OPEC bulletin

1–2/17

JMMC holds first meeting

Venezuela's virtuoso: Gustavo Dudamel

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Turning a page in oil's history

The proof of any agreement is not in its signing, but in its application and successful implementation. On December 10, 2016, 24 leading global oil producers made history in Vienna, Austria when they put their signatures to a 'Declaration of Cooperation' that committed the countries to a sizeable adjustment in crude oil production in support of much-needed market stability. The landmark move between the 13 OPEC Member Countries and 11 non-OPEC producers was the culmination of many months of intense discussion and negotiation, often involving the highest level of heads of state and government.

After much lobbying and shuttle diplomacy throughout most of 2016, the parties finally came together in the Austrian capital in December to pledge their support for a joint initiative aimed at helping to correct a market imbalance that began in the summer of 2014 and worsened to become the longest down-cycle in the industry's history. The repercussions of this have been felt throughout the entire international oil and gas sector with producers, consumers, investors and oil companies all feeling the brunt. Many thousands of oil workers have found themselves without employment, producers have lost essential revenues required for their socio-economic development, while consumers have been facing a future of inadequate energy supplies because the necessary investments in the extra capacity required have been either shelved or cancelled altogether.

As the downturn deepened, it became more and more apparent that something had to be done. For its part, OPEC has been calling for such cooperation between the world's major oil producers for most of the Organization's existence, which stretches over 56 years. From the early beginnings, OPEC and its Member Countries realized that with something as sprawling, complex and sensitive as the international petroleum industry, structured cooperation and coordination of policies among the main parties — producers and consumers alike — would be the ideal course to take, in order to overcome the various challenges that would be sure to come the way of a sector that stands as one the most important pillars of the world economy.

Strength in unity — unity in strength has always been the Organization's unwritten motto. It was therefore considered a personal triumph when OPEC's Oil and Energy Ministers sat down in Vienna with their counterparts from some of the world's most influential non-OPEC producers and came up with a plan of action that will inevitably help all oil industry stakeholders, as well as the global community in general. The last time that happened was some 15 years ago, but to nowhere near the same extent and certainly not with the same level of seriousness.

The historic December 'Declaration' followed OPEC's own action at the end of November, when the Organization decided to adjust its production by 1.2 million barrels/day — the first such accord in eight years. It now means that, together, the 24 participating OPEC and non-OPEC producers of the 'Declaration of Cooperation' are combining to remove around 1.8m b/d of crude oil from a global market that has been suffering from oversupply for far too long. The immediate aim is to reduce an overhang in commercial crude oil stocks that has been preventing a rebalancing of the market. Once this is eliminated, and in tandem with rising demand, sustainable market stability should be restored, with prices once again returning to levels more conducive to investment, which has slumped alarmingly over the past two years.

Both the OPEC 'Vienna Agreement' and the 'Declaration of Cooperation' came into force on January 1. So, all eyes have been on the implementation of the decisions. And the results of the first-month analysis have only been encouraging. A committee set up to monitor the OPEC/non-OPEC accord's implementation held its inaugural meeting in Vienna on January 22. Its five members — Algeria, Kuwait, Venezuela, Oman and the Russian Federation — in looking at the early data were extremely pleased with the results. The meeting was also attended by Khalid A Al-Falih, Saudi Arabia's Minister of Energy, Industry and Mineral Resources, in his capacity as OPEC Conference President.

"Right now we are monitoring the production data coming from the OPEC data centre — and the results so far are very promising," Committee Chairman, Issam A Almarzooq, who is Kuwait's Minister of Oil and Minister of Electricity and Water, told a press conference after the meeting.

Co-Chair, Alexander Novak, Minister of Energy of the Russian Federation, was equally as emphatic: "The results we are observing ... are exceeding our expectations. In fact, many countries are going beyond what has been agreed in December in working strongly to the letter in the spirit of the 'Declaration'."

Just a few days after the landmark 'Declaration of Cooperation' was signed in December, a delighted OPEC Secretary General, Mohammad Sanusi Barkindo, said at the Petrotech 2016 Conference in New Delhi, India that the world was on the verge of turning a historic page in global oil. Of course, that was before the OPEC/non-OPEC agreement came into force on January 1. Following the positive outcome and confidence expressed at the inaugural meeting of the monitoring committee, the Organization's chief executive might want to rephrase that statement to "has turned" a historic page. But, ultimately, only the 24 participating countries — and hopefully any other producers that decide to join the effort — can make that a reality, for the benefit of all concerned.

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Cover

This month’s cover shows Gustavo Dudamel, Venezuela’s virtuoso who recently became the youngest conductor to ever lead the Vienna Philharmonic at its annual New Year’s Concert (see feature starting on p78).
Cover illustration: Tara Starnegg.

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OPEC Membership and aims

OPEC is a permanent, intergovernmental Organization, established in Baghdad, on September 10–14, 1960, by IR Iran, Iraq, Kuwait, Saudi Arabia and Venezuela. Its objective — to coordinate and unify petroleum policies among its Member Countries, in order to secure a steady income to the producing countries; an efficient, economic and regular supply of petroleum to consuming nations; and a fair return on capital to those investing in the petroleum industry. Today, the Organization comprises 13 Members: Qatar joined in 1961; Libya (1962); United Arab Emirates (Abu Dhabi, 1967); Algeria (1969); Nigeria (1971); Angola (2007). 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.

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JMMC holds inaugural meeting in Vienna ...

Ministers praise strong level of commitment to accord's framework

The OPEC/non-OPEC Joint Ministerial Monitoring Committee (JMMC) held its inaugural meeting at the OPEC Secretariat in Vienna, Austria on January 22, 2017 — and the news was all good.

The Committee's five members expressed satisfaction regarding the strong level of commitment already shown to the agreed framework of the OPEC/non-OPEC agreement reached in the Austrian capital in December last year.

"Right now, we are monitoring the data coming from the OPEC data centre — and the results so far are very promising. I cannot give an exact number. This will be revealed in February when we see the official report," Committee Chairman, Issam A Almarzooq, Minister of Oil and Minister of Electricity and Water of Kuwait, told a press conference after the talks.

Joining him on the panel was Russian Energy Minister, Alexander Novak, who stated that he could say with confidence that "we are very happy to see the success of the joint action and efforts by OPEC and non-OPEC countries in their bid to stabilize the market.

"Based on our data and what we are seeing, there is a very good level of conformity and commitment to the agreement.

"At this point we have no reason to doubt that there will be any significant deviations here. We believe that the countries involved are very committed to our joint cause. The results we are observing that started at the beginning of the year are exceeding our expectations. In fact, many countries are going beyond what has been agreed in December in working strongly to the letter in the spirit of the Declaration."

Issam A Almarzooq (c), Minister of Oil and Minister of Electricity and Water of Kuwait; Alexander Novak (l), Minister of Energy of the Russian Federation; Mohammad Sanusi Barkindo (r), OPEC Secretary General.

Issam A Almarzooq, Minister of Oil and Minister of Electricity and Water of Kuwait.

Alexander Novak, Minister of Energy of the Russian Federation.

Mohammad Sanusi Barkindo, OPEC Secretary General.

The JMMC was established following OPEC's 171st Ministerial Conference 'Vienna Agreement' of November 30, 2016, and the subsequent 'Declaration of Cooperation' signed at the joint OPEC/non-OPEC Ministerial Meeting held on December 10.

At the December meeting, 11 non-OPEC oil producers cooperated with the 13 OPEC Member Countries in a concerted effort to accelerate the rebalancing of the global oil market through an adjustment in combined production of around 1.8 million barrels/day (1.2m b/d from OPEC).

The 'Declaration of Cooperation', which came into effect on January 1, 2017, is for six months, and is extendable for an additional six months pending the status of supply and demand, as well as global inventories.

Committee's role

The JMMC is tasked with ensuring that the objectives of OPEC's 171st Ministerial Conference decision and the 'Declaration' are achieved through the successful implementation of the agreed voluntary adjustments in production.

According to an OPEC press release issue after the meeting, the Committee will also facilitate the exchange of joint analyses and outlooks, which will provide valuable input into the evaluation of the conformity process.

The JMMC is composed of three OPEC Member Countries — Algeria, Kuwait and Venezuela, and two non-OPEC countries — the Russian Federation and Oman.

The inaugural meeting was chaired by Issam A Almarzooq, Minister of Oil and Minister of Electricity and Water of Kuwait, who began the proceedings with an opening statement.

Remarks were also delivered by the Russian Energy Minister, Alexander Novak, who is the Committee's Alternate Chairman, and Khalid Al-Falih, Saudi Arabia's Minister of Energy, Industry and Mineral Resources, and President of the OPEC Conference for 2017.

The press release noted that OPEC's Research Division briefed the JMMC on oil market developments that had occurred since the 'Declaration of Cooperation' was signed in December.

The Committee then engaged in a detailed discussion regarding the framework for the realization of the voluntary production adjustments as per the agreement.

In reaffirming its commitment to joint cooperation for the achievement of lasting stability in the oil market, in the interest of oil producers and consumers, the Committee agreed to full and timely conformity to the agreement with the following stipulations:

- The OPEC Secretariat will present a monthly production data report on OPEC Member Countries' crude oil and of the participating non-OPEC oil liquid production to the JMMC by the 17th of each upcoming month.
- Evaluation of conformity to the respective country production adjustment will be based on production data only.
- Each of the five member countries of the JMMC will nominate one technical contact person, to form a Joint Technical Committee (JTC), which shall include the Presidency of the OPEC Conference and shall assist the respective Ministers. The JTC will regularly cooperate with the OPEC Secretariat in preparing the monthly report for the JMMC and meet on a monthly basis before submitting their report to the JMMC.
- The JMMC will communicate monthly, after the 17th of each upcoming month, to consider the reports presented by the JTC and the OPEC Secretariat, as well as meet after the 17th of March 2017 and before the OPEC Conference in May 2017.
- The JMMC will issue a monthly press release on the progress towards the implementation of the OPEC 171st Ministerial Conference Decision and the Declaration of Cooperation.
- The JMMC will report to the Conference on the effect of the implementation of the OPEC 171st Ministerial Conference Decision and the Declaration of Cooperation on the market.

L–r: Mohammed Hamad Al Rumhy, Minister of Oil and Gas, Oman; Dr Mohammed Bin Saleh Al-Sada, Minister of Energy & Industry, Qatar, and President of the OPEC Conference in 2016; Alexander Novak, Minister of Energy of the Russian Federation; Issam A Almarzooq, Minister of Oil and Minister of Electricity and Water of Kuwait; Khalid A Al-Falih, Minister of Energy, Industry & Mineral Resources, Saudi Arabia, OPEC Conference President for 2017; Noureddine Boutarfa, Minister of Energy, Algeria; Dr Nelson Martínez, People's Minister of Petroleum, Venezuela; Mohammad Sanusi Barkindo, OPEC Secretary General.

OPEC/non-OPEC oil adjustments "exceeding expectations" — *press conference told*

The oil production adjustments being made by OPEC and non-OPEC oil producers under their recently agreed 'Declaration of Cooperation' are already exceeding expectations, according to Alexander Novak, Energy Minister of the Russian Federation.

Speaking at a press briefing in Vienna, Austria at the end of the inaugural meeting of the OPEC/non-OPEC Joint Ministerial Monitoring Committee (JMMC), he said that, in fact, many countries were going beyond what had been agreed in December 2016 "in working strongly to the letter in the spirit of the Declaration."

Novak explained that the two goals pursued by the first meeting of the JMMC were the assessment of the implementation of the 'Declaration of Cooperation', as well as the mechanisms and the framework of the Committee.

"As far as the first part is concerned, I can say with confidence that we are very happy to see the success of the joint action and efforts by OPEC and non-OPEC countries in their bid to stabilize the market."

He stated that, "based on our data and what we are seeing, there is a very good level of conformity and commitment to the agreement.

Countries "very committed"

"At this point, we have no reason to doubt that there will be any significant deviations here. We believe that the countries involved are very committed to our joint cause.

"The results we are observing, that started at the beginning of the year, are exceeding our expectations," he stressed.

On December 10, 2016, 24 oil-producing countries — 13 from OPEC and 11 from non-OPEC — reached a historic understanding in Vienna, Austria to reduce total oil production by around 1.8 million barrels/day.

This move is aimed at removing the considerable overhang in commercial oil stocks that is affecting the market and which has contributed to the longest ever down-cycle in the industry's history.

The agreement came into force on January 1, 2017, and will last an initial six months. If deemed necessary by the producers, the arrangement can be extended for another half year.

Novak told newsmen that in the JMMC's assessment of the current market, "we have noted that we are seeing more stability and greater inventory draws. But what is more important is that we are starting to see a decline in the volatility of the oil price."

Also at the press conference, Committee Chairman, Issam A Almarzooq, Minister of Oil and Minister of Electricity and Water of Kuwait, said there had been total agreement by the Committee members of the mechanisms to be adopted.

This, he revealed, would include the establishment of a Joint Technical Committee that would be responsible for the regular reports that would be compiled in cooperation with the OPEC Secretariat and submitted to the JMMC.

This, he said, would comprise technical experts from each of the five Committee Members (Algeria, Kuwait, Venezuela, Oman and the Russian Federation), as well as the OPEC Conference Presidency, this year held by Saudi Arabia.

"We also agreed on the number of times the JMMC will convene and communicate during the next five months to discuss the reports that will be prepared for us. We will next meet in Kuwait, hopefully in the second week of March. Then the third JMMC Meeting will be held ahead of the OPEC Conference in May."

He said: "Right now, we are monitoring the data coming from the OPEC data centre and the results so far are

ALGERIA
Noureddine Boutarfa (c), Minister of Energy; Eng Mohamed Hamel (l), Governor for OPEC; and Dr Achraf Benhassine (r), OPEC National Representative.

KUWAIT
Sadiq Marafi (c), Ambassador to Austria; Ms Nawal Al-Fezaia (r), Governor for OPEC; Mohammad Khuder Al-Shatti (l), OPEC National Representative.

OMAN
Mohammed Hamad Al Rumhy (c), Minister of Oil and Gas; Ali Abdullah Al Riyami (r), Director General of Marketing, Ministry of Oil and Gas; Eng Said Al Brashdi (l), Minister, Embassy of the Sultanate of Oman, Vienna.

very promising. I cannot give an exact number. This will be revealed in February when we see the first report. A press release will then be issued about our observations.

As for the extension of the agreement for another six months, Almarzooq said the JMMC would review all the data at the end of the first six months. "We will meet in Vienna in May and we will then consider if an extension is necessary or not."

Asked what would be an acceptable conformity rate in percentage terms to the oil reduction, the Minister said the JMMC had discussed this in its meeting and it was stressed that its members would not accept anything other than 100 per cent conformity.

Novak stressed that the Joint Technical Committee would be working in real time and communicating and meeting on a monthly basis, working on reports and an assessment of the situation, which would later be presented to the JMMC.

"The JMMC will meet on a bimonthly basis and we expect to meet twice before the next OPEC Conference," he affirmed.

Russia's crude production cut

Asked what Russia's actual oil production cut was right now, Novak replied that the average reduction in the country's output from January 1 to January 22 was somewhere above 100,000 b/d.

"Initially, in this time span, we thought our technical capability would only allow for a 50,000 b/d reduction," he said.

"Our reduction is certainly faster than the conservative assessments we made initially. In fact, we are exceeding the pace of reduction planned by a factor of two."

Concerning the output reduction from all participating countries, Novak told the press conference that obviously they did not have final data yet for January, but based on open sources, statements and the data already analyzed, "we are currently estimating that the reduction in output as of now is close to 1.5m b/d.

"However, I would like to stress that this figure is only for the countries for which we know the data and not a figure for all 24 participating countries. I believe that when we do get all the statistics for January, we will all be positively surprised.

"But through our indirect sources and communication, we are seeing a significant stabilization of the oil market, we are seeing inventory draws and the volatility index drop and somewhat more promising pricing — these are all the result of the agreement's implementation," he maintained.

Questioned as to how the monitoring process would work and what parameters would be used, Novak said the data used to monitor production would come from a variety of reputable agencies and other sources.

"We have agreed with our colleagues participating in the agreement that one technical person from each of them will be responsible for submitting data to OPEC. Of course, OPEC has a very extensive and rich history here of collecting data from its Member States and monitoring production levels.

"But what we are experiencing today is a new historic set up between OPEC and non-OPEC producers which will require the establishment of a new technical framework for collecting, analyzing and monitoring the data.

"This means that for non-OPEC countries we would not just rely on secondary sources, but we will also be making extensive use of the primary data and direct communications from the countries themselves.

"The Joint Technical Committee's objective is to collect, analyze compile and then present this data to the JMMC. We have agreed that monitoring will be of the countries' production data.

"But the Joint Technical Committee will be free to use other indicators, including the export of crude oil and of oil products to monitor the trends and the situation in the market in general.

"Again, I would like to stress that the basic parameter that is included in our 'Declaration' is for the monitoring of crude oil production."

Novak said he would like to express his sincere gratitude to all the countries that were participating in the agreement and "all my colleagues and ministers that are present here today at this inaugural meeting.

"I would especially like to thank my colleagues here on the Committee and also to the efforts of incoming OPEC Conference President, Khalid A Al-Falih of Saudi Arabia, and to the outgoing President, Dr Mohammed Bin Saleh Al-Sada of Qatar, as well as to the OPEC Secretary General, Mohammad Sanusi Barkindo.

"I would also like to say thank you to all the efforts the countries are exerting to not only stabilize the market, but also to support a sustainable and stable development of the global economy," said Novak.

Asked about the energy plan of newly elected United States President, Donald Trump, which could reduce dependence on OPEC oil supplies, the OPEC Secretary

SAUDI ARABIA
Khalid A Al-Falih (c), Minister of Energy, Industry & Mineral Resources, President of the OPEC Conference for 2017; Adeeb Al-Aama (l), Governor for OPEC; and Dr Ibrahim H Al-Muhanna (r), Advisor to the Saudi Minister of Energy, Industry & Mineral Resources.

VENEZUELA
Dr Nelson Martínez (c), People's Minister of Petroleum; Eng Angel Gonzalez Saltron (l), Governor for OPEC; Nélida Izarra (r), OPEC National Representative.

RUSSIA
Ambassador Vladimir Voronkov (c), Permanent Representative to the United Nations (Vienna), UNIDO and CTBTO, Resident Representative to the IAEA; Roman Marshavin (l), Ministry of Energy; and Dmitriy Kapnik (r).

Dr Mohammed Bin Saleh Al-Sada (c), Minister of Energy & Industry, Qatar, and President of the OPEC Conference in 2016; Ambassador Ali Bin Jassim Al-Thani (l), Embassy of the State of Qatar & Permanent Mission to the International Organizations in Vienna; and Issa Shahin Al Ghanim (r), Qatar's Governor for OPEC.

Members of the OPEC Secretariat team (l–r): Dr Hojatollah Ghanimi Fard, Head, Petroleum Studies Department; Dr Adedapo Odulaja, Head, Data Services Department; Hasan Hafidh, Head, Public Relations and Information Department; Dr Aziz Yahyai, Senior Research Analyst, Petroleum Studies Department;

... Abdullah Alakhawand, Head, Administration and IT Services Department; Asma Muttawa, General Legal Counsel; Jose Luis Mora, Head, Finance and Human Resources Department; with Estévão Pedro, Angola's Governor for OPEC and Chairman of the OPEC Board of Governors.

OPEC and non-OPEC Ministers address the press conference after the inaugural meeting of the JMMC.

General repied, saying that everyone in the industry had seen the news reports circulating on this issue.

"But, as an Organization, OPEC would prefer to wait and see — especially until a new Energy Secretary is sworn in. I am sure he would then unveil the new energy policy of the country.

"Of course, as stakeholders in this global business, we will also have our commentaries, in-depth studies and consultations within our governing bodies," he added.

Regarding the threat of shale oil production in North America once again rising on the back of higher crude prices, Kuwait's Almarzooq said the increase in crude output trending with the increase in prices was normal and expected.

He explained that the shale production level would depend on the cost of producing the shale oil in the US.

"Some areas are beyond the figures we are looking at right now and some are below. So when the prices go up we can expect the production to go up. The reduction we have agreed to I think will cater for such an increase in production.

"There will also be an increase in demand worldwide. So we are not worried about US shale oil production increasing as prices go up because I think it will be consumed in the increase in demand as well," he observed.

Qatar's Al-Sada, who was also on the panel, revealed that OPEC expected global oil demand to remain healthy in 2017 at around 1.2m b/d. But it was true that the number of drilling rigs for shale operations in North America had been increasing of late.

"But both shale oil and shale gas need continuous drilling because the nature of these wells is that they produce for a year or two, before dropping off significantly.

"And I also think that with the increase in global crude oil demand the shale oil produced will all be catered for. So even with the increased shale oil production, we are still likely to see the rebalancing of the market taking place.

"We have seen a continual reduction in the commercial stocks which we think will continue. We think that the rebalancing will be achieved later this year," he added.

Meanwhile, an independent assessment made by the *Reuters* news agency estimated that OPEC's oil output fell by more than 1m b/d in January.

It said that supply from the 11 OPEC Member Countries with production allocations under the 'Declaration of Cooperation' had averaged 29.921m b/d in the month, according to the survey based on data and information from industry sources used by OPEC to monitor its production. The figure was down from 31.17m b/d in December 2016.

It pointed out that conformity of 92 per cent comfortably exceeded the 60 per cent achieved when the Organization's previous adjustment deal was implemented in 2009.

As the *OPEC Bulletin* went to press, OPEC's own figures, as compiled by the Secretariat in Vienna, estimated conformity in January as being as high as 94 per cent.

Conference President, Ministers confident OPEC-led market efforts will work

Khalid A Al-Falih, Minister of Energy, Industry & Mineral Resources, Saudi Arabia, and President of the OPEC Conference in 2017.

OPEC Conference President, Khalid A Al-Falih, has expressed confidence that the Organization's plan to stabilize the international oil market will succeed. The Saudi Arabian Minister of Energy, Industry and Mineral Resources said he had already been encouraged by the early commitment shown by oil producers to an agreement designed to reduce oversupplies in the market.

In early December last year, OPEC reached a 'Declaration of Cooperation' with a group of 11 non-OPEC oil producers to reduce production in support of market stability.

The producers' agreement to remove a total of around 1.8 million barrels/day of crude from the market is aimed at reducing a large stock overhang and, hence, help speed up the rebalancing of the international oil market.

The accord, which became effective on January 1, 2017, will run for six months, a period that could be extended until the end of the year if deemed necessary.

The 'Declaration' was agreed at an OPEC-non-OPEC Ministerial Meeting in Vienna, Austria on December 10, 2016. At the same time, a Joint Ministerial Monitoring Committee (JMMC) — made up of five members, three OPEC and two non-OPEC — was established to oversee the success and implementation of the agreement.

The Committee held its first meeting in the Austrian capital towards the end of January.

"Many countries are actually going the extra mile and cutting beyond what they've committed ... I am confident about the impact ... and I am very encouraged about those first two weeks," Al-Falih was quoted as saying by the *Reuters* news agency.

Speaking on the sidelines of an industry event in Abu Dhabi, the United Arab Emirates (UAE), he stressed that Saudi Arabia would adhere strictly to its commitment to reduce output under the global agreement.

Al-Falih confirmed earlier that the Kingdom's oil output had fallen below 10m b/d, meaning that it had reduced production by more than the 486,000 b/d which it agreed under the 'Declaration'.

"We will strictly adhere to our commitment," said the Minister, pointing out that over the first half of 2017, the Kingdom's oil output would either be at the official target under the deal, or "as is the case now, slightly below."

Even though, under the terms, the agreement can be extended for a further six months, Al-Falih said he did think it would be necessary to extend it.

He noted that oil demand was rising and producer conformity with the promised adjustments was high.

"My expectations are that the rebalancing that started slowly in 2016 will have its full impact by the first half," he was quoted as saying.

"Once we get close to the five-year average of global stocks and inventories we will basically let our foot off the brakes and let the market do its thing," he affirmed.

He maintained that oil demand would pick up in the summer. "We want to make sure the market is well supplied — we do not want to create a shortage or squeeze."

However, he conceded that there were many variables that could come into play between January and June. "At that time, we will be able to reassess the situation."

Meanwhile, Iran's Petroleum Minister, Eng Bijan Namdar Zanganeh, has also said he was confident the OPEC and non-OPEC members that were part of the deal would stick to their output reductions.

He predicted that international crude oil prices should rise further as a result of the success of the agreement.

"The present uplift in prices is rooted in effects exerted on market psychology by the freeze deal, though more tangible outcomes are yet to be revealed once all parties curtail production," Iran's *Mehr* news agency quoted the Minister as saying.

He stressed that the current condition of the oil market was "satisfactory" and "on the right path".

Zanganeh went on to say that, ultimately, oil producers and consumers had reached the consensus that low crude prices were contrary to the interests of the global economy, a sustainable supply of energy and even production of new energies.

From a non-OPEC point of view, Oman's Minister of Oil and Gas, Mohammed Hamad Al Rumhy, told the *International Oil Daily* on the sidelines of the conference that conformity to the agreement from big producers, such as Saudi Arabia and the Russian Federation, had so far been "very good" and had encouraged a price rally.

"You can see that prices are ticking up slowly, but the key is to keep it that way," he said, adding that Oman had already adjusted its output by the stipulated 4.5 per cent — or 45,000 b/d.

Oman is one of the countries on the JMMC that held its inaugural meeting in Vienna on January 22.

According to Al Rumhy, monitoring a reduction in exports would be a priority as the supply to the market was what generally affected balances.

"What is delivered to the market is more important in my opinion than anything else," he said.

OPEC Secretary General makes second visit to Venezuela ...

Venezuelan President, new Petroleum Minister praise OPEC's historic agreements

The President of the Bolivarian Republic of Venezuela, Nicolás Maduro Moros, met with OPEC Secretary General, Mohammad Sanusi Barkindo in the country's capital, Caracas, on January 16, 2017.

The meeting, which took place at Miraflores Palace, was also attended by Venezuela's Minister of Foreign Affairs, Delcy Rodríguez Gómez, the country's newly appointed People's Minister of Petroleum, Dr Nelson Martinez, and Nigeria's Ambassador to Venezuela, Aisha Aliyu Musa.

It was the second time in two months that the two high-ranking OPEC officials had met. The OPEC Secretary General was following up on his visit paid to the Venezuelan President in Caracas in mid-November last year after the signing of OPEC's 'Algiers Accord' in September and ahead of its landmark 'Vienna Agreement' at the end of November and the 'Declaration of Cooperation', signed with non-OPEC oil producers in December.

