of the powertrain landscape. This was complemented by a presentation by AVL entitled: 'Powertrain technology trends: electrification — a new springtime for the combustion engine?'

During the third and final session, participants heard about country-specific perspectives on energy and oil demand with a focus on downstream prospects. This included topics such as trends in product demand, quality adjustments, evolving crude oil trade patterns, investment plans and links to petrochemicals.

Discussions also encompassed an exchange of views on the road transportation sector, in terms of demand according to product, the fleet composition and prospects of new passenger cars and commercial vehicles. Consideration was also given to the oil demand outlook in road transportation under targeted policies and penetration by new technologies.

China's National Petroleum Corporation's Economics and Technology Research Institute gave a presentation on China's energy and oil outlook. This was followed by an account of the Indian perspective by India's Petroleum Planning and Analysis Cell. An overview of the situation in the Republic of Korea was provided by Korea's Energy Economic Institute. The IEEJ then described Japan's energy and oil outlook.

The comprehensive presentations and thought-provoking discussions that followed facilitated a fruitful and productive exchange among participants. The significance of pursuing such initiatives designed to promote cooperation, through dialogue and technical exchange, was reiterated.

The contributions of senior experts from across the industry enhanced knowledge-sharing and information-exchange. Therefore, the participants recommended continuing this instrumental technical dialogue and close interaction on a yearly basis and exploring the possibility of expanding it.

Participants at the 3rd Technical Meeting on Asian Energy and Oil Outlook pose for group photo.

World Expo 2017

Astana, Kazakhstan

Magzum Mirzagaliyev, Vice Minister of Energy.

A special day for OPEC at Expo 2017

OPEC's Special Day at Expo 2017 was held on September 4, providing a unique opportunity to showcase the Organization and celebrate its fruitful cooperation with Kazakhstan. The *OPEC Bulletin's* **Mathew Quinn** reports on a historic day in the Kazakhstani capital.

Above: Hasan Hafidh, Head of OPEC's Public Relations and Information Department, delivers opening remarks on behalf of the Secretary General, Mohammad Sanusi Barkindo, at the OPEC Special Day. Above right: Hafidh with Magzum Mirzagaliyev, Kazakhstan's Vice Minister of Energy.

It was a beautiful, cloudless day in Astana on Monday, September 4. For some in the OPEC delegation who had visited the city on a preparatory trip earlier in the year, it was hard to believe they had returned to the same place. The temperature during that trip in February had been –20° Celsius, while now, it was plus 30: a "typical Kazakh experience" mused some in the organizing party.

OPEC's Special Day was months in the planning, a tremendous concerted effort by the Kazakhstani hosts, the Astana Expo 2017 National Company and the staff at the OPEC Secretariat. Now, the big day had finally arrived. 115 states and 22 international organizations participated at Expo 2017 and all had their own version of a National or Special Day, however, there was something distinctive about the OPEC day, as few of the participants have seen their relationship with Kazakhstan intensify in the last ten months as much as OPEC.

Ministerial welcome

The attendees included a series of distinguished guests from the host country, the energy community, representatives from OPEC Member Countries and the general public. The Kazakhstani delegation was led by Magzum Mirzagaliyev, Vice Minister of Energy. He was joined by Bakhyt Mahanov, Deputy Director of Department of Oil and Gas Development at the Ministry of Energy; Yerbol Shormanov, Deputy Chairman of the Astana Expo 2017 National Company; Ilya Urazakov, Director of the Department of International Relations of the Astana Expo 2017 National Company; Azamat Abdraimov, Head of the Secretariat of the Expo 2017 team at the Ministry of Foreign Affairs; Ms Mariya Erkimbayeva, Head of the Department of International Cooperation and Economic Integration Processes at the Ministry of Energy; Ms Aydana Orynbekova, Manager of

A series of distinguished guests from the host country, the international energy community, representatives from OPEC Member Countries and the general public, attend the OPEC Special Day ceremony, including Magzum Mirzagaliyev (r), Kazakhstani Vice Minister of Energy.

Special guests and dignitaries at OPEC's Special Day.

Department of International Cooperation and Economic Integration Processes in the Ministry of Energy; Rustem Soriyev, Senior Manager of the Department of Oil and Gas Development in the Ministry of Energy; and Ms Aigerim Akiltayeva, Manager of the Department of International Participants at the Astana Expo 2017 National Company."

Also in attendance were representatives from the World Petroleum Council (WPC), who had worked closely with OPEC for the Organization's participation at the World Petroleum Congress in Istanbul in July. The WPC was represented by Tor Fjaeran, President of the Executive Committee; Dr Pierce Riemer, Director General; and Ms Ulrike von Lonski, Director of Communication.

Mutually beneficial cooperation

The OPEC Special Day was opened by Mirzagaliyev who highlighted the contribution that Astana has made to the ongoing discourse on the sustainable future of energy.

"For the last three months, Astana has become an effective platform for the demonstration of the world's best technologies and practices … in solar, wind, biomass, sea and thermal," he proclaimed.

Following this, Mirzagaliyev gave an unequivocal assessment of the value Kazakhstan attaches to its partnership with OPEC.

"Cooperation with OPEC is a priority for our country. Even though Kazakhstan is not a Member State of this respected Organization, it participates at regular meetings at a high level and delegations from both sides take part in major events organized by third parties," he stated, recalling Kazakhstan's support for the Declaration of Cooperation in December 2016 and its extension in May 2017.

The Vice Minister stressed that "the Republic of Kazakhstan is always ready for dialogue on further mutually beneficial cooperation with all the institutions of OPEC. I want to highlight that the achieved level of our partnership already testifies to the existence of a strong foundation of understanding and readiness for cooperation."

After once again extending his gratitude to the OPEC delegation, the Vice Minister concluded on a forward-looking note, "I hope for the further development and deepening of our partnership."

A reliable partner

Hasan Hafidh, Head of the Public Relations and Information Department at the OPEC Secretariat and OPEC Commissioner for the Astana Expo 2017, delivered OPEC's remarks on behalf of Mohammad Sanusi Barkindo, OPEC Secretary General. He began by paying tribute to the organizers of the Expo and thanking all of the guests who attended the OPEC Special Day. Hafidh noted that the Special Day was historic in itself but also

Vice Minister, Mirzagaliyev, enjoying OPEC's publications.

The OPEC delegation tours the international organizations' pavilion.

occurred during an extraordinary chapter for Kazakh-OPEC relations.

"This is the first time OPEC has participated at an official Expo sanctioned by the Bureau International des Expositions," he said. "We are delighted to have this opportunity to provide information about our organization. The Expo also occurs at an auspicious time for OPEC's cooperation with Kazakhstan."

Hafidh then provided an overview of OPEC's history, organizational structure, Member Country contingent, mission and objectives. This was followed by a description of actions taken by OPEC to help rebalance the oil market over the last year, culminating in the 'Declaration of Cooperation' between OPEC Member Countries and 11 non-OPEC participating oil producing countries, including Kazakhstan.

As Hafidh affirmed, "now Kazakhstan is a valued and important partner for OPEC. We look forward to enhancing our cooperation in the future."

The Special Day also offered an opportunity to remind participants of OPEC's contribution towards the Expo theme of the future of energy.

"Global energy-related challenges need to be addressed by the entire international community. OPEC attaches great importance to sustainable development, which is the foundation of growth and prosperity," Hafidh explained. "OPEC Member Countries welcomed the Paris Agreement that resulted from COP 21 and indeed played an important role in reaching the Agreement. Additionally, OPEC has been working closely together with the UN Framework Convention on Climate Change (UNFCCC) to promote cooperation between the two bodies."

Hafidh concluded his remarks by stating that the legacy of Expo 2017 would endure for years to come.

The opening remarks were followed by the playing of OPEC's promotional video, 'Instrument of change', which focused on historic moments during the Organization's existence. Eissa Alzerma, Oil Price Analyst at the OPEC Secretariat's Petroleum Studies Department, then gave a presentation on the current state of the oil market.

The OPEC delegation was then given a tour of the entire Expo area, followed by a working lunch, which included traditional Kazakhstani cuisine. This was followed by a tour of the participating OPEC Member Countries' national pavilions.

Promising future

OPEC-Kazakhstani relations have come a long way in the last year. The 'Declaration of Cooperation' was the first time the two parties entered into a formal arrangement with each other. Since then, the relationship has gone from strength to strength. OPEC's participation at Expo 2017 was a reaffirmation of this positive trajectory in relations. With both parties determined to further enhance their mutually beneficial cooperation, the future of OPEC-Kazakhstani relations looks bright.


EXPO 2017
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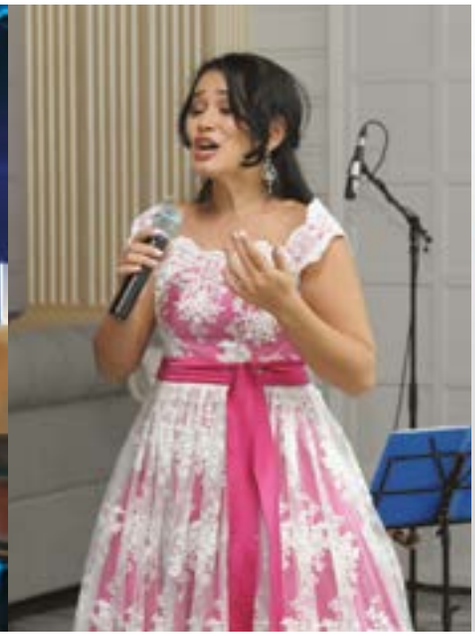
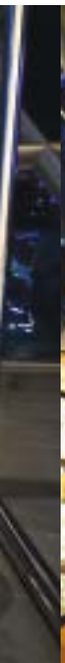



... impressions of Expo 2017



OPEC Member Countries showcase culture and innovation at Expo 2017

From June 10–September 10, 115 countries, 22 international organizations and dozens of private entities participated in the internationally recognized exposition that took place in Astana, the recent winner of UNESCO's Peace Award. Eight OPEC Member Countries, namely Algeria, Angola, Gabon, IR Iran, Qatar, Saudi Arabia, the United Arab Emirates and Venezuela, participated, presenting their heritage and innovation in the field of energy.

The *OPEC Bulletin's* **Ayman Almusallam** takes you behind the scenes to visit the pavilions of each participating Member Country.

ALGERIA

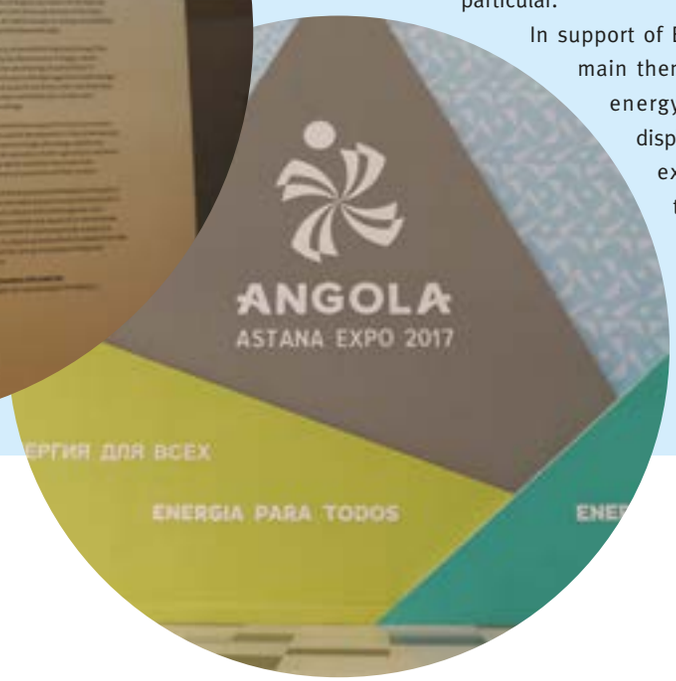
The three-section pavilion introduced visitors to the country's rich history in the sphere of energy, culminating in a look at the future to the year 2030. Additionally, a notable number of Algerian energy projects were presented, providing a special focus on new developments in the field of renewable energy, particularly wind and solar. A short film on the expansion of the energy sector was also screened in a cozy ambience.

The rich heritage of Algeria was showcased through various handcrafts and artworks.

ANGOLA

The colourful pavilion of Angola gave guests an opportunity to learn a great deal about the OPEC Member Country. A film was screened illustrating the rich heritage of the nation, in general, and its energy programmes, in particular.

In support of Expo 2017's main theme — future energy — Angola displayed several examples of technology advancement, the key factor for the progress of energy.



GABON

Several African countries, including OPEC Member Country Gabon, participated through a joint pavilion called *Plaza Africa*. South Africa, Senegal, the Democratic Republic of the Congo, Liberia, Lesotho and Uganda were some of the other contributors to Plaza Africa.

In a fashionable booth located at the heart of the plaza, Gabon was able to demonstrate the country's long-term commitment to future energy. The Republic's recent projects and inventions in regard to sustainable energy were showcased.

Plaza Africa concluded with a rich market that educated visitors on local goods produced in Africa, where Gabon was also represented.

IR IRAN

Being a pioneer in the field of energy, the Islamic Republic of Iran had a strong presence in the exhibition. The pavilion demonstrated the country's rich past, bright present and promising future.

In the first section, guests were able to witness some of the country's history, as well as its recent energy innovations. This was presented through a path paved by large high-definition video screens.

The basic elements of energy were presented in the second section, focusing on the last element — the human one — as the most significant source of energy.

In the concluding section of the pavilion, Iranian handcrafts were displayed, including handmade carpets.

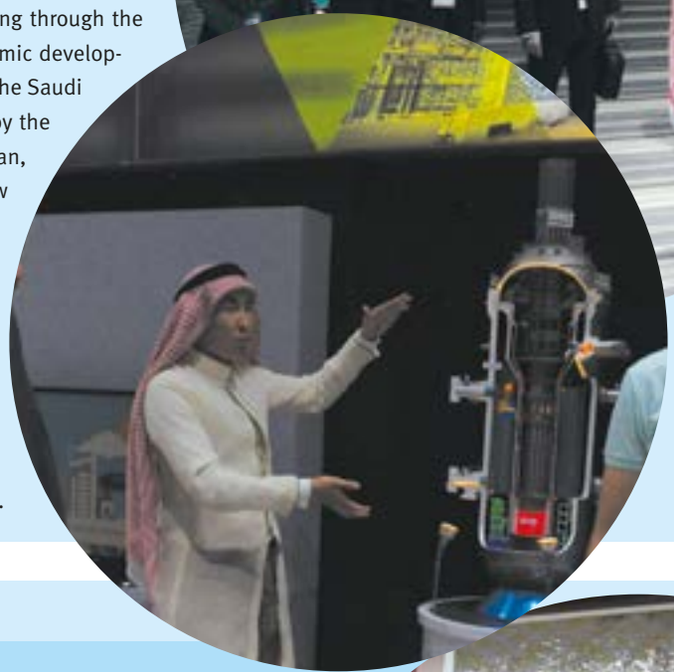
SAUDI ARABIA

In the pavilion of Saudi Arabia, guests took a journey exploring the various stages of the Kingdom's deep-rooted heritage. They also could learn about the OPEC Member Country's booming economy and its ingredients for success. A special focus was also given to the role of human development.

Vision 2030 was also presented in a tranquil setting through the use of large screens. The Vision is an ambitious economic development plan, which was launched in April of last year by the Saudi Monarch, King Salman Bin Abdulaziz, and presented by the newly-appointed Crown Prince, Mohammad bin Salman, aiming to diversify the national economy and find new means of steady income.

In the final section of the pavilion, the public was introduced to traditional Saudi clothing for men and women, which they also had a chance to try on.

Khalid A Al-Falih, who is the Kingdom's Minister of Energy, Industry and Mineral Resources and President of the OPEC Conference for 2017, praised the participation of his country in Expo 2017, saying it reflected the nation's drive to develop and utilize sustainable energy.



QATAR

Qatar, which is small in size yet rich in culture and resources, was also present at the global exposition.

The pavilion began by presenting costumes, old artefacts and traditions of the Gulf state. A musician was also regularly present at the entrance of the pavilion welcoming the public with traditional music of Qatar and the Gulf region.

In a later section, visitors were introduced to Qatar's newest energy inventions and programmes, which were presented through high-tech interactive technology, such as touch-screen monitors, large wall monitors and virtual reality.

A dedicated corner for Arabic calligraphy and traditional Henna was a very popular attraction among locals, as well as international visitors.

UNITED ARAB EMIRATES

Enjoying global popularity for being an innovator and pioneer in the field of technology, the UAE fulfilled all expectations through an efficient and effective implementation of modern and leading technology in every section of its pavilion.

Throughout Expo 2017, the virtual host "Reem" welcomed guests of the Emirati pavilion. She also took them on a tour through the first segment of the pavilion. Additionally, nationals of the Gulf state were regularly present in their traditional clothing, extending the well-known cordial hospitality of the UAE.

A short film emphasizing the bright future of country's energy industry was then displayed, which covered a wide range of energy-related projects, including Masdar City, a hub for renewable energy located just outside Abu Dhabi.

In the pavilion's last section, visitors were introduced to the key preparations being undertaken by Dubai to host the universal exposition — Expo 2020 Dubai.

VENEZUELA

The pavilion of the Bolivarian Republic of Venezuela provided guests with an extensive presentation on its petroleum, mining and industry sectors.

Cultural artefacts, as well as traditional clothing and music, were presented in a stylish manner to the public. The pavilion also actively exhibited the country's rich heritage.

AUSTRIA

The host country of the OPEC Secretariat, Austria, was one of many European participants at Expo 2017.

Embracing the soul of youth, the Austrian pavilion consisted of a creative and innovative playground, targeting younger members of the public, as well as the young at heart. The various featured games aimed to illustrate to visitors a number of simple, yet advanced and feasible, mechanisms to generate clean energy.

The pavilion also proudly featured the top 25 Austrian companies that have introduced unique and unconventional inventions that are based on renewable energy sources.

After the Expo, conference facilities will become the economic centre of Astana.

A view of Astana, the capital and second largest city of Kazakhstan, host city of Expo 2017.

Expo 2017: a rich legacy for Kazakhstan

Since it became the capital of Kazakhstan in 1997, the rise of Astana has been remarkable. Expo 2017 caps an extraordinary decade of accommodating large international events in the city. The *OPEC Bulletin* explores what hosting this mega event means for the country and the legacy it will leave.

