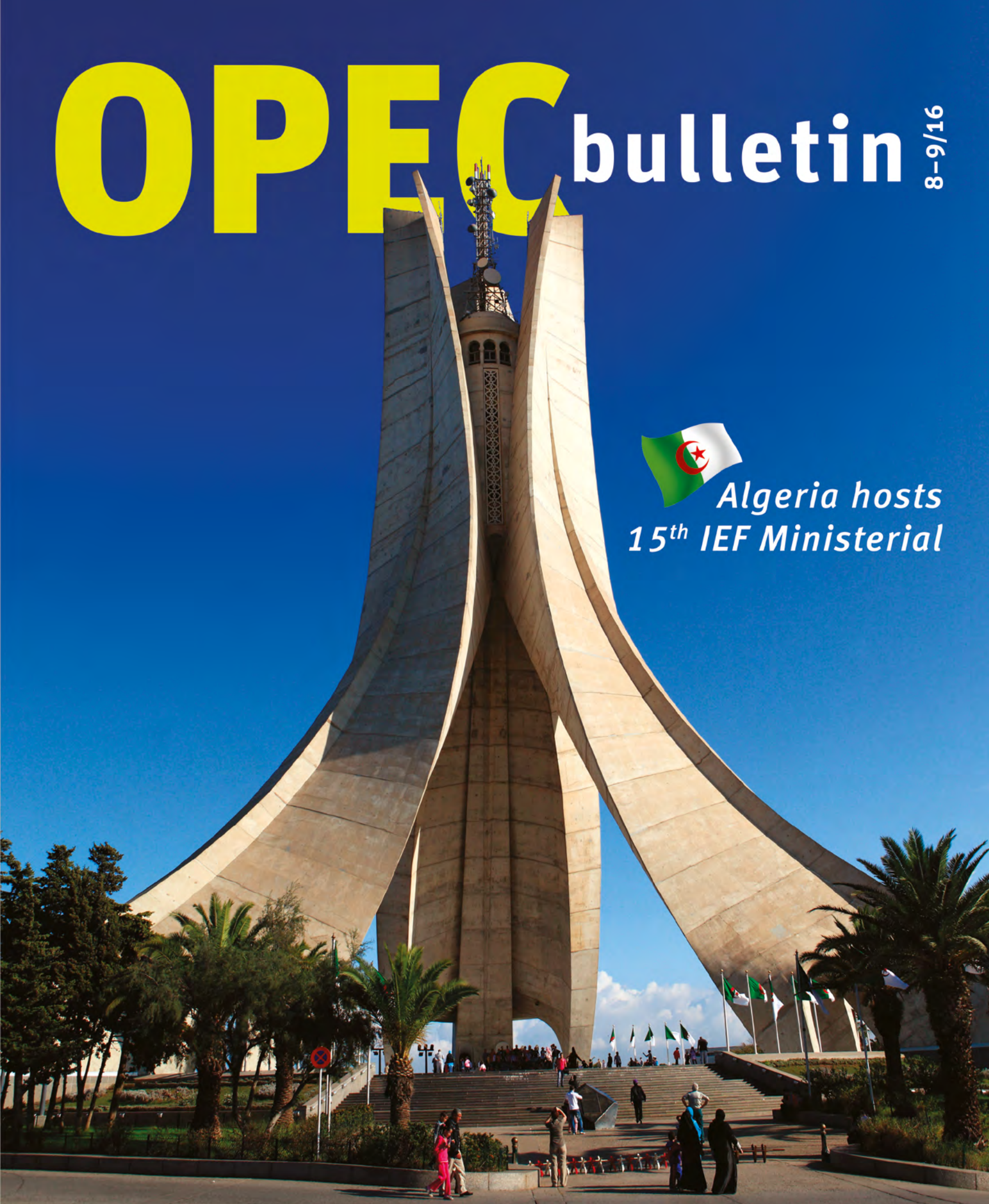
OPEC bulletin

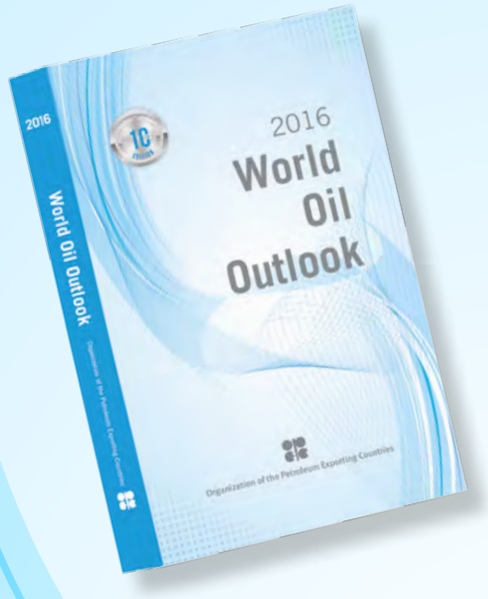
8–9/16



Algeria hosts 15th IEF Ministerial

Save the date

Launch of the OPEC 2016 World Oil Outlook



at ADIPEC
November 7–10, 2016

Abu Dhabi, UAE

Leadership for a new era

Changes in leadership often herald broader organizational changes — and sometimes a change of direction. This is often as true of national governments as it is of large corporate enterprises.

At OPEC, however, the regular transition from one Secretary General to another over the years is a bit different, since leadership changes at the very top are necessarily accompanied by one important condition: regardless of who serves as the Chief Executive of the Organization, they must remain committed to the OPEC Statute and to the Organization's three Solemn Declarations.

It is this commitment to the Organization's three-part mission of working towards (a) Member Country cooperation, (b) market stability, and (c) protecting the interests of producing countries that Secretaries General over the years — from different continents, cultures and historical traditions — have faithfully maintained.

OPEC's new Secretary General, Mohammad Sanusi Barkindo, who was appointed at the Organization's 169th Meeting of the Conference in June this year, follows this tradition. Assisted by officers and staff at the OPEC Secretariat, he has the opportunity now to lead OPEC into the future — and remind the world that a key feature of the Organization has always been to highlight internal cohesion and strive towards unity.

Certainly, throughout the Organization's long history, discussions and debates and the exchange of various views and opinions have always taken place. On occasion, these have taken place in difficult environments and with some Member Countries labouring under quite difficult economic, political, or social conditions. But regardless of the tenor of the conversation, deliberations among the Organization's Member Countries have always served, in the end, to inform the research, analytical and advisory work of the Secretariat — which ultimately informs the decisions of OPEC's leadership.

In fact, the wisdom gained over the years from these experiences indicates that without such open — and oftentimes frank — discussions, no effective consensus or unity can be reached among Member Countries; and that without constant reference to the OPEC Statue and the Solemn Declarations of Algiers (1975), Caracas (2000) and Riyadh (2007), there can be no real progress towards the achievement of OPEC's mission.

Barkindo knows the importance of all this well enough. He comes to Vienna already with extensive experience with both the OPEC Secretariat and OPEC Member Countries. Having represented Nigeria as a national representative at OPEC meetings in the mid-1980s under the legendary then-Minister of Petroleum Resources Dr Rilwanu Lukman, and having served as Nigeria's National Representative for OPEC from 1993 to 2008, while also serving as Deputy Managing Director of Nigerian Liquefied Natural Gas (a joint venture between NNPC, Shell, Total and Eni), and having been appointed Group Managing Director of the NNPC, Barkindo brings not only industry knowledge but a deep understanding of the challenges and issues that routinely face the Organization.

At the same time, however, it is to be expected that the new Secretary General will bring to the Secretariat a new style of management and a different way of discharging his duties. But no matter how much a new style or culture permeates the hallways and meeting rooms of the Secretariat, it is also true that, broadly speaking, the interests and objectives of the Organization shall not change. Permanence is, after all, a complement of the fundamental market stability that OPEC seeks to bring to the world of oil.

There is no doubt then that Barkindo will be as committed to the Organization's core mission as all of his predecessors have been over the years. As the Chief Executive of the Organization, he shall listen to and respond to the interests and needs of the Organization's 14 Member Countries. In the spirit of his doughty predecessors, he shall navigate the uncertain waters of the global economy and the international oil market. And with sagacity and empathy, he shall lead the Organization into the future, all the while ensuring that OPEC's role continues to be one of safeguarding the interests of Member Countries, ensuring the stabilization of prices and securing a regular supply of petroleum to consuming nations.

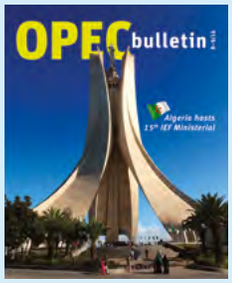
While there are bound to be occasional surprises that will undoubtedly test the mettle of the Organization, there should be no doubt that the future of the Organization is in steady, capable hands. As Barkindo told Bloomberg in an interview on June 2: "I am confident that the future is bright [and that] this Organization will not only continue to survive but will continue to adapt to [the] changes that are sweeping the global industry and the world at large."

In the coming months, the new Secretary General shall face these changes squarely in close consultation with Member Countries and other oil-producing countries. In fact, the task of consultation and dialogue will be an ongoing one. Already some of the changes that have swept the world — and the challenges they have created — are on the agenda for discussion by the Secretary General and other stakeholders at the 15th Ministerial Meeting of the International Energy Forum (IEF), to be held in Algiers, Algeria, on September 26–28 this year.

It is certain that Barkindo will bring his extensive experience and insights to bear on these and other future discussions. In his first month, he has demonstrated the importance he places on dialogue and consultation and has already shown that he offers new leadership for a new era. And looking to the long-term — and to the new era that OPEC is embarking on as it nears its 57th year of global leadership next year — we are confident in the knowledge that Barkindo will not only find the transition into his new role at the helm of the Organization smooth but that he will make important contributions to the industry to the faithful fulfilment of OPEC's important global mission.

Contents

OPEC bulletin



Cover

This month's cover shows the Makam Echahid (Monument des Martyrs) in Algiers. The Algerian capital will host the 15th Ministerial Meeting of the International Energy Forum (IEF) on September 26–28 (see feature starting on p10). Image courtesy Shutterstock.

Vol XLVII, No 6, August/September 2016, ISSN 0474–6279

Publishers

OPEC
Organization of the Petroleum Exporting Countries
Helferstorferstraße 17
1010 Vienna
Austria
Telephone: +43 1 211 12/0
Telefax: +43 1 216 4320
Contact: The Editor-in-Chief, OPEC Bulletin
Fax: +43 1 211 12/5081
E-mail: prid@opec.org
Website: www.opec.org

Website: www.opec.org

Visit the OPEC website for the latest news and information about the Organization and back issues of the *OPEC Bulletin* which are also available free of charge in PDF format.

OPEC Membership and aims

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

Secretariat officials
Secretary General
Mohammad Sanusi Barkindo
Head, Energy Studies Department
Officer-in-Charge, Research Division
Oswaldo Tapia
Head, Petroleum Studies Department
Dr Hojatollah Ghanimi Fard
General Legal Counsel
Asma Muttawa
Head, Data Services Department
Dr Adedapo Odulaja
Head, PR & Information Department
Hasan Hafidh
Head, Finance & Human Resources Department
Jose Luis Mora
Head, Administration & IT Services Department
Abdullah Alakhawand

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

Editorial policy
The *OPEC Bulletin* is published by the OPEC Secretariat (Public Relations and Information Department). The contents do not necessarily reflect the official views of OPEC nor its Member Countries. Names and boundaries on any maps should not be regarded as authoritative. The OPEC Secretariat shall not be held liable for any losses or damages as a result of reliance on and/or use of the information contained in the *OPEC Bulletin*. Editorial material may be freely reproduced (unless copyrighted), crediting the *OPEC Bulletin* as the source. A copy to the Editor would be appreciated.

Editorial staff
Editor-in-Chief
Hasan Hafidh
Editor
Jerry Haylins
Associate Editors
James Griffin, Alvino-Mario Fantini, Maureen MacNeill, Scott Laury
Production
Diana Lavnick
Design & layout
Carola Bayer and Tara Starnegg
Photographs (unless otherwise credited)
Herwig Steiner and Wolfgang Hammer
Distribution
Mahid Al-Saigh

Indexed and abstracted in PAIS International
Printed in Austria by Ueberreuter Print GmbH

Oil market still on the path to rebalancing — *OPEC President*

OPEC Conference President, Dr Mohammed Bin Saleh Al-Sada, has announced that the Organization expects higher crude oil demand in the third and fourth quarters of the year.

In a press release issued by the OPEC Secretariat in Vienna on August 8, 2016, Al-Sada, who is Qatar's Minister of Energy and Industry, expressed positive sentiment about the market, pointing out that since February this year, oil prices had experienced a steady improvement.

Dr Mohammed Bin Saleh Al-Sada, OPEC Conference President.

This development, he said, had followed a decline in crude oil production, supply outages and a decrease in oil inventories, while global demand for oil had shown an improvement.

Al-Sada said the recent decline observed in crude prices and the current oil market volatility was only temporary.

"These are more of an outcome resulting from weaker refinery margins, inventory overhang — particularly of product stocks — and the timing of Brexit and its impact on the financial futures markets, including that of crude oil," he affirmed.

Economies expected to improve

The Minister maintained that the economies of the major oil-consuming countries were expected to improve, which, in turn, would augment oil demand in the coming quarters, especially in preparation for the approaching winter season in the northern hemisphere.

He pointed out that the expectation of higher crude oil demand in the third and fourth quarters, coupled with a decrease in availability, was leading analysts to conclude that the current bear market was only temporary and that the price of crude would increase during the later part of 2016.

The OPEC Conference President stressed the importance of maintaining oil investment, saying it was needed not only to meet the expected growth in demand, but also to stem the natural decline of oil production from operating wells.

He alluded to the expected decline in oil supply vis-à-vis demand and a tightening of the markets in the period ahead, due to the unprecedented drop in capital expenditure in oil and gas projects across the globe during 2015 and 2016, leading to a curtailment of investments that were scheduled to be undertaken over the next four years.

"OPEC continues to monitor developments closely and is in constant deliberations with all Member States on ways and means to help restore stability and order to the oil market," said Al-Sada.

He said an informal meeting of OPEC Member Countries was scheduled to take place on the sidelines of the 15th International Energy Forum (IEF) Ministerial Meeting which would take place in Algiers, Algeria on September 26–28, 2016.

New OPEC Secretary General pays inaugural visit to the IEA

New OPEC Secretary General, Mohammad Sanusi Barkindo, paid an inaugural visit to the International Energy Agency (IEA) in Paris on September 9, 2016, where he held talks with its Executive Director, Dr Fatih Birol.

In a joint press release issued after their meeting, the two heads underscored their commitment to continued cooperation and exchange of views on recent oil market developments.

Continuing cooperation

The meeting took place just over a month after Barkindo assumed office as OPEC's Secretary General, succeeding Abdalla Salem El-Badri.

Barkindo and Birol, together with senior delegations from both organizations, discussed continuing cooperation between the IEA and OPEC, especially on market outlooks and transparency in oil data and statistics.

According to the press release, the visit built on the growing dialogue between energy producers and consumers over the years, deemed necessary for enhancing stability, security and transparency in the energy markets.

Birol, a former OPEC employee, visited the OPEC Secretariat in Vienna in September 2015, shortly after he was appointed as the IEA's Executive Director. More recently, in April this year, he hosted El-Badri in Paris.