On this occasion, the Venezuelan President commended the OPEC Secretary General on the recent successful meetings of the Organization held among OPEC and non-OPEC oil producers, which led to the historic agreement being signed in Vienna, Austria, on December 10, 2016.

This accord involves 24 oil-producing countries (13 from OPEC and 11 from non-OPEC) reducing crude production by a total of around 1.8 million barrels/day, effective January 1, for the first half of 2017, and extendable for another six months, if deemed necessary.

The aim of the agreement is to help reduce the market's oversupply, especially in reducing the stock overhang, thus speeding up the rebalancing of the market.

In his talks with the OPEC Secretary General, Maduro urged all participating countries in the agreement "to work together in achieving sustainable oil market stability, not only in the short-term, but also in the medium- and long-term."

Venezuela, one of OPEC's five Founding Members, has been a staunch supporter of the cooperation the Organization has been seeking to establish with non-OPEC producers for many years.

In fact, since taking up office in April 2013, Maduro has been instrumental in sending high-ranking officials from his country around the world to lobby for joint action on restoring sustainable stability to the market, which is today suffering the longest downturn in its history.

Maduro, who was Vice President of Venezuela in 2012 and before that Minister of Foreign Affairs from 2006, took up the mantle from President Hugo Chávez Frías, who sadly passed away on March 5, 2013. Maduro initially assumed the powers and responsibilities of the President, and was then officially elected to the position the following month.

Special ties with OPEC

Venezuela's ties with OPEC have always taken on special significance. The country considers itself the instigator of initial talks that brought the five founding producers together and which culminated in the Organization being established in Baghdad, Iraq in September 1960.

Venezuela has been an oil producer since 1914 when the first commercial oil well, Zumaque I, was drilled in the Mene Grande field on the eastern shores of Lake Maracaibo.

Official OPEC figures show that the country today possesses the world's largest crude oil reserves, with proven deposits totalling 300.878 billion barrels. The country produces around 2.3m b/d of crude.

But as with other oil-producing nations, it has been struggling to cope with the sustained slump in crude oil prices. With a population of almost 30.7m, its oil revenues account for some 95 per cent of the nation's total export earnings.

Apart from petroleum, Venezuela's natural resources include natural gas, iron ore, gold, bauxite, diamonds and other minerals.

Meanwhile, speaking at a news conference with the Venezuelan President, the OPEC Secretary General said

Left: Nicolás Maduro Moros (r), President of the Bolivarian Republic of Venezuela, met with Mohammad Sanusi Barkindo (l), OPEC Secretary General.

Mohammad Sanusi Barkindo, OPEC Secretary General.

he remained optimistic that with the full and timely implementation of the OPEC/non-OPEC agreement "the situation of our economies will improve tremendously.

"The stability in the oil market that has eluded us for nearly three years will be restored on a sustainable basis in the interest of producers, consumers and the global economy," he was quoted as saying.

Barkindo paid tribute to the Venezuelan President, saying that he had played an inspirational role in bringing the producers together to reach the agreement. He especially thanked Maduro for taking the leadership in helping to build a consensus among OPEC and non-OPEC producers and for his great efforts during consultations with other Heads of State that took place in the second half of 2016.

The OPEC Secretary General pointed out that Venezuela's great commitment and presence would now continue through its membership of the Joint Ministerial Monitoring Committee (JMMC), which was established under the 'Declaration' to ensure oversight and a high-level of conformity with the historic decision by the participating countries.

Other members of the Committee, which held its inaugural meeting on January 22, 2017, in Vienna, are Algeria, Kuwait (Chairman) and from non-OPEC, Oman and the Russian Federation.

Barkindo noted that Venezuela's newly appointed People's Minister of Petroleum, Dr Nelson Martínez, would play a central role in the JMMC's dealings.

In fact, this subject formed part of the Secretary

Dr Nelson Martínez (l), the newly appointed People's Minister of Petroleum of the Bolivarian Republic of Venezuela, with Mohammad Sanusi Barkindo (r).

Nicolás Maduro Moros (r), President of the Bolivarian Republic of Venezuela, with Mohammad Sanusi Barkindo (l), OPEC Secretary General.

General's discussions with the Minister and other senior Venezuelan officials, when he met them earlier on January 16.

In congratulating Martínez on his "well-deserved appointment" as Venezuela's new Petroleum Minister, Barkindo also offered a great vote of thanks to Martinez's predecessor, Eng Eulogio Del Pino, for his great efforts and commitment to OPEC in working towards reaching the historic agreement with non-OPEC producers.

Del Pino is now Chairman of the Board and President of the state energy company, Petróleos de Venezuela, SA (PDVSA).

Accord's framework

In his meeting with Martínez, the OPEC Secretary General briefed the Minister on recent oil market developments, following the 'Vienna Agreement' and the 'Joint Declaration of Cooperation', as well as looking at the framework for oversight and monitoring of the accord.

Responding, Martínez welcomed the OPEC Secretary General and his team to Venezuela, stating that it was an opportune time to meet and take stock of the landmark achievements OPEC had made in 2016, as well as the subsequent reaction of the markets.

Both the Secretary General and the Minister stressed the importance of the decisions, underscoring the fact that they were the result of detailed, exhaustive and collaborative cooperation among all the parties involved.

Martínez assured Barkindo that as a member of the JMMC, Venezuela would play a leading role in helping to secure market stability for both producers and consumers.

Martínez was appointed People's Minister of Petroleum on January 4, 2017, under a decree issued by the Venezuelan President.

He had been Chairman of the Board of Directors and President and Chief Executive Officer of the CITGO Petroleum Corporation since May 2013 *(see appointment on p51)*.

Reuters

OPEC Secretary General attends World Economic Forum

Mohammad Sanusi Barkindo, OPEC Secretary General.

OPEC Secretary General, Mohammad Sanusi Barkindo, took part in a series of sessions and high-level policy interactions at the annual World Economic Forum (WEF) meeting in Davos-Klosters, Switzerland, on January 17–20, 2016.

Barkindo used the opportunity to give an overview of OPEC's extensive efforts in 2016 aimed at helping to speed up the rebalancing of the international oil market. This culminated in the Organization reaching a 'Declaration of Cooperation' with a group of non-OPEC oil producers to reduce production in support of market stability.

OPEC's landmark decisions

He spoke about the 'Algiers Accord', reached at the 170th (Extraordinary) Meeting of the OPEC Conference in Algeria in September, as well as the decision taken at the 171st Meeting of the OPEC Conference at the end of November to reduce total crude output by 1.2 million barrels/day, effective January 1, 2017. Then, on December 10, at a Ministerial Meeting in Vienna, 11 non-OPEC oil producers also offered their support with a cut of nearly 600,000 b/d.

The OPEC Secretary General reported on the success of the implementation of this agreement, which if necessary can be extended by a further six months, in addition to discussing the Organization's perspectives on short- and long-term oil market developments.

Barkindo actively participated in a number of sessions and met with senior officials, ministers and industry leaders attending the WEF in various bilateral sessions held on the sidelines of the event.

This included a meeting with Roberto Bocca, WEF Head of Energy Industries and Member of the Executive Committee, to look into the potential for closer collaboration between OPEC and the Forum.

Notably, the OPEC Secretary General participated in a panel discussion at the Energy System Security and Resilience dinner on January 18, along with the Vice-President of the European Commission, in charge of Energy Union, Maroš Šefčovič, the Executive Director of the International Energy Agency (IEA), Fatih Birol, and other prominent personalities.

The officials discussed which geopolitical developments are expected to have the strongest and longest-lasting impact on energy systems, how stakeholders should react to these developments and what the international community can do to help improve energy system resilience.

Barkindo expressed how the low oil price environment had pressured capital expenditure in exploration and production, with global upstream spending falling in both 2015 and 2016.

In sharing OPEC's most recent projections, and listing some of the challenges going forward, he pointed out that the cooperation forged between OPEC and non-OPEC producers had improved overall sentiment on the market's prospects, supported conditions for world economic growth and ultimately contributed to sustainable market stability.

The OPEC Secretary General was also present at a roundtable discussion on Governors Policy Meeting for Oil and Gas, also held on January 19. This included Patricia Espinosa Cantellano, Executive Secretary of the United Nations Framework Convention on Climate Change (UNFCCC), and Erna Solberg, the Prime Minister of Norway.

The roundtable considered how many industry market features that have been defined for years are being revisited and the potential effects of this on fundamental relationships between host governments and the industry, public-private collaborations in obtaining the goals set by the Paris Agreement, and how the oil and gas industry can support governments in achieving growth ambitions along with other Sustainable Development Goal (SDG) objectives.

In addition, the OPEC Secretary General took part in the Shaping the Future of Energy: Stewardship Board Meeting, which highlighted the WEF's System Initiative on Shaping the Future of Energy.

Barkindo put forward his opinions on recent significant transformations in the global energy systems, which he considered to be driven by a blend of innovation, major changes in policy and investments and changing consumer demands.

Added to this, the OPEC Secretary General participated in several in-depth media interviews throughout the event.

Adjustment from high levels

In an interview with *Bloomberg TV,* he lauded the "tremendous efforts" being made by all 24 participants of the 'Declaration of Cooperation', while in comments to the *Reuters* news agency he said they were already seeing production adjustment from high levels. "Our eyes will continue to focus on the level of adjustment," he affirmed.

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

Meanwhile, he told Sputnik that the coming together for the first time in history of 24 producing countries on December 10 in Vienna had created a global platform of producers with the sole objective of ensuring stability in the oil markets in the short, medium and long term.

"Therefore, there is a great opportunity for all stakeholders, including the oil and gas industry, to solidify this platform and ensure that it continues to perform the stabilization role in the best interests of the industry, as well as the global economy," he maintained.

The WEF brings together the world's top leaders to discuss and collaborate on issues that shape global, regional and industry agendas. This year's event, the 47th annual meeting, was held under the theme 'Responsive and Responsible Leadership'. OPEC last participated in the event in January 2015.

OPEC Secretary General in Abu Dhabi ...

Barkindo addresses Atlantic Council Global Energy Summit

OPEC Secretary General, Mohammad Sanusi Barkindo, attended a new flagship initiative in the United Arab Emirates (UAE) capital of Abu Dhabi on January 12–13, 2016.

The Global Energy Forum, organized by the Atlantic Council, in partnership with the UAE Ministry of Energy, the Abu Dhabi National Oil Company (ADNOC), the Mubadala Development Company and the International Petroleum Investment Company (IPIC), proved to be a high-level policy gathering.

It provided the opportunity for valuable interactions among oil and energy ministers, major oil companies, leading international organizations in the field of energy, as well as prominent policymaking officials.

The Forum, with the theme *'The Geopolitics of the Energy Transformation',* focused on three key themes: emerging energy market trends in a geopolitical context; the implications of the United States elections for global energy and climate policies; and the breakthrough in energy technologies — the next revolution.

Barkindo in first session

The OPEC Secretary General participated in a panel session on the first day of the Forum, titled *'Oil Market Trajectories: Long-term Investment and Technology Risks'*.

Moderated by John Defterios, Emerging Markets Editor, CNNMoney, the session also included two OPEC

On the panel session ... Mohammad Sanusi Barkindo (third r), OPEC Secretary General; which also included Jabbar Ali Hussein Al-Luiebi (third l), Iraqi Oil Minister; and Issam A Almarzooq (second l), Minister of Oil and Minister of Electricity & Water, Kuwait.

Mohammad Sanusi Barkindo, OPEC Secretary General.

Issam A Almarzooq, Minister of Oil and Minister of Electricity & Water, Kuwait.

Jabbar Ali Hussein Al-Luiebi, Minister of Oil, Iraq.

Oil and Energy Ministers — Jabbar Ali Hussein Al-Luiebi, Minister of Oil of Iraq and Issam A Almarzooq, the recently appointed Minister of Oil and Minister of Electricity and Water of Kuwait and Chairman of the Board of the Kuwait Petroleum Corporation (KPC).

Speaking on OPEC's recent historic oil agreement with a group of non-OPEC oil producers, which involves reducing crude production by around 1.8 million barrels/day from January 1, 2017, for the first six months of the year, Barkindo said he remained very confident of its full and timely implementation by all participating countries.

The 24 OPEC and non-OPEC producers signed up to the unprecedented 'Declaration of Cooperation' in Vienna, Austria on December 10, 2016. The landmark accord is looking to reduce the stock overhang and speed up the rebalancing of the oil market.

"The level of commitment from both sides ... is unparalleled," professed the OPEC Secretary General, adding that as a result of the agreement, global oil inventories would start to fall by the second quarter of the year.

Barkindo noted that crude-producing countries would decide in May this year whether to extend their collective output adjustments beyond the first half of the year, as provided for under the terms of the agreement.

"We have our target in accelerating the drawdown in stocks — to bring them closer to the five-year level," he was quoted as saying to newsmen on the sidelines of the Forum.

The OPEC Secretary General pointed out that global macroeconomic numbers had responded "positively" to the OPEC/non-OPEC agreement, which was aimed at ending a worldwide supply glut that had destabilized the international oil market since the summer of 2014.

OPEC Member States

As well as Iraq and Kuwait, the Oil and Energy Ministers of fellow OPEC Member Countries Algeria, Qatar, Saudi Arabia and the UAE also participated in the Forum.

They in turn provided detailed accounts on the success of the 'Declaration of Cooperation', stating that it was aimed at restoring stability to the markets in a sustainable manner.

The Forum enabled the OPEC Ministers and the OPEC Secretary General to hold informal talks to discuss the oil market response to the recent decisions taken in the Austrian capital.

They also discussed the inaugural meeting of the Joint Ministerial Monitoring Committee (JMMC), which took place at the OPEC Secretariat on January 22, 2017.

Set up by the OPEC/non-OPEC Meeting, this Committee is tasked with overseeing conformity to the agreement.

Besides his direct talks with key participants at the Forum, Barkindo also held additional bilateral meetings with high-ranking oil industry officials, such as Patrick Pouyanné, Chairman and CEO of Total SA; Amos Hochstein, Special Envoy and Coordinator, International Energy Affairs, US Department of State; Frederick Kempe, President and CEO, Atlantic Council; and Ambassador Carlos Pascual, Senior Vice President, IHS Global Energy, International Affairs, IHS Markit.

Climate change discussed

Besides attending the official opening of the Forum, Barkindo actively participated in several other sessions in the UAE capital, sharing his views on many topics.

On the second day of the Forum, he spoke at a session titled *'Post-Elections US Climate and Energy Policies,'* hosted by Maya Raydan, Business Presenter, Sky News Arabia.

In this session, Barkindo talked a lot about climate change, especially stressing that following the 'Paris Agreement' — "the unique situation of developing countries, in particular, should be given the priority it deserves."

In addition, the OPEC Secretary General spoke at the Leaders' Council Closing Reception and Dinner on: *Geopolitical Repercussions of the Energy Transition,* where he spoke about the transition away from energy poverty and towards increased access to affordable, reliable, sustainable and modern energy for all — something that OPEC has always supported.

The Global Energy Forum, held under the patronage of His Highness Sheikh Mohammed Bin Zayed Al Nahyan, Crown Prince of Abu Dhabi and Deputy Supreme Commander of the UAE Armed Forces, is part of Abu Dhabi Sustainability Week, an initiative by the Abu Dhabi Government.

Hosted by Masdar, it is aimed at encouraging dialogue and action to address some of the globe's most pressing sustainable development challenges.

Khalid A Al-Falih, Saudi Arabian Minister of Energy, Industry & Mineral Resources, who also attended the Forum.

A question to the panel ... by Dr Falah J Alamri, Iraqi Governor for OPEC.

OPEC Secretary General spends busy week in United States

OPEC Secretary General, Mohammad Sanusi Barkindo, continued his shuttle diplomacy towards the end of last year with a busy week-long visit to the United States. Shortly after OPEC signed its historic 'Declaration of Cooperation' with a group of 11 non-OPEC oil producers in the Austrian capital on December 10, the Organization's chief executive boarded a plane to take him and his team across the Atlantic.

Mohammad Sanusi Barkindo, OPEC Secretary General, meets with Dr Daniel Yergin, IHS Markit Vice Chairman and senior staff members.

Undertaking a very busy schedule, OPEC Secretary General, Mohammad Sanusi Barkindo, held meetings in the United States with the International Monetary Fund (IMF), the United States Energy Information Administration (IEA), the Centre for Strategic and International Studies, the United States Commodity Futures Trading Commission, Columbia University and IHS Markit.

He began his visit on December 12 with a visit to the energy consultancy, IHS Markit, in Washington DC, where he met with Vice Chairman, Dr Daniel Yergin, and senior staff members.

The OPEC Secretary General briefed Yergin on the landmark OPEC/non-OPEC Ministerial Meeting, which agreed to remove some 1.8 million barrels/day of crude from the oil market in the first half of 2017. This came after OPEC decided on November 30 to adjust its own output by 1.2m b/d, effective January 1, 2017.

Both agreements are expected to accelerate the ongoing drawdown of the stock overhang and bring the international oil market rebalancing forward.

Barkindo pointed out that extensive bilateral consultations had taken place in the lead-up to the agreements, with non-OPEC producers agreeing to reduce production by a near 600,000 b/d. This was the first accord of its kind in 15 years. The two officials discussed oil market developments in the light of the agreements, which were expected to eliminate the current stock overhang during

the second half of 2017, contributing to an accelerated market recovery.

Later in the day, the OPEC delegation visited the IMF headquarters in Washington, where the Secretary General was received by Dr Maurice Obstfeld, the IMF's Economic Counsellor and Director of Research.

Obstfeld introduced Barkindo and his accompanying team to a large audience of IMF officials and staff in attendance.

Barkindo then delivered remarks, in which he pointed to the benefits of the "long and cordial" relationship between OPEC and the IMF.

"You might even say that there is a 'partnership' in place, forged in part through OPEC's regular participation in the annual IMF/World Bank meetings," he said.

"In addition, the IMF's rigorous analysis of global economic and financial conditions informs OPEC's forecasts and outlooks for the short, medium and long term, especially as embodied in our *World Oil Outlook (WOO),"* he pointed out.

The OPEC Secretary General underlined the importance of stability as a central tenet of both organizations.

"Our two organizations share something important: a preoccupation with stability," he maintained. "The loans and technical assistance the IMF provides to developing countries — including OPEC Member Countries — are based on rigorous analytical work with the aim of fostering financial stability.

"At OPEC, our consensus-based decisions — which are informed by our own research and analytical work — are also designed to bring stability. And our actions — which result from negotiations among our Member Countries — are designed to foster discipline when global market conditions are often agitated or disordered," he explained.

The OPEC Secretary went on to give an overview of the broad consultative process behind the Organization's tripartite agreements in 2016 — the 'Algiers Accord' in Algeria in September, the 'Vienna Agreement' in November and the 'Declaration of Cooperation' with non-OPEC oil producers in December.

He stated that the 'Vienna Agreement', which committed OPEC alone to a production target of 32.5m b/d, was particularly noteworthy because it included the participation of all Member Countries — some of them for the first time since 1998.

"The 'Vienna Agreement' demonstrates the unity, flexibility and cohesion of our Member Countries."

Framework for cooperation

Barkindo said that it also institutionalized a framework for structured cooperation between OPEC and non-OPEC producing countries on a regular and sustainable basis.

"This is appropriate, since the process leading to the 'Vienna Agreement' included the participation of non-OPEC countries. They repeatedly declared their resolve to achieving a fast-tracked realignment of global supply and demand," he affirmed.

In concluding his comments, the OPEC Secretary General stressed that throughout the long process leading to the 'Vienna Agreement', dialogue, close consultations and transparency between all energy stakeholders had been of paramount importance.

"And our constructive efforts to date have demonstrated that compromise and flexibility can lead to concrete achievements.

"... it is our duty to always seek ways to overcome differences, exchange views, and find the unified voice that the oil industry and the global economy need. I am optimistic that continuing with such efforts can lead to greater stability and sustainability in the market.

"But since it is a truth of life that we should take nothing for granted, we must continue to work together

Dr Maurice Obstfeld, IMF's Economic Counsellor and Director of Research (l); with Mohammad Sanusi Barkindo, OPEC Secretary General.

— OPEC and non-OPEC, as well as producers and consumers. We all have something to gain by working together — and much to lose if we do not," he professed.

Following Barkindo's remarks, Dr Jorge Leon, an Energy Demand Analyst in OPEC's Energy Studies Department, presented the key findings from OPEC's *WOO* for 2016, the tenth edition of the Organization's flagship publication.

The OPEC delegation then met with analysts and staff from the IMF's Middle East and North Africa (MENA) Department for technical discussions on the medium- to long-term outlook for oil production and demand in the MENA region.

The second day of the US visit took the OPEC delegation to the Centre for Strategic and International Studies (CSIS), a prominent international policy and research institution in Washington, where the OPEC Secretary General delivered opening remarks and Leon again presented the Organization's flagship *WOO* for 2016.

L–r: Ms Sarah Ladislaw, CSIS; Mohammad Sanusi Barkindo; and John Hess, Hess Corporation.

In his remarks there, Barkindo emphasized the importance of the US as a longstanding customer of OPEC's Member Countries.

"It is a distinct honour to be here in this vast and beautiful country, which has played such a pivotal role in the history of our industry. The US is considered the home of the first commercially drilled oil well. Thanks to the genius and ingenuity of Edwin Drake, oil was extracted from a deep well near Titusville, Pennsylvania in 1859, sparking an oil boom that would take the world by storm.

"It goes unsaid that the US, as one of the world's largest oil and gas consumers, is of utmost importance to OPEC. We estimate that it imports 3.6m b/d of liquids from OPEC Member Countries. And this is out of a total US consumption of 20m b/d. This makes the US a vital customer for our Member Countries."

The OPEC Secretary General expressed a desire that his visit to the US and the various meetings he had held would help open up a new chapter of dialogue and cooperation between the nation and OPEC.

"It is my hope that our meetings and consultations here this week will open up a new cycle of ongoing dialogue between our Organization and the US," he stated. "Both parties have nothing to lose and everything to gain with this type of cooperation—it is a true win-win scenario," he asserted.

The OPEC Secretary General added that the recent OPEC agreements in Vienna had served as a reminder to the world that the Organization still played an important stabilizing role in world oil markets.

"In the last few years, there has been talk that perhaps OPEC was no longer important and that it had possibly lost the key role it has played in the world of energy since its founding," he noted.

"Well, ladies and gentlemen, I am here to report to you that OPEC is alive and well. Any naysayers that may have had doubts about OPEC's efficacy were proven wrong with the historic decisions made in Vienna …"

The OPEC Secretary General emphasized that the Organization's Member Countries remained absolutely committed to ensuring the long-term supply of the market.

"They continue to invest in both their upstream and downstream sectors, despite the spike in costs and the shortage of adequately skilled labour. This is good news for the industry, as world oil demand is set to rise dramatically in the years to come," he noted.

Challenge for producers

Quoting the 2016 OPEC *WOO*, Barkindo said global demand was forecast to rise by nearly 17m b/d until 2040 — at which time it could reach around 110m b/d.

"So, you see, the world's oil producers, including OPEC, have their work cut out for them if they intend to meet the world's future energy requirements.

"But, to achieve this, they need a fair oil price and

a stable market, which will provide fertile ground for the necessary investment in production and research and development."

The OPEC Secretary General told his audience that, one thing was for sure — OPEC could not achieve this alone. "Only through collaborative efforts and open dialogue with fellow stakeholders will we meet with success."

He informed that OPEC already had an extensive list of bilateral and multilateral meetings that it held annually with international stakeholders, including the European Union, Russia, China, India, the World Bank, the IMF, the G20, the International Energy Agency (IEA) and the International Energy Forum (IEF).

Collaboration with the US

"We hope now that the US 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.

"These conditions will contribute to economic growth and prosperity, two things we all desire for this and future generations," he concluded.

A bit later, the OPEC Secretary General joined John Hess, Chief Executive Officer of the Hess Corporation and a member of the CSIS Board of Trustees, for a conversation and exchange of views on the future outlook for the global oil market. The discussion was moderated by Sarah Ladislaw, Director and Senior Fellow of Energy and National Security Programme at CSIS.

Issues discussed included prospects for tight oil production, peak oil theories, the 'Paris Agreement' on climate change, the importance of oil producer-consumer dialogue, the necessity of industry investment, and the prospects for future price development.

The discussions were followed by a question and answer session, during which the Secretary General and Hess addressed questions from attendees and members of the media.

Hess concluded the meeting by stating that the OPEC Secretary General's visit to the US was historic and signaled the beginning of a new era of cooperation between the Organization and the country, as well as between global oil and gas producers and consumers.

After the meeting, the CSIS invited the OPEC delegation to a private roundtable luncheon attended by a prominent group of Washington-based energy experts and officials. Talks centered on prospects for the future energy landscape, including issues related to technology advancement, energy subsidies, climate change, economic growth and oil demand.

Later in the day, the OPEC Secretary General and his team visited the US Commodity Futures Trading Commission (CFTC), an independent agency of the US government, created in 1974 to regulate futures and options markets.

Timothy Massad, CFTC Chairman, and his senior staff provided the OPEC delegation with a detailed briefing on the Commission's duties regarding oversight and surveillance of the financial markets, in relation to different commodity contracts, including West Texas Intermediate (WTI), the US crude benchmark, heating oil and gasoline.

Mohammad Sanusi Barkindo (second l), OPEC Secretary General, at the CSIS roundtable luncheon.

Following a question and answer session, in which the OPEC team raised some queries regarding different methods of surveillance in the US financial market, the OPEC Secretary General expressed his appreciation, on behalf of the Organization, for the informative meeting and the close cooperation shown "at this crucial time when the market is in dire need of stability and investment."

On December 14, the OPEC Secretary General met with the Administrator of the EIA, Adam Sieminski, and other senior staff members, over a working breakfast.

Barkindo also briefed Sieminski and his team on the two recent historic OPEC Meetings in Vienna, stressing

Timothy Massad (l), CFTC Chairman; with Mohammad Sanusi Barkindo, OPEC Secretary General.

again the extent of the bilateral consultations that had taken place in the lead up to the agreement with non-OPEC countries on December 10.

In his comments, Sieminski, Administrator of the EIA since June 2012, expressed appreciation for OPEC's initiative to visit institutions and organizations in the US, including the EIA.

Members of his staff then delivered a presentation based on the EIA's oil outlook reports, which focus on various aspects of the market, and consider supply and demand factors for 2017.