The officials organizing Expo 2017 had to operate within the parameters of a Specialized Exposition as defined by the Bureau International des Expositions (BIE). Specialized Expos, as we know them today, were established in 1988. They are global events dedicated to finding solutions to particular challenges of humanity, such as ocean preservation, as was the case in Expo Yeosu 2012, or the future of energy in Astana. The entertainment and intellectual aspects of a Specialized Expo replicate that of World Expos, however, the event is smaller in size and participant countries or organizations do not build their own pavilions, but rather customize space provided by the organizer. This enables the organizer to maximize the number of countries who participate in an Expo.

State of the art facilities

Expo 2017 spanned an area of 174 hectares, with the exhibition space taking up 25 hectares, as prescribed by the BIE. The Expo site encompassed the National Pavilion of Kazakhstan, the Museum of Future Energy, the Energy Best Practices Area, international, themed and corporate pavilions, as well as trade and entertainment facilities. The non-exhibition area featured a conference centre, a press centre, an indoor city, residential buildings and hotels.

The centrepiece of the Expo site was the eight-story sphere, *Nur Alem,* which is the world's largest spherical building with an 80-metre width and a height of 100 m. Environmentally friendly, the

structure is powered by a photovoltaic system and two noiseless wind turbines, and its design ensures reduced power consumption from the grid.

The National Pavilion of Kazakhstan, located in a 5,000 square metre area at the base of the sphere, was divided into two zones: 'Insight into Kazakhstan' and 'Creative Energy'. The upper floors housed the Museum of Future Energy, which informed visitors about different sources of energy and featured an exhibition on Astana's future.

An indelible mark on the city

Two thematic pavilions explored 'Future Energy' through interactive and educational displays. The first provided a fascinating overview of the evolution of the energy industry and the latest technological innovations, including smart grids and smart cities. The second thematic pavilion showcased the diverse interactions of humankind with different energy sources. A further defining feature of Expo 2017 was the 'Energy Best Practices Area'. Here, selected technologies, projects and policies from various areas of sustainable energy management were displayed to the public.

Following the Expo, the site will be utilized for the creation of a hub for research and innovative thinking. The Expo buildings will be transformed in this regard, as the area becomes the new economic centre of the city. Other parts of the site will be used as a science and technology park, a cultural complex, residential and commercial areas and 40 hectares of green and leisure space.

The Astana Expo 2017 National Company

Organizing and conducting the world fair was the responsibility of the Astana Expo 2017 National Company, which was created following a legislative act of the Government of Kazakhstan in 2013. Ilya Urazakov, Director of the International Participants Department in the National Company, told the *OPEC Bulletin* that the company's other responsibilities included attracting investment for the construction of Expo 2017 facilities and infrastructure.

It has been a hectic decade for Astana as the city also hosted the first OSCE summit in 11 years in 2010, as well as the 2011 Asian Winter Games and the 2015 World Sprint Speed Skating Championships. As visitor numbers to the city have increased because of these events and the Expo, Urazakov says the city is well positioned to host future events.

"More people will see the area for the first time. We hope they can take with them wonderful memories from the city," he explains. "Astana is getting more and more experience with such events and we hope this will continue."

He added that the outstanding friendliness of the people has been hugely important in ensuring such events run smoothly.

Ilya Urazakov (l), Director of the International Participants Department in the Astana Expo 2017 National Company, with the OPEC Bulletin's *Mathew Quinn.*

"We have been delighted by all the efforts of our staff and volunteers who have embraced the Expo spirit," said Urazakov.

Delighted visitors

Visitor numbers were another impressive aspect of Expo 2017, with 3.9 million people visiting the exposition between June 10 and September 10. Young people and children particularly enjoyed the fun and interactive aspects of many displays.

It was also important that the host country truly believed in the Expo theme of Future Energy.

"We would like Astana to be a leader in the field of sustainable technologies and innovation," said Urazakov.

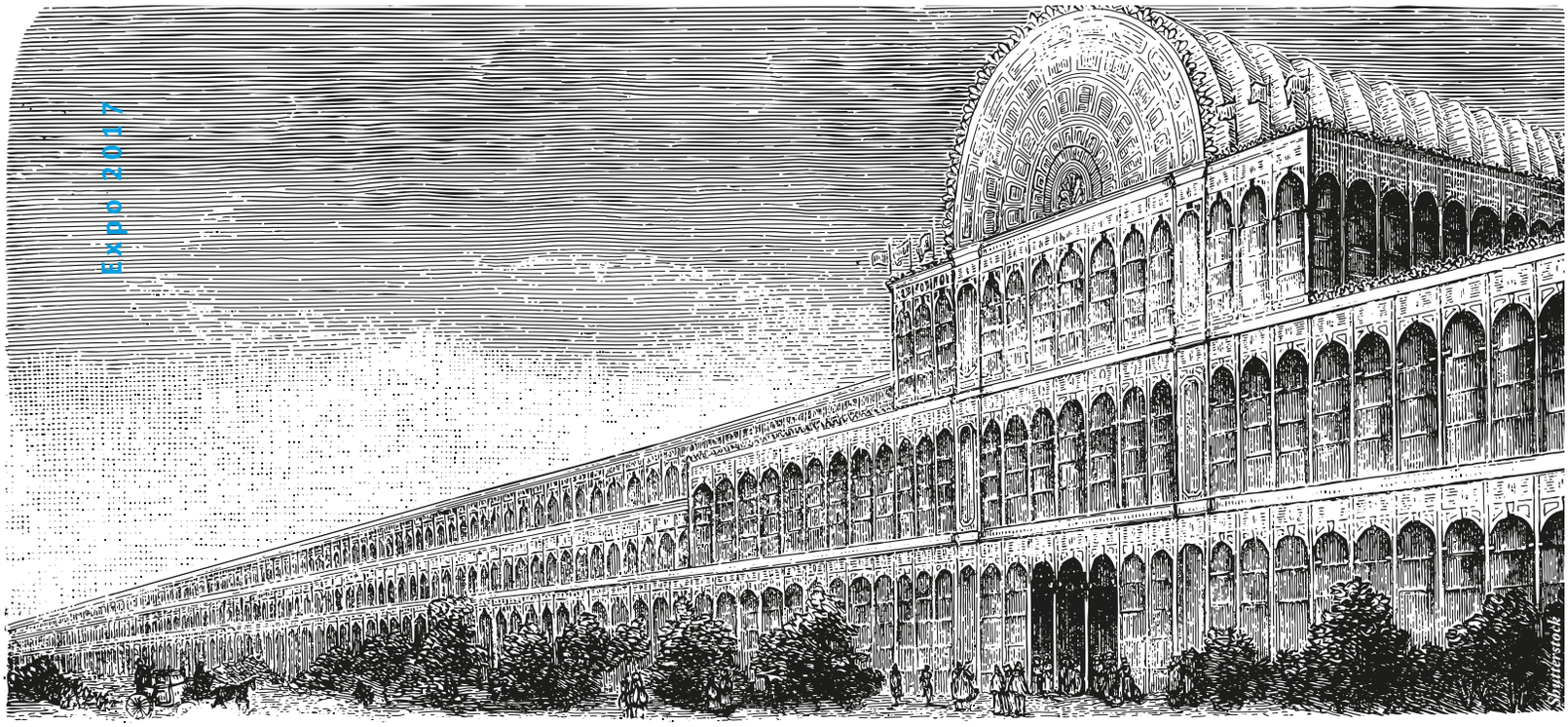
In order to have as open a discussion about this as possible, Urazakov said that the Expo organizers were inclusive in who they invited to participate at the Expo, and hence OPEC's participation.

"We knew we could not have a holistic conversation about future energy without inviting the appropriate experts. This was particularly true with the international organizations we invited," he said. "We wanted them to contribute to our Expo discussions by providing their expertise and specialized knowledge."

The international pavilion reflects this broad mindedness and inclusiveness.

"Oil and gas have an important role to play in our future energy mix. That is why we invited experts from OPEC. Also, our country's relationship with OPEC is very productive," he added.

When asked about the next event that Astana will host, Urazakov smiled. "For now, we are focused on the successful completion of the Expo. But who knows. We hope many more will have a positive experience with Astana."



London Expo 1851.

From the Crystal Palace to Astana 2017: a brief history of world fairs

What links the Eiffel Tower in Paris, the Crystal Palace in London, the Seattle Space Needle and the first public display of the telephone with OPEC's 'Special Day' held in Astana on September 4, 2017? The answer is that they have all featured at world fairs, world exhibitions or universal exhibitions (often abbreviated to expo), in a tradition heralding back to 1851. The OPEC Bulletin's Mathew Quinn provides a brief overview of the development of Expos and the mark they have made in world history.

Vienna Expo 1873.

Expo 2017 in Astana may be the first time OPEC has officially participated at a Specialized or World Expo, but staff at the OPEC Secretariat in Vienna encounter the legacy of a predecessor to the Astana event every day on their way to work. The World Exhibition in Vienna took place from May 1 to October 31, 1873. Vienna, like many of the cities that have hosted an Expo, wanted to showcase its economic success and industrial achievement. The event, the bulk of which was staged at the Prater, the city's largest park, was a huge success for the Austro-Hungarian Empire. It boosted the renovation of the city, along with the ongoing reconstruction of the ring road and city centre, architectural feats which staff and visitors to the Secretariat can enjoy on their lunch breaks.

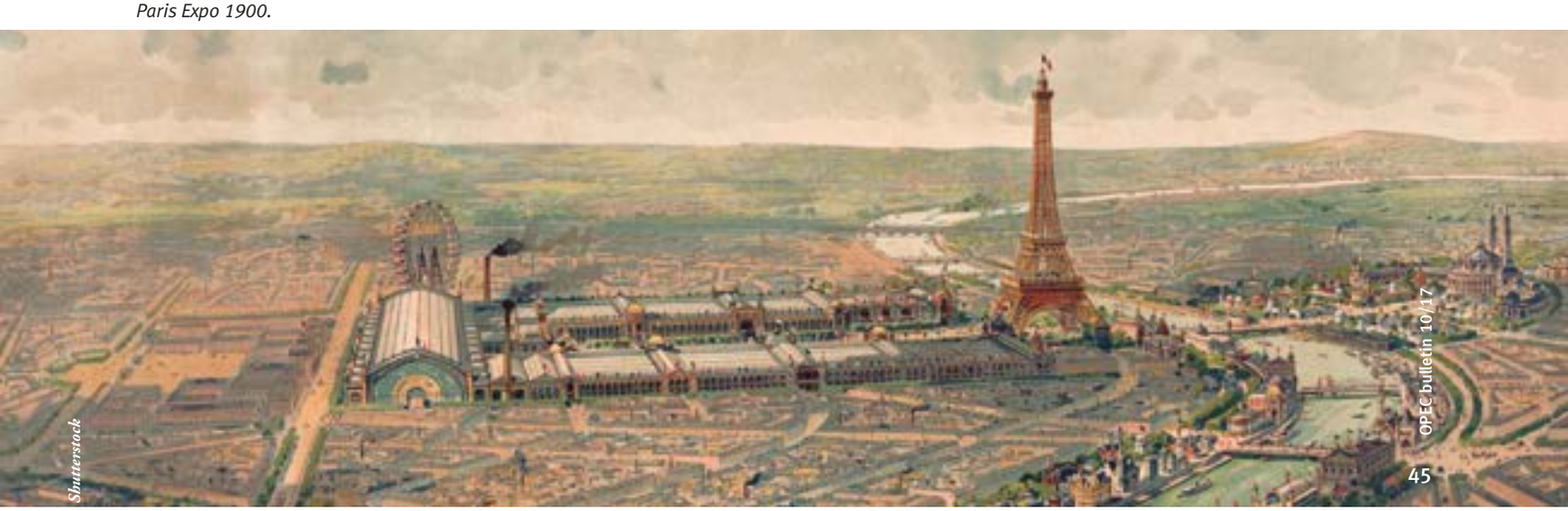
The Vienna World Fair was the fifth official world exhibition and the first outside Paris or London. What exactly are these events and what makes them official? An Expo is a global event that seeks to educate the public, share innovation, promote progress and foster cooperation. It is organized by a host country that invites other countries, companies, international organizations, the private sector, civil society and the general public to participate.

The Bureau International des Expositions

In 1928, *The Convention Relating to International Exhibitions* came into force, which established the *Bureau International des Expositions (BIE)*. This intergovernmental organization serves as the international sanctioning body for world fairs. The BIE approves three types of fairs, namely, universal, horticultural and specialized.

Architectural legacy of past Expos: the Eiffel Tower, Seattle Space Needle and Crystal Palace.

Paris Expo 1900.



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The Unisphere, symbol of the New York 1964–65 World's Fair.

Tower of the Sun pavilion at Japan's World Fair 1970.

Astana 2017 is classified as a specialized exhibition, focusing on the future of energy. The BIE currently has 170 Member Countries.

The impact of Expos on history is seen by the fact that technology, which we take for granted in daily life, debuted at one world fair or another. The telephone had its first public showing in Philadelphia in 1876; the diesel engine debuted in Paris in 1900; the x-ray machine in Buffalo, New York in 1901; the electric outlet, also known as the plug and socket, in 1904, in St Louis; commercial broadcast television in 1939 in New York; videoconferencing in New York in 1964; IMAX cinema in Osaka, Japan in 1970; and touchscreens in 1982 in Knoxville, Tennessee.

Three historical eras of expositions

Historians of World Expos categorize three eras over the past 160 years: the era of industrialization; the era of cultural exchange and the era of nation branding. Expos from 1851 to the middle of the 20th century constitute the first of the three eras. They were influenced by industrial and colonial attitudes of the time.

Following the Second World War, the fascination with

Historical impressions from the Astana exhibition.

Visitors enjoy exploring the 'History of Expos' pavilion.

material progress subsided as greater emphasis was put on the promotion of human progress and international dialogue. As the BIE explains: "By creating a peaceful discussion platform, Expos started contributing to the global dialogue and fostering cooperation, namely with Montreal 1967 and Osaka 1970 that facilitated the *détente* of the early 1970s during the Cold War."

A concurrent development was decolonization, meaning more countries were becoming involved in Expos. The number of participating countries increased from 39 in Brussels in 1958, to 62 in Montreal in 1967, 78 in Osaka in 1970, 109 in Seville 1992, 155 in Hannover 2000 and 193 in Shanghai 2010. The BIE states: "Today, Expos have become a showcase for cultural diversity based on equality and respect for all cultures."

Sustainable development and addressing the issues of our time have characterized the third era of Expos since 2000. By facilitating a unique forum for cooperation and discussion, Expos seek "to be instruments of progress in all areas linked to sustainable and human development such as the environment, energy, health or education."

OPEC is proud to participate in Expo 2017, hosted by one of our non-OPEC oil producing partner countries, Kazakhstan. The question which our Kazakh hosts have posed is, "How do we ensure safe and sustainable access to energy for all while reducing CO_2 emissions?" OPEC and its Member Countries have important contributions to make in answering that question.

Expo 2020 Dubai

In fact, an OPEC Member Country, the UAE, will host an official Expo for the first time in 2020. The theme of that Expo will be 'Connecting minds, creating the future', with sub-themes being sustainability, mobility and opportunity.

When Queen Victoria opened the first world fair in 1851, who could have anticipated the enduring appeal or the evolving nature of world fairs, which would culminate in the Astana event. As the focus has shifted from Victorian sensibilities of celebrating technological triumph to today's concern with developing innovations that can solve the challenges of our time, who knows what the next revolutionary invention to be showcased could be.

OPEC's participation at Expo 2017 in Astana underpins its ongoing efforts to bring together the world's energy stakeholders to promote cooperation, dialogue and stability. Now, in just three years, OPEC will look forward to celebrating a momentous occasion when all eyes will shift to the United Arab Emirates as it welcomes the world to its country for the World Expo of 2020.

IR Iran announces launch of three major petrochemical projects

September saw the 11th edition of IR Iran's biggest polymer and plastics exhibition take place in Tehran, an event known as Iran Plast. A total of 1,124 companies from 24 countries will participate at the exhibition.

The opening ceremony was attended by IR Iran's First Vice President, Eshaq Jahangiri; Minister of Petroleum, Eng Bijan Namdar Zanganeh; and the Managing Director of the National Petrochemical Company (NPC), Marziyeh Shahdaei.

Eng Bijan Namdar Zanganeh, Iranian Minister of Petroleum.

Minister Zanganeh used his opening remarks to announce the launch of three major petrochemical projects by the end of the current Iranian calendar year, March 20, 2018. As part of these efforts, Phase III of the Pardis and Bushehr petrochemical projects will come online. It is expected that when these projects become operational, they will contribute an additional 5.5 million tonnes to IR Iran's annual petrochemical production capacity.

IR Iran has been particularly active in recent years in the field of petrochemicals, launching several new projects, including the Lorestan, Urmia, Mahabad, Karoon, Morvarid, Kavian, Entekhab and Takht Jamshid projects. Over the last year, three polyethylene facilities have been launched, which provide one million tonnes per year of production capacity.

Iran Plast is one of the largest and most consequential exhibitions in IR Iran, covering the fields of raw materials, machinery and moulding, as well as services for the plastic and rubber industries.

The exhibition itself is segmented into four sections, namely, raw materials, end-use items, semi-constructed items and machinery/services. The aim of the event is to allow companies and organizations to gather under one roof in order to exchange their scientific and technical knowledge.

Since the initial event in 2002, Iran Plast has grown exponentially every year. More than 4,000 Iranian and international companies have participated in the event over its 11 editions. The first five sessions of Iran Plast were held annually, however, following the sixth session, it became a biannual affair. This year's exhibitors hail from countries as diverse as Belgium, Denmark, Germany, Finland, France, Greece, India, Serbia, Italy, South Korea, Austria, Luxembourg, Switzerland, Spain, the United Kingdom, Thailand, the Czech Republic, Cyprus, Turkey, Taiwan, China, Japan and the United Arab Emirates.

Qatar and Bangladesh sign LNG supply agreement

Dr Mohammed Bin Saleh Al-Sada, Qatar's Minister of Energy and Industry.

In a bid to address a domestic supply gap in power generation, the People's Republic of Bangladesh has signed a deal with Qatar's RasGas Co to import LNG starting in 2018 for a period of 15 years.