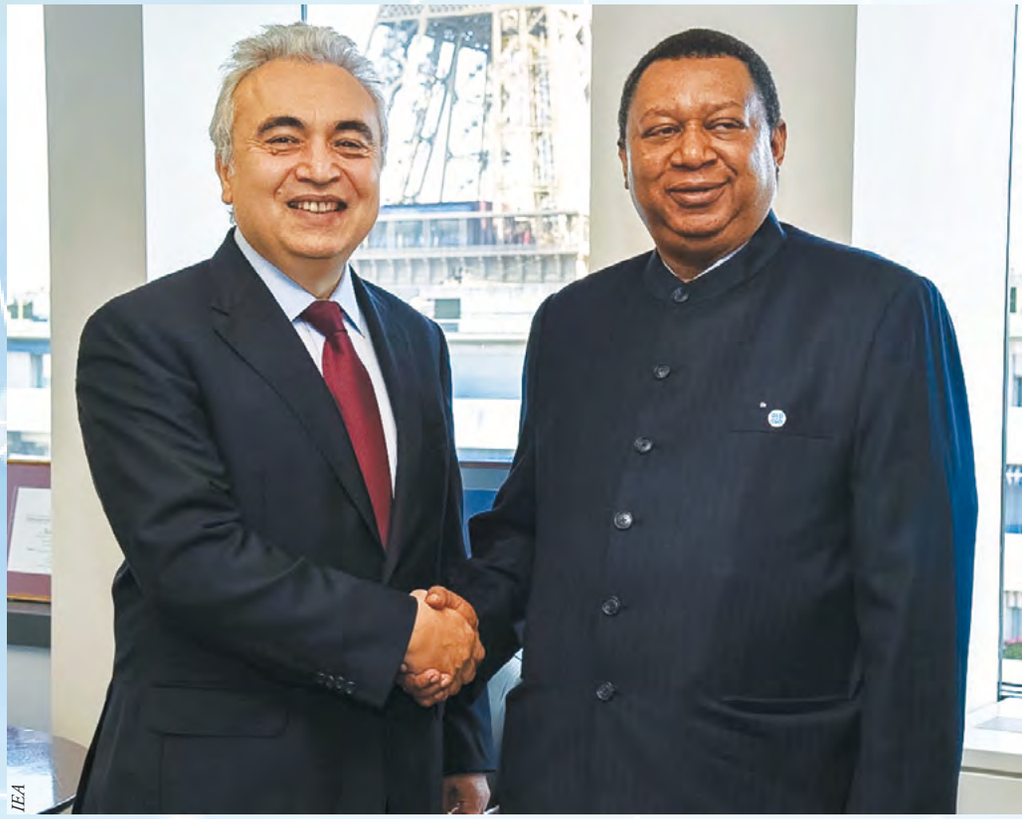
"I am very pleased to welcome Mr Barkindo to Paris so soon after he took over the helm at OPEC," Birol said. "He brings expertise, vision and many years of experience to his new role.

"His visit is an opportunity to trade views, discuss recent trends in the market and deepen the important ties that our two organizations have fostered over the years," he stressed.

Significant contributions

The joint release pointed out that both Barkindo and Birol had made significant contributions to the development of the producer-consumer dialogue that had evolved and strengthened considerably in recent times.

Representing Nigeria, Barkindo was a pioneer member of the International Energy Forum (IEF). He has also been a strong advocate of OPEC advancing dialogue and cooperation among producers and consumers, and between OPEC and non-OPEC producers.



IEA

Mohammad Sanusi Barkindo (r), OPEC Secretary General, seen with Dr Fatih Birol (l), IEA Executive Director.

Birol, who began his career at OPEC before joining the IEA more than two decades ago, has emphasized that a healthy dialogue between the IEA and OPEC was critical to help guarantee energy security in an environmentally sound and economically sustainable way.

Secretary General Handover

Tribute paid to Abdalla Salem El-Badri ...

OPEC Secretariat sees changeover of Secretary General

OPEC saw the changeover of its Secretary General at a staff gathering at the Organization's Secretariat in Vienna in early August, an event that paid tribute to outgoing chief executive, Abdalla Salem El-Badri.

El-Badri, from Libya, departed following nine-and-a-half years as head of OPEC. His term, which ended on July 31, 2016, is the longest in the history of the Organization.

Icon of the industry

Accolades were led by Mohammad Sanusi Barkindo, his successor as Secretary General, who praised the legacy El-Badri had left for the Organization.

He acknowledged his position as an "icon of the global oil industry and respected round the world."

El-Badri began his oil industry career with Esso Standard back in 1965, and in the intervening years he was Chairman of the Libyan National Oil Company (NOC), Libya's Minister of Petroleum, its Minister of Energy, Oil and Electricity and its Deputy Prime Minister, President of OPEC, and of course, Secretary General.

Barkindo added that he had known El-Badri for almost 30 years and recalled the first time they had met.

"I was a junior member of a Nigerian delegation to Libya and His Excellency was then head of Libya's NOC. Despite his senior position, he made sure he welcomed and conversed with all of us. He was a humble man of great integrity and he remains this way today," he affirmed.

Other speakers from the Secretariat highlighted El-Badri's leadership and diplomacy skills, particularly in bringing people together and the knowledge he has been able to impart during his almost decade leading the Organization.

El-Badri told the staff gathering that it had been an honour for him to lead OPEC. He thanked all of the Secretariat's staff for their cooperation, dedication and support that had been extended to him during his time in office.

He said: "It has proved to be a challenging and fulfilling task and I leave with many warm and positive memories, both professionally and personally, of a time I consider to be one of the highlights of my career."

In a statement shared with staff, El-Badri also highlighted some of the challenges, successes and advancements that had been achieved with their backing and assistance.

"I believe we were able to guide the Organization through one of the greatest challenges of our generation: the 'Great Financial Crisis of 2008' and its aftermath.

"I believe we have considerably strengthened our research, which is now more detailed and more extensively shared.

"Our publications are widely disseminated and used by analysts and researchers the world over.

Many improvements

El-Badri continued in the statement: "I believe we have provided our Member Countries with more comprehensive and more specific analysis, information and data, and become a broader platform for extending dialogue and cooperation.

"I believe we now have a stronger and more respectful relationship with the international media. And I believe that we have been able to improve many of our internal systems and procedures for the benefit of staff," he maintained.

In welcoming his successor, El-Badri said he was

Left: Shaking hands at the changeover, El-Badri and Barkindo.

Barkindo was officially appointed to the post for a three-year term at OPEC's 169th Meeting of the Conference on June 2, 2016.

"leaving the OPEC Secretariat in good hands, as the Organization looks to further evolve and strengthen."

He added that "Mr Barkindo had a deep and long understanding of the Organization" and was sure this would prove to be beneficial in the years ahead.

Barkindo was officially appointed to the post for a three-year term at OPEC's 169th Meeting of the Conference on June 2, 2016, in the Austrian capital.

An accomplished oil technocrat and veteran of OPEC, he brings with him a wealth of experience in the oil and gas industry, both in Nigeria and internationally.

From 2009 to 2010, Barkindo was Group Managing Director of the Nigerian National Petroleum Corporation (NNPC).

Previous to that, he served as Deputy Managing Director of Nigerian Liquefied Natural Gas, a joint venture between NNPC, Shell, Total and Eni.

Earlier in his career, he was Special Assistant to former Nigerian Minister of Petroleum Resources and OPEC Secretary General, Dr Rilwanu Lukman.

Key OPEC roles

Barkindo also worked in several key roles at OPEC between 1986 and 2010. In 1986, he was appointed to Nigeria's delegation to OPEC and from 1993 to 2008, served as Nigeria's National Representative on the Organization's Economic Commission Board (ECB).

In 2006, he served as Acting for the OPEC Secretary

El-Badri (l) spent nine-and-a-half years at the helm of the OPEC Secretariat, while his successor also brings many years of oil and gas experience to the Organization.

General and represented Nigeria on OPEC's Board of Governors from 2009 to 2010.

Barkindo has also helped produce the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto protocol as the leader of Nigeria's technical delegation to the UN negotiations since 1991.

He also served as Vice President of COP 15 in 2010 when he chaired the opening session in Copenhagen attended by more than 100 heads of state and government.

Barkindo is the longest-serving member of his country's delegation to the UNFCCC. He also served as Chairman of the OPEC Task Force of the United Nations Commission on Sustainable Development for the 15th session.

After earning a bachelor's degree in political science from Ahmadu Bello University in Zaria, he went on to achieve a postgraduate diploma in Petroleum Economics and Management from the College of Petroleum Studies at Oxford University and a Master's Degree in Business Administration from Southeastern University in Washington, DC.

Doctorate Degree

Barkindo is also a holder of an Honorable Doctorate Degree in Science from Modibbo Adama, Federal University of Technology, Yola, Nigeria. He is a fellow member of various international petroleum institutions, such as the Institute of Petroleum, London.

Algeria hosts latest producer-consumer dialogue meeting

15th IEF Ministerial to study oil market challenges

With growing expectations that the long-awaited rebalancing of the international market will still occur later this year or in early 2017, against a background of increased environmental demands on the global energy sector, there will be more than enough challenging topics for energy ministers and company executives to discuss at the 15th International Energy Forum (IEF), due to be held in the Algerian capital, Algiers, on September 26–28. The producer-consumer initiative, which has gone from strength to strength over the years, nowadays tackles the most crucial issues head on — and the Algeria round of talks will surely prove to be no exception. The **OPEC Bulletin** *takes a look at the history of the Forum and some of the issues participants in Algiers will address.*

Shutterstock

Over 600 foreign participants are expected to descend on Algiers for the 15th International Energy Forum (IEF).

INTERNATIONAL ENERGY FORUM

The 15th International Energy Forum (IEF15) will be held in Algiers from September 26–28, 2016. Hosted by the Government of Algeria, the biennial meeting will be attended by ministers from oil-producing and consuming countries, in addition to oil company executives, senior officials from international organizations, including OPEC, and experts from the Forum's 73 member countries.

Launched with the express purpose of bringing global energy-producing and consuming countries closer together, the IEF umbrella promotes unofficial dialogue on general issues of common interest in terms of energy.

Through its meetings, workshops and seminars it aims to strengthen collaboration between producers and consumers, refigure regular consultation between energy industry stakeholders and facilitate dialogue in the event of energy crises.

Fatma Zohra Cherfi, Secretary General of the Algerian Ministry of Energy, has revealed that more than 600 foreign participants are expected to attend the Algiers event, which will be held at the Centre International des Conferences, in the Algerian capital.

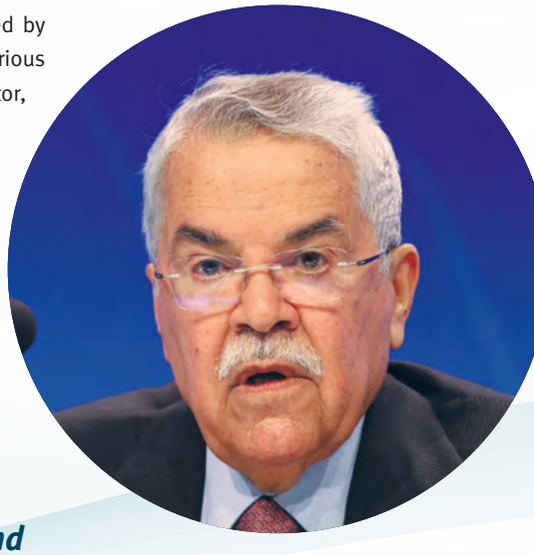
She told the *Algerian Press Service* that apart from energy ministers, the Ministerial would be attended by high-ranking officials, experts and CEOs of oil and gas companies, as well as of international organizations, including OPEC, the International Energy Agency (IEA) and the Gas Exporting Countries Forum (GECF).

Algeria, said Ms Cherfi, would be represented by senior executives of companies operating in the various fields of the OPEC Member Country's energy sector, including hydrocarbons and renewable energy.

The Forum would address themes relating to oil and gas prospects, the role of renewable energy, the importance of access to energy services in human development and the role of technology, she added.

Meanwhile, Mohamed Hamel, Algeria's Governor for OPEC, current Chairman of the OPEC Governing Board and Head of the Forum's Organizing Committee, stated: "IEF15 will be also an opportunity to assess the global energy dialogue and discuss the means and ways to strengthen it."

The Conference will actually be divided into five plenary sessions. The welcoming address will be given by Algerian



"The IEF is a very crucial and important organization. I hope that the IEF in the future will be the main organization for all energy issues."

— Ali I Naimi, former Minister of Petroleum and Mineral Resources, Saudi Arabia.

"The IEF remains the only international energy body under whose umbrella both producers and consumers can cooperate on energy issues, exchange information and gain a deeper understanding of each other's energy concerns to enhance their common interests."

— HRH Prince Abdulaziz Bin Salman Al Saud.

Energy Minister, Noureddine Boutarfa, while introductory remarks will come from the new Secretary General of the IEF, Dr Xiansheng Sun. These will be followed by an address officially opening the Conference.

In the five sessions spread out over two days delegates will make various presentations and take part in discussions to look at the most pressing issues facing the global energy industry today.

Session One will look at 'Oil markets: outlook and stability challenge' and will feature presentations from Dr Xiansheng Sun, the Secretary General of OPEC, Mohammad Sanusi Barkindo, as well as the Executive Director of the IEA, Dr Fatih Birol.

Session Two is to be dedicated to 'Natural gas: challenges for the industry, the LNG chain and implications for the market structure'.

This will see presentations made by the Secretary General of the International Gas Union, Pål Rasmussen, and his counterpart at the GECF, Mohammad Hossein Adeli.

During the lunchbreak, Amine Mazouzi, Chief Executive Officer of the Algerian National Energy Company, Sonatrach, will give a keynote address.

In the afternoon of session two roundtables will be held in parallel with each other. The first will look at 'Sustainable energy access; a critical factor for human development', while the second will discuss 'Enhancing energy security; the role of technology'.

On the evening of the first day of the Conference a reception and dinner will be held for all delegations and guests.

Session Three, which will start day two of the Conference, will have as its theme, 'Renewables and energy efficiency: prospects and challenges after COP 21'.

In Session Four, the topic of 'Energy governance: global energy dialogue revisted', will be addressed.

Each of the four sessions will also feature discussions by selected ministers and company chief executive officers. All the sessions will end with a general debate and opportunities for questions and answers.

Session Five of the Conference will feature a concluding statement by the Algerian Energy Minister followed by an announcement concerning the host and co-host of the 16th IEF Ministerial.

A farewell lunch will then be followed by a concluding press conference, hosted jointly by the Algerian Energy Minister and the IEF Secretary General.

History of the IEF

The IEF is the world's largest forum for energy-consuming, energy-producing and transit nations. It is often referred to as simply a "neutral facilitator of informal, open, informed and continuing global energy dialogue."

It has no binding decision-making body, but it is heavily involved in the collection and centralization of accurate, up-to-date information on the oil and gas industry.

As in previous years, the latest IEF Ministerial will be attended by energy ministers, executives from oil and gas companies, as well as officials from oil-producing and oil-consuming nations, oil service companies and other interested parties from around the world.

In addition, a variety of exhibition stands located near the main conference centre will showcase the activities and provide material and publications from, for example, OPEC, the IEA and the IEF.

And special rooms will be made available for use by delegations for optional and spur-of-the moment bilateral meetings.

The roots of the IEF actually extend back over two decades to a modest meeting in Paris, in July 1991, although, long before that, OPEC had been at the forefront of calls for an effective process of producer-consumer dialogue involving the major stakeholders in the industry.

Already there had been significant advances in cooperation among OPEC and non-OPEC producers in the late-1980s.

At that time, the industry was in a state of transition after a decade of disturbing market reverses, peaked by the 1986 price collapse, and with the onset of major new challenges as the environmental debate gathered pace and the global political structure changed radically.

Notably, there was the build-up to the United Nations Conference on Environment and Development — the so-called 'Earth Summit' — in June 1992.

Important preliminary steps towards producer-consumer dialogue were taken at the Isfahan International Conference in Iran in May 1991. That event had been attended by oil and energy ministers from the major oil-producing countries and senior government officials from some leading consuming nations.

Notably, Dr Sadek Boussena, Algeria's Minister of Mines and Industry and OPEC Conference President at the time, addressed the issue of such dialogue in his opening address to the 89th Meeting of the OPEC Conference in Vienna on June 4, 1991, which was held as the oil market was settling down again after the hostilities in the Gulf region in late 1990/early 1991.

He said: "Our efforts in the coming sessions (to reach a satisfactory agreement) will be wasted somewhat if we neglect the issue related to dialogue between producers and consumers. Indeed, there are encouraging signs that this issue is being treated with greater seriousness than ever before.

He continued: "This is to a great extent due to OPEC's own initiatives, either collectively, or through the resolve of individual Member Countries. But there are also indications of the expression of similar sentiments in sectors of the international oil market which traditionally have been reluctant — at least publicly — to endorse the concept of global dialogue.