The EIA presentation was followed by a technical discussion among analysts from both organizations. This was detailed and candid and underscored the value of having such interactions on a regular basis.

In closing, both parties expressed a desire to continue such meetings and expand the number of technical visits.

The OPEC Secretary General and his team later visited the Inter-American Development Bank (IADB), also based in Washington. The visitors met there with staff from the IADB's energy division. OPEC again delivered a presentation on the *WOO*, which was followed by a question and answer session.

On December 15, the fourth day of the OPEC team's visit to the US, the OPEC Secretary General took part in a series of activities at Columbia University's Centre on Global Energy Policy (CGEP) in New York.

He met with the Director and Founder of the Centre, Professor Jason Bordoff, along with the establishment's deputies and professors.

Energy outlook highlighted

Barkindo delivered a speech *(see opposite page)* in the morning highlighting the OPEC's energy outlook for both the medium- and long-term. His remarks were again followed by a presentation on the *WOO*, as well as a question and answer session during a panel discussion, which included the OPEC Secretary General, along with Adrian Lajous, former CEO of Pemex and Antoine Halff, Director of Global Oil Markets. It was moderated by Prof Bordoff and attended by energy professors at the university, along with energy consultants and students.

During his address, the OPEC Secretary General commented on the rich history of Columbia University, where some of America's top leaders and prominent figures had their place among the alumni.

He commented that the size, scope and complexity of the global oil market made it unique among physical commodities and that the "true scale of the industry underscores the importance of sustainable market stability."

The Secretary General briefed the audience on the cycles the oil industry had seen, adding that the current cycle was the worst to date, with the OPEC Reference Basket falling by 80 per cent between June 2014 and January 2016.

He stressed the need for the oil market to rebalance, in order to reduce price volatility and support future investment, adding that the recent decisions by OPEC and non-OPEC countries on output adjustments would bring the rebalancing process forward much more quickly.

In the afternoon, the OPEC Secretary General participated in a CGEP workshop on the interaction between financial and physical markets, attended by leading bankers and investors, while, in the evening, he attended a dinner with major financial market stakeholders.

Sustainable market stability vital to future of the oil industry

— *Barkindo*

The true scale of the international petroleum industry and its strategic value to both producers and consumers underscores the importance of sustainable oil market stability.

That was one of the observations put forward by OPEC Secretary General, Mohammad Sanusi Barkindo, to Columbia University's Centre on Global Energy Policy, New York State, in December last year.

In a keynote speech on the future of global oil supply and demand dynamics, he told delegates that stability was vital for producers in terms of security of demand.

"Stability is vital for consumers in terms of security of supply. Stability is vital for all industry stakeholders," he affirmed.

Sustainable stability absent

Barkindo noted that, over the past couple of years, however, stability on a sustainable basis had been absent from the industry, to the detriment of producers, consumers, and the global economy.

This was reflected in the sharp crude price decline observed between June 2014 and January 2016, when the OPEC Reference Basket price fell by an unprecedented 80 per cent.

"It is the largest percentage fall in the five cycles of sharp price declines we have observed over the past three decades," he explained.

"We have seen supply outpace demand, which led to a sharp global inventory build between mid-2014 and the start of 2016. This year, OECD commercial oil stock levels have seen little change, but they still remain more than 300 million barrels above the five-year average.

"Moreover, we have seen a rise in non-OECD inventories, plus an expansion in some non-OECD strategic petroleum reserves."

The OPEC Secretary General said that, in both 2015 and 2016, the industry had witnessed a dramatic contraction in oil investments. For example, he continued, global oil and gas exploration and production spending fell by around 26 per cent in 2015 and a further 22 per cent drop was anticipated for 2016.

"Combined, this equates to above $300 billion. This will impact not only new projects coming onstream, but new discoveries too," he maintained.

"And we have witnessed significant job losses across the industry, as well as increasing financial and operational stresses for many companies."

Barkindo said that, in 2016, it had been evident that all producers, as well as most consumers, had come to comprehend the gravity of the current oil cycle. "Throughout 2016, there have been numerous bilateral and multilateral meetings and consultations concerning these challenges. These consultations gathered pace in August 2016 with many OPEC Ministers, non-OPEC Ministers, as well as some Heads of State and Government engaging in the process of rebalancing the oil market, and expressing their views on the need to see sustainable stability return."

The OPEC secretary General said that from OPEC's perspective, this led to the 'Algiers Accord' that was agreed by OPEC Member Countries at the 170th (Extraordinary) Meeting of the OPEC Conference in Algeria on September 28.

Stock overhang drawdown

This agreement focused on the urgent need to stimulate the acceleration of the drawdown of the stock overhang, bring the market rebalancing forward and ensure that much needed investments return to the industry.

The 'Algiers Accord' reaffirmed OPEC's continued

commitment to stable markets, in the interests of both producers and consumers.

"Moreover, it also initiated a process of consultations between OPEC and non-OPEC oil-producing countries, to establish a platform from where OPEC and non-OPEC producers could take pro-active measures that would ensure a balanced oil market on a sustainable basis."

The OPEC Secretary General said he was sure everyone could appreciate that the road to success was not always easy to navigate.

"Turning the 'Algiers Accord' into a lasting and viable solution for oil market stability took a great deal of hard work, commitment, courage and compromise from every OPEC Member Country and many non-OPEC producers too," he pointed out.

He added that following two months of intensive and determined efforts since the 'Algiers Accord', the 'Vienna Agreement', was adopted on November 30, 2016 in Vienna.

"... the importance of cooperation and dialogue between all oil industry stakeholders has never been greater ..."

"This landmark decision by OPEC, as well as the pledge made by a number of non-OPEC producers at a joint ministerial-level meeting in Vienna on December 10, underlines a shared and deep resolve to return much needed stability to the market, and the industry, as a whole," Barkindo told delegates.

He said that through a shared vision, among both OPEC and non-OPEC producers, collaborative and reasoned action was taken to address the prevailing market realities.

"It was a commitment to all oil industry stakeholders, as well as one to the broader global community through the restoration of oil market stability and the potential positives of this for the global economy."

Barkindo said it was also important to highlight that OPEC's recent decisions should not only be viewed as a short-term necessity. "Yes, the short-term is in all of our minds, but as we all know, this is very much a medium- to long-term business. We need to view these actions as vital to long-term oil market stability."

He said the value of this was readily apparent in OPEC's recently launched tenth edition of its *World Oil Outlook (WOO)*, which provided comprehensive analysis of key industry dynamics, as well as detailed insights into the challenges and uncertainties the industry faced.

The 2016 edition of the *WOO*, he said, showed that oil demand was estimated to reach over 109 million b/d by 2040, an increase of over 16m b/d.

"This expansion will obviously require significant investments. Moreover, new barrels are needed to not only increase production, but also to accommodate for decline rates from existing fields. Overall, we see oil-related investment requirements of around $10 trillion over the period to 2040."

The OPEC Secretary General said this investment figure put the need for sustainable market stability in stark perspective.

He said the experience of 2016 had "shown us that the importance of cooperation and dialogue between all oil industry stakeholders has never been greater. We believe that our future will increasingly be one of energy interdependence. We do not live in a world of independent energy nations.

Barkindo stressed that it all pointed to the need to continually enhance dialogue and cooperation, with innovative thinking, collaboration and swift action between stakeholders, where and when appropriate.

"This lies behind our established and evolving dialogues with the European Union, China, India, Russia, other non-OPEC producers, the International Energy Agency, the International Energy Forum, the International Monetary Fund, the G20, and others."

He said that, in the context of this vision, OPEC saw benefits in exploring and initiating an energy dialogue with the United States.

"We believe this engagement is vitally important to all. The US is currently the number one liquids producer at around 13.6m b/d, the number one consumer, at just over 20m b/d, the number one importer of liquids at about 9.6m b/d, and the number three exporter of liquids, at around 4.6m b/d.

"What is in all of our interests is the one word I have uttered on many occasions since I became Secretary General. And that word is 'stability'.

"Stability is central to everything we do. It is the overarching concern that links us all. We need stability — for investments and capacity expansion, to guarantee supply levels are adequate and sufficient, and to enable producers to respond quickly and appropriately in times of unexpected supply constraints.

"We need stability — for investors and producers to realize a fair return from the exploitation of their non-renewable resource.

"We need stability — for consumers to receive reliable and secure supplies.

"We need stability — for the market to react and respond to future unforeseen events.

Mohammad Sanusi Barkindo (second l), OPEC Secretary General, during his visit to Columbia University.

"We need stability in all its forms. It guarantees a more balanced market today, which also guarantees a balanced market in the future."

Great honour

At the beginning of his address, the OPEC Secretary General said it was a great honour to be asked to deliver a keynote address at such a distinguished seat of learning as Columbia University.

"It is the oldest institution of higher learning in the state of New York, it was founded by royalty, specifically King George II of England, and it is home to the annually awarded Pulitzer Prize honouring excellence in journalism and the arts.

"That is some list, and this does not even mention the notable alumni that include some of the Founding Fathers of the United States, three US Presidents, other Heads of State, Supreme Court Justices, Academy Award winners and Nobel laureates."

He said it was also a privilege to be at the university's Centre on Global Energy Policy, one of the leading global institutions for energy dialogue and policy.

"Given recent events in the oil market, it is obviously an extremely interesting time for energy dialogue and debate."

Barkindo noted that when Columbia University was founded back in 1754, the modern petroleum industry had not even been born. It would be more than 100 years before what many believe to be the first commercial oil well was drilled.

Edwin Drake's 1859 well that was drilled using a steam engine near Titusville, Pennsylvania, was widely believed to be the first modern oil well and one that ushered in the first major oil boom, the dawn of a new era of industrialization and prosperity, he said.

Barkindo said it was interesting to note that this oil well initially yielded just 25 b/d of crude. Oil, he observed, was then seen as a somewhat obscure commodity. But today its existence was vital to billions of people across the world.

"Although I should underline here that there remain 1.3 billion people that still have no access to modern energy services. It is critical that energy poverty is eradicated, one of the pillars of the United Nations sustainable development goals. I have no doubt that oil has a strategic role, in this regard.

The OPEC Secretary General said that, today, the size, scope, and complexity of the global oil market made it almost unique among physical commodities. Currently, more than 94m b of oil were produced and consumed every day.

"Beyond the magnitude of this trade, the vital importance of oil and the crucial role that it plays in globally makes it perhaps the most strategic growth engine of the global economy," he added.

African oil producers pledge support for OPEC initiatives

Africa's oil producers have pledged their full support for OPEC's policy initiatives and the Organization's ongoing efforts to stabilize the market and reverse the decline in the price of crude, which has affected the international oil market since the middle of 2014.

A *communiqué* issued by the African Petroleum Producers' Association (APPA) Association in December 2016, stated: "We declare our support for the process of addressing the fall in oil prices taken on by OPEC and we support any effort by its Member Countries in this price stabilization process for the oil markets."

The Association pointed to the "major role" OPEC is playing in its determination to stabilize the international oil market.

The *communiqué*, signed by APPA President, Adama Tounkara, Minister of Mines, Petroleum and Energy of Côte d'Ivoire, said that having reviewed the global oil market situation, which was characterized by the drastic drop in crude oil prices since June 2014, and in recognizing the impact of this decline on the economies of APPA countries, the Association welcomed the agreement reached by OPEC in September 2016 in Algeria, announcing the Organization's commitment to reduce its total oil production.

Exceptional decision

The 'Algiers Accord', reached at the 170th (Extraordinary) Meeting of the OPEC Conference in the Algerian capital on September 28, committed the Organization's Members to a production range of 32.5 to 33 million barrels/day of crude.

"Considering this exceptional decision taken by OPEC in Algiers, it gave real impetus to the market and showed a new period for addressing the reduction in oil prices," APPA said.

OPEC has since followed up on its 'Algiers Accord' by agreeing to cut its total oil production by 1.2m b/d from January 1, 2017, in support of oil market stability. This decision was taken by the 171st Meeting of the OPEC Conference held in Vienna, Austria, on November 30.

The APPA *communiqué* was issued following a directive by the 52nd Ordinary Meeting of the Association's Committee of Experts, which was held in Cotonou, Republic of Benin, on October 10–13, 2016.

The Committee called on the APPA President to "make a supporting statement" for the initiative taken by OPEC during its Algeria Meeting.

The APPA talks were chaired by Franck TIGRI, Deputy Director of Cabinet, representing the Minister of Energy, Water and Mines of the Republic of Benin, who in his opening remarks urged APPA experts to work objectively in the interest of the Association and to propose pertinent recommendations to the Council of Ministers in a global context marked by the very low level of crude oil prices.

APPA is an intergovernmental organization set up in 1987 in Lagos, Nigeria. It serves as a platform for African petroleum-producing countries to cooperate, collaborate and share knowledge and experience.

It aims to promote common policy initiatives and projects in all facets of the petroleum industry with a view to maximizing the developmental and welfare benefits accruable from petroleum exploitation activities in its Member Countries, in particular, and Africa in general.

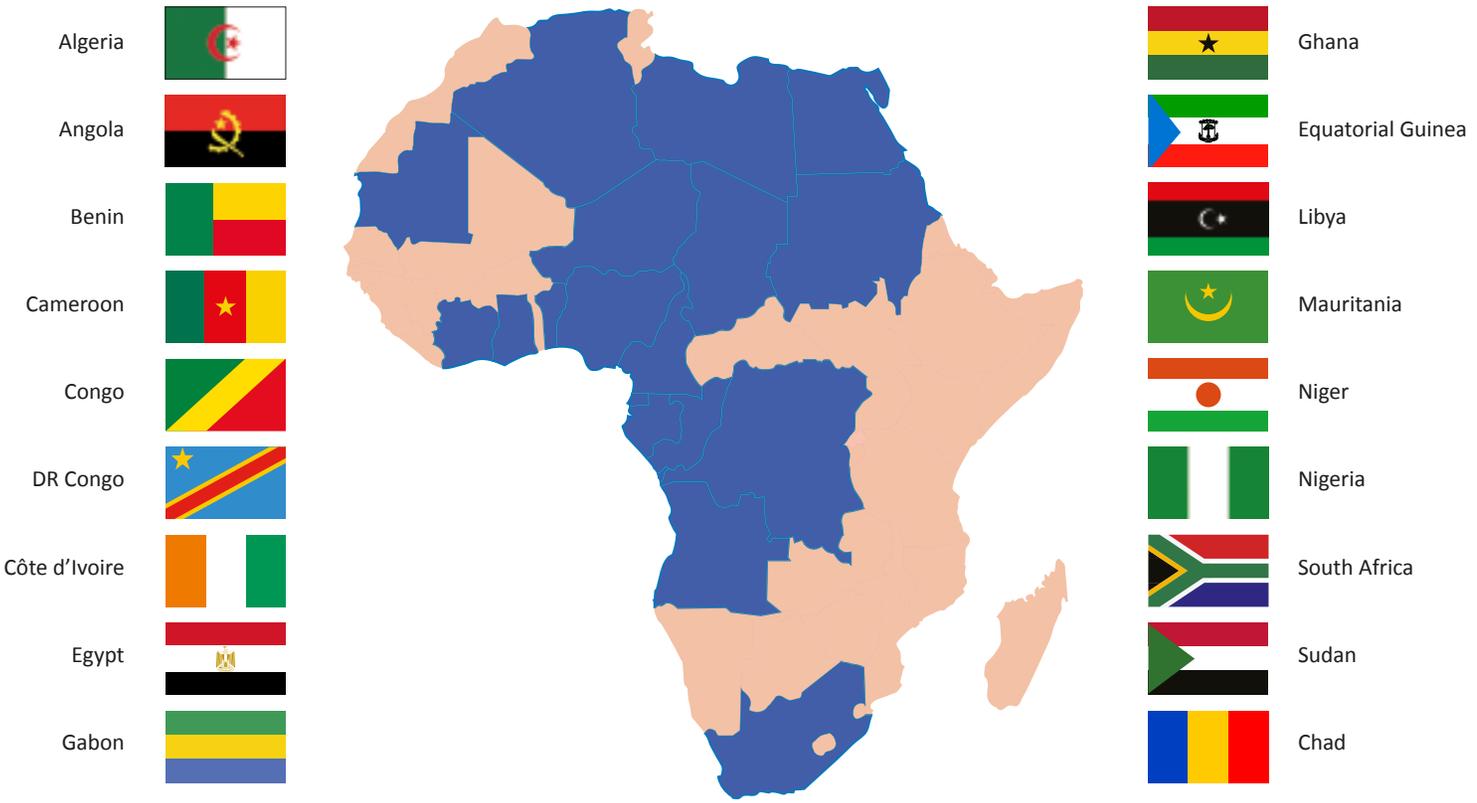
Specifically, it promotes cooperation among Member Countries in hydrocarbons exploration, production, refining, petrochemicals, manpower development, acquisition and the adaptation of technology and legal matters.

It also furthers technical assistance among Member Countries and supports the coordination of Members' marketing policies and strategies through exchange of information.

In addition, it seeks to increase the understanding of the respective energy situations and policies in Member Countries and studies ways and means of providing assistance to net oil-importing African countries to meet their energy requirements.

On its website, the Association says it is convinced that African petroleum producers are better positioned

APPA Member Countries



to create maximum leverage from their resource endowments when they adopt a common platform for oil and gas policy initiatives and development strategy.

APPA currently comprises 18 Member Countries, including five OPEC Member States — Algeria, Angola, Gabon, Libya and Nigeria. The others are: Benin, Cameroon, Chad, Democratic Republic of Congo, Congo, Côte d'Ivoire, Egypt, Ghana, Equatorial Guinea, Mauritania, Niger, South Africa and Sudan.

Strategic focal point

Altogether, these countries account for virtually the totality of Africa's oil and gas reserves and output.

APPA sees its long-term role as that of a strategic focal point in hydrocarbons development matters in Africa. The Association says it is committed to seeking understanding, cooperation and partnerships primarily within but also outside the African continent.

"The Association is determined to work vigorously with regional as well as international organizations/institutions in the process of transforming its vision into continuing beneficial results for its Member Countries," APPA says on its website.

"The Association is aware that it must continuously deliver on its vision, in order to remain worthwhile to its stakeholders."

The idea of creating such an association dates back to the 1980s. It was in Brioni, Yugoslavia, in 1984, on the sidelines of an OPEC Conference, that four African oil producers and OPEC Members suggested Africa adopt a continental structure in the field of hydrocarbons.

Two years later, Libreville, the capital of Gabon, hosted the first meetings of experts for drafting the texts of the new association. Then, in January 1987, eight African countries — Algeria, Angola, Benin, Cameroon, Congo, Gabon, Libya and Nigeria — held a meeting in Lagos to create APPA.

Today, the Association has its Headquarters in Brazzaville, in the Republic of Congo.

OPEC hosts 15th Meeting of Vienna Energy Club

Members stress importance of dialogue and cooperation

Some of the world's leading international energy organizations converged on the OPEC Secretariat in Vienna on December 6, 2016, for the 15th Meeting of the Vienna Energy Club. The OPEC Bulletin's Scott Laury was there and files this report.

Oswaldo Tapia (r), Head of OPEC's Energy Studies Department, in Charge of the Research Division; with Dr Hojatollah Ghanimi Fard (l), Head of OPEC's Petroleum Studies Department.

The Vienna Energy Club's ten Vienna-based member-organizations meet biannually to discuss and exchange views on energy-related issues of mutual interest and concern. The latest edition of the meeting was hosted by OPEC and chaired by Oswaldo Tapia, Head of OPEC's Energy Studies Department, in Charge of the Research Division.

Vienna: a world energy hub

In his opening remarks, Tapia highlighted the role the Vienna Energy Club has played in helping make Vienna a major centre for international energy policy and research.

"When you look around this table and consider the impressive membership roster of this Club, it is evident that Vienna, over the years, has developed into a global energy hub with a high level of influence," he said.

He added that the high-profile work of the Club's members often make the daily headlines.

"The importance and magnitude of this Club's membership and the work they do on the international stage can often be seen in the headlines of the world's most prestigious newspapers and media organizations," he stated.

"I am certain, for example, that you are all very aware of last week's Meeting of the OPEC Ministerial Conference in Vienna, which rose to the top of the world's media agenda for several days. And I know the same applies for the other very high-profile organizations that are represented here today."

Dialogue and cooperation

Tapia also mentioned that OPEC's membership in the Club was one of the Organization's many initiatives that promote collaboration and communication with other energy stakeholders.

"The Club's meetings reflect the importance of dialogue and cooperation, especially in today's complex world of energy," he declared. "Close engagement and cooperation among fellow stakeholders are essential if we are to achieve our common goal of meeting the world's future energy needs."

After the opening remarks, OPEC presented its forecasts for both the short-term and long-term oil market outlooks based on figures recently released as part of its flagship annual publication, the 2016 World Oil Outlook.

Rebalancing the oil market

Dr Hojatollah Ghanimi Fard, Head of OPEC's Petroleum Studies Department, delivered the presentation related to the short-term outlook, and Dr Jan Ban, a Senior Research Analyst in OPEC's Energy Studies Department, presented the projections for the long-term forecast.

In addition, it was pointed out that the new OPEC production target of 32.5 million barrels/day, adopted by the OPEC Ministerial Conference in November 2016, together with the near 600,000 b/d non-OPEC crude production reduction, would contribute to accelerating the drawdown of the substantial overhang in global oil stocks and help bring the rebalancing of the oil market forward.

After these presentations, a question and answer session took place during which issues such as tight oil production, proven reserves, e-mobility, nuclear energy and renewables were discussed.

Member updates

A *tour de table* was next on the agenda, providing Club members with the opportunity to brief the Club on their organizations' latest activities and new initiatives, especially those relevant to the Club's membership.

In addition to OPEC, updates were provided by representatives from the energy community, the IAEA, IIASA, OFID, the OSCE, REEEP, SE4ALL, UNIDO, the Austrian Federal Ministry of Science, Research and Economy, as well as the Austrian Federal Ministry for Europe, Integration and Foreign Affairs.

The session also provided a forum in which Club members were able to leverage this network to, in some cases, seek out joint collaboration with fellow members in connection with certain activities. This underpins the strength and potential for cooperation that this influential network of like-minded organizations can provide.

Stability through collaboration

In closing the meeting, OPEC's Tapia thanked all participants for their valuable contributions to the discussion and for the updates on their organizations' activities.

He stated that it had been an honour for OPEC to coordinate the Vienna Energy Club activities and to host the meeting. It was also announced that the coordinating function would be heretofore transferred to the OSCE, where the next meeting would be held in the first half of 2017.

Tapia concluded by emphasizing the importance of ongoing collaboration among all energy stakeholders to help restore a lasting stability to the global energy environment.

"Only through the coordinated and determined efforts of all energy stakeholders can we expect to achieve our common goal of a stable oil market.

"We all stand to benefit from the improved economic growth that would emerge from such a renewed oil market," he said. "Meetings like this one, and the many dialogue initiatives OPEC organizes jointly with the European Union, with Russia, with China, and with India are all positive and proactive ways we can work together to achieve a more stable energy market that is in our mutual interest."

Delegates to the meeting take time out for a group photograph.

OPEC hosts second Energy Efficiency Workshop

Road transportation under the spotlight

At the end of January, the OPEC Secretariat held the second Member Countries' Workshop on Energy Efficiency. The OPEC Bulletin provides some brief highlights from the event.

The second OPEC Member Countries' Workshop on Energy Efficiency held on January 25, 2017, was a follow up to the successful first workshop that took place in 2014.

The first workshop focused on the theme of 'energy efficiency' in the context of the growing use of energy resources in OPEC Member Countries. It enabled Member States to share their thoughts and experiences, in terms of such issues as current policies, institutional frameworks and governmental support and energy efficiency priorities.

In introducing the event, Oswaldo Tapia, Head of OPEC's Energy Studies Department, In Charge of OPEC's Research Division, said: "The first workshop was a starting point — a means to provide an overview of the topic and to elicit comments from our Member Countries in terms of their major concerns, challenges, as well as opportunities."

Based upon the feedback received from the first workshop, as well as guidance from OPEC's Board of Governors, it was emphasized that there was a consensus that Member Countries would benefit from a second workshop that focused on the key road transportation sector.

Road transportation

It was noted that the road transportation sector is extremely important in terms of oil demand in OPEC Member Countries.

Based on OPEC's *World Oil Outlook 2016* publication, Tapia said: "Sectoral demand in OPEC was 4.2 million barrels/day in 2015. This represents 38 per cent of total oil demand. And looking ahead, demand by 2040 is expected to increase to 6.6m b/d, which represents 43 per cent of total demand."

Thus, the second workshop delved more deeply into energy efficiency in the road transportation sector, initially through presentations from a number of international experts in the field.

Oswaldo Tapia, Head of OPEC's Energy Studies Department (ESD), In Charge of Research Division.

This included talks by Ian Kershaw, Managing Director, Ricardo Strategic Consulting; Vincent Benezech, Transport Analyst at the International Transport Forum; Uwe Tietge, Researcher at the International Council on Clean Transportation; Hubert Friedl, Product Manager Passenger Cars at AVL; and Dr Andreas Mehlhorn, Head of Siemens Mobility Consulting, Siemens.

Left: Oswaldo Tapia (c), Head of OPEC's Energy Studies Department (ESD), In Charge of Research Division; Dr Hojatollah Ghanimi Fard (r), Head of OPEC's Petroleum Studies Department; and Dr Jorge Leon, Energy Demand Analyst; OPEC's ESD.

Ian Kershaw, Managing Director, Ricardo Strategic Consulting.

Vincent Benezech, Transport Analyst at the International Transport Forum.

The presentations focused mainly on the drivers and the current status of energy efficiency in the global road transportation sector, including policies, technologies and efficiency potential.

Hubert Friedl, Product Manager Passenger Cars at AVL.

Presentation highlights

Kershaw initially talked about three drivers that continue to shape energy efficiency improvements in the automotive sector — air quality, climate change (and security of energy supply), and urbanization/demographics.

He also underscored that there had been a shift in approach from governments and regulators following the discovery that "most of today's new cars show a notable gap between type approval and real fuel efficiency performance."

He said that they were now looking at a "stricter more authoritative approach," rather than the previous more "consensus approach."

Benezech also talked about the challenges of laboratory versus on road efficiencies, as well as highlighting the benefits of energy efficiency-related labelling on vehicles. He stated that he believed that the "right combination of taxes and efficiency standards" is the most effective means to improving fuel efficiencies.