In a ceremony attended by Dr Mohammed Bin Saleh Al-Sada, Qatar's Minister of Energy and Industry, and his Bangladeshi counterpart, Nasrul Hamid, State Minister of the Ministry of Power, Energy and Mineral Resources, the agreement was signed in Doha by RasGas CEO, Hamrad Mubarak Al Muhannadi, and Chairman of Petrobangla, the Bangladeshi national oil company, Abdul Mansur Md Faizullah.

At the event, Al Muhannadi outlined the size and duration of the agreement, under which RasGas will provide 2.5 million tonnes of LNG per annum to Petrobangla for 15 years. The deal will also encompass RasGas' first long-term contract delivered to a floating storage and regasification unit (FSRU), specifically the FSRU near Moheshkhali Island in Bangladesh.

The agreement reaffirms Qatar's ongoing commitment to ensuring energy security to its customers in Asia, as well as its position as a dependable supplier of LNG. Minister Al-Sada also emphasized the strong economic, political and cultural ties that exist between Qatar and Bangladesh.

The agreement also cements South Asia's status as an emerging hotspot for LNG. Bangladesh will join India and Pakistan as major LNG consumers and help ameliorate oversupply problems, which have dogged the industry for years.

Minister Hamid said that Bangladesh, which has a population of more than 160 million people, is set to import as much as 17.5m t of LNG a year by 2025. In its efforts to benefit from the currently cheap and plentiful global supply of LNG, Bangladesh plans to invest heavily in importing the fuel.

LNG loading arms loading/discharging LNG cargo on liquefied natural gas tanker.

Saudi Arabia demonstrates long-term commitment to renewable energy

The Kingdom of Saudi Arabia has taken another significant step in expanding its portfolio in the field of renewable energy. The Kingdom is set to surpass its current target to produce more than 9.5 gigawatts of electricity from renewable sources by 2023.

Khalid A Al-Falih, Saudi Arabia's Minister of Energy, Industry and Mineral Resources, and President of the OPEC Conference.

In recent comments, Turki Al-Shehri, Head of the Renewable Energy Project Development Office in the Ministry of Energy, Industry and Mineral Resources, highlighted the Ministry's new plan to exceed the existing targets.

He further commented at the leading Sino-Saudi Investment Forum, which took place last month in Jeddah: "The whole idea of this is to give investors a sense of comfort that the Kingdom has a long-term vision for renewable energy," according to a report carried by *Reuters*.

In a concrete attempt to diversify the Kingdom's energy mix, Khalid A Al-Falih, the nation's Minister of Energy, Industry and Mineral Resources, and President of the OPEC Conference, launched last April in Riyadh a sizeable scheme that focuses on renewables as an important source of energy and the need for a change in the domestic energy market.

"The energy mix to produce electricity will change; today, the Kingdom uses large quantities of oil liquids, including crude, fuel oil and diesel," the Minister said. He also proclaimed that a significant bidding process for a 300-megawatt solar power project will kick off by 2018–19.

Under the leadership of King Salman Bin Abdulaziz, the Custodian of the Two Holy Mosques, the nation has undertaken a number of socio-economic developments.

Vision 2030

In April 2016, the Kingdom's Crown Prince and Minister of Defence, Mohammed bin Salman, presented Vision 2030, an aspiring roadmap that aims to eliminate the country's dependence on oil, diversify its source of income and create a stable and competitive national economy.

In the first quarter of 2017, a number of reports revealed the country's intention to invest a significant $50 billion in the renewable energy sector.

ADNOC to triple petrochemical production by 2025

According to a senior executive with the Abu Dhabi National Oil Company (ADNOC), the company intends to increase its refining capacity, triple petrochemical production by 2025 and double its gasoline output in five years.

The manager of ADNOC's refining and petrochemical business unit, Abdulla Al Messabi, said that the company would increase its downstream investments with the addition of a new world-scale refinery and mixed-feed cracker.

Speaking at the Abu Dhabi International Downstream Conference in September, Al Messabi added: "In the coming months, we will further open our downstream business to create new investment and partnership opportunities across our portfolio of refinery and petrochemical assets. These new ventures will bring in partners to improve integration, realize synergies and expand both our technological capability and output to meet the rising global demand for petrochemical products."

ADNOC's 2030 strategy is to maximize volume across the board, which involves developing new, high-value petrochemical products to meet growing worldwide demand. The current output of the company's petrochemicals and higher volume products is 4.5 million tonnes per year (t/y), and ADNOC foresees this increasing to 11.4m t/y by 2025.

Low oil prices and growing population demand in Asia is redefining the downstream sector in the Middle East. The UAE is well placed to develop the industry due to the combination of integration and limited feedstock.

Andrew Spears, Vice-President of energy consultancy Nexant Chemsystems, reflected on the opportunity for the region, saying that petrochemical facilities are capital intensive, with world-scale crackers producing a full-range of derivative products amounting to $5 billion.

"You're needing a few of these every year, so the industry invests tens of billions of dollars every year," he added.

Conference participants noted the importance of partnerships in driving investment in the downstream sector. International partnerships have been successfully formed by the region's refiners and petrochemical producers to deliver downstream ventures, thereby adding value to oil and gas resources and driving growth in the sector over the past two decades. ADNOC has previously worked with Vienna-based Borealis to form Borouge, a manufacturer of polyolefins, and this was cited as a good example of a strong and innovative partnership.

ADNOC intends to increase its refining capacity to triple its petrochemical production by 2025.

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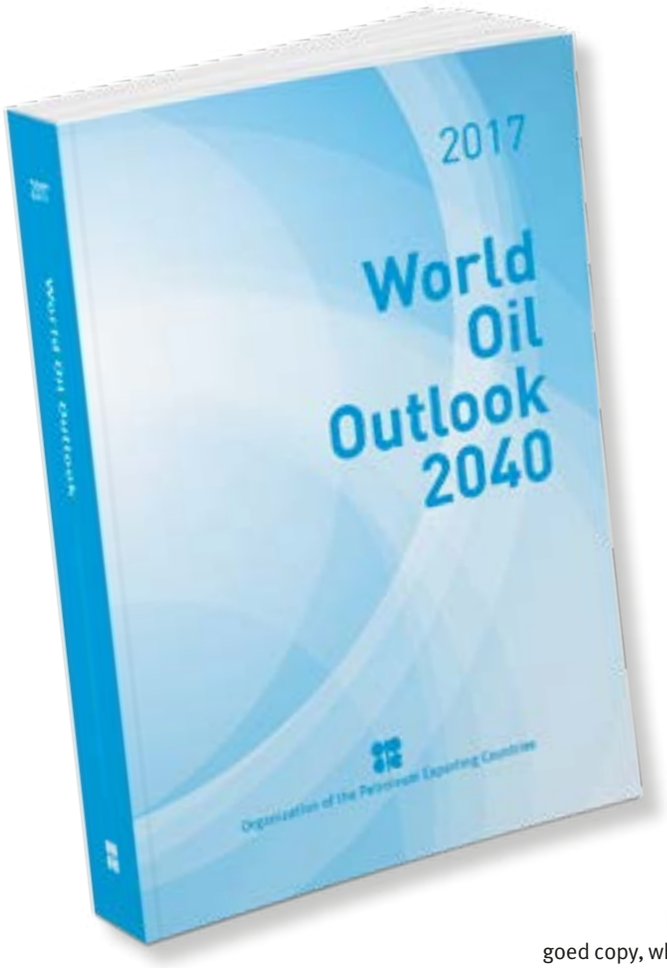
OPEC's World Oil Outlook to be launched on November 7



The *2017 OPEC World Oil Outlook (WOO)* will be presented at a press conference to be held at the OPEC Secretariat on November 7, 2017.

OPEC's Secretary General, Mohammad Sanusi Barkindo, and senior members of management will present the key messages from the publication, which provides an in-depth review and analysis of the global oil industry, and offers a thorough assessment of various sensitivity cases related to the economy, and supply and demand trends in the medium- and long-term.

For the third year in a row, a comprehensive interactive version of the WOO will also be made available. More details on this will be provided when the publication is launched.

The Secretary General, senior management and other OPEC staff will be available after the presentations to answer questions.

First published in 2007, the WOO provides expert analysis of the many challenges and opportunities facing the global oil industry. It serves as an important reference tool, providing insights into the upstream and downstream, as well as issues related to costs, investments, and the potential impact of policies and new technologies. Alongside the *Annual Statistical Bulletin,* it is one of OPEC's flagship annual publications.

Media and analysts requiring a copy of the WOO prior to the scheduled press conference may request a 48-hour embargoed copy, which will be made available on November 5 at 14:30 CET. To request an embargoed copy, please email: webeditor@opec.org.

Journalists and analysts who would like to attend the press conference are requested to visit the OPEC website for accreditation: www.opec.org/opec_web/en/press_room/309.htm.

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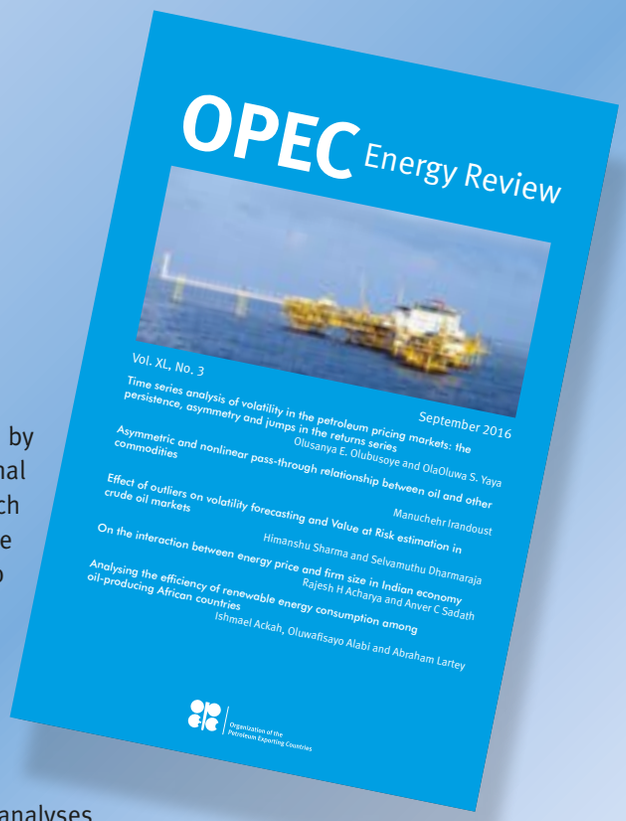


The OPEC Energy Review is a quarterly energy research journal published by the OPEC Secretariat in Vienna. Each issue consists of a selection of original well-researched papers on the global energy industry and related topics, such as sustainable development and the environment. The principal aim of 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)*.

Lovely Isfahan is 'Half the world'

In a country as rich and ancient as IR Iran and boasting a colourful palette of historical wonders, the city of Isfahan stands out as a living museum, with the most number of UNESCO World Heritage sites in the country. One could spend a lifetime exploring and uncovering the city's incredible history and culture.

By Maureen MacNeill in Isfahan

Interior ceiling of Sheikh Lotfollah Mosque.

Some know it as the 'City of Turquoise Domes' for its spectacular mosques. Others refer to it as 'Half the World' due to its strategic location as an important military centre in ancient Persia, its spectacular sites and its handicrafts. Regardless, words don't do Isfahan justice.

Its name may derive from the Pahlavi language 'Aspahan' meaning 'place of the army'. The city was later chosen to be the capital of the Safavid (1501–1736) dynasty and became a place where cultures and nationalities met and merged.

Isfahan experienced its golden age during the 17th century, when it was regarded as bigger than London, more cosmopolitan than Paris and grander than fabled Istanbul.

In 1598, when Shah Abbas I (1571–1629) decided to move the capital of his empire from the north-western city of Qazvin to the central city of Isfahan, he began what would become one of the greatest transformations in the country's history: the complete remaking of this ancient city.

The Shah Mosque is regarded as one of the masterpieces of Persian architecture.

The chief architect of this colossal task of urban planning was Sheikh Bahai, and he focused his undertakings on two key features of Shah Abbas's master plan: Chahar Bagh Avenue, featuring all the prominent institutions of the city and the Emam Sq Naghsh e Jahan square.

As a result of these efforts, Isfahan's stunning mosques still today sparkle like diamonds along the former Silk Road, home to the magical place where Islamic architecture achieved excellence and influenced the design of mosques throughout Asia.

Landing at the airport at night is like entering another dimension, peaceful and clean with a warm breeze flowing softly by, a full moon lighting a dome of intricate design in the background and reflected back by the shiny stones of the sidewalk.

The streets in town on the way to the hotel do not feature the frantic traffic that defines Tehran, but are rather slow and relaxed by comparison. Trees line both sides of the main streets, making for endless natural canopies, and the sidewalks are dotted with tiny shops lit by flickering neon lights.

Magnificent caravanserais

Over the period of his reign, Shah Abbas built 999 caravanserais (defined as an inn with a central courtyard for travellers in the desert regions of Asia or North Africa) throughout the country. One of these is said to be the 300-year-old Abbasi Hotel, with its movie set-like otherworldliness, where my Iranian travelling companion, Mrs Abbasi (the name is a coincidence) and I were fortunate enough to stay.

Upon setting foot in the ancient courtyard, with its enormous date trees and polished flagstones, myriad green bushes and hidden tables among gurgling fountains, one is transported into the past. Foreigners and Iranians lounge around on pillows drinking tea with *Poolaki* (sugar and saffron wafers) and eating fat, juicy dates in the outdoor tea house. Even though it is nearly 1 am, young children still run around, laughing and chasing each other.

Everything is spectacular inside, from delicate, traditional artworks to finely carved railings and staircases. The hotel staff are dressed in the classical garb of times long past, reinforcing the movie set feel.

Dignitaries, celebrities and movie stars from around the world have stayed at this famous hotel, which boasts all the magnificence of a palace.

"The people of Isfahan live in a museum," says the head of protocol at the Isfahan Refinery, who picked us up at the airport. Aliakbar Mahtabinia (whose name fittingly means 'moonlight'), is also an artist, a poet and an enthusiastic guide of Isfahan from the perspective of a native who has loved the city all his life.

Mahtabinia shines in his extracurricular role, being a natural storyteller, bright of eye and quick of wit, with a permanent, playful smile hovering on his mouth. He sees the story behind the story, and is eager to share his tales of an ancient city in an ancient land.

Emam Sq Naghsh e Jahan square

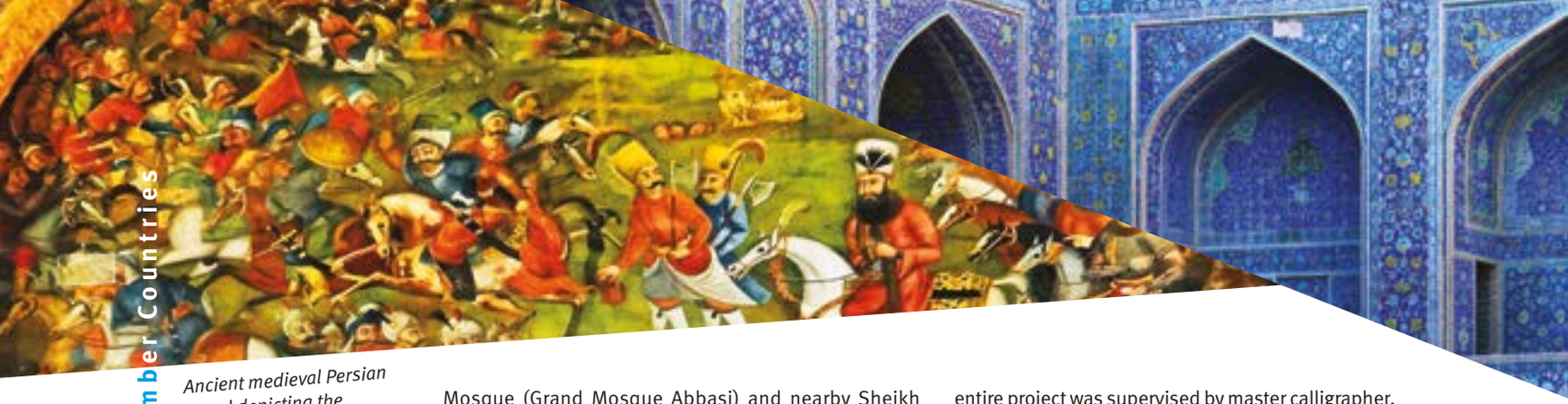
The cornerstone of Isfahan is Emam Sq Naghsh e Jahan square, Isfahan's main town square and the second-biggest square (after Tiananman Square in China) in the world with an area of 89,600 square metres.

Classified as a UNESCO World Heritage Site, along with the buildings that run along it, the square hosts one of the oldest mosques in the world as its masterpiece.

The square is unlike any place else in the world and was primarily the masterwork of the renowned architects of the Safavid era: Professor Mohammad Reza Esfahani and Ali Akbar Isfahani.

The most famous mosques in Iran — the Shah

Emam Sq Naghsh e Jahan square of Isfahan.



Ancient medieval Persian mural depicting the Battle of Chaldiran at the Chehel Sotoun Palace in Isfahan.

Mosque (Grand Mosque Abbasi) and nearby Sheikh Lotfollah Mosque — fill the eye with beauty. Shah Abbas's royal mansion, Ali Qapou, is more understated, but equally interesting. At the northern end of the square, the entrance area to the bazaar is adorned with dramatic scenes from the parties and wars of Shah Abbas (including the Uzbek war, when the Shah managed to lure the Uzbek army out of town by feigning a retreat. A bloody battle ensued on August 9, 1598).

The Ladies' Mosque (Sheikh Lotfollah Mosque) and Ali Qapou are across from each other, but closer to the Grand Mosque in order to provide the illusion of the square being even larger than it is.

The huge bazaar, where artisans still can be found pounding metal or painting tablecloths by hand using century-old techniques, wraps inside and between the walls of the square. It was the most luxurious and largest of the markets in the Safavid period, with precious fabrics galore and representatives from foreign companies doing brisk business.

The square itself — 510 m long and 160 m wide — is filled with locals enjoying their free time. Children run around playing and shrieking, while the families picnic on the grounds.

"The square's name comes from the joining of the whole economic centre of town, including mosque, school, palace and market, in one place. It means 'all the world is here'," states Mahtabinia.

Shah Mosque

Construction of the Shah Mosque began in 1611, and its splendour can be attributed primarily to the beauty of its seven-colour mosaic tiles and calligraphy. The blue colour is extraordinarily intense, and the immensity and intricacy of the patterns created by millions upon millions of hand-crafted tiles is absolutely awe inspiring.