"I, therefore, wish to appeal once again for all the major parties in the market — OPEC and non-OPEC producers, multinational companies, traders and consumers — to embark upon a united effort to achieve stability, by ensuring a regular flow of oil to consumers and fair returns for producers," he said at that time.

One month later, on July 1–2, a 'Ministerial Seminar for Oil-Producing and Consuming Countries' was held in Paris, attracting 25 countries, including six Members of OPEC and the energy and industry ministers from France, Norway, Britain and Germany.

The meeting was co-hosted by one of OPEC's Founding Members, Venezuela. Some key stakeholders were absent, however, or gave it low-key representation, being reluctant at that time to engage in such a structured process of dialogue.

The four main issues discussed at that meeting were the international oil market, economic and industrial cooperation, the futures market and the environment.

There was also, however, general consensus on the need for 'sound contacts' by all oil market/industry participants at bilateral, multilateral, technical, regional and global levels to increase mutual understanding and confidence; to strengthen the market to play its role properly; for cross-investment in both upstream and downstream as veritable means of achieving oil market stability; and for more scientific study and concrete evidence on the inter-relationship between energy and environment (while it was noted that the environmental issue was recognized as "controversial").

The Paris meeting evolved into what is now considered to be the premier Ministerial-level organ of global dialogue among producers and consumers — the IEF.

However, this process only acquired its present title of 'International Energy Forum' at the seventh meeting in Riyadh on

"The IEF is an excellent organization. It is an open area where we have some small countries, some big countries and where we can debate and solve our problems."

— Abdalla Salem El-Badri, former Secretary General, OPEC.

November 17–19, 1999, with previous gatherings being labelled 'Ministerial Seminar', 'Ministerial Workshop' and 'International Energy Conference'.

The seventh meeting was also the second one hosted by an OPEC Member Country, after Venezuela had organised the fourth in the series in 1995. Member Countries have since hosted and co-hosted subsequent meetings, and, on top of this, the IEF's Secretariat has been set up in the Saudi Arabian capital, Riyadh.

As the years passed, the level of representation rose and the issues broadened out into new areas, as the dialogue became increasingly an accepted part of the established energy scene.

For example, looking at the early meetings after Paris in 1991, the issues included: global energy policy and a common energy future in Solstrand, Norway, in 1992; natural gas in Cartagena, Spain, in 1994; investment and the reintegration of the oil and gas industries in Puerto La Cruz, Venezuela, in 1995; and the growing energy needs of emerging economies in Goa, India, in 1996.

"The IEF is uniquely placed to satisfy the interests of all global energy market players in a fair and mutually acceptable way."

— Alexander Novak, Minister of Energy, Russian Federation.

Repeatedly, the dialogue has led to breakthroughs in multilateral understanding and cooperation in the energy industry.

A prime example of this has been the success of JODI, the Joint Organizations Data Initiative (initially the Joint Oil Data Initiative) with its unique, reliable, freely accessible and comprehensive database of monthly oil statistics.

More generally, in recent years, a pattern has emerged in the dialogue, when addressing certain issues, of OPEC informally supporting the interests of oil-producing developing countries, the IEA representing the interests of oil-consuming industrialized countries and the IEF providing a bridge between the two.

This was evident in the formulation of the IEF Charter, aimed at improving cooperation between the two sides and reducing oil market volatility, and the development of agreed activities between the three main organizations involved — the IEF, the IEA and OPEC.

"OPEC is proud to have played a role in all this," then OPEC Secretary General, Abdalla Salem El-Badri, said in his introductory remarks to the Extraordinary IEF Ministerial Meeting in Riyadh on February 22, 2011.

"We appreciate the informal nature of the dialogue and, over the years, have actively contributed to ideas and analysis, as well as the exchange of views between various stakeholders.

He stated: "The IEF's informal producer-consumer dialogue has become an essential ingredient to ensure market stability, improve transparency and provide greater predictability. The focus must be on understanding the needs of each stakeholder and viewing the entire energy market holistically. In an increasingly interdependent world, the importance of such needs cannot be overstated."

The meeting took place upon the invitation of the Government of Saudi Arabia and under the patronage of the then Custodian of the Two Holy Mosques, King Abdullah Bin Abdul-Aziz.

New era of cooperation

The IEF Charter, signed at the time by ministers and delegates from 86 energy-producing, consuming and transit countries, was said to "mark a new era of international energy cooperation built on greater mutual understanding and trust, with a significant reinforced political commitment to an informal, open, informed and continuing global energy dialogue in the framework of the IEF among energy-producing and energy-consuming countries, including transit States."

A concluding statement by the Kingdom of Saudi Arabia and the Secretariats of OPEC, the IEF and the Paris-based IEA also stated that the Charter created a concrete platform for greater mutual understanding between producing and consuming countries on important energy policy matters.

It added that, when feasible, it could also narrow different opinions between the two sides and help build trust in policy intentions.

And due to the fact that all the major energy producers and consumers had joined together in the initiative, the statement pointed out that the landmark move "sends a powerful positive signal to the energy world and energy markets that difficult issues can and will be tackled in a global context, whenever necessary."

The Extraordinary IEF Ministerial Meeting in Riyadh was the final stage of a process that began in earnest

"It does not come by nature that OPEC and the IEA are coming together, but within the IEF framework it happens."

— Maria van der Hoeven, former Executive Director, IEA.

with the Cancun Ministerial Declaration approved by 66 countries at the 12th IEF Ministerial Meeting in Mexico, in March 2010.

The Cancun Declaration addressed two key points: an enhanced IEF framework to strengthen the producer-consumer dialogue and ways to reduce energy market volatility.

In positive fashion, the IEF Charter has delivered the enhanced framework for the IEF. Energy market volatility has been addressed in the IEA/IEF/OPEC cooperation programme, which was included in the Cancun Declaration. This covered joint events on the linkages between the physical and financial energy markets, including energy market regulation, on energy outlooks and on market data transparency.

The concluding statement in Riyadh also stressed that the IEA/IEF/OPEC programme was progressing well and had already delivered positive results, which were discussed by the ministers and delegates present at the February meeting.

Since the Charter was signed, the IEF, with its Secretariat firmly established in Riyadh, has gone from strength to strength.

Over the past five years, and in conjunction with the IEA and OPEC, it has been actively involved in the development of various annual symposia, workshops, roundtables and meetings.

OPEC Secretary General, Mohammad Sanusi Barkindo, writing in the official 15th IEF Ministerial publication, observes that the IEF/IEA/OPEC Joint Symposium on Energy Outlooks had become an established, internationally acknowledged event, bringing together stakeholders and experts from around the world.

In addition, their meeting on the Interactions between Physical and Financial Energy Markets had created a platform to better understand the relationship between these two elements of the industry, and to evolve ideas on how to best manage the relationship, he said. "And the Symposium on Gas and Coal Market Outlooks has allowed the three organizations to further broaden their discussion of all sources of energy," he added.

Today, the IEF undoubtedly stands as the most important bridge between oil producers and consumers, where delegates can freely discuss the industry's most salient issues and enhance the essential cooperation the energy sector requires for establishing an organized and stable future.

Algeria and its capital will be doing all in its power to further this cause.

"To be part of the IEF framework is very important and contributes to the communication between producers and consumers of gas — leading to better cooperation for the sustainability of the market."

— Mohammad Hossein Adeli, Secretary General, GECF.

The need for energy dialogue has never been greater

— Barkindo

The value of dialogue between all international stakeholders has never been greater in today's increasingly interdependent world, the heartbeat of which is the global energy system.

That is the view put forward by OPEC's newly installed Secretary General, Mohammad Sanusi Barkindo, to the 15th Ministerial Meeting of the International Energy Forum (IEF), which meets in Algiers, Algeria on September 26–28.

In an article submitted for inclusion in the official IEF Ministerial publication, he contends that the global energy system is complex and ever expanding — "one that is finely balanced and where stability must be the mantra over all timeframes."

Barkindo adds that it is essential to appreciate that the short, medium- and long-term are all interlinked.

He says the importance of this can be viewed in the constant flux oil markets have found themselves in since the summer of 2014.

"It has been a period of significant instability. Oil prices now are considerably lower than in mid-2014,

many investments have been deferred and some cancelled, manpower has been laid off, oil supply has been greater than demand and stocks have risen considerably," he observes.

Barkindo maintains that the market has been searching for balance. "While we see some signs that supply and demand fundamentals may balance themselves this year, there remains a significant stock overhang that needs to be reduced. This is now a central element to the return of a more balanced market."

The OPEC Secretary General stresses that it is vital to appreciate where the additional supply has come from. Between 2008 and 2014 all of the supply growth of more than six million barrels a day came from non-OPEC countries, while in 2015, non-OPEC output grew by almost 1.5m b/d, while for OPEC it was at around 1.1m b/d.

Tackling the stock overhang

"Given these numbers, the stock overhang should be viewed as something both OPEC and non-OPEC producers, as well as consumers, tackle together. The market needs to see a continued drawdown in inventories that help prices to further recover and investments to return," professes Barkindo.

He states that what these recent developments also highlight are issues related to oil market outlooks, particularly in the short- to medium-term.

"We are currently seeing changes to numbers, and shifts in sentiment, on a regular basis. It underscores the need to continually share and analyze our energy outlooks to better understand the data and the key trends, as well as look at areas where we might see both convergent and divergent opinions."

Barkindo says the importance of this understanding is not only important for the short-term; it translates to the long-term given the industry's anticipated expansion.

For oil, OPEC sees global demand increasing by around 17m b/d by 2040 to reach close to 110m b/d. And in terms of oil-related investment requirements, these are estimated to be around $10 trillion over this period.

"However, given the recent low price environment, it is clear that some of the necessary future investment is at risk," observes Barkindo. "In the current oil market environment we are already witnessing significant investment cuts due to low oil prices."

For example, he says, global exploration and production spending fell by around 20 per cent in 2015, and a further 27 per cent drop is anticipated this year.

"This is a major concern for an industry that needs regular and predictable investments. New barrels are needed not only to increase production, but to accommodate for decline rates from existing fields," he affirms.

"We need to remember that low oil prices are bad for producers today and lead to situations that are bad for consumers tomorrow. And high oil prices are bad for consumers today and lead to situations that are bad for producers tomorrow."

The OPEC Secretary General states that, of course, there are also many other ongoing and related challenges for oil markets, such as: the uncertain prospects for the global economy; excessive speculation and the role of financial markets; the impact of geopolitics; advances in technology and their impacts on exploration and production; and environmental concerns.

"It all points to the need to continually strive to develop and enhance dialogue and cooperation. There is evidently much for producers and consumers to talk about and cooperate on.

"The International Energy Forum's informal producer-consumer dialogue is an essential ingredient in this as we look to advance market stability, improve transparency and provide greater predictability in a sustainable manner.

"In conjunction with the IEF and the International Energy Agency (IEA), OPEC has been actively involved in the development of various annual symposia, workshops, roundtables and meetings over the past five years or so.

"The Joint Symposium on Energy Outlooks has become an established, internationally acknowledged event, bringing together stakeholders and experts from around the world.

"The meeting on the Interactions between Physical and Financial Energy markets has created a platform to better understand the relationship between these two elements of the industry, and to evolve ideas on how to best manage the relationship.

"And the Symposium on Gas and Coal Market Outlooks has allowed the three organizations to further broaden their discussion of all sources of energy." Barkindo concludes by saying that, at OPEC, "we always welcome continuous dialogue between all parties. The focus should be on better appreciating each other's viewpoints, finding common ground, looking for shared solutions, where and when appropriate, and developing an environment that is conducive to reaching constructive end results."

Algiers

The jewel of the Mediterranean

In May 2014, the International Energy Forum (IEF) held its 14th Ministerial Meeting in the Russian Federation to discuss various issues related to energy in general and to oil and gas in particular. Towards the end of the gathering, a key decision was taken — that Algiers, the capital city of OPEC Member Country Algeria, would host the Forum's 15th Ministerial and become the venue for the IEF's 25th Anniversary celebrations. Media interest in the Algiers event in September is understandably extremely high as oil and energy ministers from 73 producing and consuming nations meet to discuss the challenges facing the international energy sector.

Aside from the 15th IEF Ministerial, Algiers has been a welcoming host for other key international and regional events, related to a variety of interests, including energy, oil, politics and sport. Significantly for OPEC, it was the venue for Organization's First Summit of Heads of State and Government in 1975, Arab League Summits in 1973, 1988 and 2005, the African Soccer Cup of Nations in 1990, and, more recently, the Fifth Petroleum Industry Expo in 2015. Indeed, an extensive portfolio that presents the country's capital city as a major centre for events and conferences on the global map.

In this article, OPEC intern, *Ayman Almusallam*, examines the city and learns just why it has become a global hub for important congresses and international events.

Shutterstock

Algiers, alternatively known as Al-Behja or Alger La Blanche (Algiers, the White), is the capital and largest city of OPEC's longstanding North African Member Country, Algeria. It is located in the north-central region of the country overlooking the Mediterranean Sea. The charming city is located in Algiers Province.

A few initial facts and some history:

The area of the capital city is estimated at 363 square kilometres, while its population today stands at around 3.5 million. The population density amounts to 9,400 per square metre. The country's highest elevation stands at 424 metres. The current Governor of Algiers is Mohamed Kebir Addou.

Algiers enjoys a Mediterranean climate. In summer, it tends to be very warm and dry while it is mild and rather wet during winter. Due to its proximity to the sea, the city experiences moderate top temperature thresholds in the summer season.

Historically, the city dates back to the Phoenician and Roman era in 300 BC to 100 AD. During the ninth century, Berbers assumed power in the city to establish Algiers.

A few centuries later, with its expansion, the Spanish Kingdom of Castile ruled over the region until the Ottoman Empire's reaction and its rise to power. In 1830, Algiers was occupied by Napoleon. The French conquest lasted for over 100 years.

Throughout World War II, Algiers was designated as the headquarters of Allied forces in North Africa. Algeria gained independence in 1962 following the ratification of the Evian treaty.

In more recent times, the city survived several major natural disasters including a flood in 2001 and an earthquake in 2003.

As a strategic economic, commercial and social centre, Algiers plays a significant role in developing and boosting the Algerian economy.

According to Peter Von Sivers, the author of *Encyclopedia of the Modern Middle East and North Africa,* Algiers plays a key role in boosting and prospering the national economy, as it accommodates 55 per cent of Algeria's industrial labour force and more than 40 per cent of the country's factories and plants.

Moreover, many industries operate in Algiers that actively contribute to the prosperity of its regional economy and ultimately to the welfare and expansion of the national economy. For instance, the Algiers stock market plays a crucial role as one of the cornerstones of the regional economy.

Algiers relishes an extensive public transportation network signifying an important factor that fosters the advancement of the local economy. A wide range of buses, trams and trains operate in an efficient manner throughout the capital city.

Algeria, as an important producer and net exporter of petroleum, joined OPEC in 1969. Over the years, it has portrayed a robust and thriving oil and gas sector and along with its fellow regional OPEC Members — Angola, Libya and Nigeria — represents a vital part of the Organization's global standing.

Of special note, Algiers was chosen to host the First Conference of Sovereigns and Heads of State of OPEC Member Countries on March 4–6, 1975, a milestone event in the history of the Organization — and Algeria, as its host.

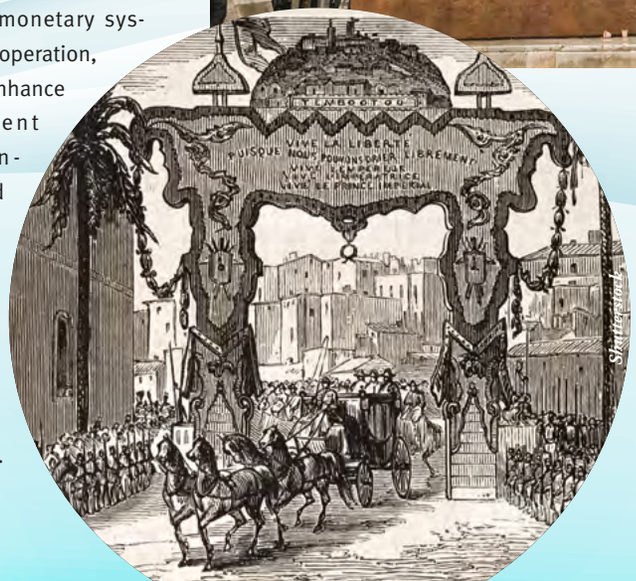
The Algiers OPEC Summit was the biggest and most important event staged by the Organization in its early, but long, formative years.