Tietge stressed that policy options should not be viewed as mutually exclusive and said that a variety of policy options can be combined. He also added that "nations may want to consider regional collaborations to develop and implement policy actions across a wider market."

Friedl focused on powertrain technology develop-

ment, in terms of both the challenges and opportunities. He said the main drivers for future passenger car powertrains were legislation, customer demands and vehicle technology. He added that the key for market success was an "optimum balancing of CO_2 and attractive vehicle attributes."

Mehlhorn said fossil fuels will remain the key energy source for road transport, although he saw strong growth in electric propulsion systems starting around 2020.

He saw the key technology drivers as electrification, automation and digitalization and underscored the need for an integrated perspective of individual and public transport, technology, business, politics and behavioural change to understand and manage the future transformation of the sector.

Benefits to Member Countries

Tapia said that he was sure all participants could "appreciate the benefits to our countries in pursuing greater energy efficiency — economically, socially and environmentally." In this regard, the presentations and the follow-up discussions provided for some interesting ideas and viewpoints.

Uwe Tietge, Researcher at the International Council on Clean Transportation.

Delegates to the Workshop assemble for a group photograph.

NNPC awards contracts to 39 companies, Minister sees need for longer oil terms

Dr Emmanuel Ibe Kachikwu, Nigerian Minister of State for Petroleum Resources.

The Nigerian National Petroleum Corporation (NNPC) has awarded crude oil term contracts for this year to some 39 companies, while the country's Minister of State for Petroleum Resources has said that he wants to replace the country's yearly oil term deals with longer-term contracts.

The state energy giant announced that the deals were reached with 18 domestic firms, 11 international trading houses, five foreign refineries, three national oil companies and two NNPC Group trading affiliates.

The NNPC revealed that the contracts covered over 1.3 million barrels/day of crude oil, worth a total of more than $72 million/day at an export crude price of around $55.60/b.

The corporation noted that the contracts were each for 32,000 b/d of crude, apart from a deal with Duke Oil, an NNPC Group subsidiary, which was for 90,000 b/d.

The total list for 2017 was higher than the 27 companies that won contracts last year. The crude volume on offer was also considerably higher than the 991,661 b/d set in the 2016 term contracts.

Winning firms this year included oil majors BP and Total, international trading firms, Glencore and Trafigura, state-owned companies, the Indian Oil Company and China's Sinopec, as well as domestic firms that included Oando, Sahara Energy, Britannia-U, Shoreline Limited, and MRS Oil and Gas.

NNPC Group Managing Director, Dr Maikanti Baru, disclosed that the corporation had received bids from a total of 224 companies in 2017, stressing that the process had been carried out with "fairness and transparency".

Meanwhile, Minister of State for Petroleum Resources, Dr Emmanuel Ibe Kachikwu, has announced that Nigeria planned to replace its annual oil term contracts with longer-term supply deals.

In outlining reform plans for the country's petroleum sector in 2017, he was quoted by the *Platts* news service as saying: "We are going to firm up long-term markets. We must stop the year-to-year crude term contracts and gas sales. We have to go to the long-term markets."

Long-term partners

The Minister explained that this is what everybody in the world was doing. "Nobody is letting their oil circulate and be priced inappropriately on the international market. You have got to find who your long-term partners are, how you sign six to seven-year strategic relationships."

He pointed out that India, the largest buyer of Nigerian crude, had been asking for longer-term contracts with the NNPC to ensure security of supply.

"We are going to be working on those and gravitate away from a year-to-year contract," the Minister affirmed.

Kachikwu told *Platts* that passing the government's long-awaited Petroleum Industry Bill (PIB), revamping domestic refineries and reducing the fuel import bill were some of the priorities for the country in 2017.

The PIB has been in the making for some eight years. Parliamentary committees are currently preparing their final reports before a third and final reading by the Nigerian Senate.

Under the current draft, the NNPC will be split into three separate firms — the Nigeria Petroleum Regulatory Commission, which will regulate the sector; the National Petroleum Company, which is set to be responsible for oil marketing and refining; and the Nigeria Petroleum Assets Management Company, which will take control of the upstream assets.

Kachikwu stated that restoring peace and stability in the Niger Delta oil-producing region was one of his Ministry's principle objectives.

Platts noted that because of unrest there, oil production had slumped to around 1.4m b/d in May this year from 2.2m b/d in January 2016.

The Minister revealed that Nigeria would also conduct a new licensing round in 2017 for oil block allocations and marginal field awards to bring in more investors into the domestic oil sector and generate more revenue for the government.

He reiterated his commitment to cut Nigeria's fuel imports by 60 per cent by 2018 and reduce imports of petroleum products by 2019. The country currently imports some 85 per cent of its oil product needs, as a result of failing domestic refining capacity.

The four existing state-owned refineries, two in the oil capital city of Port Harcourt, with a combined capacity of 210,000 b/d, the 125,000 b/d Warri refinery, and the 110,000 b/d Kaduna plant, have operated sporadically for many years.

In a separate development, Italy's Eni has signed a preliminary agreement with Nigeria to boost its upstream operations in the country and cooperate on repairing and upgrading Nigeria's Port Harcourt refinery.

Under a memorandum of understanding signed by the NNPC and Eni in the Italian capital, Rome, Eni announced that it would "intensify" its oil and gas production operations in Nigeria with an increased focus on development and exploration activities in the onshore, offshore and ultra-deepwater operated areas.

According to *Platts*, the companies also agreed to cooperate on the "rehabilitation and enhancement" of the Port Harcourt refinery. No further details were given.

Speaking at the signing ceremony, Kachikwu called on Eni to support Nigeria's hopes of building refineries and retail fuel networks in the country.

"The major plan of the government is to stop the importation of petroleum products in the long term and that it would be expedient that every international oil company should invest in building a refinery with a chain of distributions," his Ministry said.

Revamp refineries

In early 2016, the NNPC entered into discussions with its foreign partners — Eni, Total and Chevron — to help revamp the ailing refineries.

In April last year, the corporation issued a tender looking for interested parties to jointly fund the required repairs to the refineries, expected to cost around $700 million, as well as running the plants.

Nigeria is looking to eventually expand its existing refineries to a total capacity of 650,000 b/d of domestic crude.

Eni, one of Nigeria's main foreign oil players, in 2016 had equity production amounting to about 125,000 b/d of oil equivalent.

Under the memorandum, the Italian major has agreed to double the generation capacity of Nigeria's Okpai IPP plant.

Iran's crude oil exports to South Korea up six-fold

Iran's crude oil exports to South Korea soared six-fold to 11.39 million barrels (367,419 b/d) in December 2016 as the OPEC Member Country enjoyed the full effect of the lifting of economic and trade sanctions on the nation.

The December exports compared with 1.78m b a year earlier, preliminary Korea Customs Service figures showed.

According to the *Platts* news service, the December figure represented the 13th consecutive monthly increase in the country's Iranian crude imports since the United States and the European Union lifted the longstanding sanctions on Tehran last January.

However, the December total was 19.6 per cent lower than the 14.16m b recorded in November 2016, which was the largest monthly volume South Korea has ever imported from Iran.

Imports jumped in 2016

Platts said that for the whole of 2016, South Korean imports of Iranian crude jumped by a significant 160.9 per cent from 2015 to 110.61m b. In 2015, the country's imports of Iranian crude totaled 42.4m b, down by 5.6 per cent from the 44.92m b registerd in 2014, which, in turn, was down by 6.8 per cent from the 48.21m b seen in 2013, when the sanctions were still in force.

The figures also showed that December's crude imports from Iran cost South Korea $565.7m, up from $77.8m a year earlier, but down from the $684.2m paid in November 2016.

South Korea's crude imports from its biggest supplier, Saudi Arabia, increased by 11.1 per cent to 29.42m b (949,032 b/d) in December last year, from 26.49m b the year before. This represented the seventh consecutive monthly increase from the Kingdom since June 2016 after several months of declines.

The *Platts* report noted that Saudi Arabia's December crude exports to South Korea were up by 6.1 per cent from the 27.74m b recorded in November.

Meanwhile, South Korea's crude imports from Iraq fell by 17.7 per cent to 13.86m b (447,097 b/d) in December from 16.84m b a year earlier.

However, over the full year, South Korea's imports of Iraqi crude rose by 9.6 per cent year from 2015 to 138.77m b. In 2015, South Korea's imports of Iraqi crude jumped by 78 per cent from 2014 to 126.64m b.

South Korea's crude imports from Kuwait fell by 9.7 per cent year-on-year to 13.12m b (423,226 b/d) in December.

The *Platts* report showed that, in total, South Korea imported 97.06m b (3.13m b/d) of crude oil in December last year, down by 1.2 per cent year-on-year. It was the first decline after three consecutive months of rises. However, December imports were up by 5.9 per cent from the previous month.

South Korea paid a total of $4.69 billion for its crude imports in December, up from $3.95bn a year earlier and $4.36bn in November.

For the whole of 2016, South Korea imported a total of 1,075.39m b of crude oil, up by 4.8 per cent from the 1,026.11m b imported in 2015, which was 10.6 per cent higher than the 927.5m b recorded in 2014.

An oil production platform at the Soroush oil fields in the Gulf, south of the capital, Tehran, Iran.

Iraq doubles processed gas production, reduces flaring

Iraq last year went a long way in reducing its gas flaring by doubling the amount of natural gas it processed.

According to data from Iraq's Oil Ministry, over the first seven months of 2016, the country's processed gas production stood at 1.3 billion cubic feet/day. This compared very favourably with the 2015 average of just 651 million cu ft.

According to a report by *Energy Intelligence*, after years of underperforming, Iraq's gas sector last year finally managed to turn a corner, with processed gas volumes posting four successive months of growth through July 2016.

It said that no gas data was available from the Ministry after August, but that a recent ministerial announcement indicated the positive momentum seen in gas processing had continued for the remainder of the year.

Lack of infrastructure

Because of a lack of adequate infrastructure, the OPEC Member Country burns off significant gas associated with its oil production activities. But it is keen to prevent the wastage of gas that could be used for domestic electricity generation.

And as the 2016 figures show, the nation is making real progress on its goal to cut flaring. And these efforts are being supported by a $5.34 billion standby loan agreement reached with the International Monetary Fund (IMF), which is conditional on, among other things, Iraq curbing gas flaring.

The report noted that last year also saw Iraq make its first gas condensate and liquefied petroleum gas (LPG) exports.

This formed part of the Basrah Gas Company (BGC) initiative, led by oil major Royal Dutch Shell. BGC processes associated gas from the Rumaila, West Qurna-1 and Zubair oil schemes, selling raw gas volumes back to the state-owned South Gas Company, which has a 51 per cent interest in BGC, as well as marketing the liquids.

Electricity generation in Iraq has been on the rise of late, boosted by rising gas output. This has led to a very welcome reduction in power cuts that had become regular occurrences in previous years.

Meanwhile, *Energy Intelligence* reported that United States conglomerate, GE, had "secured more than $1.4 billion in orders from Iraq's Ministry of Electricity to set up domestic power plants, as well as provide technology upgrades and maintenance services."

Under the deals, GE is expected to add over two gigawatts of electricity generation capacity to the country's capability, in addition to securing delivery of 1.75 GW of existing power to Iraq's national grid.

This, said GE, would partly be achieved through the rehabilitation of existing power plants.

New schemes include 18 gas and combined-cycle turbines for the Samawa and Dhi Qar power plants, which will add 1,500 megawatts.

The company has also said it had helped Iraq secure some $2 billion in financing for its power sector.

A gas facility in Basra, south-east of Baghdad, Iraq.

Libya aiming to double oil output by end of 2017

Libya is aiming to substantially boost its domestic crude oil production by the end of 2017 as the OPEC Member Country looks to stabilize its petroleum operations and enhance the economy with increased revenue.

Mustafa Sanalla, Chairman of Libya's National Oil Corporation (NOC).

Mustafa Sanalla, Chairman of Libya's National Oil Corporation (NOC), told the *Platts* news service towards the end of January that the country was looking to double its crude oil output from the January level of around 650,000 barrels/day to 1.25 million b/d at the end of the year.

However, he said the plan depended on continued financial support from the country's central bank.

Speaking on the sidelines of a conference in London, Sanalla said the target of 1.25m b/d was being maintained despite ongoing uncertainties over the political situation.

"We need money (from the central bank) for a quick restoration of our production," he was quoted as saying. "The government has promised to give us money to have this amount of production."

While in London, the NOC Head held talks with officials from international oil companies that focused on seeking investment and reconstruction in Libya's oil sector.

"We intend in the coming months to lift our self-imposed moratorium since 2011 on foreign investment in new projects to achieve the best national interest for the Libyan oil sector and for Libya as a state," a statement released by the NOC and quoting Sanalla said.

Oil production

According to OPEC's *Monthly Oil Market Report (MOMR)* for January, Libya's crude oil production in January 2017, based on secondary sources, stood at 675,000 b/d, some 65 per cent higher than the 610,000 b/d recorded in December 2016.

However, for the whole of last year, the country's oil output only averaged 391,000 b/d, compared with 405,000 b/d in 2015.

Oil production began to pick up in the fourth quarter of last year when output averaged 571,000 b/d.

The *Platts* report noted that oil production had fluctuated in January 2017, rising to over 700,000 b/d in the first week of the month.

It said that output had almost tripled since August last year, when it had fallen to as low as 230,000 b/d, adding that all the country's major oil export terminals were currently open, although still not operating at full capacity due to the damage caused after more than five years of civil year.

Sanalla pointed out that the NOC had been able to lift the *force majeures* in place at the 350,000 b/d Es Sider, 220,000 b/d Ras Lanuf and 70,000 b/d Zueitina terminals in September last year.

In 2013, Libya was producing 920,000 b/d of crude oil and, before the civil war, output stood at close to 1.6m b/d.

UAE seeking to boost clean energy to 50 per cent by 2050

The United Arab Emirates (UAE) is taking serious steps to boost the share of clean energy in the OPEC Member Country's power generation mix to 50 per cent by 2050.

According to a report carried by *Energy Intelligence*, the country has launched its first-ever long-term federal energy strategy with investment of around 600 billion dirhams ($163.3bn).

UAE Energy Minister, Suhail Mahamed Al Mazrouei, told journalists in Abu Dhabi that concerning the country's target for green energy, some 44 per cent would come from renewable energy, while six per cent would be sourced from nuclear power.

The other 50 per cent, he added, would come from fossil fuels, including 38 per cent from gas and 12 per cent from clean coal.

The report noted that virtually all of the UAE's currently installed power generation is gas-fired.

"This is the first time we see a clear vision from any country in the region and even worldwide," commented Al Mazrouei, adding that the 600bn dirham cost estimate did not include projects already underway, such as the Barakah-1 nuclear power reactor in Abu Dhabi.

"This is new money," he was quoted as saying on the sidelines of the Gulf Intelligence UAE Energy Forum, explaining that the strategy would be revised at five-year intervals.

The Minister maintained that the UAE investment should pay itself back. He expected the targets to deliver cost savings of 700bn dirhams versus maintaining the status quo.

The official UAE news agency, *WAM*, reported that the plan aimed at cutting carbon dioxide emissions by 70 per cent and improving energy efficiency by 40 per cent by 2050.

Al Mazrouei pointed out that the strategy envisioned electricity capacity growing to around 100 gigawatts by 2050 from about 20 GW in 2020.

The *Energy Intelligence* report noted that the UAE's renewable power ambitions, through solar energy, were already proving to be economically viable.

In September last year, Abu Dhabi attracted a record-low bid of 2.42¢/kilowatt hour for a 350 megawatt photovoltaic plant tendered by the state-owned Abu Dhabi Electricity and Water Authority.

Clean coal

It added that clean coal adoption was also under way. In July last year, GE and China's Harbin Electric International won the engineering, procurement and construction contract for Phase 1 of the Middle East's first clean coal power project. This is being developed in Dubai by the Hassyan Energy Company, a joint venture between the Dubai Electricity and Water Authority and the Acwa Power Harbin Holding Company.

The Hassyan plant will produce a net 2.4 GW of electricity using clean coal. Its first 600 MW unit is expected to be operational in March 2020.

The report said that also included in the total cost estimate was the implementation of new regulations and measures to help cut power consumption in the UAE, which, according to the World Bank, ranked in the world's top ten countries in terms of kWh per capita.

Said Al Mazrouei: "We are assuming that every building, customer and consumer in the UAE will use less energy — by 40 per cent — through efficiency, building codes and demand-side management."

Suhail Mahamed Al Mazrouei, UAE's Minister of Energy.

Wood Mackenzie sees oil prices rising through 2020

New oil projects expected to double in 2017

Following a two-year slump, caused primarily by persistent low crude oil prices, investment in new oil and gas projects is forecast to rise in 2017.

Global consultancy, Wood Mackenzie, has said that oil and gas companies were expected to more than double new project developments in 2017 as they gained confidence that low oil prices were behind them.

a principal oil and gas analyst at Wood Mackenzie, was quoted as saying.

It will certainly be a welcome relief after the last few years, which have seen investment figures drop sharply, putting future capacity expansion and security of supply under threat.

OPEC calculations show that over the next quarter of a century, oil-related investments to the tune of around $10 trillion will likely be required, in addition to a further $6 trillion for gas developments.

International crude prices, buoyed by a 'Declaration of Cooperation' by OPEC and non-OPEC producers to reduce output by some 1.8 million barrels/day from January 1, 2017, for an initial six-month period, have enjoyed more than a 20 per cent increase in the past two months to around $55/b.

Cautiously optimistic

"We have just come through two years of gloom and a lot of cost-cutting and now we are cautiously optimistic there will be the start of a recovery in 2017," Malcolm Dickson,

But since crude oil prices fell in the summer of 2014, huge pressure has been exerted on the oil and gas industry as a whole.

This has led to widespread retrenchment by the oil majors, who have had to drastically reduce costs, bringing with it massive manpower layoffs and, of course, cutbacks in investment.

Again, OPEC data shows that in 2015 global oil upstream spending fell by 26 per cent from the previous

year, while in 2016 the figure stood at 22 per cent. This combined represents an investment loss of more than $300 billion. If spending were to fall again in 2017, which may not now be the case, it would be the first time in history that investment would have declined over three consecutive years.

However, even during the difficult down-cycle, OPEC Member Countries have remained committed to continuing to invest in existing and new capacity, so as to ensure they meet the future requirements of consumers in a timely and sustainable manner.

The Organization and its Member Countries are now very hopeful that following the historic 'Declaration of Cooperation' with non-OPEC producers, overall supplies and the stock overhang will be reduced during the course of 2017.

This should have the effect of speeding up the rebalancing of the market and, hence, make conditions more attractive for a return to adequate investment by companies in the near future.

According to Wood Mackenzie's global upstream outlook for 2017, exploration and production spending is now expected to rise by three per cent to a value of $450 billion. However, this is still 40 per cent below 2014 levels before crude prices began their slump.

Geographically, the increased investment will vary hugely. United States shale oil production is expected to account for most of the gains because it is relatively cheap and quick to develop.

North American shale production was the main driver of the supply glut, but also experienced the sharpest declines in terms of output during the downturn. US shale oil production is expected to grow by around 300,000 b/d in 2017 to around 4m b/d, according to Wood Mackenzie forecasts.

Supply decrease

It also now expects crude oil prices to average $57/b in 2017 and gradually rise to $85/b in 2020 as supplies decrease due to the investment cutbacks of the past few years.

Wood Mackenzie observed that following the sharp decline in oil prices, international oil companies had found ways to reduce the costs of field developments by rationalizing engineering plans and lowering contractor and rig rates. Dickson noted that costs had fallen by 20 per cent since 2014 and were expected to decline by an additional five per cent this year.

Wood Mackenzie stated that the number of final investment decisions for projects with resources greater than 50m b of oil equivalent would more than double in 2017 to 20–25, from only nine in 2016.

However, it warned that the increase in activity would still not be enough to cover a growing supply/demand gap, which Wood Mackenzie said is expected to widen to 20m b/d by 2025, based on current development plans.

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Iran mourns passing away of Founding Father Rafsanjani

Ayatollah Akbar Hashemi Rafsanjani *(pictured),* former President of Iran and one of the Islamic Republic's Founding Fathers, passed away in hospital in the capital, Tehran, in early January. He was 82.

Three days of official mourning were observed following his death from cardiac arrest after suffering a heart attack on January 8.

The renowned cleric, politician and influential writer was the fourth President of Iran during a term that stretched from August 1989 to August 1997. He served in different positions in the post-1979 Islamic Revolution era.

Many tributes have been received from high-ranking officials in Iran and from around the world, including presidents and heads of state and government.

"It is with deep regret and sorrow that I have received the news on the passing away of an old friend, a comrade and companion during the struggles of the Islamic movement, who was also a close colleague in the Islamic Republic of Iran over the last several years," the Supreme Leader of the Islamic Revolution, Ayatollah Ali Khamenei, said in his message of condolence.

President Hassan Rouhani said that Islam had lost a valuable asset; Iran a great figure; the Islamic Revolution a brave guide; and the state a wise, unparalleled figure.

In a tweet later, the President added: "The soul of the great man of the Revolution, symbol of patience and resistance, has gone to Heaven."

Majlis (Parliament) Speaker, Ali Larijani, described Rafsanjani as a great man who closed his eyes to the world. "He was a valuable clergyman who relentlessly worked for breaking the face of hypocrisy," he added

He went on to say that Rafsanjani was a great man who "effortlessly fought the colonial powers and global arrogance to defend the country's independence and territorial integrity."

Meanwhile, Iran's First Vice-President, Eshaq Jahangiri, stated that Iran had "lost a national hero, a worthy son, a leader, an old friend of the system, a unique asset and the government lost a brave supporter."

Rafsanjani's funeral service was held on January 10 at Tehran University where Supreme Leader Ali Khamenei led the prayers. The day was also pronounced as a national holiday.

Akbar Hashemi Rafsanjani was born in 1934 in south-eastern Iran. He studied theology in the holy city of Qom with Ayatollah Ruhollah Khomeini, who went on to lead the Islamic Revolution of 1979.

During the 1980–88 Gulf conflict, Rafsanjani was Acting Commander-in-Chief of the Armed Forces. He was credited for negotiating Iran's acceptance of the United Nations Security Council resolution that ended the conflict.

Rafsanjani, who advocated progressive economic policies, encouraged private businesses and better infrastructure. He also became a key player in the development of Iran's nuclear programme.

His final role was as Head of Iran's Expediency Council, which is mandated to resolve disputes between the Majlis and the Guardian Council.

New Petroleum Minister appointed in Venezuela

Dr Nelson Martínez *(pictured right)* has been appointed Minister of Petroleum of the Bolivarian Republic of Venezuela, under a decree issued by the country's President, Nicolás Maduro Moros. He succeeds Eng Eulogio Del Pino, who has retained the position as Chairman of the Board and President of the state energy company, Petróleos de Venezuela, SA (PDVSA).

Martínez, appointed Minister on January 4, 2017, had been Chairman of the Board of Directors and President and Chief Executive Officer of the CITGO Petroleum Corporation since May 2013.

Martínez graduated with a Bachelor's Degree in Chemistry in 1973 and one year later attained his Master's Degree in Physical Chemistry from the University of Poitiers, France.

He subsequently obtained a Doctorate in Chemistry from the University of Reading in the United Kingdom (1978) and a Master's Degree in Technology Management from the Massachusetts Institute of Technology (MIT) in 1993.

Additionally, he pursued management studies at Michigan and Harvard Universities and at the Non-profit Research Institute, SRI International, in California, the United States.

Martínez began his career in 1980 with Intevep, the research and development arm of PDVSA. There, he gained experience in the development of catalysts and process technology.

In 1987, he was appointed Head of the Catalysis Section and for four years, beginning in 1990, he managed the Refining Processes Development Department at Intevep.

In 1995, he was named Leader of the Technology Management Corporate Group, which formed part of PDVSA's Strategic Planning Coordination. That same year, he was appointed Manager of the PDVSA-Intevep planning function and developed strategic plans for the production of gasoline types with a low-sulphur content and other technology business plans related to heavy oil conversion and catalysts' development.

From March 2000, he held the position of Deputy Manager of the Refining and Petrochemicals General Division and also served as the designated Team Manager of New Business Developments.

In December 2002, he became Managing Director of Refining at PDVSA Oriente, in Puerto La Cruz, Venezuela, with responsibility for all refining operations in eastern Venezuela. He also led the restoration of refining and transportation operations for crude oil and fuels in the region following the 2002 interruption.

In July 2003, Martínez was appointed Director of PDVSA and General Manager of Exploration and Production in eastern Venezuela.

Beginning in February 2004, he served as a Director with the responsibility for overseeing trade and supply, but also maintaining his responsibilities as President of PDVSA's Gas and Bitor subsidiaries.

From March 2005 until July 2006, Martínez was appointed Managing Director of PDVSA UK in London.

On his return to Venezuela, he worked as Advisor to PDVSA America and, in February 2007, was appointed Managing Director of PDVSA Ecuador.

In August that year, Martínez became Executive Director of PDVSA-America, with a responsibility for all activities and projects in South America, in support of bilateral energy security treaties and joint ventures with state enterprises in the energy sector.

As part of his duties as PDVSA Executive, Martínez has been Executive Director of PDVSA America and was appointed Managing Director of PDVSA Argentina in May 2011. He held this position until his appointment to CITGO.

Martínez is a Member of the New York Academy of Sciences (1994), which he gained for his contributions to the study of catalysts in hydro treatment and catalytic cracking.

He has several awards for research undertaken in the field of process technologies and catalysts and holds more than 50 international patents and papers in his field of work.

Shuttle diplomacy, extensive consultations recognized ...

OPEC Secretary General named 'Man of the Year'

Photographer: Simon Dawson/Bloomberg

OPEC Secretary General, Mohammad Sanusi Barkindo, who only became chief executive of the Vienna-based Organization on August 1, 2016, has been named 'Man of the Year' for 2016 by *The Daily,* the leading African online newspaper.

In a letter to his office at the OPEC Secretariat in the Austrian capital, the publication stated that the honour was given every year to persons who made outstanding contributions with a lasting impact not only on the economies of nations, but also globally.

Untiring efforts

"This year, the choice is anchored on your untiring efforts, your adoption of strategic measures, your making of diplomatic shuttles, your engagement with oil-producing and consuming nations, your holding of various fora and your positive actions — all of which culminated in the rise of crude oil prices from less than $30 to over $50/barrel in the global oil markets," the letter announcing the award stated.

It added: "With these and other feats, we are very optimistic that many multiplier effects, including new investments, new oil and gas finds, additional reserves, job creation, new technologies, capacity-building, and increased concerns for the environment, will become ever more positive."