Such is its prominence, that the mosque is featured on the back side of the Iranian 20,000 rial banknote.

The Shah rushed work on the mosque in order to have it completed within his lifetime, and it masterfully came to life under some of the best craftsmen in the country. The entire project was supervised by master calligrapher, Reza Abbasi. The mosque is 400 years old and not damaged by the sun or rain, according to Mahtabinia, due to the high-quality material and expert workmanship.

In front of the mosque is a former pool where one was meant to wash hands and face before entering the mosque to pray. The entrance or *iwan* (gateway) measures 27 m in height. When one looks up before entering the mosque, there is a spectacular semicircle entryway ceiling with 32 stalactite-like pockets, similar to 32 stars, each one meant to be reaching up to God. This was a distinct feature of Iranian Islamic architecture. The middle and largest 'star' is supposed to represent God.

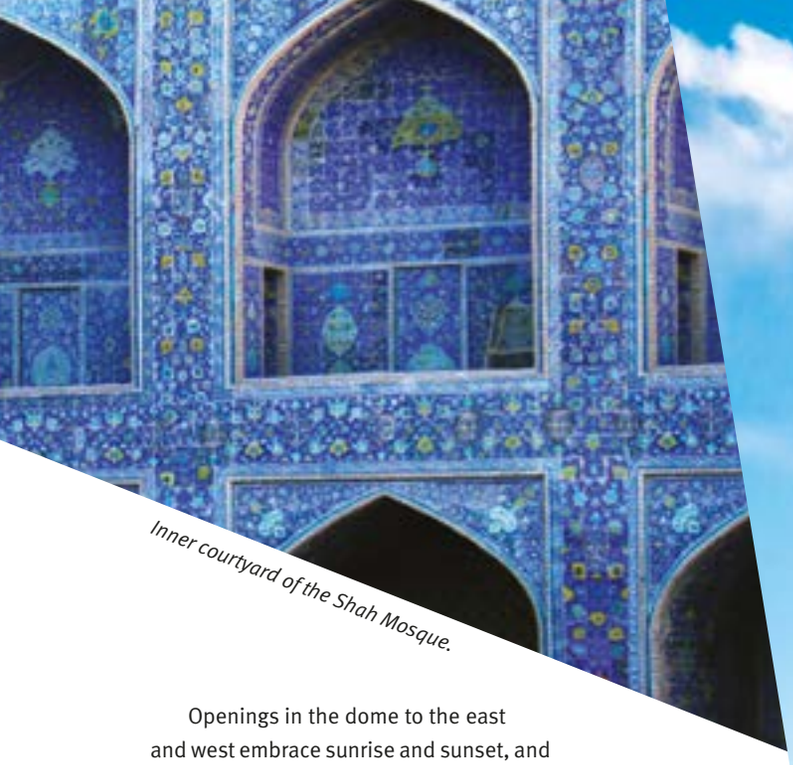
In his outspoken and funny way, Mahtabinia shares the secrets and stories of every stone and tile in the mosque, making it come alive. "It is the heart of Iran," he proudly states.

He claims this mosque is special because in every other place there are almost always two ways to enter, but here there is only one.

The handmade tiles are very small and are meant to be like a puzzle. Some walls have slightly larger tiles, measuring about 10 x 10 cm, because they are older, he explains. The blue and yellow colours of the tiles are meant to indicate nature and God, he adds. The multi-coloured marble in the mosque comes from the eastern part of the country.

The entry door is extremely thick and made of silver, which is cut graphically by hand and embroidered with old writing from the famous Iranian poet Saadi Shirazi. On one of the panels, visitors can see damage caused by an ancient Mongol attack at the end of the Safavid period, still visible in the form of holes in the door. "It was meant to be the door to paradise," states our ebullient guide.

Inside the mosque, Mahtabinia breaks into an old Iranian song on a unique flooring tile right in the middle of a huge dome with amazing acoustic properties, to the delight of the other visitors. The architects created the mosque so that the sound would echo seven times inside the dome, thus the prayer leader could speak quietly and still be heard clearly by everyone inside the building.



Inner courtyard of the Shah Mosque.

Openings in the dome to the east and west embrace sunrise and sunset, and one can tell the time by a moving beam of light, which tracks its way across the top of the dome. The prayer leader would stand inside a hole in the ground in the room to show himself equal, not above, the faithful, our guide explains. One corner of the dome room displays the only vase in the entire mosque with ornamentation.

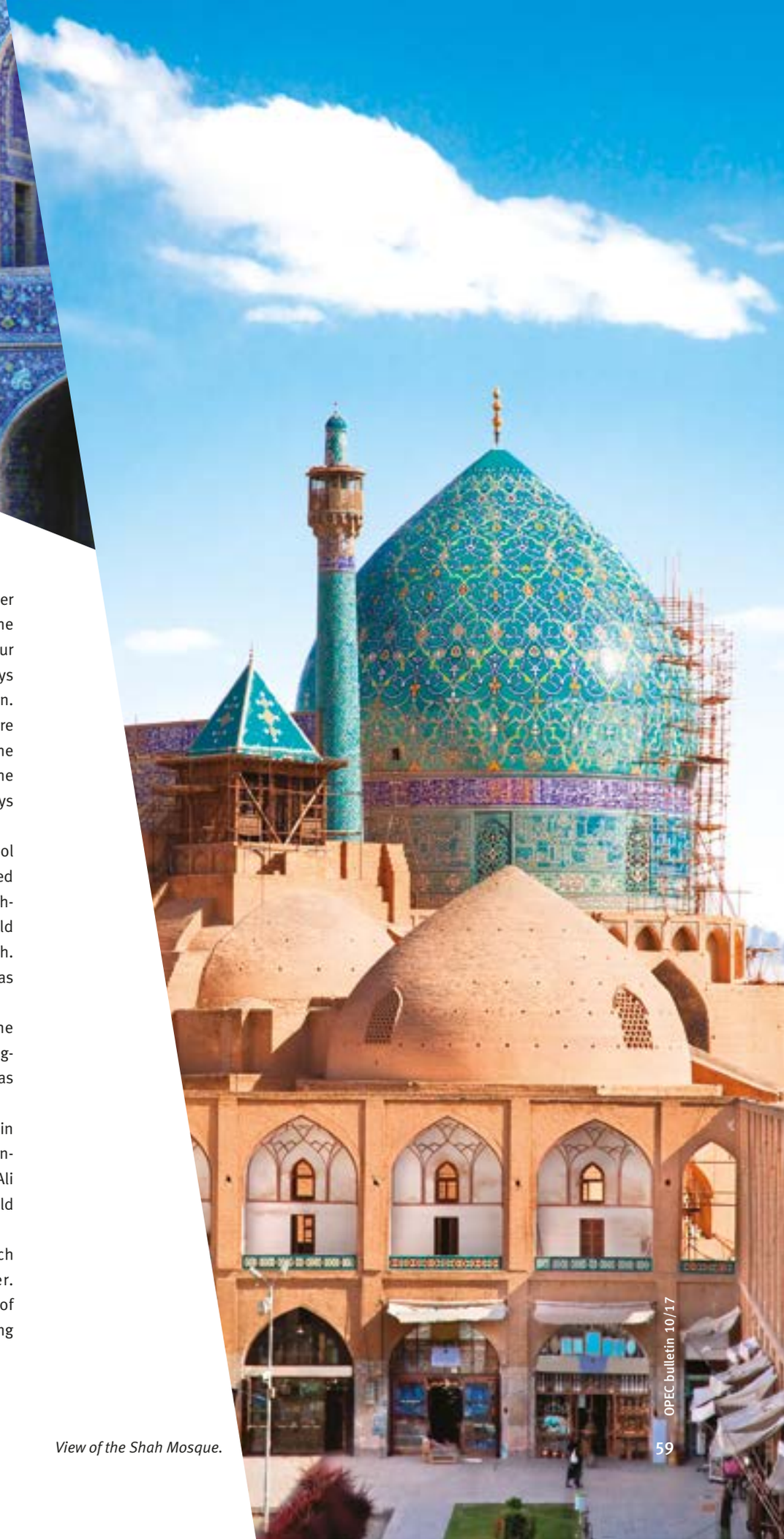
In a nearby room, one wall appears to have more yellow tiles than the rest of the building, the mark of the next Shah, who came 100 years after the Safavids. "The new Shah (Naseredin) wanted to make his mark," says Mahtabinia.

In a courtyard further on, home to the former school grounds, a small and unobtrusive 'time stone' is pointed out by Mahtabinia. It was designed by an Iranian mathematician, Sheikh Bahai. The triangular block would normally be unnoticeable, but is a masterpiece of math. Beside it stands a pot filled with water, which served as a public drinking station in its day.

It is one of Mahtabinia's favourite spots of the mosque. He used to sit here and paint 'with birds singing', he says through Mrs Abbasi, who is also acting as an interpreter.

The bottom of the mosque is made from mountain stone, signifying that "our religion is strong like a mountain," he continues. Verses are written into the tile by Ali Reza Abbasi, which are "so beautiful, nobody else could do it afterwards," claims Mahtabinia.

Another room features a turquoise floor, which appears to be the sky and sea coming together. Generally, the mosque creates a peaceful feeling of symmetry and beauty, which definitely begets a feeling of holiness.



View of the Shah Mosque.

Ali Qapou Palace.

Sheikh Lotfollah Mosque (Ladies' Mosque).

Ali Qapou Palace

The Great Persian Palace, or Persian Historical Music Room, Ali Qapou, is located on the western side of the main square, opposite of Sheikh Lotfollah Mosque. Its construction was delayed to 1624 AD because of parallel operations going on inside the square.

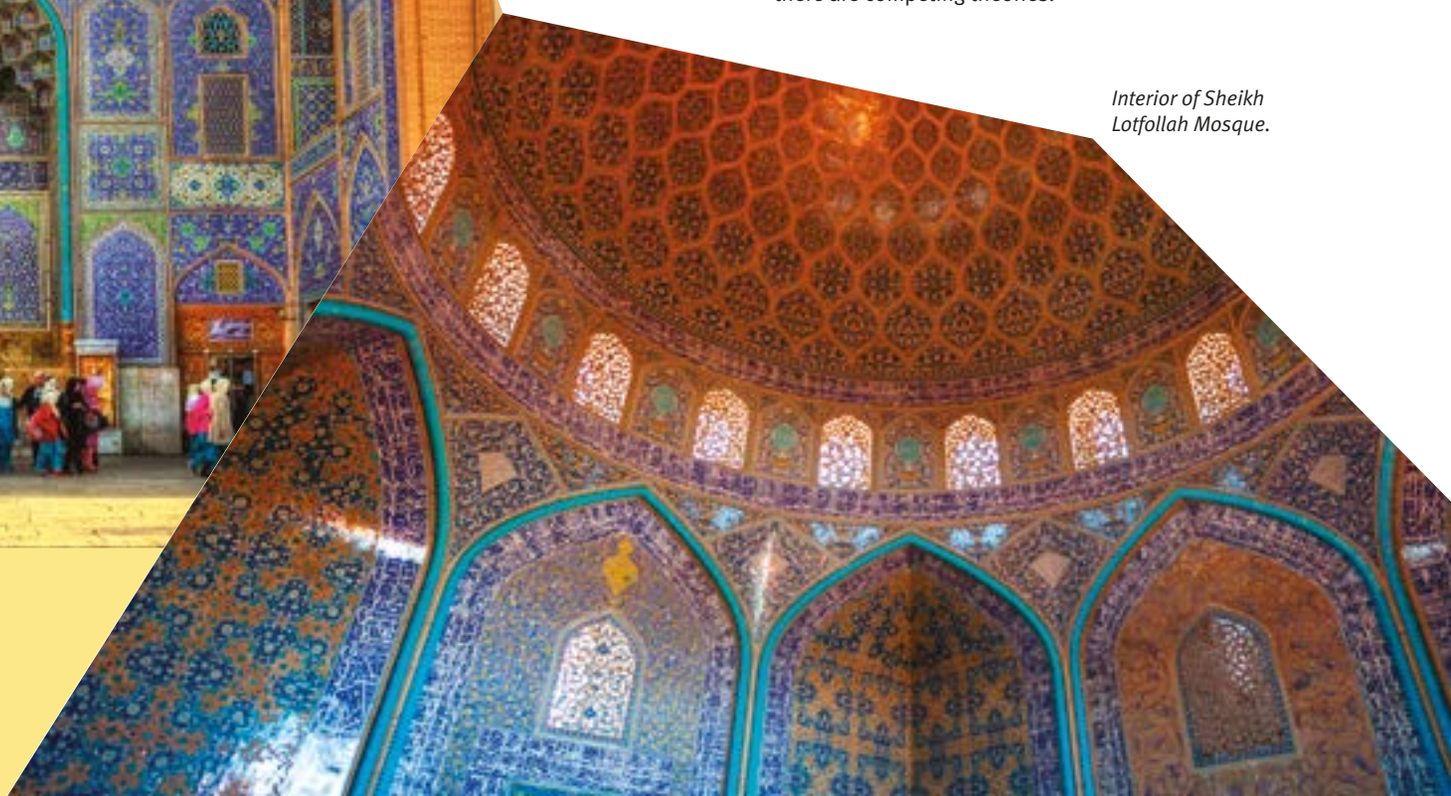
It is 48 m high and features six floors, each accessible by a spiral staircase, and each boasting its own decoration. The steep steps join various rooms, which were waiting rooms for those visiting the king. These are also paved with seven-coloured tiles, similar to those used in the Shah Mosque.

A style of painting in the building called *Koshteh Borie* uses various pigments in colours such as red, green, light blue and white.

On the top floor is an amazing music hall, with deep niches in the walls of various shapes reminiscent of bottles. These have both aesthetic and acoustic value. It was here that royal concerts were held.

The great veranda, with its overarching columns made of sycamore wood cut in octagonal form, overlooks the square and provided a perfect vantage point from which elite spectators could watch the polo matches favoured at the time by Shah Abbas.

There is also a 4 x 5 m pool covered with 79 copper sheets, which was filled by water from copper pipes. The copper may have been used for health purposes, though there are competing theories.



Interior of Sheikh Lotfollah Mosque.

Isfahan Grand Bazaar.

Sheikh Lotfollah Mosque (Ladies' Mosque)

The Sheikh Lotfollah Mosque, across from Ali Qapou, is understated compared to the Shah Mosque, but is also one of the architectural masterpieces of Iran built during the Safavid Empire. Its construction started in 1603 and was finished in 1619; it was rebuilt and repaired in the 1920s.

Of the four monuments that dominate the perimeter of the Emam Sq Naghsh e Jahan, this was the first to be built.

It was a private mosque of the royal court, unlike the Shah Mosque, which was meant for the public, and was used as a sacred place for the ladies of Shah Abbas's harem. Thus it does not have any minarets and is smaller, though its exquisite tile work outdoes that of the Shah Mosque. Few westerners at the time of the *Safavids* paid any attention to it, and none had access to it.

It was not until centuries later, when its doors were opened to the public, that ordinary people could admire the effort that Shah Abbas had put into its making.

To avoid having to walk across the square to get to the mosque, Shah Abbas had the architect build a tunnel spanning the plaza from Ali Qapou to the mosque. Upon reaching the entrance of the mosque, one would have to walk through a winding passage before finally entering the main building. This passage was lined with guards, there to protect the women of the harem. The design also aided in protecting against unwanted visitors entering the building.

Isfahan Grand Bazaar

The Grand Bazaar was originally constructed during the 11th century, but various arcades and rooms were later added to it. The present remnant dates from the *Safavid* period.

The Isfahan Bazaar is one of the oldest and largest bazaars in the Middle East, and is the longest roofed market in the world. The site has been destroyed several times, and the contemporary bazaar dates back to the 17th century. It is a vaulted, two-kilometre long thoroughfare linking the old city with the new.

The main entrance, called *Qeisarieh*, is also a UNESCO World Heritage Site and stretches through to the Friday mosque, Jameh Mosque, the oldest mosque in Isfahan, and one of the oldest in Iran.

The bazaar is a bustle of activity, with every type of traditional art and craft on display, many of them still being made inside the same tiny shops in the same way as they were hundreds of years earlier.

In one such shop, we meet an artisan who has spent his lifetime making table covers with traditional prints, taught by his father at the age of ten. One of his employees is rubbing a large wooden stamp on one of what appears to be two covered drums, one with cobalt blue and one with black paint. The pear wood stamp is about 180 years old and has been in Reza Sedighifard's family for four generations.

Only natural colours are used, he says, from the likes of pomegranate, saffron, indigo and henna.

The colour-saturated blocks are carefully placed on the cotton to make a seamless connection in the pattern, and they are then painted in by hand. When the pieces are finished, they are washed in the river, because this fixes the colour nicely, explains the owner. He then steams 20 pieces at a time, four times, for two hours each to fix the colour.

The business itself has UNESCO heritage artisan designation and often receives famous people brought by the government, according to the proud owner.

Reza Sedighifard showing his UNESCO heritage tradesman status.

Chehelsotoon Garden

One of the main planning operations during the reign of Shah Abbas was the construction of Chaharbagh Abbasi Street and several gardens on either side. Chehelsotoon Garden, which means the garden of '40 columns', is only a small part of the vast Jahan Nama Garden.

Water is a huge theme in the garden, and the 16 x 108 m pool, located opposite the palace, is closely tied to the palace. It is famous for its amazing reflections of the columned porch in the water, and the name of the palace is said to originate from this reflection, as the pavilion only has 20 columns, but 40 are seen in the illusion caused by the water's reflection. Another, smaller pool of water in front of the main building completes the image of a shimmering, watery landscape.

The pavilion is considered to be an internationally unique architectural masterpiece. Its formal inauguration took place in 1647, and it was ceremonial in function, meant to receive kings, ambassadors and other authorities from governments that had political, economic and cultural relations with the *Safavids*.