In addition to the ratification of the Solemn Deceleration, many other important aims and objectives that arose during the first 15 years of OPEC's existence were adopted, supporting the resolutions and goals considered by OPEC's Ministerial Conference.

For instance, there was reaffirmation on the need to improve the global monetary system, and cooperation, in order to enhance development and maintain world stability.

Emir Abdelkader or Abdelkader El Djezairi was an Algerian Sharif religious and military leader who led a struggle against French colonial invasion in the mid-19th century.

Shutterstock



Shutterstock

Napoleon III and Empress Eugenie landing in Algiers. Created by Provost after Marc and Bonnet, published on L'Illustration, Journal Universel, Paris, 1860.

French colonial buildings can be seen in Algiers. They are being renovated by the Algerian government.

And, of significance was the declaration aimed at confirming the full sovereignty of countries over their natural resources and their right to exploit and price them in accordance with their national interests.

In addition, the Summit witnessed the landmark step of the establishment of the sister institution to OPEC, the OPEC Fund for International Development (OFID), initially known as the OPEC Special Fund which was set up in 1976. Four years later, it was reinstituted the OPEC Fund for International Development.

Economy

As with any capital city, Algiers represents a significant cornerstone of the Republic's economy. This position has been proved by accommodating a remarkable stock market with a capital of €60 million. But, how does the national economy that it signifies look like?

The North African oil producer is one of the few countries that has been able to cope reasonably well with the present slump in crude oil prices. Its gross domestic product (GDP) amounted to $181 billion in 2015, according to *OPEC's Annual Statistical Bulletin*. Moreover, the flagship publication indicated that Algeria's GDP per capita exceeded $4,500.

Additionally, Algeria enjoyed solid economic growth of around four per cent in 2015, according to the World Bank.

In the same year, its total exports, including oil and gas, reached a value of $37.7bn, while its gross imports were valued at $51.5bn. The country's exports of petroleum accounted for around 57 per cent of the nation's total exports.

Based on the review of *Economy Watch* of Algeria's economy, the OPEC Member possesses several industries contributing actively and positively to the nation's wealth.

Agriculture plays an important role in Algeria and accounts for around eight per cent of the country's GDP, employing 14 per cent of the Algerian labour force. Potatoes, wheat, dates and barley are some of the key crops harvested in the country. Most of the agricultural activities occur along the coastal line found in the northern part of the country

Fishing is one of the most thriving sectors in Algeria. The extensive shoreline that the OPEC Member Country enjoys has enabled the country to become an exporter of fish. France, Spain and Italy are some of Algeria's main consuming markets.

In addition to oil and gas, Algeria enjoys a distinctive abundance of other natural resources, particularly minerals. Of note, it enjoys extensive deposits of iron, lead, mercury, copper, zinc and iron.

According to *Economy Watch,* Algeria produces around 13 per cent of the total global output of helium.

However, according to a report carried by the Algerian Press Service, the domestic economy was influenced by the notable drop in crude oil prices that occurred in late 2014. The country relies heavily on its oil and gas exports.

Since then, the Algerian economy has experienced a slowdown in economic growth due to the change in the condition of the oil sector. A de-growth that was encountered by maintaining and enhancing the country's non-oil sectors.

According to Algeria's National Office of Statistics, the state underwent a modest growth rate of 3.3 per cent in the third quarter of 2015, while it enjoyed a solid five per cent growth rate during the same time period in 2014. Of special note, Algeria experienced during both time periods growth rates of five and 4.6 per cent in the non-hydrocarbons sector, respectively.

The International Monetary Fund has emphasised the remarkable opportunities that exist for Algeria at the present time. It indicated that the current "exceptional

Fresh dates on sale at the historic Ottoman market bazaar in Algeria.

opportunity" can lead the country's economy to a sustainable growth phase and reduce its dependence on fossil fuels and hydrocarbon resources.

Energy

According to *OPEC's Annual Statistical Bulletin,* Algeria enjoys substantive proven crude oil reserves amounting to more than 12bn barrels. Its daily crude production rate last year stood at around 1.1 million b, while its exports exceeded 640,000 b/d. Around 49 oil rigs were operational and active in the country last year. Algeria's petroleum exports generated more than $21bn in 2015.

Furthermore, the number of functional crude wells reached 1,968 in 2015, while the nation managed to complete 250 new oil wells in the same year. Regarding the country's refining sector, Algeria possesses an extensive refining capacity amounting to 650,000 b/d.

Algeria is also a notable producer of several petroleum products, including gasoline and kerosene. The state's gross output of petroleum products in 2015 reached 628,000 b/d.

Natural gas is very important to the country. In 2015, Algeria produced 83bn cubic metres of traded gas, while its estimated reserves stood at 4.5 trillion cu m. The country exported more than 43bn cu m of gas in the year.

According to a report carried by the *CIA Factbook,* Algeria ranked 10th on a global scale in term of possessing natural gas reserves.

Algiers port

Considering its impressive energy portfolio in general and of oil and gas in particular, Algeria, as a key producer and net exporter of crude oil, is in a constant need of advanced and cutting-edge ports. The Port of Algiers is an example of many such facilities that exist in the North African nation.

The capital's port is classified as a large deep-water seaport that possesses several key facilities needed to handle large cargos and carriers.

The coastal breakwater port is longer than 500 feed and can offer services to handle major damages and breakdowns. Moreover, it consists of two man-made harbours

DP World is the firm that has been managing and operating the port since 2009 in cooperation with EPAL and the Algiers Port Authority, a strategic partnership that witnessed many critical developments and significant advancements.

A splendid aerial view of the coastal capital of Algiers.

Shutterstock


PAUL HORSNELL

Latest oil market cycle different — based on supply issues

***Paul Horsnell** (pictured left), Head of Commodities Research, Global Research, at the Standard Chartered Bank, which has operated for over 150 years in some of the world's fastest-growing markets across Asia, Africa and the Middle East, recently answered questions put to him by the OPEC Bulletin's **Maureen MacNeill** for this month's Insight feature. Horsnell spoke on the latest international oil market cycle that brought shale oil into the global spotlight, as well as the changing role of banking institutions.*

I wanted to talk about uncertainties in both the level of oil supply and demand and that in fact uncertainty may be higher today than it has ever been in the past. Can you comment on that and give us your opinion on what you think the greater uncertainties are right now?

I am not certain there is any greater uncertainty on the demand side than there has been in the past. There has always been concern where we are in the macroeconomic cycle — is the United States economy weakening or strengthening. We actually think the US economy is weakening and the outlook is fairly weak on the demand side, but the greatest uncertainties are certainly still on the supply side. I would not say they are any greater than in the past, but it does matter when market management from the major producers is changing. In the past, we had some certainty that if the market imbalance got too big, producers would intervene in the short term and try to rebalance the market, whereas at least for the moment that rebalancing is taking on a different form. It relies on non-OPEC producers, the high-cost producers having to cut production. So, it is a different form of uncertainty, but perhaps the world itself has not changed that much.

You would not say that political uncertainty is greater than it has been in the past in terms of the producer countries?

I would not say so… I think taken over a broad, sort of 50-year horizon, we are not any more uncertain now. I think we could say there are greater uncertainties on a broader front, across more continents and across more issues. Again, I do not think the world is fundamentally more uncertain than it was before … just that there are different issues at stake.

You have talked a lot about shale production and the fact there is a lot of data from shale, maybe more than for other sources, but nevertheless it seems to be harder to predict. Can you maybe talk a little bit about that situation?

I think shale is just harder to predict because we have not done this before. We have not seen how shale production reacts to a downturn in the price cycle, how it reacts to the finances, how it reacts to changes in the business models of companies. It is just that it is new. It is not something

Paul Horsnell.

that there is any great data points on. So again, it is just new — a new element into the equation and something that will be well observed over time ... precisely how shale emerges. It is a learning process.

> "I do not think the world is fundamentally more uncertain than it was before ... just that there are different issues at stake."

Do you think shale oil will become more predictable over time?

That is the trouble with history, it changes again into another form of uncertainty, but I am sure over time, on that specific aspect, we will have a better idea as to how company behavior is affected through the price cycle. I think we are already getting a strong idea and we are seeing how it works through the credit cycle, how company finance matters. However, it is constantly changing and that is what makes it interesting.

You are a little more worried about the back end of the curve. How has this changed from ten years ago and what is your concern in this regard?

I think from ten years ago there was more volume at the back end of the curve. There were more banks involved then that were prepared to take propriety risk, so if somebody wanted to risk manage, wanted to hedge at the back of the curve they could find a bank that would be prepared to take the other side of that trade. Whereas now, there are fewer participants, the volumes are lower and what risks are hedged at the back of the curve almost have to be offlaid straight away, so the market sees it straight away. The price moves you get for hedging the same volumes are greater, so it is less useful as a risk management vehicle perhaps than it was eight years ago. That is partly down to changes in market participation, partly down to regulatory changes and partly due to changes in the industry and the nature of the risks that are being hedged.

The role of banks has also changed over time. Can you talk a bit about how their role has changed and how it is evolving right now?

There has certainly been a major change post-2008. There are two elements; the first is that the banks themselves have changed the way in which they look at risk. It is much harder for them to hold as much risk in commodity markets as they did before and part of that is a response to regulatory changes — regulators being unhappy with banks holding risks through propriety trading. And so you have seen a sharp withdrawal of some players from commodities trading altogether. Others have scaled back their involvement quite sharply and we can see that in the market the bid offer spreads, the difference between buying and selling prices, have widened out for quite a variety of risk management.

There was a time not that long ago when banks were not involved in trading at all. It is not that long ago that they became involved, correct?

The first of the moves, what were known as the Wall Street refiners, came into the market in the mid-1980s, but there have always been banks involved in the oil industry somewhere — from the financiers onwards. What happened in the 1980s is that banks came in to offer risk management to be able to allow people to modify their risk and as part of that they went on to trading activity. But we probably do not want to go back to the 1960s where we did not have trading and we did not have banks and did not have commodity traders involved.

Having a forward anchor to try and improve volatility seems to be important. Do you think that is a useful tool or something missing right now?

There was just a point of reference, where you thought that is where the long-term price should be. The back end had become very stable — the long run price was more or less going to be between $90 and $100/barrel. So that is what was called an anchor, I call it a cantilever. It was a point that provided strength to the rest of the curve because you could at least fix in one value. What has happened now is that the cantilever/anchor has been pulled out of the wall. The back end price has fallen very sharply — it is now $50 below where it used to be at $90 or $100/b, and it is still in motion, it is no longer that anchor. So, I think the point being made was without the consensus as to what is a correct long-term price. We now have volatility right along the whole curve. And part of the story of the next five years will be rebuilding that consensus as to what should be the right price if you are going to make long-term investment decisions. There should be more thinking — is $30 the right price, is it $50, was $90 the right price after all, or should it be $70? All of that is something that I think is going to come out over the next cycle.

There have been various cycles over time with prices rising and falling and so on. And each cycle has had its particular reasons and causes. Is there anything that makes this latest one unique?

I think it has been a little different because it is the first one that has not, either directly or indirectly, been set off by a major demand side shock. When you think through 1985–86, supply side factors were involved obviously, but it was also the result of four to five years of severe contractions in world demand, overseas demand being particularly weak. In 1998–99, it was all about the response of the market to the Asian financial crisis and weak demand conditions. In 2008, it was a catastrophic sudden collapse in demand that set that cycle in. This cycle has been a bit different because at least up to now it has not been about demand. Demand has been strong — demand has kept growing throughout the crisis, while normally demand has been falling because that has been the cause of a price fall. It is only now that people are starting to worry about demand, that maybe demand could get dragged in, maybe demand could cause low prices to be elongated.

So that is what is different — it has really been about supply. It started out as one form of supply and then another form of supply's response to the first form of supply and now we are on to the reiteration of the original supply's response to the secondary supply's response. So we are on to how shale producers will react to OPEC's reaction to what shale producers are doing. Up to now it has very much been a shale and OPEC story and that is what has made this one different — it is very much supply-based.

"We now have volatility right along the whole curve. And part of the story of the next five years will be rebuilding that consensus as to what should be the right price if you are going to make long-term investment decisions."

Global petroleum sector needs more female representation

Even though great strides have been made in promoting gender diversity, the international oil and gas industry is still struggling with exceptionally low female-to-male ratios when compared to other fields of work.

"Things have dramatically improved for women in the United Arab Emirates (UAE) in the past few years, driven principally by the strong and unwavering support of the country's leadership," commented Fatema Al Neaimi, Manager of the Gas Strategy and Master Planning Unit at the Abu Dhabi National Oil Company (ADNOC).

"However, we still have a long way to go as there are many challenges that need to be addressed, and these challenges are not just specific to this country or the region, but are global obstacles that the industry is facing every day."

Inspiring women

She continued: "They are also both physical and socio-psychological in nature — from creating supportive corporate infrastructures, to inspiring women to be a part of the industry's future developments."

Ms Al Neaimi joined other female achievers in marking Emirati Women's Day (August 28) by maintaining that workplace diversity was becoming more important than ever as the energy sector underwent a rapid transformation, and as gender balance increasingly emerged as a definitive factor in organizational success,

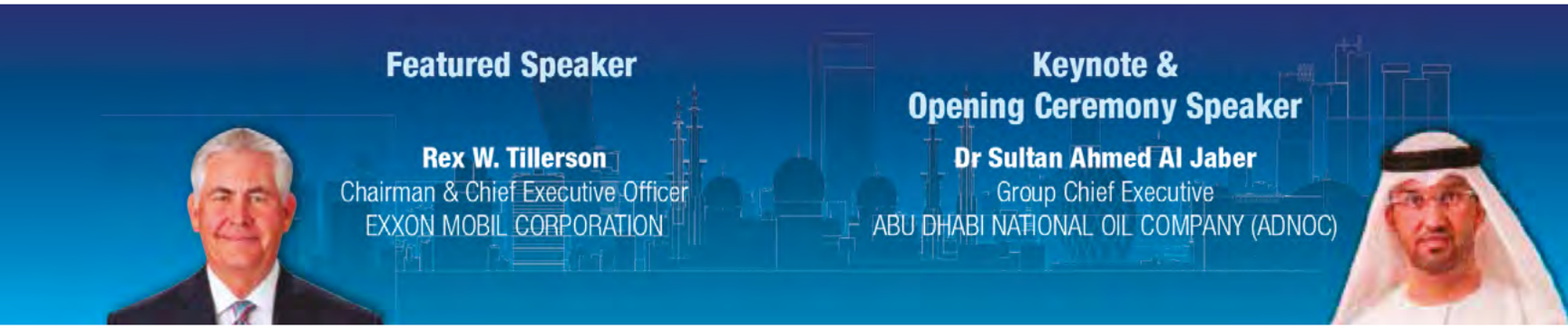
She was speaking ahead of the 'Women in Energy Conference' (formerly 'Women in Industry'), which will take place on day three of this year's Abu Dhabi International Petroleum Exhibition and Conference (ADIPEC) on November 7–10.

ADIPEC has grown to become one of the world's leading energy events and a global meeting place for oil and gas professionals. The 'Women in Energy Conference' has an established track record of raising an engaging and inspiring debate on the issues surrounding the role of women in the energy sector.

According to a report by the *Reuters* news service, the oil and gas industry has the lowest representation of female professionals among all employers. In addition, an analysis of United States energy companies by global advisory firm Korn Ferry found that women make up just six per cent of chief executive officer positions in energy.

From a global standpoint, professional networking site *LinkedIn* found that women make up just 26.7 per cent of all its oil and energy industry profiles. That is the lowest percentage among the industries examined. Healthcare had the largest percentage at about 59.8 per cent and tech came in at the middle at 30.6 per cent.