Since taking up his position at the helm of OPEC, Barkindo has worked tirelessly with other senior officials of the Organization to bring about better conditions in the international oil market.

He has travelled the world over — to both OPEC and non-OPEC countries — to conduct shuttle diplomacy aimed at narrowing differences on how best to move forward and help speed up the long-awaited rebalancing of the oil market.

His untiring efforts culminated in the signing of three landmark OPEC agreements — the 'Algiers Accord' in September 2016, the 'Vienna Agreement' in November and the 'Declaration of Cooperation' between OPEC and a group of 11 leading non-OPEC oil-producing countries in December.

The 'Algiers Accord', reached at the 170th (Extraordinary) meeting of the OPEC Conference in the Algerian capital on September 28, committed the Organization to a total production adjustment to between 32.5 and 33.0 million barrels/day of crude.

This was followed by the 171st Ordinary Meeting of the Conference in Vienna on November 30, which saw the Organization agree to an output reduction of 1.2m b/d, effective January 1 for an initial period of six months.

Then, on December 10, again in Vienna, OPEC reached its historic agreement with non-OPEC producers, who pledged a reduction of around 600,000 b/d, taking the total adjustment to 1.8m b/d.

This is aimed at restoring stability by easing the market's oversupply, reducing the stock overhang and speeding up the rebalancing of the market, which are seen as essential for helping to encourage new investment, which is vital to the future of both the petroleum sector and the global economy in general.

The three agreements necessitated many meetings and extensive discussions by Barkindo and a number of OPEC and non-OPEC officials. Of special note was the Secretary General's shuttle diplomacy with heads of state and government, ministers and other high-ranking officials, which took him around the world, gaining him widespread recognition and the award by *The Daily*.

Many years with OPEC

Barkindo, who was born in Yola, Adamawa State, Nigeria, has long ties with OPEC. A former longstanding OPEC National Representative for his country, he has served as OPEC Governor and also spent some time as Acting for the OPEC Secretary General.

The holder of a BSc (Hons) in political science from Ahmadu Bello University, Zaria, Kaduna State, he has a Post-Graduate Diploma in Petroleum Economics from Oxford University in the United Kingdom, and an MBA in Banking and Finance from Washington University in the United States. He is also a fellow of George Mason University in the United States and holds an Honorary Doctorate in Science (Honoris Causa) from the Modibbo Adama Federal University of Technology, Yola.

During his working career, Barkindo has occupied many key positions in Nigeria's public and private sectors, including a period as Group Managing Director of the Nigerian National Petroleum Corporation (NNPC).

OPEC Secretary General meets new Austrian President

OPEC Secretary General, Mohammad Sanusi Barkindo *(below r),* met the new President of Austria, Dr Alexander Van der Bellen *(below l),* in the Austrian capital, Vienna, in January this year.

Barkindo was invited to attend a special reception attended by Van der Bellen and his wife, Doris Schmidauer, at the President's office in the Hofburg Palace on January 26.

The OPEC Secretary General joined other high-ranking officials, dignitaries and guests just hours after Van der Bellen was sworn in for a six-year term as Austrian President, succeeding Heinz Fischer.

Van der Bellen, an economics professor and former leader of Austria's Green Party, narrowly won the initial elections held in May 2016 by 30,000 votes. But Austria's Constitutional Court ordered a rerun after the country's Freedom Party claimed widespread voting irregularities.

That was initially due to be held in October, but had to be postponed until early December, when Van der Bellen was finally elected, and by a margin 10 times greater than in May, against his opponent, Norbert Hofer, an aircraft engineer turned politician.

In his acceptance speech, Van der Bellen embraced the ideal of a united Europe, calling for a tolerant and diverse nation, free of ideological and racial hatred.

Referring to himself as a "refugee baby", he said he was very moved to "stand before you as your President."

He pointed out that he would work for all Austrians, stressing that the country was a "land of unlimited possibilities."

Peter Lechner/HBF

In the following pages, the OPEC Bulletin continues to record the Secretary General's shuttle diplomacy, which has received high praise from many quarters for contributing to the success of OPEC's recent historic production agreements.

OPEC Secretary General meets with Qatari Energy and Industry Minister

OPEC Secretary General, Mohammad Sanusi Barkindo, met with Dr Mohammed Bin Saleh Al-Sada, Minister of Energy and Industry of Qatar, in the Qatari capital, Doha on January 7, 2017.

The two officials reviewed the remarkable events of 2016, including the historic OPEC agreements — the 'Algiers Accord', the 'Vienna Agreement', and the 'Declaration of Cooperation', reached between OPEC and a group of leading non-OPEC oil-producing countries.

It was highlighted that these landmark agreements were a direct result of the close, productive collaboration between the OPEC Secretary General and the Qatari Minister, who served as President of the OPEC Conference throughout 2016.

"Your forecast, tireless efforts and unwavering dedication throughout the difficult year were instrumental in building to turn a historical page in global oil in 2016," Barkindo said in a letter he handed to Al-Sada during the meeting.

The OPEC Secretary General described the important leadership provided by Al-Sada in his role as OPEC Conference President, praising his "expertise, foresight and negotiating skills."

In his letter, the Secretary General noted that Al-Sada drew on "extensive industry and government experience, in order to smoothly guide a broad consultative bilateral and multilateral process, which began in early 2016."

This process ranged from Doha-1, an informal discussion to the signing of the historic 'Declaration of Cooperation' on December 10, 2016, in Vienna, Austria.

Al-Sada also expressed his deep satisfaction with OPEC's achievements, praising Barkindo's excellent leadership and technical skills, which, he stressed, had both been in evidence since he began his tenure as OPEC Secretary General on August 1, 2016.

Dr Mohammed Bin Saleh Al-Sada (l), Minister of Energy and Industry of Qatar, with Mohammad Sanusi Barkindo (r), OPEC Secretary General.

"You took charge at a very critical time," the Minister wrote in a personal letter given to the Secretary General, "hitting the ground running."

The Minister also congratulated the OPEC Secretary General on having been named 'Man of the Year 2016' by *The Daily,* the leading online publication in Africa.

During the high-level meeting, Barkindo also took the opportunity to express gratitude to both the Emir of Qatar and the country's Prime Minister for their crucial support last year for the Organization and its work.

These, he said, were critical, in reaching last year's landmark achievements. He also extended his appreciation to the technical team at the Qatari Energy and Industry Ministry for its hard work and support.

The high-level meeting was attended by several other senior Qatari officials from various ministries, as well as the OPEC Secretariat, and the Nigerian Ambassador to Qatar, Enoch Duchi.

OPEC Secretary General meets Kuwaiti Emir, Oil Minister, other officials

Mohammad Sanusi Barkindo (second l), OPEC Secretary General, seen during his visit with the Emir of Kuwait, HH Sheikh Sabah Al-Ahmad Al-Jaber Al-Sabah (second r).

OPEC Secretary General, Mohammad Sanusi Barkindo, met with the Emir of Kuwait, HH Sheikh Sabah Al-Ahmad Al-Jaber Al-Sabah, on January 9, 2017. Also present was the country's new Oil Minister, Issam A Almarzooq, who is also Minister of Electricity and Chairman of the Board of the Kuwait Petroleum Corporation (KPC).

At the meeting, which took place at Bayan Palace, in Kuwait City, the Emir commended the OPEC Secretary General on the recent successful meetings the Organization had held among OPEC Member Countries and non-OPEC nations, which had resulted in the 'Declaration of Cooperation' by 24 producers to reduce oil production by around 1.8 million barrels/day, effective January 1, 2017.

Sustainable stability

The Emir urged all participating countries to work together toward a strategy for sustainable market stability and to avoid a relapse into the damaging oil market volatility that was witnessed in 2015 and 2016.

For his part, the Secretary General paid tribute to the Emir and expressed his gratitude for his personal engagement in reaching out to other Heads of State during the consultation process among producers that took place in the second half of 2016.

Earlier in the day, Barkindo visited Almarzooq and other senior Kuwaiti officials, congratulating the Minister on his well-deserved appointment.

Almarzooq warmly welcomed the OPEC Secretary General and his accompanying team, stating that it was an opportune time to meet and take stock of the landmark achievements of 2016 and other recent market developments.

In this regard, the two discussed the 'Vienna Agreement' to reduce the Organization's output by 1.2m b/d, reached at the 171st Meeting of the OPEC Conference in Vienna, Austria on November 30, 2016, and the 'Declaration of Cooperation', agreed at a joint Ministerial Meeting on December 10.

The two men stressed the importance of these recent decisions and underscored the fact that they were both the result of detailed, exhaustive and collaborative cooperation between all parties involved.

Their talks also focused on the Joint Ministerial Monitoring Committee (JMMC) that has been tasked with the oversight responsibility for the implementation of the agreements and which had its first meeting in Vienna on January 22, 2017.

This is chaired by Kuwait, which, said the OPEC Secretary General, reflected on both the country's respected position and status as a leading player in helping bring about the market stability both producers and consumers desire.

Technical discussions on the JMMC were also held, together with experts from Kuwait and the OPEC delegation, concerning the framework for oversight, the conformity monitoring mechanism and other related issues.

There was acknowledgment that there had already been encouraging signs of commitment from many countries in regard to the implementation of the production adjustments.

The OPEC Secretary General also met with Anas Khaled Al-Saleh, Kuwait's Deputy Prime Minister and Minister of Finance, who was Kuwait's Acting Minister of Oil during the long and challenging consultation process that led to the historic agreements being reached at the end of last year.

Barkindo thanked him for his efforts to build consensus, his commitment to overcoming the situation of excess oil supply and his unwavering dedication to the goals of the Organization.

The following day (January 10), the OPEC Secretary General visited the headquarters of the Organization of the Arab Petroleum Exporting Countries (OAPEC), where he held talks with his counterpart, Abbas Al Naqi.

The two underscored the importance of the relationship between the Organizations and stressed the benefits of expanding cooperation through joint meetings, as well as in the exchange of data and information.

Foundation visit

The OPEC Secretary General later paid a visit to the Kuwait Foundation for the Advancement of Sciences (KFAS) and met with Dr Adnan Shihab-Eldin, the Foundation's Director.

Shihab-Eldin, a former Acting for the Secretary General of OPEC and Director of its Research Division, provided an overview of the activities of KFAS, highlighting its next five-year programme and the focus areas of its research and development projects.

Mohammad Sanusi Barkindo (l), OPEC Secretary General, with Issam A Almarzooq (r), Kuwait's Minister of Oil and Minister of Electricity and Water.

Mohammad Sanusi Barkindo (r), OPEC Secretary General, also met with Abbas Al Naqi (l), Secretary General of the Organization of Arab Petroleum Exporting Countries (OAPEC).

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

November 18 Executives from the Oil and Natural Gas Corporation (ONGC), India.

December 14 Students from the *HochschülerInnenschaft* of the Vienna University of Economics and Business (ÖH WU Wien), Vienna, Austria; together with students from the Eurasian National University, Astana, Kazakhstan; the Lycée Jeanne d'Arc, Nancy, France; and the University of Central Lancashire, Preston, UK.

December 15 Students from the University of Vienna, Austria; and from the German Air Force, Manching, Germany.

December 20 Students from the Kundmanngasse Gymnasium school, Vienna, Austria; and the University of Minnesota, USA.

January 11 Students from the University of Aberdeen, UK.

January 19 Students from the University Center of Brasília (UniCEUB), Brasília, Brazil.

January 20 Representatives from the Indian Institute of Management, Indore, India.

January 23 Students from the University of Leiden, The Hague, Netherlands.

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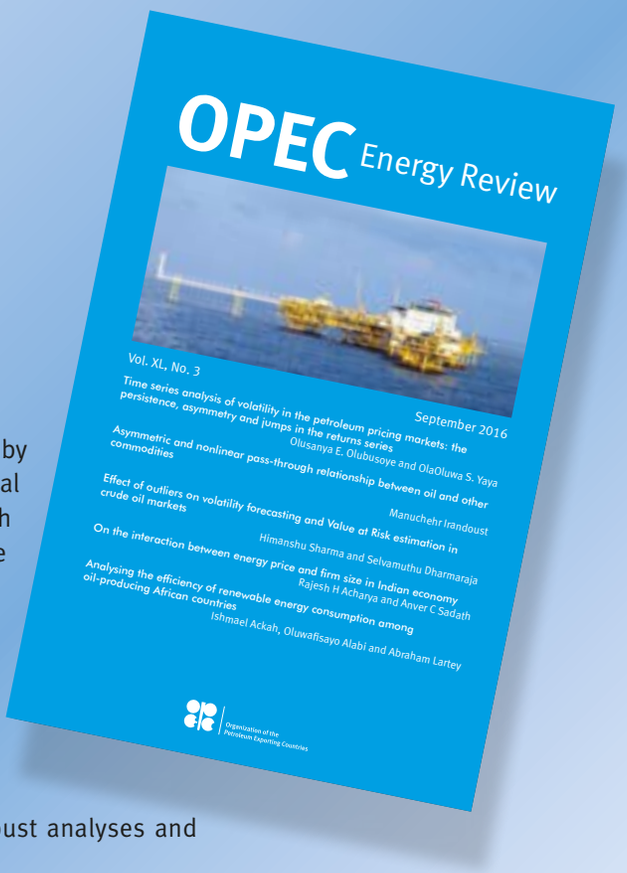

The OPEC Energy Review is a quarterly energy research journal published by the OPEC Secretariat in Vienna. Each issue consists of a selection of original well-researched papers on the global energy industry and related topics, such as sustainable development and the environment. The principal aim of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

The drive for public transport in the UAE

Every country that has attained a certain level of development is and continues to be concerned about its public transport. Getting around in a quick, efficient and safe manner is part and parcel of a nation's quality of life, especially in large metropolitan cities. A well-organized transport network is also one of the parameters in assessing the suitability of a country or city for investment, or for large-scale events, such as sports tournaments, expos, conferences etc. ***Saadallah Al Fathi****, former Head of Energy Studies at the OPEC Secretariat in Vienna, Austria, looks at just how the situation with transportation has progressed in the case of the United Arab Emirates (UAE), the OPEC Member Country in the Gulf where he now resides.*

The United Arab Emirates has achieved impressive economic growth over the years since its unification in 1971. Its population has grown, swelled by both local citizens and expatriates, and it has increasingly become a tourist attraction and a transit country between east and west.

This has resulted in the Government and local authorities becoming very active in supporting public transport projects and policies, especially in the large cities of Dubai, the capital Abu Dhabi, and Sharjah, with others set to follow.

Just over ten years ago the major prevailing mode of transport in UAE cities was the use of private cars and taxis, a convenient mode, but hardly efficient or economical.

Dubai

Just in Dubai, there are close to 550 cars per 1,000 head of population, in addition to about 8,000 taxis, which carried more than 135 million passengers in 2014. Congestion on the roads has been the norm for most hours of the day, which forced the authorities to consider an expedited programme for public transportation.

The Road and Transport Authority (RTA) of Dubai was established in 2005 to be "responsible for planning and providing the requirements of transport, roads and traffic in the Emirate of Dubai, and between Dubai and other Emirates of the UAE and neighbouring countries, in order to provide an effective and an integrated transport

Left: An aerial view of part of the road network in Dubai.

system, capable of achieving Dubai's vision and serving the vital interests of the Emirate."

The first success of the RTA was the commissioning of the bus system, which covered a large area of the city and provided a service on its major streets and roads. The bus system started with 60 routes and quickly rose to 85 routes in 2008 as the number of passengers increased.

In 2008, more than two million trips carried 94m passengers. The number rose to about 1,500 buses operating on 193 routes and about four million trips and 129m passengers in 2015.

Considering the prevailing social habits, this sharp rise in ridership reflects a social change to the better and dispelled any prejudice that may have been around among various groups of the Dubai population and brought more equality among people.

Some bus lines are feeders for the metro system, which came later in 2009. Air conditioned bus stops now account for 656 of the 1,500 bus stops and the bus fleet consists almost entirely of low-floor European-made, air-conditioned buses.

The launch of the metro system came on September 9, 2009. That date will remain in Dubai's memory for a long time. Not only because of the elegant way of writing it as 09/09/09, and not because it happens every 1,000 years that we can write the date in a similar fashion, but

A typical modern metro station in Dubai, showing (below) an outside view and (bottom) the inside.

because it is the date of the opening ceremony and start of operations of the Red Line of the Dubai Metro.

On that glorious day, Dubai joined the 160 elite cities around the world with a developed Metro public transport system. Since then, 30 more cities globally have joined the club and a further 31 cities expect their systems to be operational between now and 2020. The worldwide systems have become the most desired for their speed, convenience and generally inexpensive mode of transport.

Longest driverless system

The Dubai Metro extends over 74.6 kilometres (13 km underground), featuring a two-directional track with 47 stations. It is the longest driverless system in the world and its size is well above the world average. It currently operates two lines — the Red line with 29 stations and the Green Line with 18 stations. Construction of the Red Line started in September 2005, while that of the Green Line began in 2006.

Seven monorails are planned to feed the metro, connecting various places laterally situated left and right of the main metro line axis. The first of these is the Palm Jumeirah Monorail, opened on April 30, 2009, and would eventually have four stations.

Naturally, plans exist for the expansion of the Dubai Metro, but currently no award or construction date is announced. It is expected that extensions of the Red and Green lines and three new lines are planned.

The expansions may be carried out in phases with completion dates in 2020, 2025 and 2030 as the RTA estimates Dubai's population to rise to 3.1 million by 2020. Significantly, some 25m visitors are expected that same year for the Expo 2020.

To add another step of integration to the public transport system in Dubai trams were considered as early as April 2008. But completion was delayed in the aftermath of the economic and financial crisis of 2008. The first section was finally inaugurated in November 2014.

The tram track that has been partially completed so far is a 14.5 km two-directional track connecting the bustling Jumeirah Beach Residence quarter with Dubai Marina and also linking with Palm Monorail and two stations of Dubai Metro's Red Line at Dubai Marina and Mall of the Emirates.

The first ten km is in operation and served by 11 trains with 13 stations. The second four km is announced for construction in parallel with the development of the residential and commercial area that it will eventually serve. The system will then add 14 more trains and six stations.

Interestingly, the trams are 44 metres long with a capacity of 300 passengers. They have an average commercial speed of 20 km/hour and use the very modern ground level power supply to avoid overhead cables.

Further expansion of the tram system is expected in the future, especially with the 1.1 km line connecting the famous Burj Khalifa metro station with the just as famous Dubai Mall.

To complete the Dubai story, one has to acknowledge the 'on the water' public transport facilities. The Abras are the traditional way of crossing the Dubai Creek. They are operating in three zones of the Creek.

This poster, which shows a metro train among other things, was painted by the artist, Farah Yousif, who won the first prize in a competition, organized to celebrate the 45th National day of the United Arab Emirates.

A tram in Dubai.

There are also allocated stations for water taxis, which can take passengers anywhere on the Creek. The water bus in the Marina district stops at four stations, but generally it is touristic.

Now that the Dubai Canal is completed, a ferry service will start soon and also stations for water taxis. The fares are very affordable for passengers and even for cars carried across the Creek.

There is no doubt that the residents of Dubai have been very supportive and enthusiastic about public transport to assist their requirements of mobility and ease their suffering of delays and traffic jams after long working hours.

This was clearly demonstrated from the early days of the metro inauguration by Sheikh Mohammad Bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE and Ruler of Dubai, who visited all the stations on the maiden journey of the trains.

The reception he got from the public was a sure sign of the eagerness and expectation of the public.

Over the years, this has been amply demonstrated by statistics. The total number of passengers on the Dubai public transport network was over 531m in 2014 and could be close to 600m now.

The passengers on the metro have increased from about 110m in 2012 to over 164m in 2014 and also much more by now.

Given these numbers, the expansion of the system, at least by increasing the speed and frequency of the trains, is appearing to be a must to avoid discomfort for passengers.

Abu Dhabi

Dubai may have been the first Emirate in the UAE to develop a varied public transportation system, but the capital, Abu Dhabi, has equally impressive plans and is soon to have its own elaborate system.

The Department of Transport in Abu Dhabi aims “to provide an effective transport system that contributes to the economic growth, quality of life and environmental sustainability.”

This will include “an efficient and well-integrated transport system enhancing mobility and delivering safe, secure and environmentally responsible public transport.”

And this is not just for the city of Abu Dhabi, but also for other important cities, such as Al Ain and Ruwais.

Abu Dhabi is fast growing and its population is forecast to be more than three million residents by the year 2030. Its Surface Transport Master Plan goes up to 2030 to develop a “world-class transport system”. The initial plan was drawn up in 2009 for the Emirate of Abu Dhabi.

Until mid-2008, there was very limited public transport services in the Emirate and, like Dubai, people relied on private cars and taxis for mobility.

Abu Dhabi city now already operates 75 bus routes equipped with modern buses like those in Dubai. Like Dubai also, riders pay through prepaid smart electronic cards which is a most efficient and convenient system of collection. Inter-city buses are also available from the public network, as well as those provided by private companies.

The ferry service around Abu Dhabi serves passengers and cars as well. There is only one route — from Marsa Jabel Al Dhanna to Delma Island — for a fee of 20 and 100 dirhams for a passenger and a car, respectively.

The planned metro system will provide rapid transportation times for longer distance trips within metropolitan Abu Dhabi. It will involve the construction of 130 km of two-way tracks and maybe 45 to 50 stations, with distances between stations depending on how dense the area is with respect to the population or offices, with a dedicated airport express service.

Beside the bus network, the metro system will be supported by a large-scale tram network planned to have a track length of 340 km of two-way track. Tram stops will be conveniently located and within a walking distance of 300 meters for passengers.

The plan for Al Ain city goes along the same lines, where the population is expected to be around 800,000 by 2030.

Meanwhile, the Al Gharbia (Western) Master Plans are for the seven major cities of Liwa, Madinat Zayed, Ruwais, Mirfa, Ghayathi, Sila'a and Delma, which are to be covered by the 2030 plan.

They are "aimed at augmenting the region's transport infrastructure to match the anticipated population growth of up to 450,000 by 2030."

The Master Plan of Al Gharbia includes "rail, metro, tram, bus, taxi and highway options by integrating transport and land use planning and managing the demands for travel" and cross-border travel with Saudi Arabia.

Sharjah

In Sharjah, the third-largest UAE Emirate, public transportation may have started later than in Dubai and Abu Dhabi, but is today making progress in serving the needs of the population.

The Sharjah Roads and Transport Authority (SRTA) reported on the rise in the number of people opting for public transport where, according to the Authority, taxis still formed part of the system, but which has introduced modern busses to the city and inter-city transport, as well.

In 2015, over 42.7m passengers used the public city and inter-city buses and taxis, which were 21 per cent over the number of passengers in 2014.

In 2015, there were 5,009 taxis, recording 36m trips. At the same time, 98 SRTA buses made 300,722 trips on nine city routes having 422 stops and carrying 5.6m passengers.

Taxi services in the United Arab Emirates.

A bus station in the Emirate of Sharjah.

Inter-city buses, numbering 130 vehicles, carried 5.7m passengers on 14 routes with 192 stops in 2015. In the first quarter of 2016, there was a significant increase of 11 per cent in the ridership of public transport buses over 2015.

Unfortunately, the Northern Emirates of Ras Al Khaimah, Umm Al Quwain and Fujairah, still depend largely on private cars and taxis and some privately organized buses, but they will catch up as their local governments increasingly recognize the importance of improving public transport facilities.

The National Rail

The more strategic project is that of the standard-gauge, double-track Etihad Rail, which was set up in 2009 to manage a national railway network for freight and passengers connecting major cities and the other countries of the Gulf Cooperation Council (GCC).

The project envisaged a 1,200 km network built in three stages and powered by diesel electric locomotives. The first stage is

The busy Sheikh Zayed Road and metro railway in the financial centre of Dubai.

the 264 km section for the transport of sulphur from the Shah and Habshan fields to Ruwais for export. It has been in service since 2013 and freight trains are travelling at 120 km/h, while passenger trains travel at 200 km/h.

The second and third stages, where tendering is reported to be in progress, comprise 628 km and 279 km, respectively, and will connect Abu Dhabi to Dubai, including connections to the major ports and on to the Northern Emirates. It will also extend to the Saudi Arabian and Omani borders.

The project is estimated to cost 40 billion dirhams, or close to $11bn. It will replace hundreds of trucks that are currently carrying freight and thereby reduce the environmental impact and improve the economic returns to the UAE economy.

The railway network will be adequately connected to the metro systems and other forms of public transport to make it easy and attractive for passengers.

People are now convinced that it is to their advantage economically, environmentally and health-wise to use the buses, metro and trams, whenever possible on their own or in combination with other modes of transport, such as taxis and water buses.

Energy saving

From the energy point of view, there is no doubt that public transport is playing a great role in slowing down the growth in transportation fuels' requirement. It is, after all, one of the main reasons for cities to construct and encourage public transport.

The International Association of Public Transport estimates that an energy equivalent of one kilogramme of petrol per person will allow a car to travel 19 km, a bus for 38 km and a train for 48 km. Therefore, the metro is considered to be the most energy-efficient mode of transport per passenger km.

The Drivers

Economics, energy conservation and environmental protection are what drive public transportation projects. As early as the days of the Dubai bus system and its success, the Emirate's residents confirmed their willingness to give other forms of public transport a chance, especially that it has been made clean, fast, practical and affordable.

A typical air-conditioned bus stop in Dubai.

An aerial view of the Corniche road and beach, Abu Dhabi.

In terms of the environmental impact, the fact that the trains and trams are electrically driven means there will be no emissions of harmful gases, such as those associated with petroleum-product fuels.

Even if one takes the full cycle and includes the fuel used at the power station, supplying the electricity, the energy and emissions per passenger km will still be the lowest for electrically driven trains. Trains do not pollute locally, while buses do — and cars do most.

Relying on oil products

Fifty years ago, transport energy use was 15 to 20 per cent of total energy consumption in the world. Today, it is probably over 50 per cent.

Road transport relies almost exclusively on oil products, which are becoming increasingly more difficult to produce in qualities and quantities sufficient enough to meet current and future demand.

Energy per passenger km is almost 40 per cent for a fully-loaded bus, compared to that of a fully-loaded car.

And when the bus is only ten per cent occupied, the energy per passenger km would still be 80 per cent of that of a single occupancy of a private car.

No matter how you look at it, the saving of fuel is enormous, especially as private cars are poorly occupied most of the time. Fuel saving means less emissions of pollutants and public transport is a minority contributor to pollution.