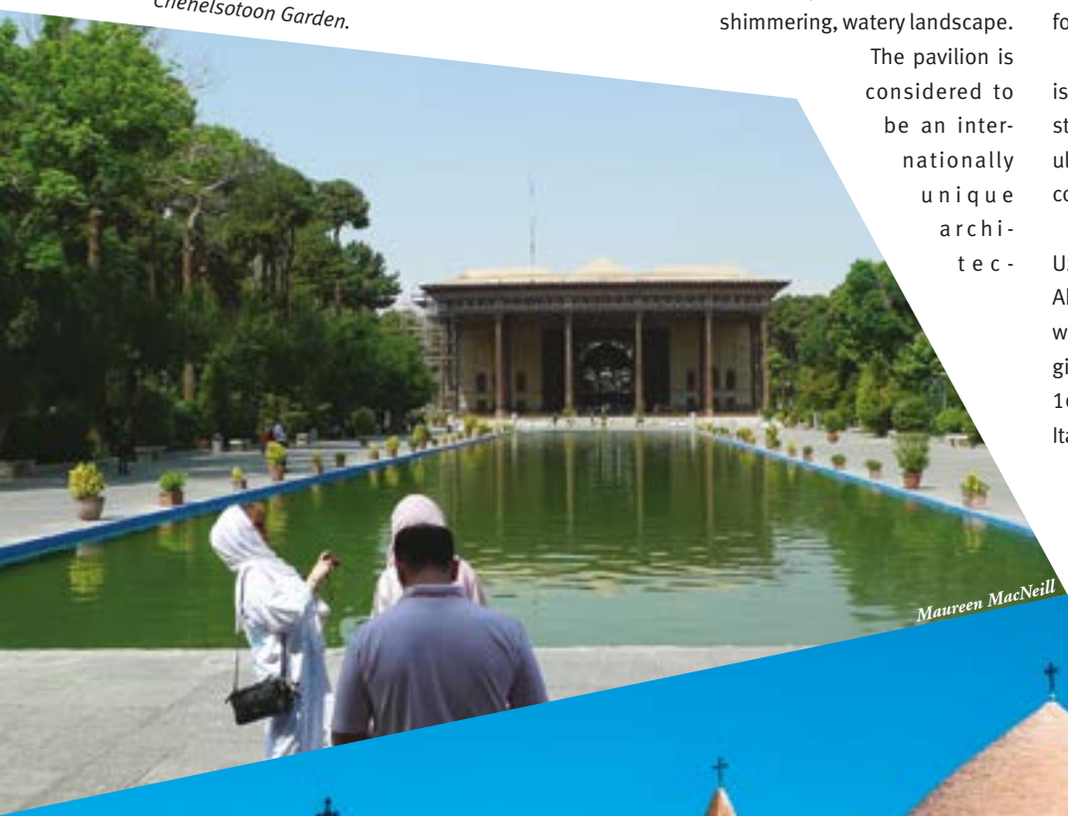
Each of the 20 columns was made from a tree trunk covered by thin layers of painted plank and all walls were decorated with coloured glass, amazing paintings and full length mirrors. Thus the reflection of the sun during sunrise from the pool of water onto the mirrors created an ethereal splendour. Much of the decoration is now gone, but the building retains its remarkable ceiling with its beams, inlay work of suns, stars, fruit and foliage.

Inside, the Great Hall, also called the Throne Room, is covered by four cupolas with frescoes, stuccoes, glass studs and mirrors. The main hall is a museum of spectacularly preserved Persian paintings and ceramics, showing court life and the amazing deeds of the *Safavid* princes.

Above the entrance door is a battle scene with the Uzbeks and on the opposite wall is a feast given by Shah Abbas the Great. Several other battles are featured, as well as grand receptions with musicians and dancing girls. The decorations and frescos were completed in 1647 and were extensively restored with the help of an Italian institute after being badly damaged when Afghans occupied the town.

An ancient Koran opposite the entrance is also featured, its pages lit from above, enhancing its divinity.

Chehelsotoon Garden.



Maureen MacNeill

Vank Cathedral.

Vank Cathedral

Rich with Christian symbolism and heavy with colour and meaning, the Vank Cathedral (also called Saint Joseph of Arimathea) is another famous site in Isfahan, located in the New Julfa district of the city, where thousands of Armenian deportees were resettled by Shah Abbas during the Ottoman War of 1603–18. Vank means 'monastery' or 'convent' in Armenian.

It was built in 1606 and dedicated to the hundreds of thousands of Armenians who were resettled by Shah Abbas. The interior is covered with spectacular frescos and gilded carvings, as well as rich tile work. The central dome, primarily painted in blue and gold, shows the Biblical story of the creation of the world and man's expulsion from Eden, as well as other illustrations from the Old and New Testaments.

It is considered a principal church for the Armenians and has served as the centre of religious, cultural and social activities for over 400 years. The architectural style merges Armenian, European and Iranian features and art.

Facing the cathedral is a building that is home to a library and museum with various Armenian artefacts and historical documents. With over 700 handwritten books, it is an important resource for research on Armenian and medieval European languages and arts.

Part of the display is a showcase detailing the Armenian genocide in Turkey by the Ottoman Empire. One rather unusual display is a sentence written on a human hair, which one must stand in line to see through a microscope.

River of Life

Although Isfahan may be known for its striking boulevards, stunning covered bridges, magnificent mosques and palaces, beautiful churches and synagogues, its glory is not limited to its countless historical sites. The river flowing through the heart of the city has created a rich cultural hub where one can feel like a local.

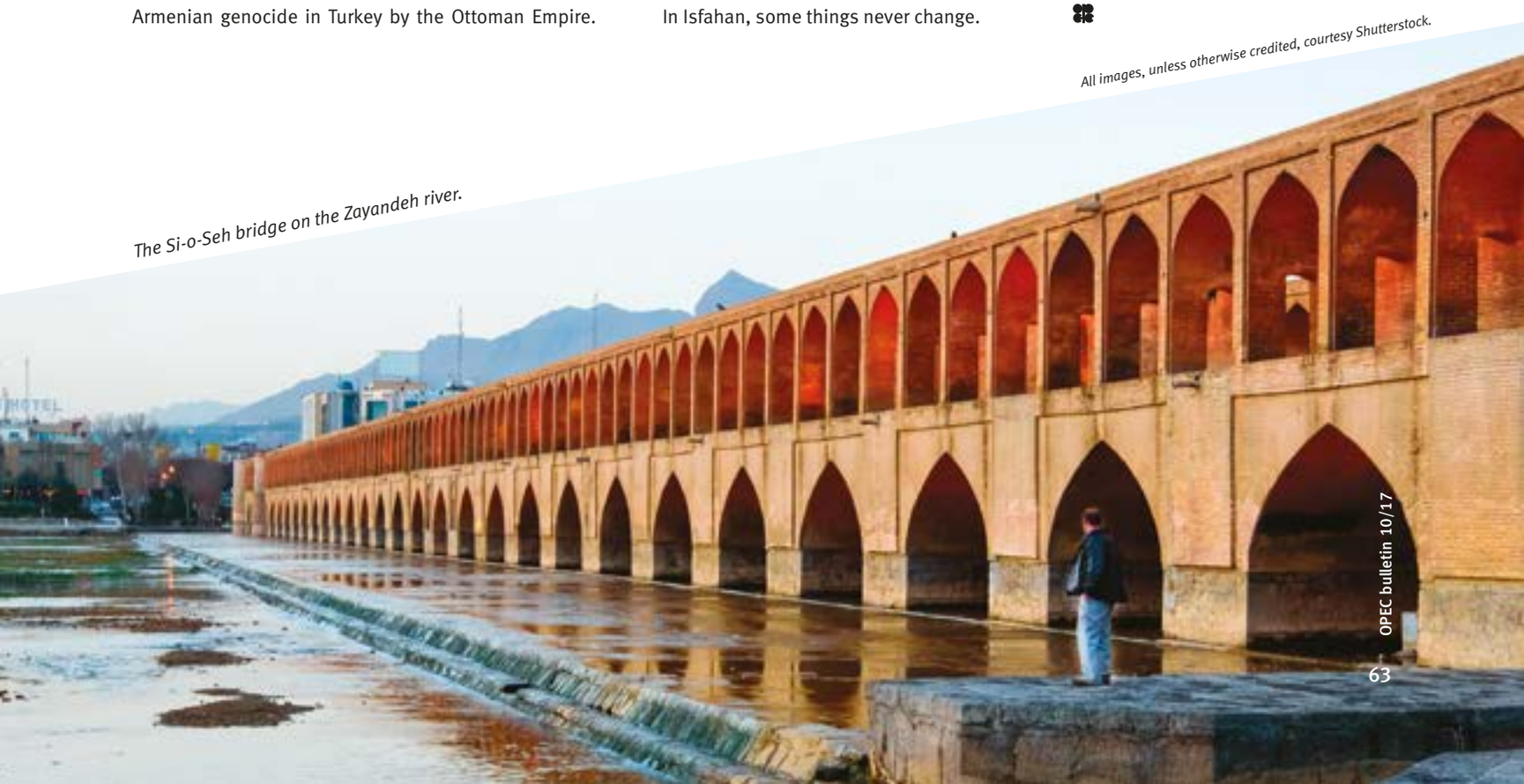
On my last night in the city, Mrs Abbasi and I headed down to the river, thankfully flowing, as it only has water a few months of the year, to sit on the ancient Khajou Bridge, along with many other of the city's residents.

The bridge, featuring 23 arches and spanning the Zayandeh River, is considered the finest in the province. It was built by Shah Abbas II around 1650 on the foundations of an older bridge, and also serves as a dam. It has always been a place where the public meets and used to feature a tea house.

On the bridge, we are approached by a man and his teenage son, who wanted to practice some English sentences, his father taping the exchange for school. We then sit and watch the water and lights, and eat a final saffron ice cream with lemon starch noodles, the local favourite.

In Isfahan, some things never change.

All images, unless otherwise credited, courtesy Shutterstock.



The Si-o-Seh bridge on the Zayandeh river.

Alamy

OPEC CITIES IN FOCUS

View over the rooftops of the Malabo, capital city of Equatorial Guinea.

In the April edition of the *OPEC Bulletin*, we introduced a new series — **OPEC Cities In Focus** — which would endeavour to provide an overview of the major cities in OPEC's Member Countries and highlight their many attributes.

Though each OPEC Member Country has played a prominent role in the oil and gas sector over the years, and has maintained a steadfast commitment to the Organization's broader objectives in regards to market stability, they all have much more to offer than just energy resources. Through this series, we hope to spotlight the history and development of their principal cities.

Our motivation is to highlight some of the other features of our Member Countries apart from oil and gas. And our desire is to offer readers a window into the rich urban life in our Member Countries and their cultural diversity.

Malabo

Urban landmark on Africa's coastline

Overlooking the Gulf of Guinea, the capital city of Equatorial Guinea — Malabo — is a testament to the progress and prosperity that OPEC's newest member has achieved over the years. In the fourth instalment of OPEC Cities in Focus, the OPEC Bulletin's ***Ayman Almusallam*** *profiles Equatorial Guinea's first city.*

Malabo is located in the province of Bioko Norte, on the north shore of Bioko Island, which is 32 km off the coast of West Africa. According to the *CIA World Fact Book*, the city's population reached 145,000 inhabitants in 2014.

In an attempt to discover a new travel route to India, the Portuguese explorer Fernão do Pó discovered the island of Bioko near the African coastline, which he later called Formosa. Eventually, the island was named after its founder, becoming Fernão do Pó Island.

In the early 16th century, Portugal carried out its first attempt to colonise the island through the development of plantations for sugar cane production, however the indigenous people rose up to protest these endeavours. In the 18th century, Portugal and Spain endorsed several agreements that transferred the trade rights in that region to the latter. By the 1800s, attempts to colonize the area remained unsuccessful, frustrating the ambitions of the Europeans.

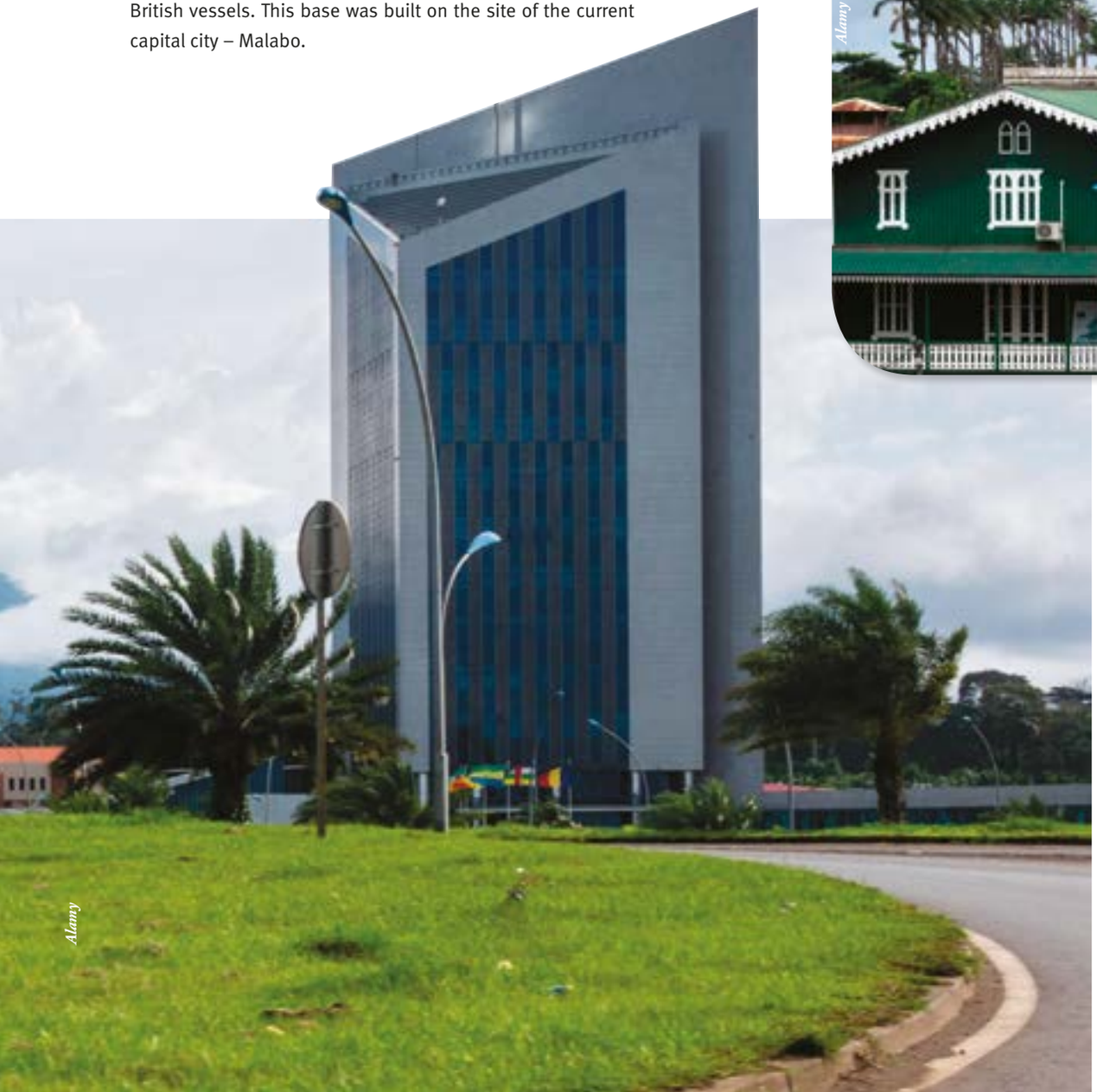
Great Britain gained colonial interest in the region a few years later. While its first attempt to occupy the island failed, the second one met with success, leading to the establishment of a base for British vessels. This base was built on the site of the current capital city – Malabo.

The British also built a key harbour on the island, Port Clarence, which was named after the Duke of Clarence, who later became King William IV of the United Kingdom. In the years that followed, the population of the region steadily increased as it became a settlement for freed slaves.

In 1855, the Kingdom of Spain reclaimed control over the island of Fernão do Pó. Additionally, in honour of the Queen of Spain, Isbabel II, the port was renamed to Santa Isabel. The Spanish regime chose the island to be the location of Equatorial Guinea's


Alamy

View over the rooftops looking toward a Spanish colonial church in Malabo.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Exterior of the Treasury building and Central African Bank in the capital city of Malabo, Equatorial Guinea.

capital as well. In 1973, the name of the capital city was changed to Malabo.

Malabo is Equatorial Guinea's oldest city, and the influence of its history is evident in the architecture, as well as in the general layout and design of the city.

Several buildings were constructed in the Spanish style during the era of colonization and today coexist with modern houses and structures that were erected after independence. This creates the city's unique blend of both western and African architectural styles.

Spanish is the official language, while Portuguese and French, in addition to a number of local languages, are also used to a lesser degree.

The current President of Equatorial Guinea is Teodoro Obiang Nguema Mbasogo, who was elected to hold the Republic's premier post in 1979.

Saint Francis Xavier Parish, under the leadership of the Salesians, in Malabo's Ela Nguema neighbourhood.

Climate

The city of Malabo enjoys a tropical monsoon climate, featuring a yearly average temperature of 24°C. The month of January is usually the coolest, while it is mostly cloudy throughout the year.

Rainfalls are seasonal, as the climate tends to be wet between the months of March and November, while it is drier from December to February. Heavy rainfalls are normally expected in the months of September and October.

Economy and transport

Since its founding, the government of Equatorial Guinea has undertaken a number of concrete steps to develop a competitive and resilient regional economy for the capital city.

Malabo is the country's commercial and financial centre. Its economy is largely driven by the sectors of administration and services. The major discoveries of commercial oil have boosted trade immensely, while exports have become a cornerstone for the advancement of the city's economy. Other local exports include coffee and cacao, while fishing also contributes markedly to the economy.

The country's currency is the CFA franc, a currency used by five other African nations, including OPEC Member Country Gabon.

Considering the strategic importance of transportation for a functioning economy, the city administration has remained committed to developing the sector. Several bus lines were established to connect Malabo's downtown and surrounding neighbourhoods. The port of Malabo provides a significant means of transportation for the city's inhabitants, as well as for the export of goods. Malabo International Airport is located seven kilometres from the Malabo city centre and serves as the region's main airport, receiving a large number of international and domestic flights on a daily basis.

Fountain seen in Malabo.

Sport

Sport is an important part of life in Equatorial Guinea, with football and basketball being the main activities. The local government has prioritized the development of sport infrastructure and services used by teams, athletes and fans.

Nuevo Estadio de Malabo, the city's principal sport facility, is a multipurpose stadium that was inaugurated in 2007 and can

accommodate more than 15,000 spectators. Currently, it is home to the country's national football team.