Experts maintain that today's new energy landscape, characterised by an evolving global energy mix and a strong focus on operational efficiency, presents women



ADIPEC أديبك
The Abu Dhabi International Petroleum Exhibition & Conference
7-10 November 2016

with numerous career opportunities and pathways to choose from.

Eileen Wilkinson, Vice President for Exploration in MENA at Shell, and a key participant in the 'Women in Energy Conference', highlighted the important value that women bring to the energy workforce.

"As a geologist, I am keen to play my part in addressing the tremendous challenges and opportunities that face our business and our industry — identifying the right mix of renewables and hydrocarbons which support local economies and societies.

"The truth is, in order to meet these demands on our shared energy future we do not just need all types of energy, we need diversity of thought," said affirmed.

Technical excellence

"In my career, I have seen diversity feed innovation across the Asia-Pacific, Europe and in the Middle East and I believe it is the key to sustained longevity of great companies.

"I want to inspire young women to come into the industry. Women have technical excellence, the ability to multitask and to think through complex problems," Ms Wilkinson professed.

Ms Al Neaimi contended that encouraging women to follow a career path in energy, retaining them, and cultivating their career growth, should be a community-wide effort.

"We need more of a grassroots effort, particularly when looking at the quality of education in the sciences," she said.

"We need to get involved from the early stages of a student's academic life. It is our responsibility as a community, from parents and schools, to universities and employers, to make the industry more attractive to our children.

"Members of the younger generation need better visibility of the opportunities available to them and a stronger understanding of the impact they will be making by joining the oil and gas industry," she added.

ADIPEC discussions

Held under the patronage of UAE President, Sheikh Khalifa Bin Zayed Al Nahyan, and organized by the Global Energy Division of dmg events, ADIPEC is regarded as a knowledge-sharing platform that enables industry experts to exchange ideas and information that shape the future of the energy sector.

The 19th edition of the event — ADIPEC 2016 — will be held at the Abu Dhabi National Exhibition Centre (ADNEC).

ADIPEC 2016 is supported by the UAE Ministry of Energy, ADNOC, the Abu Dhabi Chamber, and the Abu Dhabi Tourism & Culture Authority (TCA Abu Dhabi).

Islamic Republic continues to forge new partnerships ...

"Ground set" for expansion of Indonesia-Iran cooperation

The ground is set for the promotion of cooperation between Indonesia and Iran in the fields of oil, gas and petrochemicals, according to Dwi Soetjipto, President and Chief Executive Officer of the Indonesian state-owned oil and natural gas company, Pertamina.

Hassan Rouhani, Iranian President.

Speaking to reporters in the Iranian capital, Tehran, after signing a cooperation agreement with Iran's National Iranian Oil Company (NIOC), he was quoted by the *Shana* news service as saying that the post-sanctions era had paved the way for an increase in cooperation between the two OPEC Member Countries.

Up until January this year, Iran was under international economic and trade sanctions that stifled its performance and development for well over a decade.

Indonesia this year rejoined OPEC after an absence of some seven years. The south-east Asian country is keen to establish stronger ties with fellow Members of the Organization.

Referring to the impending arrival of the first Iranian liquefied petroleum gas (LPG) cargo to Indonesia, Soetjipto pointed out that Jakarta was keen to increase imports from Iran of LPG, as well as crude oil and petrochemical products.

He stressed that the removal of the sanctions had already led to an improvement of ties between Iran and the global community, adding that the Islamic Republic's decision to increase its oil and gas capability had provided lots of opportunities for enhancement of cooperation.

Pertamina, said Soetjipto, could carry out a great deal of investments in Iranian infrastructure projects, including refineries.

Pertamina and the NIOC signed a memorandum of understanding, under which the Indonesian state oil firm will conduct studies on two Iranian oil fields. The accord was inked by Soetjipto and the Managing Director of the NIOC, Ali Kardor.

According to Pertamina, the studies would cover the Iranian fields of Abteimour and Mansouri, which contain over five billion barrels of reserves, with a view towards future development.

It said it expected to get an additional production of 30,000 b/d from each block if it was allowed to acquire the concessions.

"Iran is one of our priorities," commented Soetjipto. "We are serious about upstream investments that will help Iran increase its production. "In addition, this is in line with the company's efforts to support national energy security."

Under the terms of the agreement, Pertamina will have six months to carry out a study and submit a preliminary proposal on the two onshore fields.

The statement said the NIOC would provide information and cooperate with Pertamina on setting up a joint working group. Both parties also agreed to look into other business opportunities.

During the signing ceremony, Kardor underlined the

significance of the agreement for enhancing knowledge transfer to Iran, adding that the venture would be the first direct cooperation between the NIOC and Pertamina.

"Iran's oil industry has been chiefly focused on knowledge transfer and now seeks interaction with international companies in the industry," he affirmed.

The NIOC head stated that the company needed to access the latest technologies for fulfilling its development goals, stressing that this was an important factor that international firms needed to take into account in their interactions with the company.

Pertamina and Iran also reached an agreement on the supply of 600,000 million tonnes of LPG covering 2016–17, with the first shipment of 44,000 mt due in September, and volumes rising after that.

According to the *Platts* news service, Pertamina is intensifying its efforts to acquire more oil and gas blocks to increase its production. It recently acquired 24.5 per cent of French company, Maurel & Prom, for about $222 million.

It noted that Pertamina had allocated $5.31 billion for capital expenditure this year, 72 per cent of it earmarked for the upstream sector. The company planned to spend $2bn on upstream mergers and acquisitions this year, from zero last year.

Gholamreza Manouchehri, Deputy Managing Director of the NIOC, said Iran was looking at building a refinery in Indonesia, in cooperation with China and the Indonesian private sector.

"The parties are currently studying the contract, which has now a bigger weight than a memorandum of understanding," he was quoted as saying by *Shana*.

Also speaking on the cooperation, Indonesia's Ambassador to Iran, Octavino Alimudin, told *Shana* that Indonesia would continue its talks with Iran in order to boost investment in the areas of upstream oil and the construction of refineries.

He said Iran and Indonesia enjoyed cordial ties and good cooperation in various fields.

Meanwhile, the Presidents of Iran, Russia and Azerbaijan have agreed to strengthen regional cooperation between the three countries in economics and politics, including in the energy sphere, with joint oil and gas developments seen as a priority.

During a summit in the Azeri capital, Baku, Iranian President, Hassan Rouhani, joined his counterparts from Russia and Azerbaijan — Vladimir Putin and Ilhan Aliyev — to sign a declaration covering the development of trilateral cooperation at different levels within "the entire spectrum of issues of mutual interest."

Aliyev, speaking at a joint news briefing ahead of the signing ceremony, stated: "This is a historic event."

According to a report by *Platts*, the accords cover joint activity in fighting terrorism and expanding economic, political and cultural cooperation, which also includes joint projects in the power and hydrocarbons sectors.

"In the energy sector, priority is seen in exploration and development of oil and gas fields, firstly in the Caspian region," Putin said in comments broadcast by Russia 24 TV.

"We are also ready to discuss mutually beneficial schemes for the joint usage of the pipeline infrastructure for the transportation of produced resources," he added.

Aliyev pointed out that Azerbaijan had already turned from an energy-importing country into an energy exporter with its energy-exporting potential still growing.

"I am confident that through joint efforts we can set up a stable energy corridor which can secure energy exchange between the three countries and [their] entry into new markets," he added.

Rouhani, in his comments, outlined the importance of the initiative to strengthen the relationships of the neighbouring countries, which was "of double importance" given the current political situation and geopolitical challenges.

"From Iran's view, cooperation with Russia and Azerbaijan will help develop existing potential in various spheres, but can also offer new possibilities to withstand challenges the region faces," *Platts* quoted him as saying.

Rouhani praised the cooperation his country had established with Russia, noting in particular Moscow's role in last year's P5+1 talks on lifting the sanctions imposed on Tehran over its nuclear programme, which could be viewed "as an example of good cooperation between the neighbours."

Separately, Russia and Iran have already agreed to intensify work to boost cooperation in energy.

The two countries have agreed to set up working groups to remove administrative and trading barriers and boost cooperation in various spheres, including in oil and gas, agriculture, and construction, Russia's Energy Minister Alexander Novak has been quoted as saying.

"The oil and gas sectors are a key direction of the cooperation between our countries which has high prospects now after the sanctions have been lifted," he noted.

"Iran is one of our priorities ... we are serious about upstream investments that will help Iran increase its production."

— Dwi Soetjipto, President & CEO, Pertamina

Novak said "practically all our companies" — including Gazprom, Gazprom Neft, Zarubezhneft, Lukoil, Tatneft — had expressed an interest in taking part in projects in Iran along the entire production chain from exploration to production and refining.

Algeria launches new economic model to help reduce deficit

The Algerian government has launched a new economic growth model for the country, aimed at lowering the nation's budget deficit against the current background of lower crude oil prices.

The comprehensive four-year model, debated and adopted by the OPEC Member Country's Council of Ministers towards the end of July, is based on a revised budget policy that features an improvement in ordinary taxation, the mobilization of additional financial resources, and the encouragement of higher added-value investment.

Deficit reduction

According to a special *communiqué* issued at the end of the Council of Ministers' meeting, the model's newly revised budget policy, backed by the improved taxation, was aimed, by fiscal 2019, at covering operating expenditures, as well as the irreducible expenditure of public infrastructure.

It pointed out that the new budget policy sought to bring about a "significant reduction" of the Treasury deficit by the end of the planned period, aided by the mobilization of additional local financial resources such as the bond issue, launched last April, whose results showed the participants' trust in the promising prospects of the national economy.

The *communiqué* pointed out that the new model aimed at encouraging public investment that would boost the country's production capacities, as well as encouraging higher added-value investments in the economic sectors of renewable energy sources, agro-industries, services, digital economy and the hydrocarbons and mining downstream industries.

The new economic growth model was drafted by national experts. It was initially debated at a tripartite (Government-Central Union-employers) meeting in June and then consolidated by the Government.

"The new economic growth model is based on a revised budget policy backed by the improvement of revenues from ordinary taxation," the Algerian Presidency said in a statement after the cabinet meeting, chaired by President Abdelaziz Bouteflika.

The President stressed in the meeting that officials should intensify efforts to inform public opinion on the difficult financial conditions facing the country, as well as the growth and employment prospects that Algeria was able to achieve in the medium term.

Speaking in Bajaia in August, Bouteflika said the economic reforms were an inevitable process that would open up the national economy to new prospects that were "in the best interests of our people who we want to protect from oil market fluctuations."

Many oil-dependent countries have been forced to make adjustments to their economies as a result of the prevailing low prices of international crude oil.

"For this purpose, we must build a diversified and competitive economy able to establish itself amidst other countries' economies," added the President.

In support of the economic effort, Algeria is looking to increase its gas production and output of liquid products over the next four to five years, according to Minister of Energy, Noureddine Boutarfa.

"We intend to increase gas production and liquid products by over 30 per cent by the year 2020," he announced.

However, speaking to reporters during a visit to the industrial area of Arzew, Oran, some 431 km west of the capital, Algiers, he pointed out that that the country must find new energy sources.

Still a long way to go

"We have a programme for the development of conventional and unconventional energies, yet we still have a long way to go," he stated.

Quoted by the *Algerian Press Services (APS),* Boutarfa underlined the need to accelerate the programme for the development of the two energies, through the production and exploitation of power plants.

In recent months, Algeria has boosted output at two of its major oil fields, including the Hassi Messaoud field.

Officials revealed that production at Hassi Messaoud, located 800 km south-east of Algiers, had risen to 470,000 barrels from 420,000 b. At the same time,

output at the Ourhoud oil field, situated around 1,100 km south-east of Algiers, had increased to 125,000 b from 100,000 b. The Ourhoud field is operated by Sonatrach and its associates Anadarko, Pertamina and Cepsa.

Algeria's President, Abdelaziz Bouteflika.

Crude output

Boutarfa disclosed that Algeria's current crude production stood at 1.2 million barrels/day. Some 97 per cent of Algeria's revenues are from hydrocarbon sales.

In June, during the presentation of the national petroleum company's balance sheet, Sonatrach forecast a 2.61 per cent increase in total oil and gas production to 196 million tonnes of oil equivalent this year from 191m toe in 2015.

Looking at the breakdown, the country's oil output was forecast to reach 69m toe in 2016, as against 67m toe last year.

At the same time, domestic gas production was slated to rise to 132.2 billion cubic metres in 2016 from 128.3 bcm in 2015 and 130.9 bcm in 2014.

The report said Sonatrach had invested to stabilize and increase production at its large, mature fields and expected to bring five new gas fields online in the south of the country over the next few years.

It forecast that gas output would reach 141.3 bcm in 2017, 143.9 bcm in 2018, 150 bcm in 2019 and 165 bcm in 2020.

Similarly, oil production would reach 75m toe in 2017, 75m toe in 2018, 77m toe in 2019 and 82m toe in 2020.

Reuters quoted Sonatrach as saying that Italy's Eni had almost doubled its imports of gas from Algeria to 11.5 bcm in 2015, compared with only 6.0 bcm in 2014.

Around 30 international companies are present in Algeria's oil and gas market, including Eni, Anadarko, BP, Cepsa, Shell, Statoil and Sinopec.

Concerning the country's economy, Algeria's gross domestic product (GDP) registered growth of 3.6 per cent in the first quarter of 2016, compared to the same period in 2015.

The National Office of Statistics told *APS* that this figure was achieved with the recovery of some activities in the hydrocarbon sector and a slowdown in agriculture.

Growth figures

Domestic non-hydrocarbons growth hit 3.8 per cent in the first three months of the year, as against 5.1 per cent in the same 2015 period, while outside agriculture went up by 3.5 per cent per cent in the first quarter.

The hydrocarbons sector recorded growth of 3.2 per cent in the first quarter, as against –1.9 per cent in the first three months of 2015, supported by developments in refining and liquefaction activities.

The country's industrial GDP growth was gauged at 5.0 per cent in the first three months, as against 6.1 per cent in the first quarter of 2015.

Pertamina looking to boost petroleum output by eight per cent in 2016

Pertamina, the state-owned energy company of Indonesia, the Southeast Asian country that rejoined OPEC earlier this year, is looking to boost its oil production in 2016, according to Syamsu Alam, the firm's Director of Upstream Operations.

A report carried by the *Platts* news service said output from both domestic and overseas assets this year would amount to an estimated 656,000 barrels/day of oil equivalent, up by 8.1 per cent over the 606,700 boe/d recorded in 2015.

He said the firm expected its crude and condensate production to increase by 12.5 per cent over 2015 — from 278,000 b/d to 313,000 b/d in 2016. Gas output was forecast to increase by 5.0 per cent to 1.99 billion cubic feet/day in 2016.

Optimistic on production

Figures show that Indonesia, Southeast Asia's biggest oil consumer, produced a total of 835,000 b/d of crude in the first quarter of 2016. The country had produced 786,000 b/d of crude in 2015.

Alam said Pertamina was looking to secure an annual increase of 8.0 per cent in its oil and gas output until 2025.

"We are very optimistic that our production will keep increasing, either from existing assets or through mergers and acquisitions," he was quoted as saying by *Platts*.

Indonesia's domestic crude and gas production was expected to rise 9.4 per cent year-on-year to 539,000 boe/d in 2016, mainly through higher output from the Banyu Urip field in the Cepu block, Alam disclosed.

Banyu Urip has hit its initial peak output of 165,000 b/d, according to data from the producer.

Platts observed that more than 15 years after ExxonMobil discovered the Banyu Urip oil field, Indonesia was finally reaping the benefits from it as crude production moved closer to peak levels, prompting the launch of exports of the low-sulphur grade into key Asian markets.

The Banyu Urip field, which was discovered in 2001, is estimated to contain approximately 450 million barrels of oil. Early production since 2008 mainly catered to the domestic market.

But despite the start of exports, a large proportion of Banyu Urip crude output, which now accounts for about 20 per cent of Indonesia's total crude production, is expected to still be used domestically to help reduce reliance on imports.

Meanwhile, output from Pertamina's overseas assets was estimated to increase by 3.0 per cent over last year to year 117,000 boe/d.