Dubai buses started by using 50 parts per million (ppm) sulphur content in imported diesel fuel, but ten ppm sulphur diesel grade is now domestically produced and mandatory to use across the UAE.

Let us hope then that the full programme and expansion of the UAE's public transport system is expedited and that other Arab countries imitate the same experience.

The Abu Dhabi Corniche cycling track area which is very popular for cycling, walking and running.

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Petr Kopfstein of the Czech Republic performs during the qualifying of the first stage of the Red Bull Air Race World Championship in Abu Dhabi in March 2016.

UAE SPORTS IN THE SPOTLIGHT

Soaring to global excellence ...

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Although the United Arab Emirates (UAE) is small in size, it is massive in international stature. The Gulf OPEC Member Country has undergone an extensive range of development and advancement in recent years, transforming the nation into a global trendsetter in so many areas and a most favoured destination for tourists and businessmen alike. The developments have been diverse in nature, covering a variety of sectors, including, of course, hydrocarbons, tourism, architecture — but especially sport, which now has priority status. In this article, the OPEC Secretariat's *Ayman Almusallam* looks at just how important sport is to this country of just over 9.5 million people and looks at some of the most prominent events already established there, or that will take place in the near future.

In 2004, the former Secretary General of the United Nations, Kofi Annan, referred to sport as being "a universal language". Elaborating, he said sport and sporting events importantly "bring people together and teach teamwork and tolerance."

It seems that the UAE's leaders and government are fully behind this concept, since for years they have been promoting all manner of leading sporting competitions in their ever-expanding country. With each passing year the list grows with more and more international events making their first appearances in the nation.

The UAE, which is located along the southeast coast of the Arabian Peninsula and comprises the seven Emirates of Abu Dhabi (the capital), Dubai, Ajman, Fujairah, Ras Al-Khaimah, Sharjah and Umm Al-Quwain, may only cover a total land area of around 84,000 square kilometres, yet it today possesses a sporting persona that embraces the highest levels of global standards.

And the benefits of the country's awareness have already been harvested, with the nation already established as a global hub for sport and a well-advanced administration capable of hosting all manner of major events.

Naturally UAE President, HH Sheikh Khalifa Bin Zayed Al-Nahyan, is firmly behind the country's march to continue increasing the country's sporting event credentials and his vision and the strong motivation and dedication of the people around him will undoubtedly take the OPEC Member Country to even greater heights and brighter horizons.

Here are a few of the biggest sporting events in the UAE today. This is just a small example of the number of competitions that are being held.

Abu Dhabi Grand Prix

In 2007, the UAE announced its intention to join one of the most appealing and widely-supported sporting events on the annual calendar — Formula One, or F1, grand prix motor racing.

It took two years of organizing to come to fruition, but in 2009, the Administration of the Emirati capital held its inaugural Abu Dhabi Grand Prix. And such has been the success that it has remained on the annual F1 calendar every year since.

The futuristic Yas Marina Formula 1 Grand Prix Circuit in Abu Dhabi.

The home venue of the racing contest is the Yas Marina Circuit, located on the stunning Yas Island, which was constructed by Hermann Tilke, a former German Formula One driver and an expert in constructing such circuits.

His involvement epitomised the importance UAE authorities attached to the country's involvement in F1 racing in looking to attain the highest possible standards.

Moreover, the International Automobile Federation, Formula One's administrative body, was a key partner that fully supported the initiative.

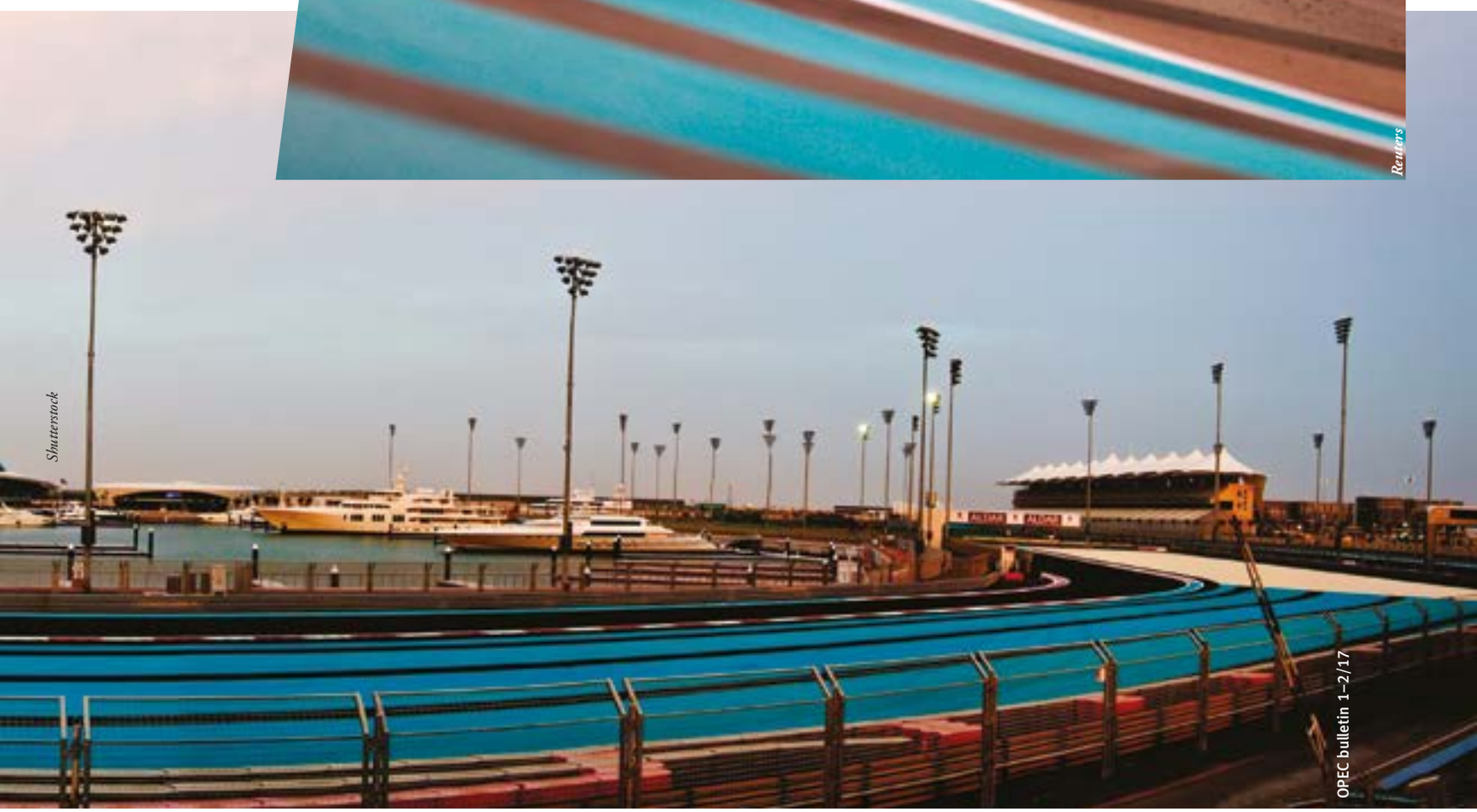
The international competition at Abu Dhabi, which has now been held seven times, requires its drivers to complete 55 laps of a demanding circuit. What is unique about this grand prix is that it is held in the evening, under lights.

There are now three F1 races held under such conditions — Singapore, Bahrain and Abu Dhabi. This means they have to be brightly lit. Singapore uses 1,600 lighting projectors, Bahrain 4,500 light fittings, while Abu Dhabi has a 4,700-fixture arrangement. In fact, today, the Yas Marina Circuit is the largest permanent sports venue lighting project in the world.

The inaugural Abu Dhabi F1 race, which took place on November 1, 2009, saw German world champion Sebastian Vettel crowned as the winner.

Mercedes Formula One world champion in 2016, Nico Rosberg of Germany, drives during the race.

Reuters



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Ethiopia's Haile Gebrselassie (front c) leads the pack of runners at the start of the Standard Chartered Dubai Marathon in January 2008.

Reuters

dubaimarathon.org

Winners of the 2017 race, both Ethiopian: Tamirat Tola Adere (l) and Worknesh Degefa Debele (r).

Dubai Marathon

The Standard Chartered Dubai Marathon, commonly known as just the Dubai Marathon, takes place every year in the Emirate of Dubai.

The first marathon was held on January 14, 2000. However, and in a very brief time, the event gained world-wide recognition, resulting in it setting a new world record for the prize money offered in such contests the world over.

The Dubai Marathon every year attracts an increasing number of high-level participants.

Of note, the winner of the 2008 competition — the world-renowned athlete, Haile Gebrselassie from Ethiopia — set the world record for the second-fastest marathon of all time.

Moreover, Ayele Abshero, winner of the Emirate's 2012 marathon, became the fourth-fastest athlete to finish a marathon and the quickest contestant to finish such a race on his debut.

Abu Dhabi Golf Championship

The Abu Dhabi Golf Championship is today regarded a top European competition. It was staged for the first time in the UAE capital in 2006. Formerly known as the Abu Dhabi HSBC Golf Championship, it is organised by the International Management Group (IMG).

Initially, the contest was established as part of efforts to expand the European golfing tour into Asia and to form a regular competition within the region of the Gulf. The Abu Dhabi Golf Club has been the host venue since the inauguration of the event.

With regard to sponsorship, HSBC has played a notable role in supporting the competition and, along with the UAE authorities, in driving its development. In recent years, the prize for the competition has increased to around $2.7 million.

Of special note, the Omega Dubai Desert Classic is another major golfing event that takes place in the OPEC Member State.

Dubai Tennis Championship

And the UAE's sports portfolio keeps on growing.

The Dubai Tennis Championships, officially known as the Dubai Duty Free Tennis Championships, is one of the oldest sporting events staged by the country. It annually hosts the top international players.

Reuters

Reuters

Rickie Fowler of the US holds his trophy after winning the Abu Dhabi Golf championship in January 2016.

Reuters

Mubadala World Tennis Championship — featuring Rafael Nadal of Spain.

In 2017, new world number one Andy Murray will head the men's competition, while the women's tournament will see eight of the world's top ten players heading to Dubai.

The competition was founded 23 years ago in 1993. Interestingly, prior to the establishment of the competition, an annual tennis event was held in Dubai — at the British Embassy!

Great anticipation

Today, the championships are held on the outdoor hard-courts of the Aviation Club Tennis Centre. The highly anticipated event offers total prize money of $2.5m for the men's competition, while the women's event is worth some $2m.

Recently, the tournament was upgraded from a '250' international tennis event to the more prestigious '500' level, attracting a higher standard of player. It consists of both singles and doubles tournaments.

The event was formerly known as the Barclays Dubai Tennis Championships.

Abu Dhabi Red Bull Air Race

Another key international event that has been taking place in the UAE since 2003 is the Abu Dhabi Red Bull Air Race.

This very popular international competition is one of the world's leading air racing events. It is organized by Red Bull FZE the Dubai affiliate of Red Bull GmbH, a sporting giant which has its headquarters in Austria.

The contest comprises a series of air races in which pilots are required to navigate and overcome obstacles and challenges in the fastest time possible. Typically, an annual race hosts 14 competitors.

Usually, the competition is held in the offshore areas, yet airfields and natural wonders have also been used to host the races. The current venue of the contest is Mina' Zayid in the capital.

Today, the races are fully committed to safety. Over the years, the competition has been reorganized and has undergone a series of improvements to enhance the level of safety and protection, which resulted in the cancellation of the 2011, 2012 and 2013 contests.

Kirby Chambliss of the United States performs during the training of the first stage of the Red Bull Air Race World Championship in March 2016.

© Red Bull Media House

Matthias Dolderer of Germany performs during the finals of the first stage of last year's Red Bull Air Race World Championship in Abu Dhabi.

© Red Bull Media House

Illustration: Tara Starnegg

The rise of the boy from Barquisimento ...

Venezuela's virtuoso — Gustavo Dudamel

The charismatic Venezuelan conductor, Gustavo Dudamel, continues to ascend to the highest echelons of classical music performance. He recently became the youngest conductor to ever lead the Vienna Philharmonic at its annual New Year's Concert, bringing his own unique flair to the prestigious event. The OPEC Bulletin's Scott Laury reports.

On January 1, 2017, Venezuelan maestro, Gustavo Dudamel, brought in the New Year with a bang, making history in several ways.

On a personal level, it was his first opportunity to conduct the prestigious Vienna Philharmonic (VPO) at its world-renowned New Year's Concert, which takes place annually at Vienna's hallowed Musikverein concert hall.

He also made history as the youngest conductor ever to lead the VPO in the 75-year history of the concert.

This was a great privilege for the 35-year-old conductor, who understood well the monumental responsibility he had before him, following in the footsteps of legendary figures in classical music, such as Herbert von Karajan, Zubin Mehta, Lorin Maazel and Claudio Abbado, to name just a few.

Making history

In a comment made to the *New York Times,* Dudamel expressed his excitement in being selected as this year's conductor.

"It's a great honour to be chosen to conduct the famed Vienna Philharmonic New Year's Concert," he stated. "It is very exciting for me to usher in a new year filled with hope through music and to wish such a vast audience from all over the world a happy and peaceful new year united through music."

He also spoke candidly at a press conference held in Vienna the week before the event, saying this was one his most significant challenges and a dream come true for him.

"Of course, many of you here today are wanting to know how it feels to be the youngest conductor in the history of the New Year's Day concert, to conduct in front of tens-of-millions of people around the globe," he said.

"Well, it's one of the biggest challenges of my life, something that growing up in Barquisimeto, in Venezuela, would have been beyond my wildest dreams. I thank my dear friends here at the Vienna Philharmonic for inviting me to come and share in this wonderful day of joy."

His emotions were running high in the lead-up to the highly anticipated concert as reflected in a tweet he sent just hours before lifting the baton: "An incredible honour to lead this year's New Year's Concert."

The world tunes in

Since its founding in 1939, the annual Vienna concert has steadily gained in popularity around the world.

In 2017, it was broadcast in over 90 countries with a worldwide television viewership estimated to be around 50 million.

The roughly 2,000 tickets that are available to attend the event in Vienna are in such high demand that they are drawn by lottery at the beginning of each year for the next year's concert.

"It is the hardest ticket in the world to get regarding classical music," Bogdan Roscic, President of Sony Music Masterworks, which releases a recording of the event, told the *New York Times*.

"It has an incredibly uplifting atmosphere. And it

Gustavo Dudamel receiving a rousing ovation and flowers after making history as the youngest conductor to ever lead the Vienna Philharmonic's New Year's Concert in Vienna.

sends a message that despite all the madness going on, you simply want to believe an optimistic message that there is something great ahead of you."

Adhering to tradition

From a musical standpoint, this year's programme adhered to the concert's 75-year tradition of presenting compositions from the famed Viennese Strauss family and their contemporaries, including Franz Lehár, Émile, Franz von Suppé, Carl Michael Ziehrer and Otto Nicolai.

As in past years, the traditional repertoire featured waltzes, polkas and marches, which steadily built to a crescendo and ended with the elder Johann Strauss' *Radetzky March* and his son Johann's beloved *Blue Danube Waltz,* which in February celebrates its 150th anniversary.

This year's concert also celebrated the 175th anniversary of the VPO, as well as the 300th anniversary of the birth of Empress Maria Theresa, two significant milestones for Vienna and Austria, especially considering its history as the former royal city of the Habsburg Empire.

Rave reviews

After nearly two-and-a-half hours atop the podium, the concert ended with Dudamel receiving a rousing standing ovation by a crowd packed with the who's who of Austrian society, as well as a host of international guests and dignitaries.

The day after, the local newspapers published positive reviews of the Venezuelan's debut appearance.

In the Austrian daily *Der Standard,* the sub-header

read: "Gustavo Dudamel debut brings in the New Year respectably with the well-arranged Vienna Philharmonic, receiving standing ovations."

Another Austrian daily, *Der Kurier,* wrote: "New Year's Concert: Fortissimo into the new times. Gustavo Dudamel conducted the Vienna Philharmonic — a musical wake-up call."

And Austria's highest circulation daily *Kronen Zeitung* wrote with a touch of humour: "New Year's Concert 2017: Waltz seasoned with salsa."

For Dudamel, this prestigious performance was clearly the highlight of his international career thus far, and a sign of his status as one of classical music's rising stars.

Reuters

Gustavo Dudamel (left) with his mentor and founder of Venezuela's path-breaking El Sistema music education programme, José Antonio Abreu, before a concert at the Teresa Carreño Theatre in Caracas in April of 2008.

A long relationship

Though this was his first time conducting the New Year's Concert, Dudamel's relationship with the VPO dates back to 2007, when he conducted the orchestra for the first time at the Lucerne Festival.

"My relationship with this wonderful ensemble dates back to 2007 and we have now performed over 46 concerts together — in Vienna and throughout the world," he stated at a VPO press conference held on December 28, 2016.

"A few highlights for me include: Carnegie Hall to open their season 2010/11, our very moving performances in Tokyo just after the tsunami in 2014, and of course opening the new Symphony hall in Shanghai."

In 2011, he was invited to conduct the Philharmonic during its subscription concerts, and the next year, he conducted the popular open-air Summer Night Concert at Vienna's opulent Schönbrunn royal palace.

In 2014, he led the orchestra on its traditional week-long programme in Japan.

Superar programme

Gustavo Dudamel has not only teamed up with the VPO musically, but also to help promote music education opportunities for Austrian youth in a programme called Superar, which in Spanish, means "to overcome or exceed."

Some of the proceeds from recordings he has made with the VPO have been donated to provide free instruments and instruction to a diverse cross-section of Vienna's youth population participating in the programme.

Dame Julie Andrews moderated a feature story on Superar for broadcast during the intermission of this year's New Year's concert. The telecast, which was run on the PBS network in the United States and in other countries, featured the Superar youth orchestra performing with Dudamel and members of the VPO.

Simón Bolívar Symphony Orchestra

In March of this year, Dudamel will return to Vienna and the Musikverein for a five-evening stint — from March 26–30 — but this time, he will be conducting his own country's orchestra — the Simón Bolívar Symphony Orchestra of Venezuela (SBSOV) for which he is Musical Director.

He will feature an ambitious all-Beethoven programme, covering the composer's vast body of symphonic work with performances of Symphonies 1 through 7.

These Vienna dates are part of the SBSOV's tour of Europe, with two other five-evening runs, including Barcelona on March 12–16 and Hamburg on March

19–23, during which they will have the honour of performing for the special opening of the city's new Elbphilharmonie concert hall.

Last summer, he led the SBSOV on a European tour, which was followed by three performances at New York City's prestigious Carnegie Hall to open its autumn season.

The SBSOV, previously called the Simón Bolívar Youth Orchestra, is the flagship initiative of El Sistema, which is also known more formally as the Fundación Musical Simón Bolívar.

The orchestra comprises over 200 young musicians between the ages of 18 and 28 who are encouraged to tackle difficult musical compositions through master classes and concerts with soloists from top orchestras, including the Berlin Philharmonic, the Sibelius Academy of Finland, Stuttgart's Bach Akademie and the New England Conservatory in Boston.

In addition to close, ongoing collaboration with Music Director Gustavo Dudamel, orchestra members have the opportunity to work with and assist international conductors, such as Sir Simon Rattle and Claudio Abbado.

The SBSOV has toured extensively in Europe, South America and the US and has recorded several albums for the Deutsche Grammophon record label, including Beethoven's Symphonies 5 and 7, Mahler's Symphony number 5, a release entitled *Fiesta*, featuring Latin American composers, as well as Tchaikovsky's Symphony number 5.

El Sistema

El Sistema is a music education initiative for young people across Venezuela, the majority of who live below the poverty line.

The programme was founded by educator, musician and activist José Antonio Abreu with a group of fellow musicians in 1975, inspired by the ideals of Venezuelan military and political leader Simón Bolívar.

In a quote on the Los Angeles Philharmonic (LAP) website, Abreu explained how the programme provides hope to kids who feel like they are caught in the poverty trap.

"For the children that we work with, music is practically the only way to a dignified social destiny," he said. "Poverty means loneliness, sadness, anonymity. An orchestra means joy, motivation, teamwork, the aspiration to success."

Gustavo Dudamel, Dame Julie Andrews, and some members of the Vienna Philharmonic enjoy a fun moment with the Superar Youth Orchestra during a masterclass held the week before the New Year's Concert in Vienna.

In March 2017, Gustavo Dudamel will conduct the Simón Bolívar Symphony Orchestra of Venezuela during a tour of Europe with stops in Barcelona, Vienna and Hamburg, where the Orchestra will perform in the lavish new Elbphilharmonie concert hall.

Despite his busy schedule with the LAP and other guest engagements around the world, Dudamel returns home to his native Venezuela for around 25 weeks per year to work with the orchestras and youth of El Sistema.

The initiative has come a long way from its origins with 11 students rehearsing in an underground parking garage to a wide-reaching programme with an estimated 400,000 youth at roughly 300 music centres where students receive musical training and take part in rehearsals after school.

Famous alumni

Dudamel is one of the many El Sistema alumni who have gone on to do great things. Others include Carlos Izcaray, who is the conductor of the Alabama Symphony Orchestra, and Alcides Rodriguez, a clarinetist in the Atlanta Symphony Orchestra.

These men have commented on how the El Sistema programme opened up a whole new world for them through the life-changing qualities of music.

In an interview with the *Creative Loafing* newspaper in Atlanta, Georgia, Rodriguez once commented: "The System, I would say, has saved kids. It saved me in the sense that I love what I'm doing today. If I hadn't studied music, I'd probably be in my hometown doing any other decent job, but it would not have been this. El Sistema was an open door to another dimension, a different world that I probably could have never seen."

Dudamel also commented on the potential of music to transform lives. "Music saved my life and has saved the lives of thousands of at risk children in Venezuela," he said. "Like food, like healthcare, like education, music has to be a right for every citizen."

El Sistema, which has received generous support from the Venezuelan government over the years, has

gained international renown as a successful model programme for leveraging music education as a vehicle for social change.

An international movement

On the back of the programme's success, the United Nations Educational, Scientific and Cultural Organization (UNESCO) appointed José Antonio Abreu in 1995 as Special Ambassador for the development of an international network of youth and children orchestras and choirs.

El Sistema has grown significantly through the years, and thanks to a 2007 grant from the Inter-American Development Bank, a network of seven regional education centres has been constructed throughout Venezuela.

In 2010, the youth orchestra movement in Venezuela was expanded even further with the creation of the Teresa Carreño Symphony Youth Orchestra, named after the famous Venezuelan pianist.

The Symphony began with performances at the Beethoven Fest in Bonn and then continued on to Vienna, Berlin, Amsterdam, Madrid and London.

Other similar projects in Venezuela include the Caracas Symphony Youth Orchestra and a newly established National Children's Orchestra.

El Sistema has more recently been expanded into public schools and prisons and has been lauded for the social benefits it brings to impoverished communities across the country, which have seen improvements in school attendance and a drop in juvenile delinquency.

Venezuelan roots

Gustavo Adolfo Dudamel Ramirez was born in Barquisimeto, Venezuela, on January 28, 1981. His father was a trombonist and voice teacher.

Young Gustavo started early in music, taking up the violin at age of ten and joining the El Sistema programme.

He went on to attend the Jacinto Lara Conservatory, where he continued his violin studies under Professors José Luis Jiménez and Francisco Díaz.

From there, he moved on to the Latin American Violin Academy where he was mentored by Rubén Cova and José Francisco del Castillo.

In 1996, he began to study conducting with Rodolfo Saglimbeni and was offered his first conducting opportunity as Music Director of the Amadeus Chamber Orchestra.

Three years later, he was appointed Music Director of the Simón Bolívar Youth Orchestra while continuing his conducting studies and organizing tours in several countries with the Orchestra.

In 2003, he served as assistant to conductor Simon Rattle in Berlin and Salzburg and, one year later, won the Gustav Mahler Conducting Prize in Germany.

The awarding of this prestigious prize was the turning point in his career, as the world of classical music really took notice of this virtuoso from Venezuela.

Los Angeles Philharmonic

One of the highpoints in his career came in 2005 when Dudamel made his conducting debut with the LAP in a performance at the famed Hollywood Bowl. He was invited back in 2007 to lead the Philharmonic at the Walt Disney Concert Hall.

In 2009, he was selected to become the LAP's Music and Artistic Director, a post he has held until now. His contract was recently extended until the end of the 2021–22 season.

During his time at the LAP, the orchestra has dramatically expanded its community outreach programmes, the

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Gustavo Dudamel is no stranger to New York City's prestigious Carnegie Hall, where he has conducted both the Vienna Philharmonic and the Simón Bolívar Symphony Orchestra of Venezuela.

Agnes Pramme

Members of the Superar Youth Orchestra performing at the headquarters of the OPEC Fund for International Development (OFID) in Vienna.

most notable of which is the establishment of the Youth Orchestra of Los Angeles (YOLA).

Inspired by the philosophy behind El Sistema, the programme has succeeded in exposing Los Angeles' diverse inner-city youth population to classical music.

The YOLA success story reached its apex in 2016 when the Orchestra was asked to perform at the Super Bowl to accompany pop group Coldplay and sing along with Chris Martin, Beyoncé and Bruno Mars.

Dudamel has earned the reputation as a trailblazer at the LAP, not only for his YOLA initiative, but also for the wide variety of music that the orchestra performs.

In addition to the classics, he has debuted premieres and commissions from contemporary composers, such as John Adams, Philip Glass, Bryce Dessner, Arvo Pärt, Sofia Gubaidulin and Kaija Saariaho.

Conducting the greats

Dudamel also continues to serve as guest conductor for some of the world's most famous orchestras.

From 2007 to 2012, he was the principal conductor for Sweden's Gothernburg Symphony Orchestra. In April 2014, he returned as Honorary Conductor for concerts in Sweden, France, Switzerland and Italy.

In 2013, Dudamel returned home to conduct the SBSOV during the funeral services in honour of the late Venezuelan President, Hugo Chávez Frias.

In 2015, he expanded his repertoire to motion pictures, conducting both the opening and closing pieces for the Star Wars Episode VII: The Force Awakens soundtrack.

This year, he will tour Europe with the famed Berlin Philharmonic.

A media darling

Dudamel's raw talent, lively demeanour, youthful exuberance and altruistic pursuits have won the hearts of the media around the world.

On three occasions, he has been featured on US broadcaster CBS's popular news programme *60 Minutes* and was the subject of a PBS public television special entitled *Dudamel: Conducting a Life*.