The stadium was constructed to be compatible with global standards and was nominated to be one of the key venues to host the matches of 2012 Africa Cup of Nations. The competition was jointly hosted by fellow OPEC Member Country Gabon.

Another multipurpose stadium is Estadio Internacional, which has a capacity of 6,000 and is used predominantly for football competition.

Football clubs based in the city of Malabo include Sony Ela Nguema, Cafe Bank Sportif, Renacimiento Fútbol Club, Atlético Semu and Atlético Malabo.

Basketball is another popular national sport, and the local favourites are the Malabo Kings, who won the Central Zone division of the Africa Basketball Championship in 2013. In 2011, they achieved a respectable second place ranking.

While Malabo has a long and rich history as Equatorial Guinea's capital city and urban centre, construction is well underway on a new city called Oyala that is set to become the nation's new capital in the near future.

Facade of a modern convention/conference centre building in the capital city of Malabo.

Alamy

Ben Sutherland, Wikimedia Commons

Football stadium Nuevo Estadio de Malabo.

Long Day of Flight

The United Nations Refugee Agency's 'Long Day of Flight' is a programme of events that aims to raise awareness of the plight of refugees seeking a safer life in Austria. As part of the national initiative, OFID recently highlighted the challenges refugees face when settling in Austria via a well-attended exhibition.

By Dr Lilian Al-Bazaz and Silvia Mateyka

OFID

OFID staff members provide an overview to exhibition visitors.

Students from six local Austrian schools — along with other visitors — attended the exhibition at the OFID headquarters in Vienna. The event built on the success of last year's *Long Day of Flight* exhibition, which highlighted the dangerous journeys endured by refugees.

This year's exhibition focused on the trials and tribulations faced by refugees who choose to settle in Austria. Information about Austria's Traiskirchen refugee camp was on offer — along with recorded sounds of the camp played through loudspeakers, and tents and camp beds, to help create a more realistic atmosphere — and visitors were invited to put themselves in the shoes of a refugee arriving at the camp after a long, dangerous and painful journey.

Visitors also learned about Austria's history of providing safe refuge and gained insight into the asylum application process, which can often prove challenging for non-German speakers.

In line with this, attendees were invited to play a game produced by non-governmental institution Amnesty International, which aimed to highlight the difficulties in achieving a shared goal without being able to communicate properly — only gestures were allowed as players attempted to build a bridge together against the clock.

The highlight of the exhibition was a presentation by Samer Amin, a refugee from Syria.

Samer Amin shares his experiences of fleeing from Syria.

Refugee life

Samer Amin is 27 and comes from a city called Idleb in northern Syria. He spoke with visitors to OFID's 'Long Day of Flight' exhibition and answered a number of questions about refugee life ...

What was life like before the war broke out?

I had a happy but difficult childhood. My family has a little farm with cows. Besides that I went to a small local school where my father was teaching. My elder siblings were studying at the university in Idleb. Life was good until one of my brothers had an accident in 2004 and as a consequence became blind.

Samer and other refugees during their dangerous journey.

Why did you have to flee?

In 2011 the revolution started. My friends and I founded a group and demonstrated by singing songs of freedom. We asked for the killing to stop. That's how my name was put on the blacklist. My friends and I were not able to leave our houses anymore; we even had to give up studying. The second reason is that I would otherwise have had to join the armed forces. But I didn't want to fight. I hate violence.

Did you leave Syria alone? Where are your relatives?

I left with my cousin Omar and my sister-in-law. They are now in Germany and Sweden. My parents and one of my elder brothers are still in Syria, as is one of my sisters. I also have two brothers and a sister who live in Qatar, and a brother who lives in Linz, Austria.

Could you describe your flight?

We started off in Izmir, Turkey. We stayed for three days and then took a boat to the island of Samos in Greece. For this, we had to pay €1,200 (approximately $1,400) each and we almost drowned. In Samos, we spent another three days waiting to be registered before moving on to Macedonia. From there, we took the train to Austria, passing through Croatia and Slovenia. The whole trip cost us about €2,500 (approximately $2,930) each. I took only winter clothes, my camera and some documents. We faced many challenges, mainly because of the language. December 2015 was very cold; we were freezing but couldn't find anywhere to sleep. Food was almost always bread and jam.

Why did you choose Austria?

I chose Austria because my brother was already in Linz and I had read a lot about the country. Nature here is just beautiful.

What was your first impression of Austria?

It was very difficult to communicate because I couldn't express myself. Everything was new and the circumstances in the camp were rather bad. But the people were nice, welcoming and helpful.

How is life here?

I have met many people and some of them have become my friends. I am a photographer and have already held two exhibitions. The most difficult part is the language and the laws. If you are not granted asylum, you can't work. The only thing you can do is wait. Waiting and not being able to do something is horrible. I try to use my time studying the language and supporting friends, if they need help. I am

Exhibition visitors play a game designed to highlight the challenges of communicating without words.

also working with a lawyer to be admitted to the asylum-seeking process here in Austria; otherwise I will be sent back to Croatia (the first country of the European Union I arrived in*).

When thinking about Syria, what do you miss most?

I miss my parents, my sisters and brothers and my childhood friends who are still there. My bed is still empty — no one has used it. My mum says it's to be kept for me; that I'll be back home one day.

What message would you like to convey?

I want the people here to know more about Syria; I want them to understand what's really going on back home. What you see on television and in the news reflects only ten per cent of the reality. We, the refugees, don't come here to take your work or your money. We come here because we want a peaceful and safe life. And we will also do our part to make this process of integration work.

I hope that the war in Syria will soon be over. It's enough; the people are tired from fighting. And I hope that I will be able to see my family again, but at the same time, I hope that my asylum process will find a positive end.

And I want to thank the Austrian people for being welcoming and supportive. This means a lot to us.

* *The DUBLIN Regulation is a European Union (EU) law that determines the EU member state responsible for examining an application for asylum. It provides for the transfer of an asylum seeker to the EU member state through which the asylum seeker first entered the EU.*

Samer Amin: "I miss my parents, my sisters and brothers and my childhood friends."

Visitors of the OPEC Secretary General

In the course of his official duties, OPEC Secretary General, Mohammad Sanusi Barkindo, visits, receives and holds talks with numerous dignitaries.

July 26

Kazakhstan's Ambassador visits OPEC Secretary General
Kairat Sarybay (r), Ambassador, Permanent Mission of Kazakhstan to the International Organizations, visited Mohammad Sanusi Barkindo, OPEC Secretary General.

September 6

Outgoing Russian Ambassador's farewell
Ambassador Vladimir Voronkov (r), Permanent Representative of the Russian Federation to the International Organizations in Vienna, at his farewell dinner hosted by Mohammad Sanusi Barkindo, OPEC Secretary General.

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 give them presentations on the Organization and the oil industry. Here we feature some snapshots of such visits.

Visits to the Secretariat

May 11 Students from Michigan State Univeristy, East Lansing, Michigan, US.

May 15 Students from the University of South Carolina, Columbia, South Carolina, US.

May 16 Students from the Vienna University of Economics and Business (WU), Vienna, Austria.

May 16 Officials from the political academy of the Austrian People's Party (Politische Akademie der OeVP), Vienna, Austria.

May 29 Students from the Europaeum (East-West-Centre), Regensburg, Germany.

June 8 Members of the Management of global forwarding agents and representatives of Lufthansa Cargo management, and OPEC officials.

June 21 Students from the St Leonhard Gymnasium, Aachen, Germany.

June 22 Students from Schola Thomas Morus, Baden bei Wien, Austria.

June 28 Students from Diplomatic Academy Vienna, Austria.

June 29 Students from University of Oregon, Eugene, Oregon.

July 10 Representatives and teachers from the European Academy Bavaria (Europäische Akademie Bayern), Munich, Germany.

July 11 Students from the Coventry University, London, UK.

July 12 Students from the Willstätter Gymnasium, Nuremberg, Germany.

July 19 German army officers (Jugendoffizier) from Würzburg-Veitshöchheim, Germany.

July 21 Students from the Karlsgymnasium, Bad Reichenhall, Germany.

Outreach programme

OPEC visits petroleum engineers at Montan University in Leoben

As part of the *OPEC Outreach Programme,* in support of youth in general and future petroleum engineers in particular, OPEC visited the Montan University (Montanuniversität) in Leoben, Austria, which is considered one of the top-ranking mining and petroleum engineering universities in Europe. The university has around 3,700 students and recently celebrated its 175th birthday.

OPEC and decision-making processes. Questions covered, among other topics, the future of oil, as well as challenges facing the oil industry in general and OPEC in particular.

More than 100 students attended the briefing, the majority of whom are enrolled in the Petroleum Engineering Department. The event took place at the new Petroleum Department Building.

Haris Aliefendic, OPEC Senior Research Analyst, provides an overview on the global oil market.

Ms Hind Zaher, PR Specialist, from OPEC's Public Relations and Information Department, gives a presentation on OPEC.

Representatives from OPEC's Public Relations and Information Department (PRID), as well as the Energy Studies Department (ESD), were received by the university's student chapter of the Society of Petroleum Engineers (SPE).

OPEC's aims and objectives

After a warm welcome and a general introduction by the organizers, a comprehensive presentation on OPEC's aims and objectives, history, structure and membership was conducted by PRID representative Ms Hind Zaher. This was followed by a detailed presentation of the 2016 edition of OPEC's flagship *World Oil Outlook (WOO)* by Haris Aliefendic, a Senior Research Analyst in ESD.

An interactive question-and-answer session followed, in which students raised many interesting questions related to the Organization's role in stabilizing the international oil market, the historic 'Declaration of Cooperation', the organizational structure of OPEC's flagship publications such as the *WOO*, the *Annual Statistical Bulletin (ASB)* and the *OPEC Bulletin* were distributed to the students, as well as some corporate gifts.

Society of Petroleum Engineers

The Leoben Chapter of the SPE, reiterated its thanks and appreciation for the support provided by OPEC to the university's students, not only by visiting them for a second time and conducting such a valuable briefing, but also for allowing the university to nominate three students to attend the Sixth OPEC International Seminar, which was held at the Hofburg Imperial Palace in Vienna in June 2015. This was enabled through financial support provided by OPEC.

OPEC representatives concluded by thanking the organizers for their warm welcome and extending a special invitation to the University to visit the OPEC Secretariat in Vienna, which was gratefully accepted.

PR Coordinator

Within the Support Services Division, the Public Relations & Information Department is responsible for presenting OPEC objectives, decisions and actions in their true and most desirable perspective, disseminating news of general interest regarding the Organization and the Member Countries on energy and related matters and carrying out a central information programme and identifying suitable areas for the promotion of the Organization's aims and image.

Objective of position:
To assist the Head of Department in formulating strategies for creating and maintaining a positive public image for the Organization and in the execution of these strategies and related policies and decisions; to provide timely information through the most effective means to targeted audiences, as well as the general public about OPEC, its aims and objectives, its activities, its decisions and their rationale, and its positions on topical issues in the industry; and to coordinate the programme of the Public Relations team.

Main responsibilities:
- Advises and assists the Head of Department in elaborating concepts and approaches for increasing public and institutional awareness about the aims and objectives of OPEC, as well as OPEC's positions on topical issues.
- Advises on and assists the Head of Department in initiating and coordinating programmes aimed at promoting the image of OPEC with its role of stabilizing the international oil market.
- Establishes and maintains good network of media contacts and manages media relations through proactive communications by organizing interviews, inputs to editorial supplements, leveraging of OPEC reports etc.
- Advises on advert placements and, with the support of the Editorial and the Design and Production Services teams, on the appropriate editorial format and art work.
- Monitors public perceptions about OPEC as expressed in the press and at various formal and informal fora and prepares appropriate responses as necessary.
- Conducts briefings for visiting students and groups to the Secretariat.
- Produces, in collaboration with the Editorial and the Design and Production Services teams, special publications (press kits, specialized magazines, flyers, posters etc) for strategic audiences with the objective of disseminating positive messages about the Organization.
- Produces — with external assistance as appropriate — TV programmes for local, national and international TV channels.
- Identifies and advises on events and activities in which OPEC's participation could enhance the Organization's image.
- Coordinates visits of journalists at OPEC events, and provides necessary assistance (including arranging interviews, press kits and gift items).

Required competencies and qualifications:
Education: University degree in Public Relations, Media Studies, Journalism, Social Sciences or Advertising; diploma/certificate in Public Relations; advanced degree or professional qualification in PR or journalism preferred.
Work experience: Ten years in PR, whereof two years in supervisory/coordinating position; eight years in case of advanced degree or professional qualification.
Training/specialization: Modern information practice and techniques; knowledge of audio-visuals an asset; membership of a professional public relations body.
Competencies: Managerial and leadership skills; communication skills; analytical skills; presentation skills; interpersonal skills; customer service orientation; initiative and integrity.
Language: English, other major languages are an asset.

Status and benefits:
Members of the Secretariat are international employees whose responsibilities are not national but exclusively international. In carrying out their functions they have to demonstrate the personal qualities expected of international employees such as integrity, independence and impartiality.

The post is at grade D reporting to the Head of Public Relations & Information Department. The compensation package, including expatriate benefits, is commensurate with the level of the post.

Applications:
Applicants must be nationals of Member Countries of OPEC and should not be older than 58 years.
Applicants are requested to fill in a résumé and an application form which can be received from their Country's Governor for OPEC.
In order for applications to be considered, they must reach the OPEC Secretariat through the relevant Governor not later than **November 27, 2017,** quoting the job code: 8.2.01 *(see www.opec.org — Employment).*

Oil Price Analyst

Within the Research Division, the Petroleum Studies Department provides pertinent and reliable information and analyzes in support of decision-making and policy-making in Member Countries. It carries out research programmes and studies on short-term petroleum market developments with the aim of issuing reports on a regular, as well as ad-hoc basis, highlighting important issues for their use and consideration. It conducts regular forecasts, elaborates and analyzes oil market scenarios and prepares and publishes reports on these findings. It promotes OPEC's views and technical analysis on short-term oil market developments to the industry at large and the general public via the OPEC *Monthly Oil Market Report,* as well as other reports, presentations and related pod casts. And it prepares and contributes to reports to be submitted to the Economic Commission Board, the Board of Governors, etc, as well as papers for various OPEC publications.

Objective of position:

To study and analyze determinants of oil prices and price differentials between grades of crude oil, as well as different market crude spreads with potential arbitrage flows and to analyze factors affecting petroleum future markets and their interaction with spot prices; to forecast short- and medium oil price movements and — on the basis of forecasts of oil demand and supply, as well as current stock movements — to undertake market assessments under different scenarios and report thereon.

Main responsibilities:

- Consolidates analytical findings and prepares, coordinates and contributes to reports for submission to the Governing Bodies (primarily Economic Commission Board) and for issuance in the Daily, Weekly and Monthly Reports, as well as for presentations in various forums.
- Carries out the Market Assessment for submission to the Governing Bodies (Board of Governors, Economic Commission Board, etc).
- Analyzes the price performance of different grades of crudes in the international oil market and identifies significant changes in price differentials.
- Studies and analyzes crude oil pricing policies of oil exporting countries.
- Studies and analyzes price developments in future markets, identifies prices levels and differentials in relation to spot markets.
- Follows up on the performance of the OPEC Reference Basket in relation to major benchmarks.
- Carries out further in-depth analyzes and applies quantitative methods on oil market price movements.
- Analyzes key factors which have an impact on oil prices, primarily in major consuming countries.

Required competencies and qualifications:

Education: University degree in Economics, Petroleum Economics, Marketing, Engineering or related fields; advanced degree preferred.
Work experience: Eight years in the oil industry sector; six years in case of advanced degree.
Training/specializations: Physical and future markets; supply/demand fundamentals; economics in the petroleum industry; trading tools; oil market and its fundamentals, in particular combination of all key factors influencing the oil market/prices.
Competencies: Communication skills; analytical skills; presentation skills; interpersonal skills; customer service orientation; initiative and integrity.
Language: English.

Status and benefits:

Members of the Secretariat are international employees whose responsibilities are not national but exclusively international. In carrying out their functions they have to demonstrate the personal qualities expected of international employees such as integrity, independence and impartiality.

The post is at grade E reporting to the Head of Petroleum Studies Department. The compensation package, including expatriate benefits, is commensurate with the level of the post.

Applications:

Applicants must be nationals of Member Countries of OPEC and should not be older than 58 years.

Applicants are requested to fill in a résumé and an application form which can be received from their Country's Governor for OPEC.

In order for applications to be considered, they must reach the OPEC Secretariat through the relevant Governor not later than **December 1, 2017,** quoting the job code: 4.3.02 *(see www.opec.org — Employment).*

Forthcoming events

European autumn gas conference (EAGC), November 6, 2017, Milan, Italy. Details: dmg :: events, 6th floor, Northcliffe House, 2 Derry Street, London W8 5TT, UK. Tel: +44 20 3615 2873; fax: +44 20 3615 0679; e-mail: conferencemarketing@dmgevents.com; website: www.dmgenergyevents.co.uk/event/european-autum-gas-conference-eagc.

Operational excellence in oil and gas, November 6–8, 2017, Houston, TX, USA. Details: IQPC Ltd, Anchor House, 15–19 Britten Street, London SW3 3QL, UK. Tel: +44 207 368 9300; fax: +44 207 368 9301; e-mail: enquire@iqpc.co.uk; website: www.opexinoilandgas.com/?utm_medium=portal&mac=IQPCCORP.

Practical Nigerian content, November 6–9, 2017, Uyo, Nigeria. Details: CWC Associates Ltd, Regent House, Oyster Wharf, 16–18 Lombard Road, London SW11 3RF, UK. Tel: +44 207 978 000; fax: +44 207 978 0099; e-mail: sshelton@thecwcgroup.com; website: www.cwcpnc.com.

21st condensate and naphtha forum 2017, November 9, 2017, Penang, Malaysia. Details: Conference Connection Administrators Pte Ltd, 105 Cecil Street #07-02, The Octagon, 069534 Singapore. Tel: +65 6222 0230; fax: +65 6222 0121; e-mail: info@cconnection.org; website: www.cconnection.org/events/condensate-2017.

Offshore vessel connect global, November 13–14, 2017, Oslo, Norway. Details: IBC Global Conferences, The Bookings Department, Informa UK Ltd, PO Box 406, West Byfleet KT14 6WL, UK. Tel: +44 207 017 55 18; fax: +44 207 017 47 15; e-mail: energycustserv@informa.com; website: https://energy.knect365.com/offshore-vessel-connect-global.