Pertamina holds a 45 per cent stake in the Cepu block. The block reached peak production of 165,000 b/d in March 2016 and output is expected to average 163,900 b/d in 2016, according to *S&P Global Platts*.

Pertamina has interests in three oil and gas blocks in Malaysia, Algeria and Iraq. It also bought ExxonMobil's ten per cent share in Iraq's West Qurna-1 block, which produces about 450,000 b/d and is expected to reach peak production of 1.6 million b/d in 2022.

Alam revealed that Pertamina had earmarked $5.31 billion for capital expenditure in 2016, with 72 per cent of the total allocated for upstream operations, 6.9 per cent for gas, 6.7 per cent for refining, 9.7 per cent for marketing and 4.7 per cent for the downstream sector.

Pertamina plans to invest around $1.5 bn in the Mahakam gas block in 2017. According to the company's Chief Executive Officer, Dwi Soetjipto, the firm would officially take over operation of the Mahakam block, Indonesia's biggest source of natural gas, in 2018 from French oil major Total and Japan's Inpex.

"Pertamina needs to start investing next year so that there is not a significant decline in production in 2018," he was quoted as telling reporters.

Agreement with Rosneft

In addition, Pertamina and Russia's Rosneft have signed a refinery agreement that is due to be supplemented by upstream accords.

The national energy company is looking to take ten per cent and 15 per cent stakes in two oil and gas blocks in Russia, respectively, expecting output of 35,000 b/d and 200 million barrels of reserves.

Indonesia is in the process of providing tanks for a strategic petroleum reserve. According to reports, it wants to have 30 days' worth of domestic supply in storage within the next five years. This would require some 45 million barrels.

Meanwhile, on the economic front, the country recorded growth of 5.18 per cent in the second quarter of this year, supported by higher commodity prices and stronger consumption.

Iran's new oil contract model soon to be in force

Iran's First Vice-President, Eshaq Jahangiri, has issued an executive order covering the application of the country's new oil contract, designed to attract foreign investors to the OPEC Member Country in the post sanctions period.

The framework of the new contract was previously endorsed by the Government and was sent to Parliament for its deliberation.

According to the *Shana* news service, Iranian Minister of Petroleum, Eng Bijan Namdar Zanganeh, had briefed parliament on the merits of the model. The Minister's address was positively endorsed by MPs who said they found it convincing.

Iran has devised the new model for oil and gas contracts to sweeten oil deals with foreign investors.

Gholam-Reza Manouchehri, Deputy Managing Director of the National Iranian Oil Company (NIOC), has announced that by the end of the current Iranian year (in March 2017), more than three contracts would be signed under the new scheme.

He said: "If everything goes well, by the end of the year we will sign two to three contracts based on the model. However, regarding the limited timespan left, not more than three contracts can be signed in this period."

Abdolreza Dabiri, Director of Production at the National Iranian South Oil Company (NISOC), maintained that the new oil contract method was a means method to attract new investment.

He told *Shana:* "Now that there is the possibility for international investment in the oil industry, we should use the chance. We should adopt the new model that can provide us with the opportunity." Up until this year, Iran was the subject of sweeping international economic and trade sanctions that have since been lifted.

Dabiri stressed that financial resources and access to the latest technology were the keys to the survival of the domestic oil industry. "Now we face financial restriction in the oil industry and the new model of oil contract should be advantageous enough for foreign investors to come in. On the other hand, the contracts should safeguard national interests and I suppose the contracts have been drafted within the same framework," he affirmed.

In explaining the workings of the new contract, Zanganeh said the main priority in its enforcement would be given to the development of joint fields and increasing the coefficient of recovery from the country's reserves.

He told Parliament that once the new model was implemented, a huge amount of activities being subject to the contracts would be entrusted to Iranian companies.

The Minister observed that by signing the new model contracts, the Iranian Ministry of Petroleum would win the possibility of using state-of-the-art technologies in the oil industry.

He said the most important difference between the new contract model and the former buyback deals was that if work stopped in the course of development of a field for whatever reason, there would be no payment as long as no production had come about.

The new model of oil contracts, sometimes referred to as the Iran Petroleum Contract (IPC), took two years to be devised by the Ministry and endorsed by the President Rouhani administration. Projects to be introduced under the IPC are hoped to meet a part of Iran's needs for developing its oil and gas industry.

Under the IPC, the NIOC will set up joint ventures for crude oil and gas production with international companies which will be paid with a share of the output.

In the wake of the nuclear deal reached in July 2015, Iran has been receiving high-ranking officials and corporate executives from major companies, including from Germany, Spain, Austria, Italy, and France, to discuss new cooperation ventures.

Zanganeh has said that Iran welcomes foreign investment in its energy industry, but stresses the need for technology transfer by foreign partners taking part in the new contracts.

The NIOC hopes to launch new upstream contracts within the next six or so months.

"After the approval of the IPC by the Cabinet, we will try to make the new model operational as a contract within six months," NIOC Managing Director, Ali Kardor, told state radio.

A final text for the IPC, which should take two forms—one for shared fields and another for higher-risk fields—could be ready by next March, the end of the current Iranian year.

Meanwhile, Iran's crude oil exports in July were estimated at more than 2.1 million barrels/ day, *Shana* cited a senior Iranian oil official as saying.

Mohsen Ghamsari, International Affairs Department Director at the NIOC, said the total amount of crude and gas condensate exports by Iran reached 2.74m b/d in July. Some 600,000 b/d out of this figure were condensate exports.

"Exports of crude are now at a good level but ... have not yet touched that of the pre-sanctions level," he said, adding that Iran used to export 2.35m b/d of crude per day before international sanctions were imposed some 12 years ago.

New Iraqi Minister urges oil firms to step up operations

Iraq's newly installed Oil Minister, Jabbar Ali Hussein Al-Luiebi, has urged local and international oil companies to boost crude oil production.

Speaking to reporters during a visit to the southern oil city of Basra, he pointed out that the Oil Ministry had new ambitious plans to develop the oil sector.

"Among them, the most important is to increase crude output to reach a level that suits Iraq's needs; we do not want to specify a ceiling for future production like in the past," he was quoted as saying by *Reuters*.

Al-Luiebi, a former Director General of the Iraqi state-owned South Oil Company, also stressed that his country was keen to play an active role in OPEC to support crude oil prices.

"We want to help strengthen OPEC's role in achieving a balance in the oil market and Iraq is seeking to play an active role in order to support oil prices, while preserving a market share that is proportionate to its reserves," the Minister affirmed.

He disclosed that Iraq's crude oil production currently stood at around 4.6 to 4.7 million barrels/day for the whole country, including the self-rule Kurdish region in northern Iraq.

Iraq was also formulizing plans to double its crude storage capacity at the country's southern export terminals to 24 million barrels in the "coming years" from 12m b currently.

Meanwhile, the *Reuters* report revealed that the Iraqi government had invited international oil companies to express interest in the country's plan to expand four of its refineries.

Oil ministry spokesman, Asim Jihad, announced that the government would consider investment offers on a build-own-operate or build-operate-transfer basis for the plants located in Kirkuk, in northern Iraq, and the southern regions of Samawa, Kut and Basra.

Meanwhile, according to a letter sent by Al-Luiebi in August to oil companies working in the country, Iraq was seeking to attain three main goals: to increase production; cut gas flaring and make available facilities to utilize associated gas; and make available projects and services to support reservoir pressure, or water injection.

The letter, quoted by the *Platts* news service, acknowledged the impact that the low oil price environment over the past two years had created, including the requirement to reduce spending. But in essence it conveyed a message that the more foreign oil companies produced, the more money the state would have with which to pay.

In an interview with *Platts*, Al-Luiebi maintained that the country was opening "a new page" of good cooperation with international oil companies based on mutual interest between Iraq and the firms.

But he explained that when the Oil Ministry concluded contract negotiations with a number of international oil companies in 2010, with the aim of increasing oil production from some of Iraq's biggest oil fields, mostly located in the south of the country, market conditions were very different from those of today.

"The price of a barrel of oil was exceeding $100 then. Now it went down to about 65 per cent less. There should be a new formula of work," he observed.

Al-Luiebi said the Ministry was still looking to revise its upstream contracts with the companies. "We will introduce some sort of modifications on some clauses of the contract and that will revise the work and push the work forward and not affect us or the IOCs, in terms of finances, in terms of technical or in terms of other requirements," he said.

The Minister was quoted by *Platts* as saying that "a top priority" would be to push forward with long-delayed legislation that would effectively defuse the multiple ongoing disputes that were hampering growth in Iraqi oil production.

That, he said, would involve passing a new federal oil law to determine contractual and development rights to Iraq's hydrocarbon reserves, re-establishing a national oil company and creating a national gas company.

"We will work very hard with parliament and government establishments to push the federal oil and gas law, and this will help the industry to move forward," he affirmed.

Ultimately, Iraq could do more if it had more money, and the price of oil is something Iraq alone cannot fix.

Oil price uncertainty prompts Nigeria to adopt conservative budget

The Nigerian government has adopted a conservative national budget for 2017 in view of the continuing uncertainty over the future direction of international crude oil prices.

The budget contained in the three-year expenditure plan covering the period 2017–19 was approved by the cabinet at a meeting chaired by the country's President, Muhammadu Buhari.

For 2017, Nigeria is assuming an oil export price of $42.5/barrel around targeted average crude oil output of 2.2 million barrels/day.

"The government is being very conservative in terms of the reference price of its crude oil, even though we are expecting it to go higher than this. But we are keeping to an extremely conservative price scenario," Budget Minister, Udo Udoma, was quoted as saying by state television.

Muhammadu Buhari, President of Nigeria.

Oil production down

For its 2016 budget, the OPEC Member Country has a price benchmark of $38/b, coupled with the same 2.2m b/d output figure.

However, due to domestic difficulties this year and last, the country has seen its production fall considerably from the figure expected.

Looking at recent months, in May this year Nigeria's total domestic crude oil output stood at 1.51m b/d. It then fell to 1.38m b/d in June, but recovered to 1.53m b/d in July, according to figures supplied directly by the country to the OPEC Secretariat in Vienna.

For the second quarter of 2016, the country's crude oil production stood at an average of 1.48m b/d, compared with 1.67m b/d in the first three months of the year. In 2015, the country's crude oil output averaged 1.87m b/d.

The *Platts* news service quoted Udomo as explaining that the government was retaining this year's oil production estimate of 2.2m b/d for 2017 on hopes the security situation that had resulted in constrained domestic crude oil output would "soon be resolved".

His comments were backed by Nigerian Minister of State for Petroleum Resources, Dr Emmanuel Ibe Kachikwu, who said the country had been facing a difficult period that was likely to take some time to solve.

"I am hoping that over the next one to two months we will find some final solution that will bring production up. But once we have done that the reality is that we have lost quite a lot of months," he stated.

Speaking earlier at a forum in Abuja, Udomo noted that under the budgetary projections a significant rise in non-oil revenue receipts was expected over the three-year period as the economy gradually improved and tax collection increased.

Currency assumptions for 2017–19 were for a steady naira/US dollar rate of 290. That compared with the current rate of around 313.

Nigeria budgeted for expenditure of 6.06 trillion naira ($19.64 billion) in 2016, of which, disclosed Udomo, 2.123tr naira had already been allocated.

Udoma said value-added tax receipts were expected to rise considerably by around 42 per cent in 2017.

Qatargas signs lucrative LNG accord with Centrica

Qatargas, the largest producer of liquefied natural gas (LNG) in the world, has reached a lucrative sales and purchase agreement with Centrica plc, the largest supplier of gas to households in the United Kingdom.

Centrica has entered into a new five-year supply agreement with Qatargas for the purchase of up to two million tonnes per annum of liquefied natural gas (LNG).

The new LNG contract will start in January 2019, following the expiry of Centrica's existing contract with Qatargas at the end of December 2018.

Centrica pointed out on its website that with the decline in North Sea production and the recent growth in global LNG supply, the UK was increasingly becoming an attractive destination for LNG.

The Navigation Tower, headquarters of Qatargas in Doha, Qatar.

Reuters

Centrica Group Chief Executive, Iain Conn, said: "I am very pleased to extend our longstanding supply relationship with the world's biggest LNG producer and our partner, Qatargas.

"Centrica continues to develop its presence in the global market. The scale of our gas demand and our strong energy marketing and trading capabilities mean we are ideally-placed to work with LNG producers across the world, providing flexibility and a route to market at a time when secure market access is increasingly important."

Saad Sherida Al-Kaabi, Qatar Petroleum President and Chief Executive Officer and Chairman of the Qatargas Board of Directors, said the company was delighted to extend its strong relationship with Centrica and the UK.

"This agreement underscores Qatargas' reputation as a safe and reliable supplier of LNG. Furthermore, this agreement has the potential to positively contribute to the UK's energy security for years to come," he maintained.

Commenting on the newly signed deal, Khalid Bin Khalifa Al-Thani, Chief Executive Officer of Qatargas, said: "Qatargas is pleased to lengthen its existing partnership with Centrica — a partnership which dates back to 2011. This new agreement reinforces Qatargas' commitment to building a strong relationship with customers and our position as the leading supplier of LNG to the UK."

Centrica initially entered into a three-year gas supply contract with Qatargas from June 2011. It then entered into a further four-and-a-half-year contract, which commenced upon expiry of the previous contract in June 2014 and runs until December 2018.

The LNG will be supplied from Qatargas 4, a joint venture between Qatar Petroleum (70 per cent) and Shell (30 per cent), with a production capacity of 7.8 million tonnes per annum. Qatargas operates a total annual production capacity of 42m tpa.

The Qatargas-chartered Q-Flex and Q-Max LNG vessels will deliver the LNG to the Isle of Grain Terminal in the UK.

Centrica is a leading international energy and services company, supplying approximately 28 million customer accounts mainly in the Uk, Ireland and North America.

The move follows an agreement by Qatargas in June to supply 1.3m tpa of LNG to Pakistan for 20 years, with provisions to raise the volume to 2.3m tpa.

In this regard, Qatargas has entered into a long-term sales and purchase agreement with Global Energy Infrastructure (GEIL). The LNG will be supplied from Qatargas 2, the world's first fully integrated LNG value chain venture, with the first cargo slated to be delivered to Pakistan in 2018 by Qatargas-chartered Q-Flex vessels.

"We are proud to support countries in their desire to enhance their energy security. This new agreement reinforces our confidence in Pakistan as an energy market and in its potential," Qatargas' Al-Kaabi said at the time of the signing.

He stressed that Qatar, as the world's largest exporter of LNG, had been able to achieve its strategic objective to diversify its export base to include major gas markets and to be a leader in the supply of a clean energy source that would help reduce greenhouse gas emissions and protect the environment.

UAE to be one of best performing GCC economies in coming years

The United Arab Emirates (UAE) economy is expected to start a recovery in 2017–18 on the country's strong balance sheet, but is likely to record its slowest growth since 2010 this year, Capital Economics said in its latest UAE forecast.

"The UAE has been more proactive in terms of economic diversification than other Gulf Cooperation Council (GCC) member states and is, therefore, expected to cope relatively well with a prolonged period of low oil prices and to be one of the Gulf's best-performing economies in the coming years," said Capital Economics.

It observed that despite low crude oil prices, the UAE's economy held up well last year with its gross domestic product (GDP) growth expanding to 3.8 per cent from 3.1 per cent in 2014 — helped by strong growth in the oil sector.

The non-oil economy, on the other hand, recorded its weakest growth in five years. "This was largely due to fiscal tightening — fuel prices were deregulated last year and electricity and fuel prices were hiked, while Abu Dhabi cut spending by 20 per cent," it said.

Fiscal tightening

The report noted that as fiscal tightening continued throughout 2016 and the boost from oil declined, growth would fall to two per cent by the end of the year.

According to Capital Economics' second quarter 2016 Middle East Outlook, the average GDP growth for countries in the region would be just 1.3 per cent. However, institutions, including the International Monetary Fund (IMF) and the International Institute of Finance, have predicted the UAE can expect growth of up to three per cent.

The IMF said recently that the growth of the UAE's non-oil sector was expected to increase above four per cent in the medium term, thanks to a recovery in the oil price and a pick-up in private investment in the run-up to Expo 2020 and a host of other factors.