He has also been on popular US talk shows, including Conan O'Brian, *The Late Show* with Stephen Colbert and Charlie Rose.

More recently, Dudamel played a cameo role in *Mozart in the Jungle,* Amazon Studio's award-winning television series, which was inspired by his musical career.

Highly awarded

Dudamel has received a remarkable number of awards for his young age and was named in 2009 to the list of *Time Magazine's* 100 most influential people.

In that special issue of Time, Peter Gelb, General Manager of New York's Metropolitan Opera, wrote the piece describing Dudamel: "With what appears to be unlimited talent and charisma, Gustavo has invigorated the sometimes staid world of classical music," he maintained. "His performances are ecstatic affairs, with musicians and audiences unable to resist his infectious joy. His concerts often end with his hugging each member of the orchestra."

Just last year, Dudamel was awarded the *Americas Society Cultural Achievement Award*, and in 2014, *The Leonard Bernstein Lifetime Achievement Award for the Elevation of Music in Society* from Bard College's Longy School of Music.

Members of the Simón Bolívar Youth Orchestra of Venezuela performing at OFID in Vienna.

In 2013, he was named Musical America's *2013 Musician of the Year* and was voted into the Gramophone Hall of Fame.

In 2011, he was inducted into the Royal Swedish Academy of Music in consideration of his "eminent merits in the musical art" and named *Gramophone Artist of the Year*. Also in Sweden, he received an honorary doctorate from the University of Gothenburg in 2012.

France awarded Dudamel with the prestigious *l'Ordre des Arts et des Lettres* as a Chevalier in 2009. The same year, the Universidad Centroccidental Lisandro Alvarado in his hometown of Barquisimeto awarded him an honorary doctorate degree.

In 2008, Spain awarded the Simón Bolívar Youth Orchestra with its *Prince of Asturias Award for the Arts*. Also that year, Dudamel and his mentor José Antonio Abreu, were given the *Q Prize* from Harvard University for extraordinary service to children.

Much more to come

In reading this stellar list of achievements and prestigious awards, one might wonder what there is left to do for the boy from Barquisimento.

After all, Gustavo Dudamel is merely 35 years of age and it feels as if he has already accomplished more than most of us would struggle to achieve in an entire lifetime.

But he seems to only be getting started. And as far as the VPO is concerned, there are great plans ahead.

In 2018, he will lead the Philharmonic on its grand tour of North and South America.

"I can't wait for our next huge tour to South America in 2018," he explained enthusiastically in a statement on his website. "We will play to some of my favourite halls, from Carnegie to Teatro Colon, Teatro Mayor to the resplendent Bellas Artes. We will musically unite North and South into one America."

Until then, though, he will be busy with the LAP and with his projects back home in Venezuela.

But, occasionally, his thoughts will surely wander back to the start of the New Year in Vienna, where all his hard work paid off and his dreams came true.

"Conducting the Blue Danube means now I can die in peace," he said with an air of contentment.

Gustavo Dudamel visiting the OFID headquarters in Vienna in 2009 with Alí Uzcátegui Duque (left), (then) Ambassador of the Bolivarian Republic of Venezuela to Austria; Suleiman J Al-Herbish, OFID Director General (second from right) and Mauro Hoyer, (then) OFID Director of Information.

OFID support for African water operators

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Woman and children pump water from a well near their village in South Sudan.

As the 21st century progresses with fast–growing populations and increased urbanization, water provision is one of the most pressing challenges for meeting the sustainable development goals (SDGs). OFID's **Justine Würtz** reports for the OFID *Quarterly.*

Today, half the people on the planet are urban dwellers. The world's cities are growing at an unprecedented rate and 90 per cent of this urbanization is occurring in poor or developing countries. In Africa, 80 per cent of this growth is in slums.

Establishing well-functioning, sustainable water and waste management systems to these urban areas will be key to a sustainable and safe future. In particular, managing the needs of ever-expanding urban areas with dwindling water resources requires urgent attention.

In 2013, The OPEC Fund for International Development (OFID) provided a grant of $1 million to support the implementation of a sub-project of the United Nations Human Settlements Programme (UN-Habitat) Global Water Operators' Partnerships Alliance (GWOPA) scheme in nine African countries — Ethiopia, Guinea, Ghana, Kenya, Namibia, Malawi, Tanzania, Togo and Zambia.

"It's important to recognize that despite the challenges of urbanization, cities also offer the most efficient environment to provide water and hygiene services to a large number of people," explained Dr Walid Mehalaine, OFID Head of Grants.

"To this end, well-functioning water operators are essential for the management of urban water and sewerage services," he maintained.

The added bonus is that because these operators

extend services to vast populations they will be major players in achieving the water and sanitation SDGs.

In the GWOPA 2013–17 Strategy Report, UN-Habitat Executive Director, Dr Joan Clos, states: "The management of urban water and waste flows in cities has major implications on urban ecology, economy, resilience and equity."

He adds: "Equally, how successful this management is will impact water quality and quantity in the future. It will also help in the prevention of slums, levels of health and wellbeing, the improvement of livelihoods and the conservation and reuse of resources."

The GWOPA programme was established by UN-Habitat as a direct response to the need for effective urban water operators. Currently, the capacity of many urban water operators in developing nations is, by and large, inadequate.

They lack basic operational and management approaches. They suffer from inadequate resources and deteriorating infrastructure. And their ability to address these challenges is hindered by poor governance, ineffective institutional frameworks, and outdated skillsets.

"But while many operators lack capacity, others have it in abundance," explained OFID's Mehalaine. "GWOPA recognizes the potential for knowledge-sharing between these two groups."

mentee utilities. Diagnosis covered all areas required for good practice, including: governance, policy and legal support; billing, revenues and asset management; customer relations; expansion of water and sanitation services; resource management, efficiency and sustainability; and climate change resilience.

Once areas for improvement had been established, individual plans were prepared for each utility. Mentoring teams then went to the operators in need of assistance to deliver capacity development sessions tailored to the identified priority needs.

"The voluntary nature of this programme makes it particularly significant," explained Mehalaine. "The whole experience is tailored and the participating operators have a real sense of ownership and purpose."

The GWOPA activities covered an average period of eight months and came to an end in September 2015.

"The response of the operators to the programme has been substantial," El-Awar said. "We hope to continue the collaboration with OFID to replicate and scale up the programme to support more water operators in Africa and in other regions of the global South."

Mehalaine confirmed this proposal, stating: "Such an initiative will give OFID a significant opportunity to contribute to the achievement of universal access to clean water and the human right to water."

Principles of solidarity

Water operators with relevant skills and experience act as mentors and enter into a non-commercial partnership, based on principles of solidarity.

The OFID-supported programme focused, in particular, on increasing services for poor populations. To avoid the further growth of slum areas in expanding cities, urban operators need to be prepared and able to provide services to the lowest income residents.

"Utilities must first receive the needed support to enhance their performance and resident capacity so that they can increase revenues and reach financial balance and bankability," explained Dr Faraj El-Awar, Head of UN-Habitat's GWOPA Secretariat.

The project commenced with diagnostic teams evaluating the priority needs of the nine

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Installation of a water pump in Burkina Faso.

The late Susanne Wenger working on one of her acclaimed pieces in Nigeria.

Wolfgang Denk

OFID celebrates 41st Anniversary with Susanne Wenger exhibition

The OPEC Fund for International Development (OFID) has celebrated the 41st Anniversary of its establishment with an exhibition of the works of the late Austrian artist and Yoruba priestess, Susanne Wenger, held at the institution's headquarters from the end of January.

OFID

L–r: Dr Werner Druml, former Ambassador to Nigeria; Honourable Lola Ayorinde; Ms Sarah Yusuf, Nigerian Embassy in Austria; Professor Wolfgang Denk, Susanne Wenger Foundation; Suleiman Al-Herbish, OFID Director-General.

Titled *'Susanne Wenger on a Sacred River in Nigeria,'* the exhibition was put together in partnership with the Nigerian Embassy in Vienna and the Susanne Wenger Foundation. The exhibit was opened by OFID Director-General, Suleiman J Al-Herbish and Dr Werner Druml, a leading supporter of the Foundation.

In welcoming guests at the opening ceremony, Al-Herbish stressed that it was a great honour for OFID to bring together its Member Country, Nigeria, and host country Austria, "in this unique way."

Ms Wenger is famous for the work she carried out after moving to Nigeria in 1950, where she immersed herself in the Yoruba culture and dedicated her efforts to the restoration of the derelict shrines of the Yoruba religion.

Born in July 1915, in Graz, Austria, Susanne Wenger, or Adunni Olorisha, her adopted Nigerian name, was an active founding member of the Vienna Art Club in 1947.

This and 60 years of art and life in Africa earned her a worldwide reputation as an accomplished artist with a personality to match.

Through her art, which can be found along the Oshun River at the edge of the town of Oshogbo, Ms Wenger, who sadly died in the town in January 2009, at the age of 93, almost single-handedly protected from destruction one of the most important spiritual centres of Yoruba culture, together with the last of the giant rainforest trees in the area.

In 2005, the Sacred Groves of Oshogbo, Susanne Wenger's main architectural and sculptural work, was registered as a UNESCO World Heritage Site.

Speaking at the opening of the exhibition, Dr Werner Druml, a former ambassador to Nigeria, said: "Susanne Wenger, seen from any imaginable angle, was an outstanding personality. Molded by Europe and a disciple of modern European Art, she became firmly rooted in Nigeria. She remained a fascinating person between two worlds."

In 1995, Ms Wenger herself initiated the Susanne Wenger Foundation, which has the responsibility of safeguarding her graphic works, paintings and batiks, and oversaw the creation of the Susanne Wenger Archives in Krems, Lower Austria.

Professor Wolfgang Denk, a curator of the Susanne Wenger Foundation, who has the responsibility of keeping Susanne Wenger's legacy alive, was also present at the opening reception.

He paid tribute to Ms Wenger as the guardian of Yoruba traditions and religion. "It is thanks to her work that the Sacred Oshun Oshogbo Grove was saved," he said.

Denk noted that Ms Wenger's art had been described as "the coalescence of great myths of all time into an epos of creation, death, sacrifice and reincarnation."

Wolfgang Denk

Reuters

The late Susanne Wenger seen during her time in Osogbo.

OFID

Exambles of Susanne Wenger's work, exhibited at OFID.

He said: "Some of her most famous and intriguing works of art are her batiks. From 1970, she developed a technique she called textile cloth painting, which is technically a mixture of batik, textile painting and indigo dyeing. Some of these very large batiks express the whole philosophical-artistic cosmos of the artist."

Denk explained that the clear and transcendent language of these works was religiously motivated in the universal sense, but still spontaneous and free in the sense of the perception of art.

"The wide span of themes in her oil paintings reveals the tradition of European modern art. She incorporates themes from the history of mankind, the Bible, world literature and from the Yoruba cultural circle. During the last years of her life, further drawings and books evolved which she called 'osmotic'."

Denk said Ms Wenger referred to these drawings as her "hour-books" into which she actually wrote of her state-of-awareness and affirmations of her beliefs.

He said the great appreciation shown to Ms Wenger in the last decades of her life could also be measured by a national award from the Federal Government of Nigeria and numerous major awards she received from Austria.

OFID

On the occasion of her 90th birthday, he recalled, both the Ataoja of Oshogbo (the town's traditional ruler) and the Governor of Osun State hosted large celebrations, where representatives of the ancient traditions, as well as modern day artists, and performers mingled with visitors from all over the world.

"The world famous artist and Yoruba priestess Susanne Wenger died on January 12, 2009, at the age of 93 in her adopted hometown of Oshogbo, Nigeria.

"Susanne will be greatly missed but will also be remembered for her humor and her words of wisdom," Denk stated.

The Susanne Wenger OFID event is the latest in a long line of exhibits hosted by the institution to showcase the cultures of its Member and Partner Countries.

Above and left: Large sculptures seen in tropical woodland at Osun Grove in Osogbo, south-western Nigeria.

Such exhibitions give OFID the opportunity to showcase to its host community in Vienna, the art and culture of its Member Countries.

OFID exhibitions in the past have highlighted Member Countries Algeria, Indonesia, Iran, Iraq, Saudi Arabia and Venezuela, as well as Partner Countries Kenya and Sudan.

A previous in-house exhibition highlighting paintings, sculpture and mixed media from three prominent Nigerian artists called 'Rhythm of Hope' was held in 2013.

The ten-day exhibition was very successful and the Susanne Wenger Exhibition presented another opportunity to further show Nigerian art and culture.

It follows a break in this tradition in 2016, the year of OFID's 40th Anniversary, which was dedicated to highlighting the plight of refugees. Among a series of events and activities organized to promote this theme was the exhibit 'Equal Dreams', which highlighted the specific challenges facing refugee children.

During the reception, guests were treated to performances by the Austrian-based Nigerian dance group, Egbe Omo Oduduwa. Dressed with red beads adorning their white attire and holding the ceremonial Yoruba horse tail — *irukere*, they wowed the audience with their captivating dance steps, singing and dancing to popular Yoruba folklore music.

OFID's Nigerian colleagues were extremely happy that the exhibition was successful, stating that they were "glad that we can display not only the art but also the love, happiness and warmth that characterises Nigeria."

In his welcoming remarks, the OFID Director-General also commended Nigeria for its contribution to sustainable development and, in particular, its role as host of OFID's 2008 workshop on energy poverty.

Held in Abuja, the ground-breaking gathering was one of the first steps taken by OFID in response to the directive of the Third OPEC Summit of OPEC Heads of State and Government, held in Saudi Arabia in November 2007, which called on OFID to sharpen its focus on energy poverty eradication.

In this context, the Director-General outlined OFID's pioneering efforts towards providing conventional and renewable energy to poor communities.

Wooden sculpture of a mother carrying her baby, at Osun Grove.

Nigerian Osun goddess worshippers seen at Osun Grove.

Forthcoming events

4th annual Platts Asian refining summit, March 9–10, 2017, Singapore. 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/asia-pacific/asian-refining-summit/index.

Eastern Mediterranean gas conference, March 14–15, 2017, Nicosia, Cyprus. Details: Cvent Headquarters, 1765 Greensboro Station Place, 7th Floor, Tysons Corner, VA 22102, USA. Tel: +1 855 452 72 39; website: www.cvent.com/events/eastern-mediterranean-gas-conference-2017/event-summary-d0ce4a6bc4894d2881a0087e3d40461e.aspx.

Gasification, March 15–16, 2017, Helsinki, Finland. 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/gasification.

Subsea tieback forum & exhibition, March 21–23, 2017, San Antonio, TX, USA. Details: PennWell, 1421 S Sheridan Road, Tulsa, Oklahoma 74112, USA. Tel: +1 918 835 3161; fax: +1 918 831 9497; e-mail: sneighbors@pennwell.com; website: www.subseatiebackforum.com.

North African petroleum exhibition & conferences, March 21–24, 2017, Algiers, Algeria. Details: Petroleum Industry Communication Algeria, 06 Route de Sidi Youcef, Algiers, Algeria. Tel: +213 550 46 88 98; +213 550 49 60 61; fax: +213 23 23 67 74; e-mail: contact@napec-dz.com; website: www.napec-dz.com/NewDefault.aspx?lg=en.

Ghana oil, gas & power summit, March 29–30, 2017, Accra, Ghana. 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.thecwcgroup.com.

Offshore Mediterranean conference & exhibition, March 29–31, 2017, Ravenna, Italy. Details: IES srl, Via Anton Giulio Bragaglia, 33, 00123 Rome, Italy. Tel: +39 06 30 88 30 30; fax: +39 06 30 88 30 40; e-mail: exhibition@omc.it; website: http://www.omc.it/home.php?Lang=en.

UNITI mineral oil technology congress 2017, April 4–5, 2017, Stuttgart, Germany. Details: UNITI-Mineralöltechnologie GmbH, Jägerstrasse 6, D-10117 Berlin, Germany. Tel: +49 (0)30/755 414-400; fax: +49 (0)30/755 414-474; e-mail: loeser@uniti.de; website: www.umtf.de.

GCC environment forum 2017, April 4–6, 2017, Jeddah, Saudi Arabia. Details: BME Global Ltd, 8 Tyers Gate, London SE1 3HX, UK. Tel: +44 20 33 28 95 81; e-mail: james@bme-global.com; website: www.gccenvironmentforum.com.

Oman downstream exhibition and conference 2017, April 4–6, 2017, Muscat, Oman. Details: Omanexpo LLC, 1st Floor, SABCO Building, Wattayah, Muscat, Sultanate of Oman. Tel: +968 24 66 01 24; fax: +968 24 66 01 25/126; e-mail: info@omanexpo.com; website: www.downstream-oman.com.

Gastech conference and exhibition 2017, April 4–7, 2017, Japan, Tokyo. 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.gastechevent.com.

2nd Argus Iran commodity week 2017, April 17–19, 2017, Tehran, IR Iran. Details: Argus Media, Argus House, 175 St John Street, London EC1V 4LW, UK. Tel: +971 (0) 44 34 51 16; e-mail: me.events@argusmedia.com; website: www.argus-media.com/argus-iran-lpg-conference.

Kurdistan investment 2017, April 18–19, 2017, Erbil, Iraq. Details: Fleming Europe, Mlynské nivy 71, 82105 Bratislava, Slovakia. Tel: +42 1 257 272 100; e-mail: info@flemingeurope.com; website: https://fleming.events/en/events/finance/kurdistan-investment-conference?utm_source=Gulf%20Oil%20and%20Gas&utm_medium=Listing.

3rd international refining and petrochemical convention Vietnam, April 20–21, 2017, Hanoi, Vietnam. Details: UMS Institute, D612, JBC Plaza, 808 Hongqiao Road, Changning District, Shanghai 200030, China. Tel: +86 21 61 55 39 64; fax: + 86 21 51 86 15 48; e-mail: irpc@umsinstitute.org; website: www.downstreamvietnam.org.

Monetary policies and their impact on the oil market

January 2017

Monetary policies continue to have an important influence on the global economy and recent efforts by OPEC and some non-OPEC producers to rebalance the oil market may turn out to be supportive for a normalisation of monetary policies by major central banks.

That is the view of the OPEC Secretariat in Vienna, Austria, in its *Monthly Oil Market Report (MOMR)* for January.

In a feature article, it said that rising cooperation, leading to a faster rebalancing of the oil market in the energy sector, is leading to healthier inflation levels in major economies and to improvements in global economic growth.

"Although uncertainties remain, recent oil market-related developments, in combination with further improvement in the OECD economies, an expected recovery in Russia and Brazil in 2017, and continued high growth levels in China and India, may put central banks in a better situation to gradually reduce the extraordinary monetary stimulus that has been a key factor for the global economic recovery since the Great Recession in 2008–09," it maintained.

The *MOMR* said that while the United States Federal Reserve had been tightening monetary supply since 2015, the European Central Bank and other central banks were likely to continue their monetary stimulus in the short term.

In the near term, it said, the Fed was looking to raise interest rates further, following the improvement of the US economy, signs of a healthier labour market, together with rising inflation of close to two per cent.

"The Fed expects that the evolution of the economy will warrant only gradual increases. However, the fiscal stimulus plans of the new administration may trigger a more rapid rise in interest rates than currently anticipated," the report observed.

"This would particularly be the case if the major part of this stimulus is financed by an increase in government debt."

Therefore, it said, there was some uncertainty about the pace of future interest rate increases. Given the importance of the US economy and the status of the US dollar in global trade, how the oil market was affected by such developments depended on whether the issues are considered from the short- or medium-term perspective.

The *MOMR* maintained that there were numerous short-term impacts of US monetary policy on oil markets. Rising US interest rates could result in increased capital outflows from emerging and some other economies, and hence lower economic activity, especially in emerging countries, limiting oil demand growth.

"Such capital outflows are usually accompanied by increased speculative activity, potentially impacting oil price volatility significantly in the short-term," it said.

"Additionally, the expectation of higher-yielding US dollar-denominated investments may support the strengthening of the dollar versus major currency counterparts, which usually weighs on oil prices." The *MOMR* said that, at the same time, an increase in US dollar interest rates negatively affected oil industry investments by making them costlier, especially expensive and highly-leveraged oil developments.

"This also raises the cost-of-carry for oil inventories, although the impact on stock levels will depend on the shape of the futures curve. At the end of December 2016, the futures curve for both NYMEX WTI and ICE Brent was already showing the first signs of backwardation."

The report said that while the ECB and the Bank of Japan had continued with their extraordinary monetary policies, including ultra-low or negative interest rates, a shift towards normalisation was possible.

With inflation in these economies rising significantly from last year's levels to now stand at 1.1 per cent in the Euro-zone and 0.5 per cent in Japan, some reduction in monetary stimulus was foreseen.

"However, their policies are likely to remain more accommodative than the Fed's."

The *MOMR* said that a continued normalisation of monetary policies, indicating improving economic conditions, together with the recent historic cooperation between OPEC and non-OPEC producers, should help to bring needed stability to the oil market, hence further supporting the world economy.

MOMR ... oil market highlights

January 2017

The **OPEC Reference Basket** jumped by nearly 20 per cent in December 2016 to $51.67/b, ending above $50/b for the first time in 18 months. In contrast, the Basket's yearly average value came in at its lowest in more than 12 years at $40.76/b. The oil complex surged on news of the historic cooperation between OPEC and non-OPEC countries. ICE Brent ended $7.84 higher at $54.92/b, while NYMEX WTI soared $6.40 to $52.17/b. However, for the year, ICE Brent and NYMEX WTI averaged $45.13/b and $43.47/b, respectively, the lowest since 2004.

World economic growth for 2016 and 2017 has been revised up by 0.1 percentage point to stand at 3.0 per cent and 3.2 per cent, respectively. OECD growth in 2017 was revised higher to 1.8 per cent, following growth of 1.7 per cent in 2016. China's forecast remains at 6.7 per cent in 2016 and 6.2 per cent in 2017, while India's growth in 2016 was revised down slightly to 7.2 per cent, followed by growth of 7.1 per cent in 2017. After two years of recession, both Russia and Brazil are forecast to recover in 2017 with growth of 0.9 per cent and 0.4 per cent, respectively.

Global oil demand growth in 2016 is expected at 1.25m b/d after a marginal upward revision of around 10,000 b/d, mainly reflecting the better-than-expected performance in OECD Asia Pacific and Europe. World oil demand is expect to average 94.44m b/d in 2016. In 2017, world oil demand is anticipated to rise by a solid 1.16m b/d year-on-year to average 95.60m b/d. This represents an upward revision of 10,000 b/d, mostly due to an expected uptick in oil requirements in OECD Europe in the first quarter of 2017.

Non-OPEC oil supply in 2016 is now expected to show a contraction of 710,000 b/d, following an upward revision of 70,000 b/d, mainly driven by higher-than-expected growth in Norway, Russia and the US. In 2017, non-OPEC oil supply is projected to grow by 120,000 b/d, representing a downward adjustment of 180,000 b/d. Downward revisions to Russia, Kazakhstan, China, Congo and Norway, were partially offset by a 230,000 b/d upward adjustment to US supply. Output of OPEC NGLs is forecast to grow by 150,000 b/d in 2017, following growth of 150,000 b/d last year. In December, OPEC production decreased by around 221,000 b/d, according to secondary sources, to average 33.08m b/d.

Product markets showed a mixed performance in the Atlantic Basin in December 2016. US refinery margins were supported by the recovery seen in gasoline cracks on the back of healthy domestic demand amid stronger exports to Latin America. Refinery margins in Europe weakened due to slower gasoline export opportunities and a lack of support at the middle of the barrel, despite the colder weather. In Asia, product oversupply weighed on margins.

Tanker spot freight rates in December 2016 rose in both dirty and clean segments of the market. Average VLCC, Suezmax and Aframax spot freight rates rose by 18 per cent, 25 per cent and one per cent, respectively, from a month before. The higher rates were driven by delays in eastern ports, pre-holiday activities and thinning tonnage supply in some areas. Average clean spot freight rates for both East and West of Suez increased in December by 19 per cent and 26 per cent month-on-month, respectively. Compared to the same month last year, both clean and dirty spot freight also increased on average.

Total OECD commercial stocks fell in November 2016 to stand at 2,993m b, some 271m b above the latest five-year average. Crude and product inventories showed surpluses of 190m b and 82m b, respectively. In terms of days of forward cover, OECD commercial stocks in November stood at 63.7 days, some 5.2 days higher than the seasonal average.

Demand for OPEC crude in 2016 is estimated to have stood at 31.2m b/d, some 1.8m b/d higher than in 2015. In 2017, demand for OPEC crude is forecast at 32.1m b/d, a further increase of 900,000 b/d over 2016.

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

Global crude oil demand expected to remain healthy in 2017

February 2017

Global crude oil demand growth in 2017 is expected to remain healthy and well above the ten-year average with the total expansion for the year estimated at 1.2 million barrels/day, according to the OPEC Secretariat in Vienna.

And in its *Monthly Oil Market Report (MOMR)* for February 2017, it said that any better-than-anticipated performance of the global economy, together with less crude price volatility, would support world oil demand further and help to accelerate the rebalancing in the oil market to the benefit of both consumers and producers.

In a review of the global oil demand trend, it noted in a feature article that healthy world oil demand would continue for a third successive year.

In 2016, demand had continued its healthy performance for the second year, with growth estimated to be above 1.3m b/d. This growth was also in line with OPEC's initial projection for the year in July 2015. However, the *MOMR* noted that revisions were made within the regions with upward adjustment seen in OECD Europe, the OECD Asia Pacific and Other Asia.

"Oil demand in these regions performed better-than-expected particularly in the petrochemical and transportation sectors," observed the report.

It revealed that the upward revisions were almost entirely offset by bearish oil consumption momentum in Latin America and the Middle East, as a result of stagnating economic activities and a high level of fuel substitution with natural gas.

In terms of oil products, road transportation fuels – both gasoline and diesel oil – were the largest contributors to 2016 oil demand growth, in line with high vehicle sales in major markets, particularly in Europe and China, the *MOMR* maintained.

It added that petrochemical feedstocks also received an extra push in 2016 as firm petrochemical margins globally, as well as start-ups of propane dehydrogenation (PDH) plants in China, lent support to the industry.

Turning to 2017, the *MOMR* said several assumptions had been considered in the year's projections.

Firstly, global economic activities were anticipated to rise by around 3.2 per cent with economic development in the OECD region rising solidly above 2016 levels.

Secondly, road transportation was anticipated to continue to be the driving factor for oil demand growth in 2017, primarily as a result of anticipated high vehicle sales in the United States, Europe, China and India.