The Abu Dhabi international petroleum exhibition and conference (ADIPEC), November 13–16, 2017, Abu Dhabi, UAE. Details: dmg :: events, 6th floor, Northcliffe House, 2 Derry Street, London W8 5TT, UK. Tel: +44 20 3615 2873; fax: +44 20 3615 0679; e-mail: conferencemarketing@dmgevents.com; website: www.adipec.com.

FPSO Europe roundtables, November 14, 2017, London, UK. Details: IQPC Ltd, Anchor House, 15–19 Britten Street, London SW3 3QL, UK. Tel: +44 207 368 9300; fax: +44 207 368 9301; e-mail: enquire@iqpc.co.uk; website: https://fpsoeuroperoundtables.iqpc.sg/?utm_medium=portal&mac=IQPCCORP.

Operational excellence in oil and gas production, refining and Petrochemicals, November 14–15, 2017, Sochi, Russia. Details: Euro Petroleum Consultants Ltd, 44 Oxford Drive, Bermondsey Street, London SE1 2FB, UK. Tel. +44 207 357 8394; fax. +44 207 357 8395; e-mail: enquiries@europetro.com; website: https://www.europetro.com/event/53/0.

Future of biogas Europe 2017, November 15–16, 2017, London, UK. Details: Active Communications International, 5–13 Great Suffolk Street, 4th Floor, London SE1 0NS, UK. Tel: +44 207 981 98 00; fax: +44 207 593 00 71; e-mail: claire@acieu.net; website: www.wplgroup.com/aci/event/future-biogas-europe.

Latin America and Caribbean gas options, November 16–17, 2017, Panama City, Panama. Details: Clarion Events Ltd, Fulham Green, 69–79 Fulham High Street, London SW6 3JW, UK. Tel: +44 20 7384 7700; e-mail: info@clarionevents.com; website: www.energynet.co.uk/event/latin-america-and-caribbean-gas-options-2017#tab-country1

7th international Mali mining and petroleum conference and exhibition, November 21–23, 2017, Bamako, Mali. Details: AME Trade Ltd – Africa and Middle East Trade Ltd, Unit 408, United House, 39–41 North Rd, London N7 9DP, UK. Tel: +44 207 70 04 949; fax: +44 207 68 13 120; e-mail: trade@ametrade.org; website: http://ametrade.org/jmp.

Digital transformation in oil and gas, November 26–29, 2017, Kuwait City, Kuwait. Details: IQPC Ltd, Anchor House, 15–19 Britten Street, London SW3 3QL, UK. Tel: +44 207 368 9300; fax: +44 207 368 9301; e-mail: enquire@iqpc.co.uk; website: https://oilandgasdigitaltransformation.iqpc.ae/?utm_medium=portal&mac=IQPCCORP.

World LNG summit and awards evening, November 28–December 1, 2017, Lisbon, Portugal. Details: CWC Associates Ltd, Regent House, Oyster Wharf, 16–18 Lombard Road, London SW11 3RF, UK. Tel: +44 207 978 000; fax: +44 207 978 0099; e-mail: sshelton@thecwcgroup.com; website: http://world.cwclng.com.

11th Arctic shipping summit, November 29–30, 2017, London, UK. Details: Active Communications International, 5-13 Great Suffolk Street, 4th Floor, London SE1 0NS, UK. Tel: +44 207 981 98 00; fax: +44 207 593 00 71; e-mail: claire@acieu.net; website: www.wplgroup.com/aci/event/arctic-shipping-summit-europe.

Cyber security – oil, gas, power, November 29–30, 2017, London, UK. Details: Active Communications International, 5–13 Great Suffolk Street, 4th Floor, London SE1 0NS, UK. Tel: +44 207 981 98 00; fax: +44 207 593 00 71; e-mail: claire@acieu.net; website: www.wplgroup.com/aci/event/cyber-security-oil-gas-power.

Global geothermal energy summit 2017, November 29–30, 2017, Amsterdam, The Netherlands. Details: Active Communications International, 5–13 Great Suffolk Street, 4th Floor, London SE1 0NS, UK. Tel: +44 207 981 98 00; fax: +44 207 593 00 71; e-mail: claire@acieu.net; website: www.wplgroup.com/aci/event/global-geothermal-energy-summit.

Mediterranean bunker fuel conference, November 30–December 1, 2017, Athens, Greece. Details: Platts, 20 Canada Square, Canary Wharf, London E14 5LH, UK. Tel: +44 207 1766142; fax: +44 207 176 8512; e-mail: cynthia_rugg@platts.com; website: www.platts.com/events/emea/mediterranean-bunker-fuel/index.

Bottom of the barrel technology conference, December 4–5, 2017, Manama, Bahrain. Details: Euro Petroleum Consultants Ltd, 44 Oxford Drive, Bermondsey Street, London SE1 2FB, UK. Tel: +44 207 357 8394; fax: +44 207 357 8395; e-mail: enquiries@europetro.com; website: www.europetro.com/event/54/0.

Argus European LPG markets 2017, December 4–6, 2017, London, UK. Details: Argus Media, Argus House, 175 St John Street, London EC1V 4LW, UK. Tel: +971 44 34 51 16; email: me.events@argusmedia.com; website: www.argusmedia.com/events/argus-events/europe/argus-euro-lpg/home.

Kurdistan-Iraq oil and gas, December 11–13, 2017, London, UK. Details: CWC Associates Ltd, Regent House, Oyster Wharf, 16–18 Lombard Road, London SW11 3RF, UK. Tel: +44 207 978 000; fax: +44 207 978 0099; e-mail: sshelton@thecwcgroup.com; website: www.cwckiog.com.

Middle East crude oil summit, December 12, 2017, Dubai, UAE. Details: Platts, 20 Canada Square, Canary Wharf, London E14 5LH, UK. Tel: +44 207 1766142; fax: +44 207 176 8512; e-mail: cynthia_rugg@platts.com; website: www.platts.com/events/emea/middle-east-crude-oil/index.

The winter product markets outlook

October **2017**

Oil product markets in the major consuming regions performed well this summer, favoured by the seasonally-higher gasoline demand. US refinery markets averaged as high as $20/barrel by the end of the summer, representing an improvement over the same period last year and close to the high levels seen in July 2015.

Product markets in Europe were also healthy, supported by the strengthening middle distillate complex, as well as planned maintenance. Meanwhile, a slight improvement was observed in the Asian market due to continued healthy demand in the region this year.

In terms of individual products, the gasoline market performed better this summer compared to the same period last year. Healthy demand along with arbitrage volumes heading to the US Atlantic Coast supported the refinery margins. Middle distillates also improved, boosted by healthy economic activity.

Looking ahead to the coming quarters, crack spreads tend to peak during the driving season and then drop into the fourth quarter, as lower gasoline demand outweighs the pick-up in distillate consumption from colder weather.

Last year, the warmer-than-usual winter particularly weighed on product markets. In contrast, the forecast for this year indicates that winter temperatures will be colder than last year, leading to higher consumption of distillates, including heating oil.

With the market moving into the winter season, distillate fuel supplies are notably tight, representing a change from the excess supplies seen in the last two years. US distillate inventories started 2017 above the five-year range but have since fallen below the five-year average.

As noted in last month's *MOMR* feature article, disruptions caused by Hurricane Harvey have deepened the already steady drawdown in US distillate stocks.

Although daily refinery margins fell back from a spike to $26.20/b, they still remained around $12/b, well above the $6–7/b level seen over the same period last year. An additional factor supporting middle distillates has been support from bullish sentiment in the futures market.

Hedge funds have accumulated a record high heating oil futures positions, anticipating that distillate stocks will remain relatively tight this winter.

As a result, refinery margins are likely to continue to be supported, remaining at seasonally-high levels.

This, together the ongoing improvement in global economic activity, should provide support for the oil market over the winter season.

MOMR ... oil market highlights

October 2017

The **OPEC Reference Basket** rose to $53.44/barrel in September, its highest value since July 2015. Crude futures prices also saw gains, with ICE Brent averaging above the $55/b, supported by increasing evidence that the oil market is heading toward rebalancing. Geopolitical tensions and lower distillates stocks also pushed prices higher. ICE Brent averaged $55.51/b in September, a gain of $3.64, while NYMEX WTI increased $1.82 to average $49.88/b. Hedge funds raised net long position in ICE Brent and NYMEX WTI futures and options by almost 200,000 contracts. At the end of the month, the Brent crude contract curve had flipped into backwardation through December 2021. The sweet/sour spread widened significantly in Asia and Europe.

Growth in the **world economy** continues to improve, with the forecast for 2017 revised up to 3.6 per cent from 3.5 per cent in last month's report. Similarly, the 2018 forecast has been adjusted higher to 3.5 per cent from 3.4 per cent. The improving momentum is visible in all economies, particularly the OECD, which is seen growing by 2.2 per cent in 2017 and by an upwardly revised 2.1 per cent in 2018. US growth in 2018 has been revised up to 2.3 per cent and the EU to 1.9 per cent for the same year. Russia has also seen an upward revision for 2018 to now stand at 1.6 per cent, compared to 1.4 per cent in the previous report. Growth expectations for India and China were left unchanged for both 2017 and 2018.

World oil demand growth in 2017 is now expected to increase by 1.5 million b/d, representing an upward revision of around 30,000 b/d from the previous report, mainly reflecting recent data showing an improvement in economic activities. Positive revisions were primarily a result of higher-than-expected oil demand from the OECD region and China. In 2018, world oil demand is anticipated to grow by 1.4m b/d, following an upward adjustment of 30,000 b/d over the previous report, due to the improving economic outlook in the world economy, particularly China and Russia.

Non-OPEC **oil supply** is expected to grow by 700,000 b/d in 2017, following a downward revision of 100,000 b/d from the previous report. In 2018, the growth in non-OPEC oil supply saw a downward revision of 60,000 b/d to stand at 900,000 b/d. OPEC NGLs and non-conventional liquids production are seen averaging 6.5m b/d in 2018, representing an increase of 200,000 b/d, broadly in line with growth in the current year. In September, OPEC crude oil production increased by 88,000 b/d, according to secondary sources, to average 32.75m b/d.

Product markets in the Atlantic Basin improved further in September as the top of the barrel saw support from higher gasoline demand. Middle distillate markets continue to improve globally on the back of healthy demand, depleted stocks and along with regional refinery maintenance. However, the bottom of the barrel in Asia and Europe saw some pressure on low demand and high inventory levels. Product markets are expected to see support in 4Q17 from healthy demand for winter fuels.

Average dirty vessel **spot freight rates** rose in September, compared to the previous month, supported by enhanced activity across several trading routes. Higher Aframax rates were the main driver behind the strength in sentiment, while average VLCC and Suezmax freight rates showed lesser growth. However, the tanker market still suffers from oversupply of ships which often cap rates gains. In the clean tanker market, spot freight rates showed also a positive development mostly attributed to stronger west of Suez market as tonnage demand in the Mediterranean increased. Additionally, prompt replacements gave a further support to freight rates. Spot freight rates are expected to strengthen in 4Q17 supported by winter seasonal demand.

Total **OECD commercial oil stocks** fell in August to stand at 2,996m b. At this level, OECD commercial oil stocks are 171m b above the latest five-year average. Crude and products stocks indicate a surplus of around 146m b and 25m b above the seasonal norm, respectively. In terms of days of forward cover, OECD commercial stocks stand at 63.2 days in August, 2.6 days higher than the latest five-year average.

Based on the current global oil supply/demand balance, **OPEC crude** in 2017 is estimated at 32.8m b/d, around 600,000 b/d higher than in 2016. Similarly, OPEC crude in 2018 is projected at 33.1m b/d, about 300,000 b/d higher than in 2017.

The feature article and oil market highlights are taken from OPEC's Monthly Oil Market Report (MOMR) for October 2017. Published by the Secretariat's Petroleum Studies Department, the publication may be downloaded in PDF format from our Website (www.opec.org), provided OPEC is credited as the source for any usage. The additional graphs and tables on the following pages reflect the latest data on OPEC Reference Basket and crude and oil product prices in general.

Table 1: OPEC Reference Basket spot crude prices

$/b

Crude/Member Country	2016 Sep	Oct	Nov	Dec	2017 Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Weeks 35-39/2017 (week ending) Sep 1	Sep 8	Sep 15	Sep 22	Sep 29
Arab Light – Saudi Arabia	42.70	48.26	43.32	51.92	52.29	53.63	50.68	51.64	49.30	45.21	47.12	49.63	53.29	49.41	51.67	52.59	54.09	55.57
Basrah Light – Iraq	41.88	46.79	41.97	50.87	51.66	52.66	49.82	50.75	48.56	44.55	46.43	49.26	53.03	49.22	51.31	52.43	53.81	55.33
Bonny Light – Nigeria	47.77	50.83	45.20	53.91	54.98	55.24	51.91	53.02	50.77	46.92	48.66	51.69	56.55	52.40	54.42	56.18	57.15	59.07
Es Sider – Libya	45.69	48.74	43.63	52.12	53.08	53.46	50.00	51.04	48.90	44.87	46.96	50.31	55.07	51.00	52.94	54.70	55.67	57.59
Girassol – Angola	46.66	49.37	44.95	53.41	54.41	55.21	51.89	52.68	50.36	46.46	48.75	52.31	56.83	52.98	54.64	56.40	57.41	59.49
Iran Heavy – IR Iran	41.39	47.30	42.42	51.41	51.90	53.16	50.27	51.12	49.00	44.62	46.01	48.70	52.27	48.53	50.69	51.60	53.04	54.53
Kuwait Export – Kuwait	41.22	47.04	42.14	50.93	51.48	52.85	49.87	50.81	48.65	44.37	46.19	48.70	52.23	48.45	50.64	51.54	53.04	54.47
Marine – Qatar	43.51	48.13	44.25	52.08	53.44	54.14	50.89	52.39	50.24	46.26	47.45	49.71	52.91	49.23	51.20	52.16	53.81	55.30
Merey – Venezuela	37.38	42.36	39.37	45.86	46.81	47.03	44.14	46.15	45.16	42.49	43.41	45.38	49.13	45.22	47.44	48.75	49.97	51.20
Murban – UAE	46.42	51.19	47.25	54.93	55.97	56.31	52.96	54.32	51.96	47.86	49.02	51.51	54.94	51.18	53.08	54.19	55.87	57.45
Oriente – Ecuador	41.22	45.98	41.69	48.67	48.64	50.08	46.83	48.70	46.91	43.11	45.21	47.45	51.30	47.00	49.06	50.34	52.42	54.07
Rabi Light – Gabon*	45.51	48.15	43.92	52.22	53.13	54.04	50.63	51.71	49.48	45.45	47.54	50.69	55.10	51.31	52.97	54.73	55.70	57.62
Saharan Blend – Algeria	47.09	49.79	45.13	53.82	54.84	55.06	51.40	51.84	49.80	46.07	47.96	51.31	56.32	52.05	54.19	55.95	56.92	58.84
Zafiro – Equatorial Guinea*	46.41	48.40	43.40	52.77	53.80	54.75	51.73	51.98	49.96	45.92	48.19	51.67	56.57	52.78	54.44	56.20	57.17	59.09
OPEC Reference Basket	**42.89**	**47.87**	**43.22**	**51.67**	**52.40**	**53.37**	**50.32**	**51.37**	**49.20**	**45.21**	**46.93**	**49.60**	**53.44**	**49.56**	**51.68**	**52.82**	**54.22**	**55.78**

Table 2: Selected spot crude prices

$/b

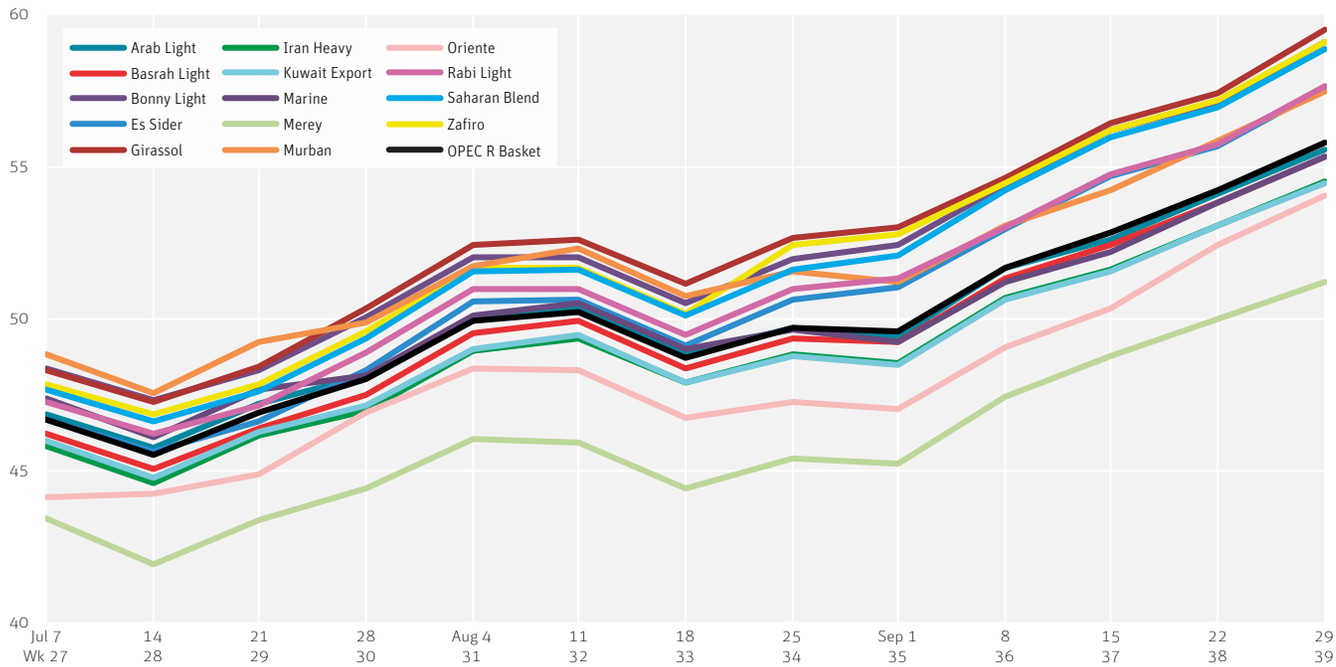
Crude/country	2016 Sep	Oct	Nov	Dec	2017 Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Weeks 35-39/2017 (week ending) Sep 1	Sep 8	Sep 15	Sep 22	Sep 29
Arab Heavy – Saudi Arabia	40.34	46.26	40.96	49.70	50.56	51.97	48.86	49.97	47.92	43.64	45.76	48.55	51.78	48.23	50.28	51.12	52.65	53.92
Brega – Libya	46.74	49.79	45.18	53.52	54.43	54.86	51.40	52.19	49.85	45.77	47.61	50.76	55.34	51.38	53.16	55.00	55.97	57.89
Brent Dtd – North Sea	46.69	49.74	45.13	53.57	54.58	55.06	51.60	52.59	50.45	46.42	48.51	51.66	56.07	52.28	53.94	55.70	56.67	58.59
Dubai – UAE	43.67	48.94	43.98	52.08	53.71	54.41	51.21	52.31	50.47	46.38	47.59	50.24	53.51	49.92	52.07	52.91	54.33	55.54
Ekofisk – North Sea	47.10	49.58	44.97	53.67	54.62	55.17	51.50	52.57	50.43	46.40	48.63	52.30	57.15	53.51	54.63	56.93	57.86	59.88
Iran Light – IR Iran	44.23	47.99	43.45	51.85	52.35	52.35	49.13	50.04	47.34	43.85	47.03	50.85	54.45	50.93	52.41	54.01	54.98	57.00
Isthmus – Mexico	44.55	49.91	45.64	53.81	54.98	56.09	52.26	53.81	51.85	48.21	50.75	52.92	55.20	51.98	53.47	54.58	55.76	57.56
Oman – Oman	44.01	49.18	44.54	52.72	54.01	55.12	51.71	52.82	50.57	46.50	47.63	50.37	53.95	50.12	52.38	53.23	54.86	56.20
Suez Mix – Egypt	42.78	46.54	42.13	50.59	51.72	51.97	48.24	49.71	47.31	43.82	46.12	49.59	53.19	49.67	51.15	52.75	53.72	55.74
Minas – Indonesia*	40.28	45.20	40.72	49.68	50.63	51.19	48.35	47.95	45.96	42.65	43.96	45.91	49.20	45.51	47.36	48.81	50.09	51.43
Urals – Russia	44.48	48.24	43.83	52.28	53.42	53.67	49.94	51.55	49.04	45.52	47.82	51.30	54.89	51.38	52.85	54.45	55.42	57.44
WTI – North America	45.16	49.89	45.67	52.02	52.50	53.40	49.58	51.06	48.56	45.17	46.67	48.03	49.71	46.70	48.34	49.08	50.06	51.83