A view of Abu Dhabi, UAE.

"Economic activity is expected to moderate further in 2016, before improving over the medium term. Over the medium-term, non-hydrocarbons growth is forecast to increase to above four per cent as the dampening effect of fiscal consolidation is offset by improvements in economic sentiment and financial conditions as oil prices rise, a pick-up in private investment in the run-up to the Expo 2020 and stronger external demand," the IMF executive board said in an assessment note of the country's economy.

It welcomed the UAE's resilience to the oil price shock, commending the OPEC Member Country's authorities for prudent policies which had helped build large fiscal and external buffers and strengthened the economy.

The IMF said persistent lower oil prices continued to pose challenges. It underscored the need for sustained sound macroeconomic policies to reduce fiscal vulnerabilities, safeguard financial stability and promote long-term growth.

The Fund welcomed the UAE authorities' commitment to pursue fiscal consolidation. For the near-term, in the light of the ample buffers, it generally considered a gradual adjustment effort to be appropriate in order to minimise the negative impact on growth.

However, it pointed out that stronger fiscal consolidation would be needed over the medium term to ensure intergenerational equity.

Improve business environment

The IMF executive board also called on the UAE to ease restrictions on foreign direct investment (FDI) in the new investment law and spur competition, urging continued action to increase productivity and foster competitiveness.

"Efforts should continue to improve the business environment, ease restrictions on FDI in the new investment law and spur competition. In addition, priority should be given to upgrading the quality of education, promoting innovation and entrepreneurship, and facilitating SMEs' and start-ups' access to finance," the IMF said.

Meanwhile, the strong performance of the UAE's non-oil private sector recorded at the start of the third quarter of 2016 was largely maintained in August.

According to regional banking group, Emirates NBD, business conditions improved solidly, supported by sharp rises in output and new work.

A survey of the country's non-oil private sector, sponsored by Emirates NBD and produced by IHS Markit, showed that the respective rates of expansion held broadly steady following July's highs.

It noted that the health of the non-oil sector was reflected by further growth of employment and purchasing activity, with the latter improving to a nine-month high.

Output expanding

"The slight decline in the August Purchasing Managers' Index (PMI) reading is not unexpected given the strong July number. Output and employment appeared to be the main reasons for the slower rate of expansion last month, coming off the highs posted in July.

"However, output continues to expand at a relatively fast pace and new order growth is also robust. The PMI data is consistent with our view of slower but solid economic growth in the UAE in 2016," Khatija Haque, head of Mena Research at Emirates NBD, was quoted as saying by the *Khaleej Times*.

After having risen to a ten-month high of 55.3 in July, the headline seasonally adjusted Emirates NBD PMI signalled another month of solid growth for the UAE in August. At 54.7, the index was down fractionally but still above the overall series average of 54.5.

Notably, the latest improvement in business conditions was stronger than those seen during the first half of the year.

The report disclosed that underpinning the growth of the non-oil private sector as a whole were sharp expansions of output and new work. As well as raising output to help with ongoing projects, figures were buoyed by successful marketing and a general improvement in client demand.

The rise in total new work was centred on the domestic market, latest data showed. New export business fell for the second month in a row and the fourth time since March. That said, the rate of decline was only modest.

Job creation was meanwhile recorded for the fourth successive month in August. The rate of hiring was only slight, however, having slowed from July's high.

Reflective of new business gains and higher output requirements, purchasing activity increased in August. Moreover, the rate of expansion quickened to a nine-month high. This contributed in turn to a rise in stocks of inputs. Firms also commented on raising stocks in anticipation of future improvements in demand.

OPEC saddened at news of Robert Mabro's passing away

The OPEC Secretariat was deeply saddened to hear about the passing away of Prof Robert Mabro, one of the international energy sector's most respected academics and "a dear friend of OPEC".

Mabro, 81, passed away on July 26, 2016, while on holiday on the Greek island of Crete, according to the Oxford Institute for Energy Studies, the think-tank he founded in 1982 and was Director of for more than 20 years.

"He was an eminent scholar, a distinguished pillar in the oil and gas industry and a personal friend," commented OPEC's new Secretary General, Mohammad Sanusi Barkindo.

He said the Organization, in particular, had lost a dear friend. "Prof Mabro was a strong believer in the role of OPEC in ensuring security of supply to the market in a stable manner. He was also a strong advocate of cooperation between the industry's main parties.

"It was, therefore, a great honour for us at OPEC when he won the Organization's first prestigious Award for Research that was launched in 2004," noted Barkindo.

Mabro, an Emeritus Fellow of St Anthony's College, Oxford University, and a Fellow of St Catherine's College, Oxford, worked tirelessly throughout his career and through the institutions he set up to bring oil producers and also producers and consumers closer together.

He faced many challenges but remained undaunted in his work. He was always close to oil market and OPEC affairs. In 1986, when the price of crude oil fell below $10/barrel, Mabro structured meetings between OPEC and non-OPEC producers as a means of restoring oil stability.

And, in 1998, he was again instrumental in helping OPEC and non-OPEC producers reach an agreement that helped reestablish market order during the Asian financial crisis.

"It was a difficult time and his unquestionable skills of mediation helped us find a solution," observed Barkindo.

Mabro, in a paper released at the time, said: "Changes in policy are always possible, even likely, when significant revenue losses are at stake."

He also proved to be a firm supporter of the Riyadh-based International Energy Forum (IEF), which brings oil producers and consumers together under one umbrella.

Robert Emile Mabro was born in Alexandria, Egypt, in December 1934. With degrees in Civil Engineering and Economics, he began his academic career at the School of Oriental and African Studies at London University. In 1969, he took up a position at Oxford University as Senior Research Officer in the Economics of the Middle East.

His interest in oil began in earnest in 1972 when he helped pen a paper on 'Oil Producers and Consumers: Conflict or Cooperation'. Four years later, he helped found the Oxford Energy Policy Club.

Mabro then went on to establish the Oxford Energy Seminar in 1979, followed by the Oxford Institute for Energy Studies, of which he was made Honorary President in 2006.

Throughout his career he received numerous awards for his outstanding contributions to energy and energy economics.

In December 1995, Mabro was honored by Queen Elizabeth when she made him a Commander of the British Empire. Two years later, the medal of the Mexican Order of Aguila Azteca was bestowed on him by the country's President. And in 2000, the President of Venezuela awarded him the medal of Francisco Miranda.

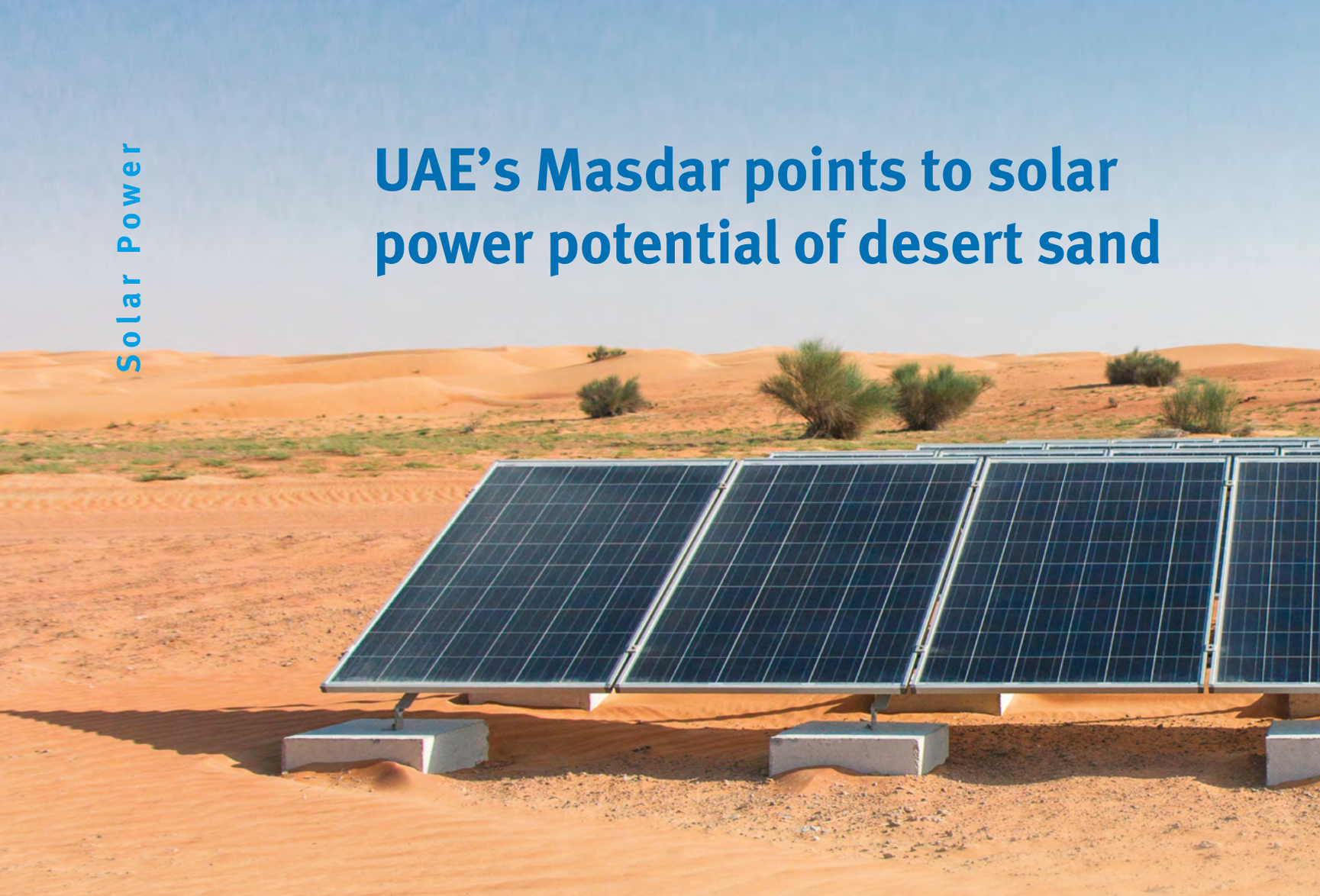
Mabro received his OPEC Award for Research at the Second OPEC International Seminar, which was held in Vienna, in September 2004.

His various publications include 13 books and monographs and an extensive range of papers and articles in journals. His most recent book *'Oil markets and prices: the Brent Market and the formation of world oil prices'* was completed with fellow research associate, Paul Horsnell.

The OPEC Secretariat would like to extend its deepest sympathy and condolences to his wife, Judith, and their two daughters.

Professor Robert Mabro receives his award for Research at the OPEC Seminar in 2004 from Dr Purnomo Yusgiantoro, then OPEC Secretary General.

UAE's Masdar points to solar power potential of desert sand



Researchers at the Masdar Institute of Science and Technology in the United Arab Emirates (UAE) have successfully demonstrated that desert sand from the OPEC Member Country could be used in concentrated solar power (CSP) facilities to store thermal energy up to 1,000°C.

The research project called 'Sandstock' has been seeking to develop a sustainable and low-cost gravity-fed solar receiver and storage system, using sand particles as the heat collector, heat transfer and thermal energy storage media.

The Institute, an independent, research-driven graduate-level university focused on advanced energy and sustainable technologies, has now revealed that desert sand from the UAE could be considered a possible thermal energy storage (TES) material.

It said that its thermal stability, specific heat capacity, and tendency to agglomerate have been studied at high temperatures.

"The research success of the Sandstock project illustrates the strength of our research and its local relevance. With the launch of the Masdar Institute Solar Platform (MISP) in November, we have further broadened the scope of our solar energy research and we believe more success will follow in the months ahead," Dr Behjat Al Yousuf, Interim Provost at the Institute, commented.

Research paper findings

A research paper on the findings developed under the guidance of Dr Nicolas Calvet, Assistant Professor, Department of Mechanical and Materials Engineering, was presented by PhD student Miguel Diago at the 21st Solar Power and Chemical Energy Systems (SolarPACES 2015) Conference in South Africa.

The paper was co-authored by alumni Alberto Crespo Iniesta, Dr Thomas Delclos, Dr Tariq Shamim, Professor of Mechanical and Materials Engineering at Masdar Institute, and Dr Audrey Soum-Glaude (French National Centre for Scientific Research PROMES CNRS Laboratory).

Shutterstock

The Institute observed that replacing the typical heat storage materials used in TES systems — synthetic oil and molten salts — with inexpensive sand could increase plant efficiency due to the increased working temperature of the storage material and therefore reduce costs.

A TES system based on such a local and natural material like sand also represented a new sustainable energy approach that was relevant for the economic development of the future energy systems of Abu Dhabi, the UAE capital.

The analyses showed that it was possible to use desert sand as a TES material up to 800–1,000°C.

The Institute noted that the sand chemical composition had been analyzed with X-ray fluorescence (XRF) and X-ray diffraction (XRD) techniques, which revealed the dominance of quartz and carbonate materials. The sand's radiant energy reflectiveness was also measured before and after a thermal cycle, as it may be possible to use the desert sand not only as a TES material but also as a direct solar absorber under concentrated solar flux.

Dr Calvet said: "The availability of this material in desert environments such as the UAE allows for significant cost reductions in novel CSP plants, which may use it both as TES material and a solar absorber. The success of the Sandstock project reflects that usability and practical benefits of the UAE desert sand."

The Institute pointed out that in parallel to sand characterization, a laboratory scale prototype was tested with a small solar furnace at the laboratory of PROMES CNRS 1 MW solar furnace in Odeillo, France. Masdar Institute alumnus Alberto Crespo Iniesta was in charge of the design, construction, and experiment.

Masdar said the next step of the project was to test an improved prototype at the pre-commercial scale at the MISP using the beam down concentrator, potentially in collaboration with an industrial partner.

Masdar is an Abu Dhabi-based multi-faceted initiative mandated to advance the development, commercialization and deployment of renewable and alternative energy technologies and solutions.

Abu Dhabi rolls out red carpet for *Solar Impulse 2*

Solar-powered aircraft soars to unique world first

Solar Impulse 2 made history in July after it became the first ever aircraft to circumnavigate the Earth under the power of the sun's rays.

After an epic 16-month journey, the iconic plane returned to Abu Dhabi, the city where its adventure began in March last year, making the unique event also a special achievement for the United Arab Emirates (UAE) and its capital city, which has supported the solar effort from day one.

The aircraft's arrival at Al Bateen Executive Airport in Abu Dhabi on July 26 marked the triumphant conclusion of a voyage that took in 16 stops around the world, including a number of countries where the investment of Abu Dhabi's renewable energy company, Masdar, is already pushing the boundaries of clean technology, extending access to sustainable energy and reducing carbon emissions.

Masdar is the official host partner of Solar Impulse 2.

The aircraft first took off from Abu Dhabi on March 9, 2015, beginning a journey of about 40,000 km and some 500 hours of flying time, cruising at altitudes of up to 9,000 metres and at an average speed of between 45km/h and 90km/h.

Solar Impulse initiator, Bertrand Piccard, who piloted the aircraft on the last leg of its round-the-world trip from Cairo, said in a statement that more than an achievement in the history of aviation, Solar Impulse 2 had made history in energy.

"Solar Impulse 2 has demonstrated that modern clean technologies can achieve things that were considered impossible a few years ago. Our mission now is to continue to motivate people, corporations and governments to use these same solutions on the ground wherever they make sense — for mobility, construction, lighting, heating, cooling and other uses — to improve the quality of life on Earth.