Thirdly, the expanding petrochemical sectors in the US and China were projected to lend support to petrochemical feedstocks.

"On the other hand, efficiencies, supported by technological advancements, are forecast to partly hinder increases in transportation sector fuel requirements and to a lesser extent in the residential sector," the feature article pointed out.

It said potential reductions in subsidies were expected to have a negative impact on oil consumption. Additionally, substitution by other fuels was also accounted for in the 2017 oil demand projections.

In terms of products, the *MOMR* said transportation fuels were anticipated to lead global growth in 2017 with the bulk of volumes being in the non-OECD region.

Gasoline consumption was seen contributing 510,000 b/d to the increase followed by jet/kerosene with 150,000 b/d and on-road diesel with 80,000 b/d.

"However, the projected growth in transportation fuels is expected to be smaller than in 2016, especially in India, where transportation fuels are projected to ease in the second half of the year, primarily as a result of the impact of the government's demonetization policy and the higher baseline of comparison," it stated.

The report said petrochemical feedstock, which includes natural gas liquids (NGL), liquefied petroleum gas (LPG) and naphtha were projected to rise in both OECD and non-OECD countries, with most of the growth in the non-OECD area coming from China and India.

As a result, OECD oil demand was anticipated to increase by around 200,000 b/d, with OECD Americas and Europe being firmly in the positive, while the Asia Pacific was expected to continue to decline.

The *MOMR* said non-OECD growth was expected to be around 1.0m b/d, with Other Asia being the major contributor. Oil demand growth was anticipated to be led by Other Asia, followed by China and OECD Americas, while the Asia Pacific was the only region expected to be in negative territory in 2017.

MOMR ... oil market highlights

February 2017

The **OPEC Reference Basket** averaged $52.40/barrel in January, representing a gain of 73¢ over the previous month. NYMEX WTI and ICE Brent also saw gains, increasing by 44¢ and 53¢ to average $52.61/b and $55.45/b, respectively. Production adjustments by OPEC and some non-OPEC producers supported the market, although gains were capped by increased drilling activity in the United States. The Brent-WTI spread widened slightly to average $2.84/b in January.

Global economic growth expectations remained at three per cent for 2016 and 3.2 per cent for 2017. OECD growth in 2017 was revised up to 1.9 per cent, following upward adjustments in the Euro-zone and the United Kingdom. US economic growth remains unchanged at 2.2 per cent. Forecasts for China and India in 2017 also remained unchanged at 6.2 per cent and 7.1 per cent, respectively. Russia's 2017 growth was revised up to one per cent, while Brazil's growth forecast remained unchanged at 0.4 per cent.

World oil demand growth in 2016 is expected to increase by 1.32m b/d, following an upward adjustment of around 70,000 b/d to reflect continued better-than-expected consumption in OECD Europe and the Asia Pacific. Total oil demand is now estimated to average 94.62m b/d, taking into account baseline adjustments to China of around 120,000 b/d. In 2017, world oil demand growth is seen to reach 1.19m b/d, representing an upward revision of around 35,000 b/d to now average 95.81m b/d.

Non-OPEC oil supply growth in 2016 has been revised up by 50,000 b/d to now show a contraction of 660,000 b/d on higher-than-expected output in the fourth quarter of 2016. In 2017, non-OPEC supply growth has been revised up by around 120,000 b/d to now show an increase of around 240,000 b/d, due to a pick-up in drilling activities and investment in the US. OPEC NGL production is forecast to grow by 150,000 b/d in 2017, following growth of 150,000 b/d in 2016. In January, OPEC production decreased by around 890,000 b/d, according to secondary sources, to average 32.14m b/d.

Product markets in the Atlantic Basin received support in January from the top of the barrel on the back of higher export opportunities in gasoline and naphtha. This, along with the positive performance at the bottom of the barrel, allowed refinery margins to remain healthy. Meanwhile, margins in Asia strengthened on the back of firm regional demand.

Spot **freight rates** continued to recover in January, showing general month-on-month improvements across all tanker sectors. Gains were mainly driven by a firmer market in West Africa, the Middle East and the Mediterranean, along with delays, due to congestion in the Turkish Straits and severe weather conditions. Freight rates rose in January, despite a general decline in chartering activity.

Total OECD commercial oil stocks fell in December 2016 to stand at 2,999m b. At this level, OECD commercial oil stocks were 299m b above the five-year average. Crude and products showed surpluses of around 216m b and 83m b, respectively. In terms of forward cover, OECD commercial stocks stood at 63.9 days, some 5.5 days higher than the five-year average.

Demand for OPEC crude in 2016 averaged 31.3m b/d, an increase of 1.8m b/d over the previous year. In 2017, demand for OPEC crude is projected to average 32.1m b/d, around 800,000 b/d higher than in 2016.

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

	2016												2017	Weeks 53/2016–4/2017 (week ending)				
Crude/Member Country	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Dec 30	Jan 6	Jan 13	Jan 20	Jan 27
Arab Light – Saudi Arabia	26.35	28.77	34.74	38.22	43.48	46.28	43.14	43.47	42.70	48.26	43.32	51.92	52.29	53.36	53.04	51.94	51.92	52.38
Basrah Light – Iraq	24.73	27.08	33.39	36.62	42.05	44.63	41.37	42.01	41.88	46.79	41.97	50.87	51.66	52.27	52.27	51.28	51.32	51.81
Bonny Light – Nigeria	30.40	32.24	38.53	41.51	46.85	48.48	45.30	46.35	47.77	50.83	45.20	53.91	54.98	55.18	55.37	54.49	54.66	55.32
Es Sider – Libya	29.75	31.46	37.51	40.48	45.83	47.28	44.00	44.85	45.69	48.74	43.63	52.12	53.08	53.39	53.47	52.59	52.76	53.42
Girassol – Angola	29.95	32.28	38.42	41.25	46.58	48.30	45.09	46.06	46.66	49.37	44.95	53.41	54.41	54.64	54.77	53.79	53.98	54.88
Iran Heavy – IR Iran	24.07	27.28	33.23	36.65	41.67	44.68	41.59	42.17	41.39	47.30	42.42	51.41	51.90	52.84	52.64	51.60	51.57	51.93
Kuwait Export – Kuwait	23.92	26.77	32.99	36.33	41.60	44.50	41.37	41.88	41.22	47.04	42.14	50.93	51.48	52.37	52.21	51.15	51.14	51.56
Marine – Qatar	26.95	29.41	35.49	38.97	44.13	46.37	43.53	43.44	43.51	48.13	44.25	52.08	53.44	53.72	53.92	52.98	53.17	53.70
Merey – Venezuela	20.80	21.38	25.83	28.84	34.28	38.22	36.71	36.46	37.38	42.36	39.37	45.86	46.81	47.56	47.73	46.82	46.74	46.48
Murban – UAE	31.57	34.15	40.01	42.47	47.12	49.28	46.54	46.25	46.42	51.19	47.25	54.93	55.97	56.42	56.90	55.71	55.49	56.00
Oriente – Ecuador	24.03	24.70	31.45	35.04	41.96	44.03	40.72	40.84	41.22	45.98	41.69	48.67	48.64	49.86	49.52	48.09	48.05	48.89
Rabi Light – Gabon*	29.30	31.80	37.59	40.43	45.48	47.15	44.03	44.90	45.51	48.15	43.92	52.22	53.13	53.40	53.52	52.64	52.81	53.47
Saharan Blend – Algeria	31.28	33.26	39.41	42.33	47.73	48.98	45.30	46.35	47.09	49.79	45.13	53.82	54.84	55.09	55.23	54.35	54.52	55.18
OPEC Reference Basket	**26.50**	**28.72**	**34.65**	**37.86**	**43.21**	**45.84**	**42.68**	**43.10**	**42.89**	**47.87**	**43.22**	**51.67**	**52.40**	**53.10**	**53.09**	**52.05**	**52.05**	**52.51**

Table 2: Selected spot crude prices

$/b

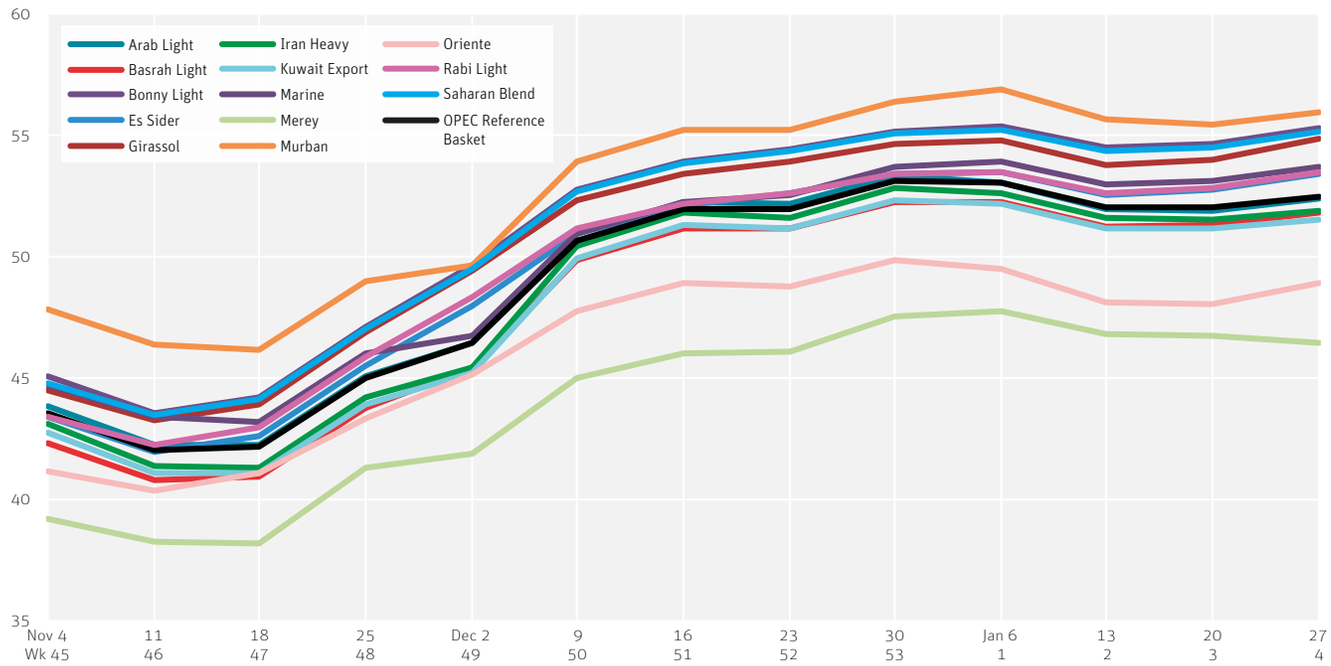
	2016												2017	Weeks 53/2016–4/2017 (week ending)				
Crude/Member Country	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Dec 30	Jan 6	Jan 13	Jan 20	Jan 27
Arab Heavy – Saudi Arabia	22.50	26.15	32.76	35.92	40.69	43.68	40.40	41.00	40.34	46.26	40.96	49.70	50.56	51.15	51.27	50.26	50.24	50.61
Brega – Libya	30.60	32.31	38.36	41.42	46.83	48.28	44.95	45.87	46.74	49.79	45.18	53.52	54.43	54.79	54.82	53.94	54.11	54.77
North Sea Dtd – North Sea	30.75	32.46	38.51	41.48	46.83	48.28	45.00	45.85	46.69	49.74	45.13	53.57	54.58	54.84	54.97	54.09	54.26	54.92
Dubai – UAE	26.81	29.44	35.15	39.00	44.29	46.25	42.64	43.58	43.67	48.94	43.98	52.08	53.71	53.57	54.36	53.37	53.42	53.80
Ekofisk – North Sea	31.45	32.86	38.86	42.15	47.70	48.54	44.99	45.79	47.10	49.58	44.97	53.67	54.62	55.40	55.17	54.13	54.20	54.92
Iran Light – IR Iran	28.34	30.16	36.08	39.09	44.65	46.38	43.54	43.66	44.23	47.99	43.45	51.85	52.35	53.31	53.22	51.89	51.79	52.61
Isthmus – Mexico	30.03	28.68	35.45	38.14	44.76	47.51	45.07	44.22	44.55	49.91	45.64	53.81	54.98	55.35	55.51	54.56	54.53	55.26
Oman – Oman	27.48	30.37	36.46	39.43	44.37	46.61	43.45	44.02	44.01	49.18	44.54	52.72	54.01	54.12	54.77	53.74	53.66	54.01
Suez Mix – Egypt	27.45	29.17	35.15	38.19	43.31	44.90	42.06	42.20	42.78	46.54	42.13	50.59	51.72	52.05	51.96	51.16	51.41	52.23
Minas – Indonesia*	30.80	29.49	34.62	38.52	48.64	51.56	41.84	41.26	40.28	45.20	40.72	49.68	50.63	50.86	51.23	50.47	50.31	50.60
Urals – Russia	29.15	30.87	36.87	39.89	45.08	46.60	43.76	44.06	44.48	48.24	43.83	52.28	53.42	53.34	53.66	52.86	53.11	53.93
WTI – North America	31.46	30.33	37.77	40.95	46.84	48.74	44.90	44.75	45.16	49.89	45.67	52.02	52.50	53.86	53.34	52.08	51.94	52.72

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).

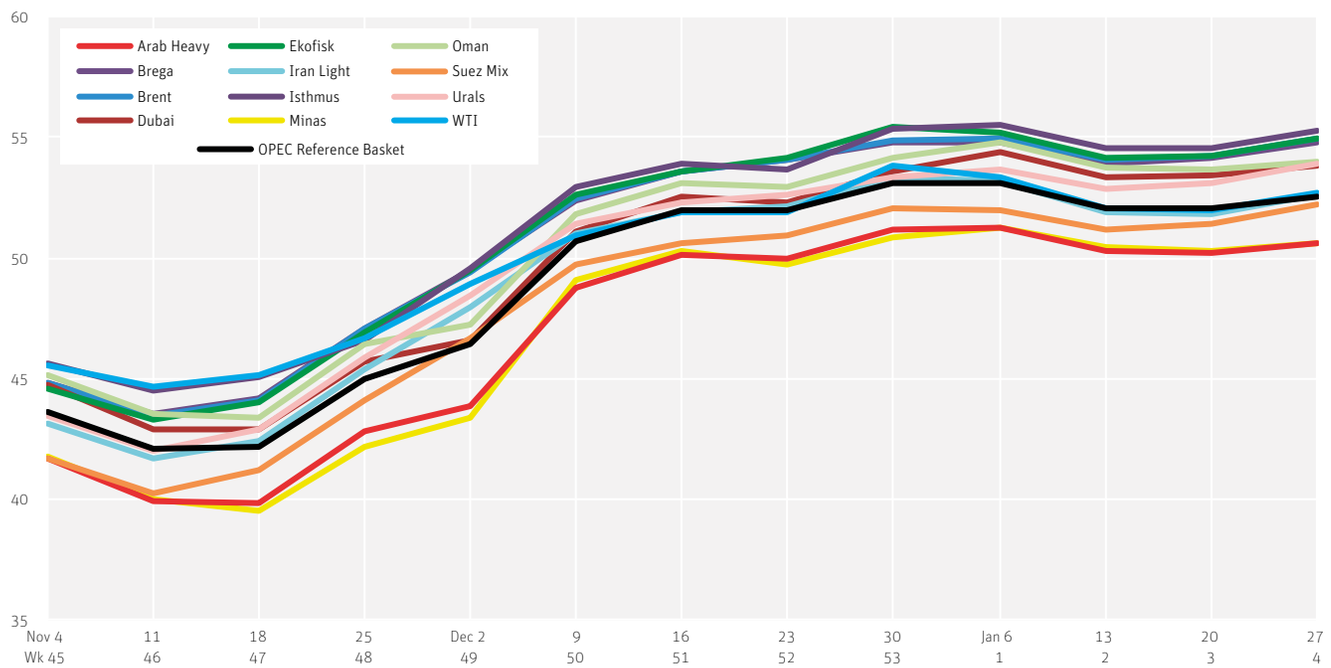
* *Indonesia joined in 1962, suspended its Membership on December 31, 2008, reactivated it again on January 1, 2016, but suspended its Membership again on December 31, 2016. Gabon joined in 1975 and left in 1995; it reactivated its Membership on July 1, 2016.*

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, 2016–17 *$/b*



Graph 2: Evolution of selected spot crude prices, 2016–17 *$/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, but this was reactivated from January 1, 2016, but suspended its Membership 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	January	35.13	53.41	39.21	38.11	19.85	15.08
	February	32.32	49.48	41.48	40.41	21.45	17.91
	March	38.53	54.82	47.43	47.13	24.83	21.32
	April	41.69	66.41	50.30	49.57	27.82	23.66
	May	44.28	69.51	56.15	56.67	32.52	29.28
	June	45.89	70.22	58.80	59.37	37.81	32.24
	July	41.73	62.35	54.48	53.84	37.60	32.21
	August	40.52	64.07	54.91	54.28	36.83	32.87
	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

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

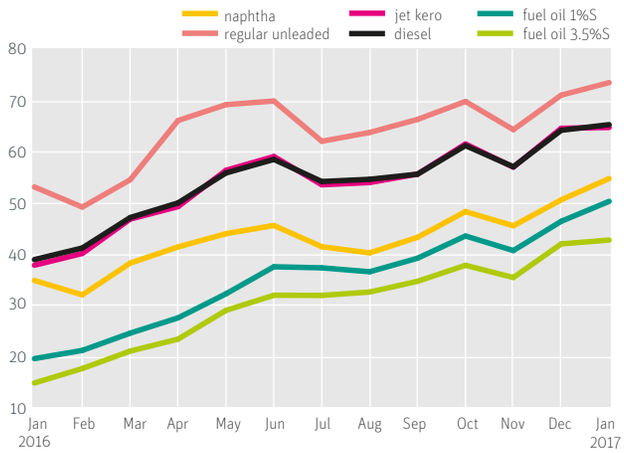


Table and Graph 4: South European market — spot cargoes, fob Italy

$/b

		naphtha	premium gasoline 50ppm	diesel ultra light	fuel oil 1 per cent S	fuel oil 3.5 per cent S
2016	January	33.42	47.01	39.48	21.22	18.35
	February	30.99	42.98	41.88	22.53	21.14
	March	37.76	47.68	48.28	24.63	23.44
	April	40.39	58.04	50.56	28.01	26.30
	May	43.51	61.12	57.91	33.72	31.91
	June	45.11	62.71	60.35	36.97	34.59
	July	41.06	54.85	55.04	36.85	34.84
	August	39.93	56.45	55.56	37.35	35.36
	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

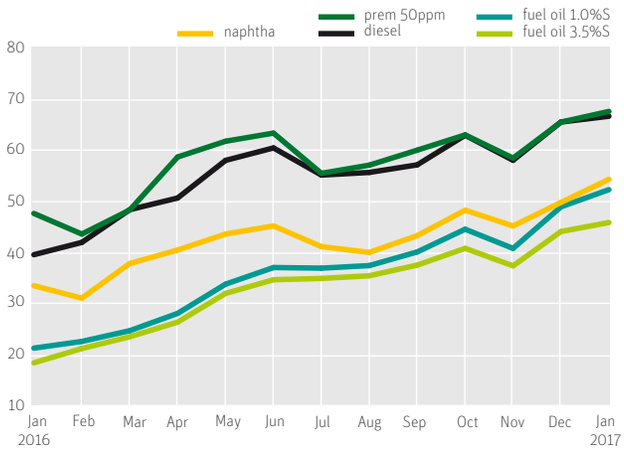


Table and Graph 5: US East Coast market — spot cargoes, New York

$/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	January	46.88	39.14	40.13	32.01	20.16
	February	42.59	39.48	43.03	32.46	20.20
	March	50.34	43.56	47.68	35.61	24.27
	April	60.09	47.27	49.43	37.10	27.94
	May	65.21	54.64	56.35	44.78	34.16
	June	62.59	58.10	59.83	48.86	37.32
	July	56.77	51.98	55.02	47.21	36.67
	August	58.93	53.13	56.49	48.01	36.17
	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

* *FOB barge spot prices.*

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

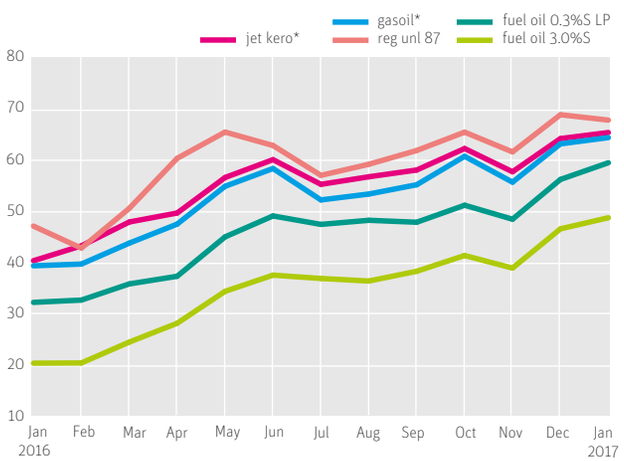


Table and Graph 6: Singapore market – spot cargoes, fob

$/b

		naphtha	premium gasoline unl 95	premium gasoline unl 92	gasoil	jet kero	fuel oil 180 Cst	fuel oil 380 Cst
2016	January	36.78	50.33	47.04	36.16	37.93	26.77	22.77
	February	33.97	44.33	41.29	38.51	40.98	25.92	23.27
	March	39.20	52.68	49.58	45.52	47.40	28.20	27.07
	April	42.52	54.49	51.45	48.08	49.51	31.02	29.17
	May	44.20	59.14	56.00	54.86	55.18	35.80	34.03
	June	45.56	59.05	56.49	58.14	58.27	38.62	36.68
	July	41.74	51.87	49.46	54.27	54.37	38.35	36.47
	August	39.96	54.18	51.52	53.47	53.55	38.67	36.61
	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

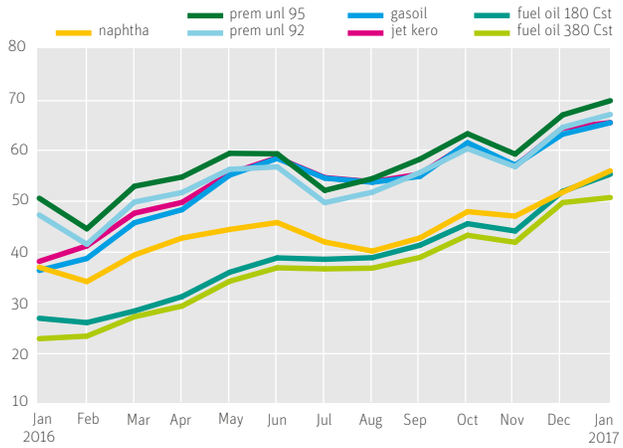
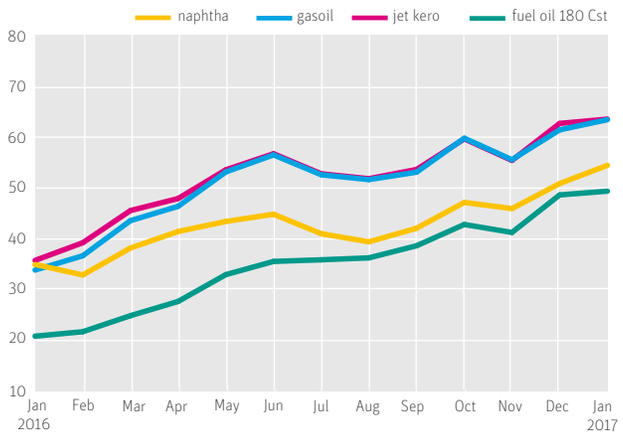


Table and Graph 7: Middle East Gulf market – spot cargoes, fob

$/b

		naphtha	gasoil	jet kero	fuel oil 180 Cst
2016	January	34.96	33.85	35.75	20.87
	February	32.89	36.66	39.22	21.75
	March	38.18	43.56	45.54	24.90
	April	41.43	46.37	47.90	27.69
	May	43.40	53.12	53.54	32.96
	June	44.82	56.47	56.70	35.55
	July	41.00	52.57	52.76	35.87
	August	39.40	51.62	51.80	36.25
	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



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

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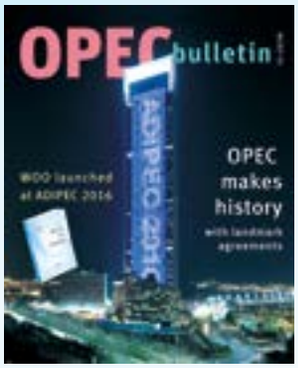

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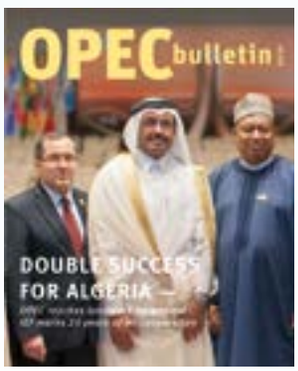

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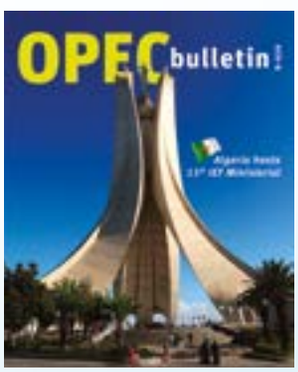

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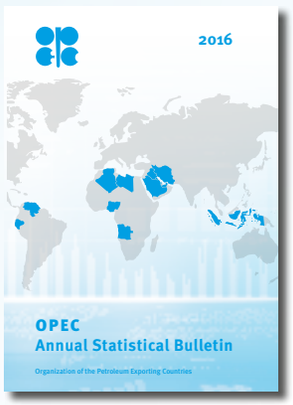

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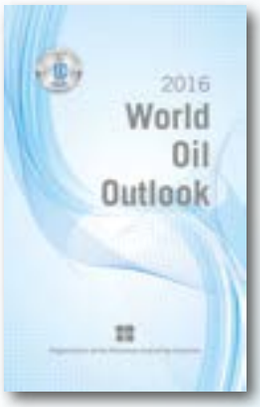

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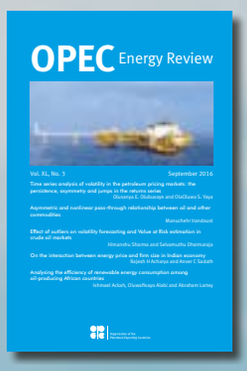

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