Note: As per the decision of the 109th ECB (held in February 2008), the OPEC Reference Basket (ORB) has been recalculated including the Ecuadorian crude Oriente retroactive as of October 19, 2007. As per the decision of the 108th ECB, the ORB has been recalculated including the Angolan crude Girassol, retroactive January 2007. As of January 2006, monthly averages are based on daily quotations (as approved by the 105th Meeting of the Economic Commission Board). As of June 16, 2005 (ie 3W June), the ORB has been calculated according to the new methodology as agreed by the 136th (Extraordinary) Meeting of the Conference. From January 2009–December 2015, the ORB excludes Minas (Indonesia). As of July 2016, the ORB includes Rabi Light (Gabon).

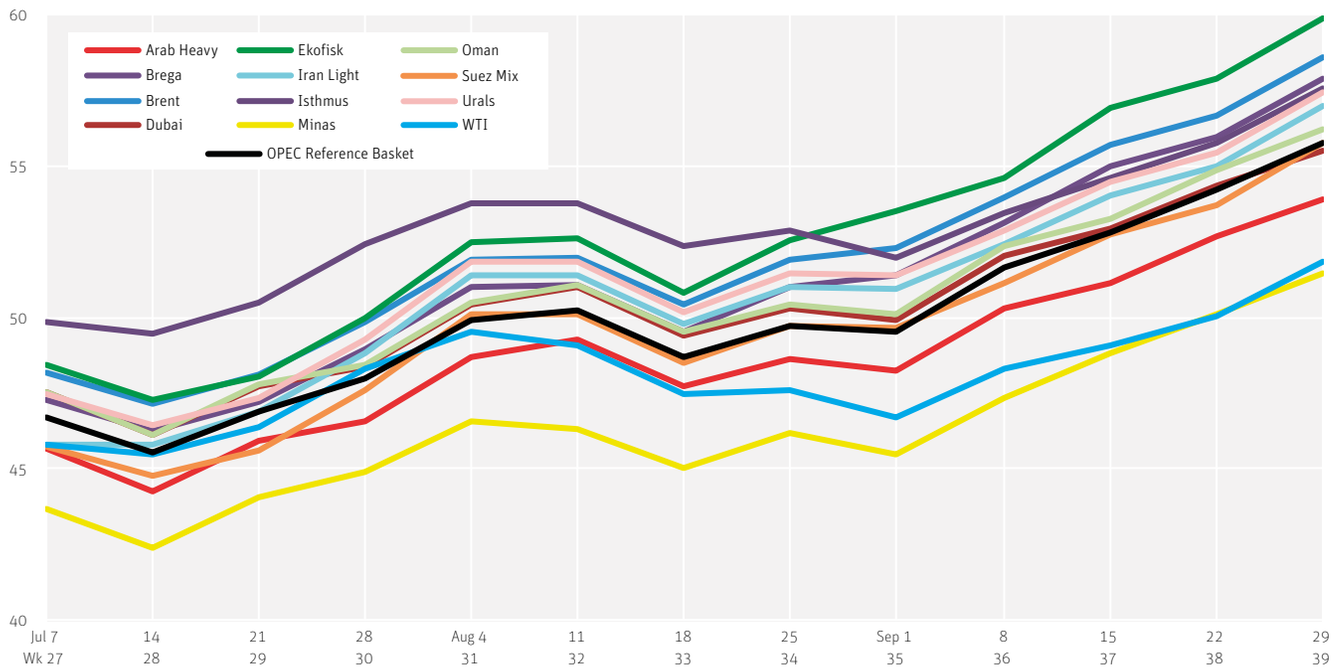
* *Indonesia joined in 1962, suspended its Membership on December 31, 2008, reactivated it again on January 1, 2016, but suspended its Membership again on December 31, 2016. Gabon joined in 1975 and left in 1995; it reactivated its Membership on July 1, 2016. Equatorial Guinea joined on May 25, 2017.*

Brent for dated cargoes; Urals cif Mediterranean. All others fob loading port.
Sources: The netback values for TJL price calculations are taken from RVM; Platt's; as of January 1, 2016, Argus; Secretariat's assessments.

Graph 1: Evolution of the OPEC Reference Basket spot crude prices, 2017 $/b



Graph 2: Evolution of selected spot crude prices, 2017 $/b



Note: As per the decision of the 109th ECB (held in February 2008), the OPEC Reference Basket (ORB) has been recalculated including the Ecuadorian crude Oriente retroactive as of October 19, 2007. As per the decision of the 108th ECB, the basket has been recalculated including the Angolan crude Girassol, retroactive January 2007. As of January 2006, monthly averages are based on daily quotations (as approved by the 105th Meeting of the Economic Commission Board). As of June 16, 2005 (ie 3W June), the ORB has been calculated according to the new methodology as agreed by the 136th (Extraordinary) Meeting of the Conference. As of January 2009, the ORB excludes Minas (Indonesia).
Indonesia suspended its OPEC Membership on December 31, 2008, this was reactivated from January 1, 2016, but suspended again on December 31, 2016.

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
2016	September	43.57	66.62	55.92	55.93	39.48	34.97
	October	48.60	70.13	61.50	61.82	43.83	38.10
	November	45.82	64.62	57.36	57.29	40.98	35.71
	December	50.90	71.37	64.50	64.89	46.70	42.28
2017	January	55.06	73.82	65.60	65.05	50.60	43.03
	February	54.82	75.66	66.35	66.13	49.73	43.13
	March	50.70	70.06	62.29	62.21	44.86	39.94
	April	51.54	75.36	64.21	64.11	46.95	41.71
	May	48.43	72.61	61.13	61.11	46.26	40.64
	June	44.69	69.62	57.81	57.06	43.95	39.68
	July	47.29	70.31	61.17	60.90	45.03	42.23
	August	51.00	75.17	65.71	64.70	46.64	44.06
	September	55.76	79.57	70.72	71.33	49.82	47.00

Note: Prices of premium gasoline and diesel from January 1, 2008, are with 10 ppm sulphur content.

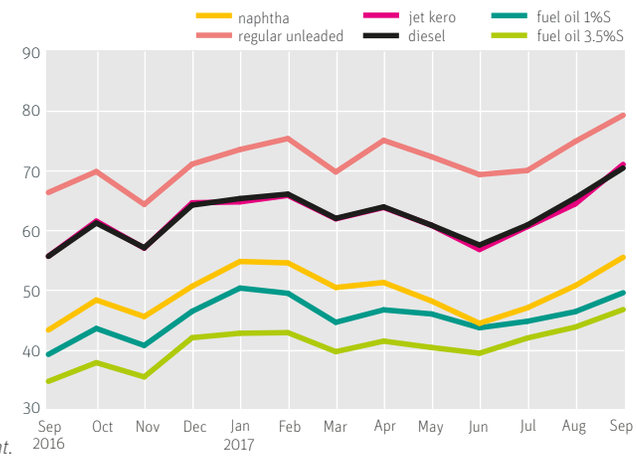


Table and Graph 4: South European market — spot cargoes, fob Italy

$/b

		naphtha	premium gasoline 50ppm	diesel ultra light	fuel oil 1 per cent S	fuel oil 3.5 per cent S
2016	September	43.20	59.38	57.04	40.02	37.45
	October	48.18	62.36	62.83	44.46	40.72
	November	45.09	57.83	57.93	40.71	37.30
	December	49.70	64.86	65.41	48.84	44.01
2017	January	54.21	66.95	66.54	52.19	45.77
	February	54.46	68.26	67.52	50.41	45.75
	March	49.55	62.59	63.15	46.24	42.34
	April	50.67	67.89	65.24	48.03	43.95
	May	47.31	63.74	62.28	47.10	42.85
	June	43.57	59.92	58.01	45.56	42.13
	July	46.31	61.17	62.06	45.35	43.60
	August	50.46	66.85	65.54	46.70	44.94
	September	54.97	70.50	72.43	49.97	48.10

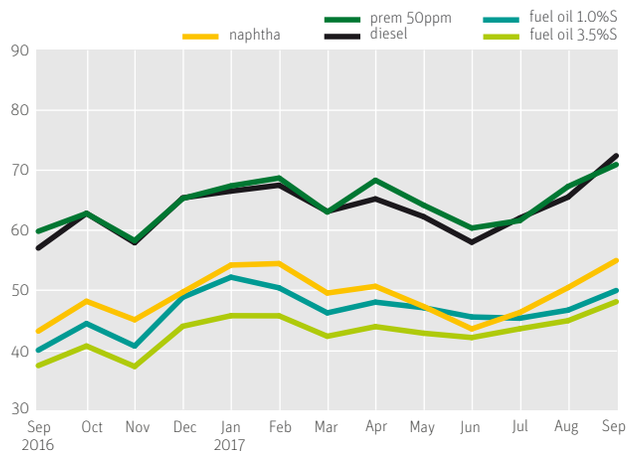


Table and Graph 5: US East Coast market — spot cargoes, New York

$/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
2016	September	61.62	54.94	57.81	47.63	38.07
	October	65.19	60.48	62.00	50.95	41.15
	November	61.34	55.44	57.47	48.22	38.69
	December	68.59	62.91	63.94	55.97	46.34
2017	January	67.54	64.13	65.12	59.23	48.51
	February	64.75	64.43	67.20	59.44	47.74
	March	62.83	60.48	62.20	53.62	44.19
	April	67.65	61.79	64.80	55.17	45.96
	May	64.47	59.10	60.71	52.99	43.94
	June	60.62	54.86	56.52	50.63	41.98
	July	65.78	58.03	62.55	53.78	45.17
	August	70.86	61.59	69.45	53.97	46.26
	September	77.64	68.78	76.57	58.56	48.81

* *FOB barge spot prices.*

Source: Platts. As of January 1, 2016, Argus. Prices are average of available days.

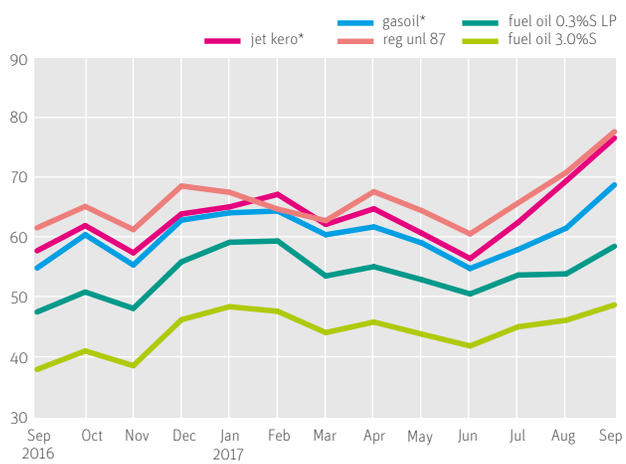


Table and Graph 6: Singapore market – spot cargoes, fob

$/b

		naphtha	premium gasoline unl 95	premium gasoline unl 92	gasoil	jet kero	fuel oil 180 Cst	fuel oil 380 Cst
2016	September	42.54	58.00	55.38	54.62	55.07	41.11	38.72
	October	47.70	62.99	60.06	61.23	61.02	45.33	43.06
	November	46.82	58.99	56.51	56.84	56.63	43.90	41.68
	December	51.51	66.68	64.25	62.91	64.10	51.68	49.47
2017	January	55.71	69.47	66.77	65.15	65.17	55.05	50.47
	February	56.58	69.90	67.54	66.76	66.26	54.59	49.07
	March	50.82	64.28	61.94	62.94	61.93	50.74	45.64
	April	52.31	67.66	64.81	64.68	63.88	52.47	47.34
	May	48.71	64.40	61.68	61.19	60.82	51.58	46.01
	June	44.94	59.78	57.41	57.54	57.03	50.17	44.60
	July	45.92	61.76	59.02	61.05	59.77	50.45	45.58
	August	50.58	67.51	64.70	63.51	63.11	51.91	47.08
	September	55.20	70.43	67.55	68.49	68.08	55.73	50.55

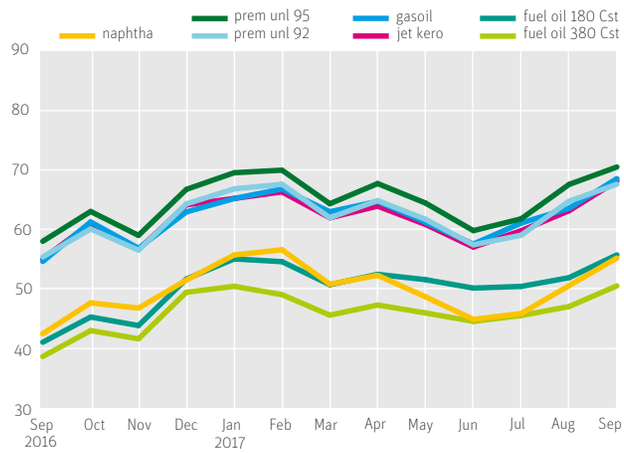
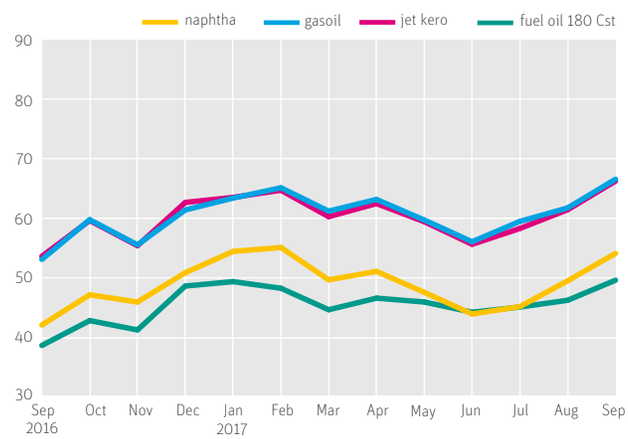


Table and Graph 7: Middle East Gulf market – spot cargoes, fob

$/b

		naphtha	gasoil	jet kero	fuel oil 180 Cst
2016	September	42.07	53.08	53.61	38.63
	October	47.14	59.75	59.62	42.81
	November	45.93	55.53	55.39	41.24
	December	50.85	61.39	62.65	48.61
2017	January	54.42	63.38	63.50	49.35
	February	55.08	65.11	64.70	48.24
	March	49.65	61.19	60.26	44.63
	April	51.07	63.16	62.46	46.58
	May	47.55	59.70	59.42	45.93
	June	43.92	56.05	55.62	44.21
	July	45.16	59.47	58.28	45.09
	August	49.48	61.73	61.43	46.22
	September	54.09	66.55	66.24	49.59



Source: Platts. As of January 1, 2016, Argus. Prices are average of available days.

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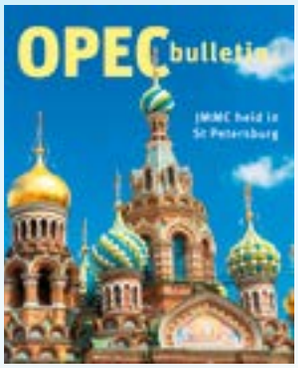

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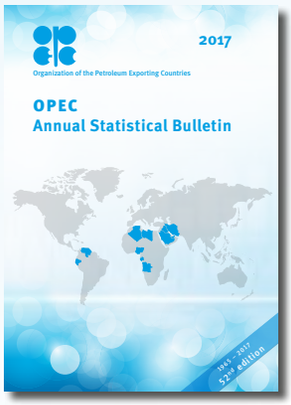

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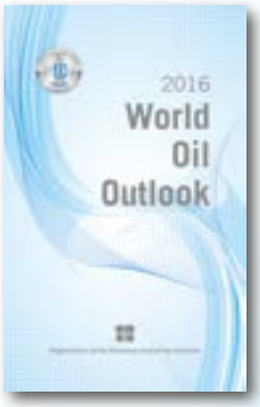

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