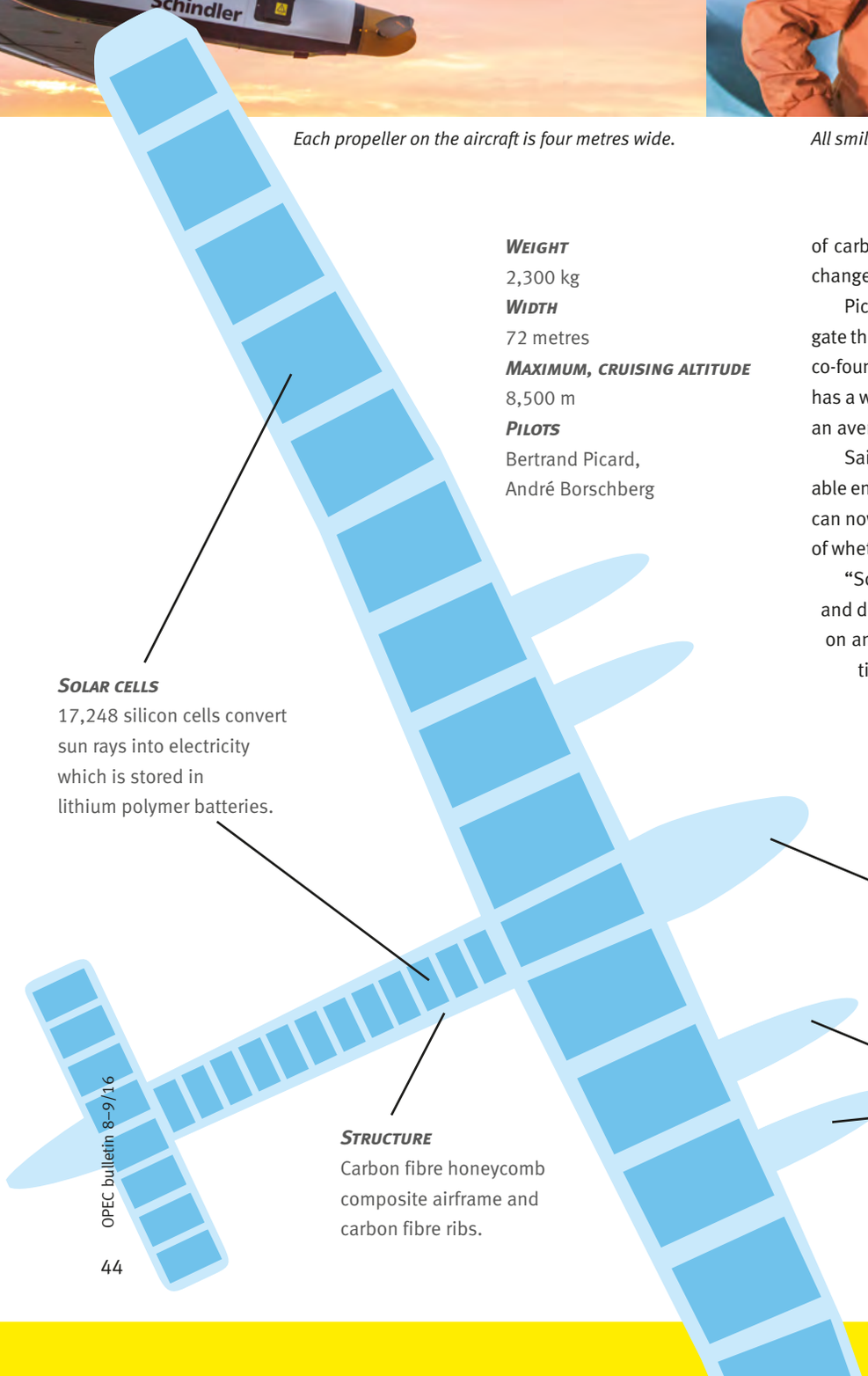
"I am sure that within the next ten years we will see electric airplanes carrying 50 passengers on short- to medium-haul flights," he told a large crowd after the landing.

He pointed out that the technologies used on Solar Impulse 2 could be used on the ground in daily life to halve emissions

Each propeller on the aircraft is four metres wide.

All smiles from pilots Bertrand Picard and André Borschberg.

Weight
2,300 kg
Width
72 metres
Maximum, cruising altitude
8,500 m
Pilots
Bertrand Picard,
André Borschberg



Solar cells
17,248 silicon cells convert sun rays into electricity which is stored in lithium polymer batteries.

Structure
Carbon fibre honeycomb composite airframe and carbon fibre ribs.

Cockpit
— One pilot.
— Thermal insulation as heating.

Thrust
— Four metre-wide propellers.
— 17.4-horsepower motor.

of carbon dioxide, the main greenhouse gas blamed for climate change.

Piccard, who in 1999 became the first person to circumnavigate the globe non-stop in a hot air balloon, and Andre Borschberg, co-founder of the project, took turns piloting Solar Impulse 2, which has a wingspan larger than a Boeing 747 but weighs no more than an average family car.

Said Borschberg: "By flying around the world, thanks to renewable energy and clean technologies, we have demonstrated that we can now make our world more energy-efficient. It is not a question of whether it is possible — it is only a question of implementation.

"Solar Impulse 2 is like a flying smart grid: producing, storing and distributing energy in an efficient way. If we can make it work on an airplane, we can make it work in our cities and communities," he affirmed.

The propeller-driven aircraft's four engines are powered by energy collected from more than 17,000 solar cells built into the wings. Excess energy is stored in batteries.

The unheated cockpit only has room for one person.

Solar Impulse is fitted with over 17,000 silicon cells.

Piccard stressed that, for the two pilots, landing back where they had started was only the beginning of the continuation of a longer journey. Aside from continuing to promote renewable energy, they planned to launch an international council to advise governments and develop new applications for clean energy technology.

The extraordinary feat of Solar Impulse 2 and its team attracted many comments from high-ranking officials.

Sheikh Mohamed bin Zayed Al Nahyan, Crown Prince of Abu Dhabi and Deputy Supreme Commander of the UAE Armed Forces, said a bright page of innovation had been written with the success of the Solar Impulse 2 journey around the world.

He wrote on his Twitter account: "Congratulations to the crew. We hope the success of Solar Impulse 2 helps to deliver Abu Dhabi's message about the need to invest in clean energy and encourage innovation."

He added: "Masdar will always motivate innovation; Solar Impulse's arrival at Abu Dhabi is not the end. It is a new beginning (that will lead) towards more achievements."

Meanwhile, Vice President and Prime Minister and Ruler of Dubai, Sheikh Mohammed bin Rashid Al Maktoum, highlighted the fact that the aircraft had returned to Abu Dhabi after its round-the-world flight without using a single drop of fuel.

He added that the journey — from and to Abu Dhabi — opened vital new applications for renewable energy in all walks of life.

Sheikh Mohammed wrote on his official Twitter account: "Abu Dhabi, capital of the UAE and home to the International Renewable Energy Agency (IRENA), stands as a global pioneer in renewable energy."

In addition, Sheikh Hamdan bin Zayed Al Nahyan, the Ruler's Representative in the Western Region, said in a statement that the landmark return of Solar Impulse 2 to Abu Dhabi served as an important message to future generations that it was high time to think differently and that humanity was capable of inducing change.

"We need to make innovation and sustainability part of daily life and the foundation on which the future will be built," he maintained. "The historic journey is a gateway to the future that counts on widespread sustainable use of clean renewable technologies to improve quality of life across the globe."

Success of partnership and collaboration

Concerning the UAE's support of the ground-breaking flight, Dr Sultan bin Ahmad Sultan Al Jaber, UAE Minister of State and Chairman of Masdar, stressed that Abu Dhabi's support of the cooperative venture between the UAE and Switzerland, sent a positive message about the success of partnership and collaboration.

Quoted by *Gulf News,* he said: "The partnership that brought Solar Impulse 2 to life showed us that what unites humanity is more powerful than what divides us."

He pointed out that at a time when the world could benefit from a positive message of hope and unity, the first solar-powered flight around the globe had "captured our collective imagination."

He continued: "While media attention is too often focused on conflict and division, it is inspiring to see a success story go viral that exemplifies what can be accomplished when we put our positive energy into partnership and collaboration, so that together we can create a brighter and happier tomorrow."

Al Jaber noted that few thought the Solar Impulse 2 odyssey would come to fruition.

"When the Solar Impulse team first looked for partners in their ambitious venture, many experts, including big players in the

Hearty congratulations from the Solar Impulse ground team that made the mission possible.

aviation industry, deemed their craft too light and too big to control," he explained.

"But the UAE leadership, Abu Dhabi, and Masdar, along with other strategic partners, backed the Swiss adventurers' vision and together they proved that, if you dare, the impossible can become the achievable."

Al Jaber highlighted that the UAE had long been a catalyst encouraging breakthrough innovations that advanced human progress, particularly in the area of energy and clean technology.

Masdar, he informed, was established to push the boundaries of thinking around sustainability. "The collaboration with Solar Impulse is the latest example of the UAE's commitment to continuing to raise the bar of what's possible still higher … Abu Dhabi was the natural partner to act as the start and end point of this feat of jaw-dropping ingenuity.

"Flying in a single seat, unpressurised cockpit at altitudes nearing 30,000 ft was a test of unprecedented bravery and endurance."

He noted that when Andre Borschberg flew the five-day leg from Japan to Hawaii, the longest continuous flight in aviation history, he stayed awake throughout, except for 20-minute naps, and keeping alert the rest of the time through meditation, self-hypnosis and sheer strength of will.

From the drawing board to reality

Al Jaber said the effort that helped take Solar Impulse from the drawing board to reality represented the very best of what can be achieved when people unite around a single purpose.

"With the wingspan of a 747 and the weight of a car, Solar Impulse 2 is a proof of concept not just of the harnessed power of the sun, but the transformative impact of light, composite materials

Around the world in 35,000 km, starting from Abu Dhabi

The aircraft has a wingspan larger than a Boeing 747.

Bertrand Picard and André Borschberg and the first Solar Impulse model.

and efficient design that aligns perfectly with the UAE s drive to integrate clean technologies and renewables into a diversified global energy mix," he professed.

He observed that everywhere Solar Impulse 2 stopped along its historic route — from the Middle East to the continents of Asia, North America, Europe and Africa — it was met with admiration and awe.

"It expanded our conception of what is possible, pushed back the limits of our imagination and inspired us to dream even bigger than before.

"The UAE's support of Solar Impulse illustrates our approach to being a global citizen committed to addressing global issues, and our willingness to take intelligent risks and to challenge conventional wisdom.

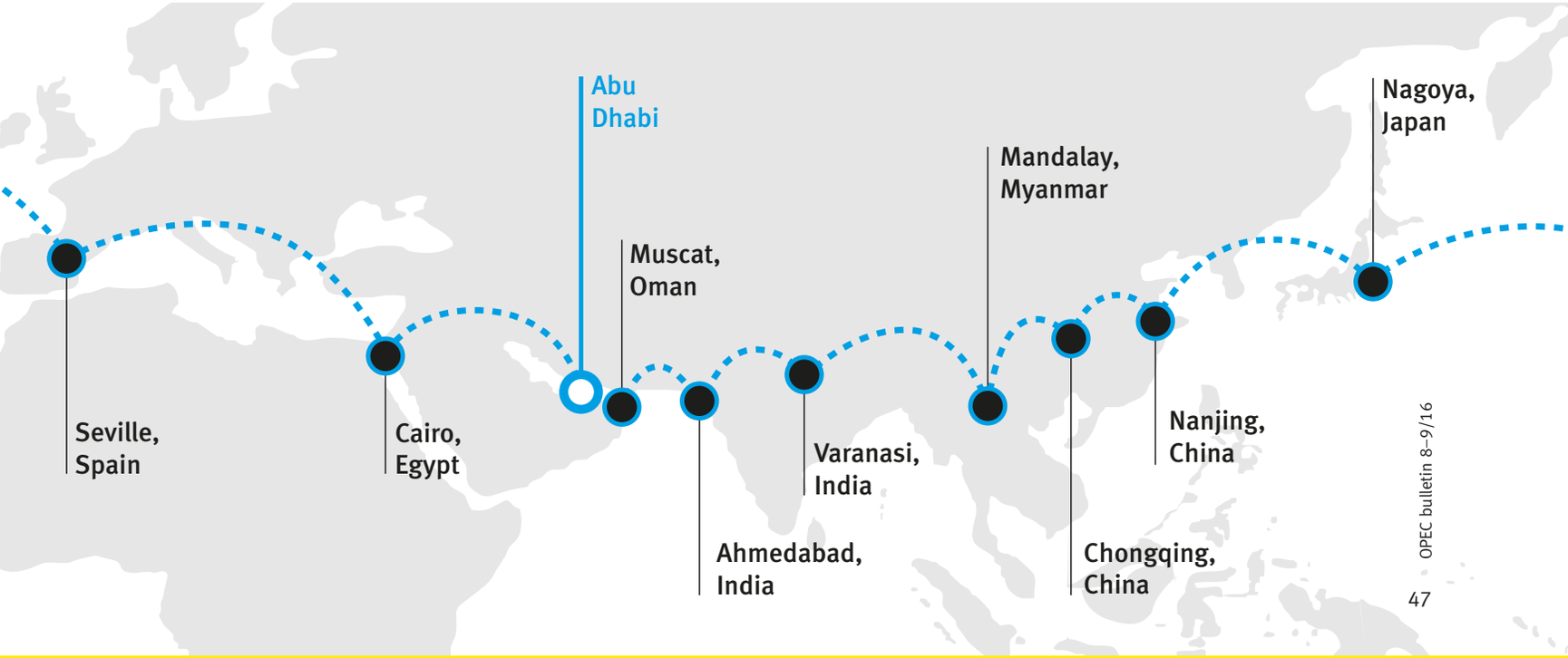
"At a time when the differences between people are too often magnified, the partnership that brought Solar Impulse to life showed us that what unites humanity is more powerful than what divides us.

"When the world needs answers to ever more complex problems, it proved that amazing things can happen when people come together to overcome obstacles and that collaboration is the key to making strides for humankind," stated Al Jaber.

He concluded in his statement that the UAE was proud to be a value-added partner to the Solar Impulse project and Abu Dhabi was honoured to have played a key role as its host city.

"Along with Masdar and IRENA, the Solar Impulse partnership is a concrete expression of our robust commitment to sustainable development ... while the historic flight may be over, the UAE s commitment and drive towards helping find solutions to global challenges will continue without pause," he added.

It took 12 years for Borschberg and Piccard to finally be in a position to make the flight. And the two pilots needed to have extreme



L–r: Dr Sultan bin Ahmad Sultan Al Jaber, UAE Minister of State and Chairman of Masdar; Bertrand Piccard, Initiator, Chairman and Solar Impulse 2 pilot; Sheikh Abdullah bin Zayed bin Sultan Al Nahyan, UAE Minister of Foreign Affairs; Ambassador Lana Nusseibeh, Permanent Representative of the UAE to the United Nations; André Borschberg, co-founder, CEO and Solar Impulse 2 pilot.

levels of fitness to cope with the journey. They lived in a 3.8 cubic metre, non-pressurized cockpit, which had no means of heating. And they had to endure outside temperatures ranging from –40° to +40° Celsius.

Going back to March 2015, Al Jaber, who attended the launch, stated that after months of intense preparation and collaboration with Masdar, Solar Impulse 2 was ready to embark on its attempt to circumnavigate the world using only the sun's energy, demonstrating the power of clean technology.

He stressed then that the journey was a moment of national pride for the OPEC Member Country, as Abu Dhabi had helped the mission team prepare for its success.

Goal of a cleaner future

"Together, we inspired thousands of students and professionals across the country, and I am confident that such community engagement initiatives will be replicated across the globe, capturing the hearts and imaginations of the world and reaching our collective goal of a cleaner future," he said.

Solar Impulse and Masdar, he pointed out, shared a common goal of advancing renewable energy and innovative clean technologies.

"More importantly, we aim to also inspire future generations to explore new horizons and push the boundaries of science and technology," he affirmed.

"I am proud and honoured to be a patron of this imperative movement on behalf of the UAE and Masdar," he stated.

"The world has a shared responsibility and collective action must be taken to create a cleaner future. This movement, spearheaded by Solar Impulse, is one of the many ways we can attain our shared objectives and reach a sustainable tomorrow," he maintained.

Masdar has been tasked by the UAE government with investing in and advancing the renewable energy and clean technology industry, both domestically and internationally.

"Abu Dhabi, Masdar and Solar Impulse have in common a pioneering spirit, a long-term vision and a desire to explore new horizons. We share a commitment to foster the development of technological advances in alternative energy sources, in order to contribute to a cleaner, more sustainable future," stated Al Jaber.

Masdar was considered a natural partner for the project. With innovation, sustainability and leveraging human capital as cornerstones of the UAE's economic development plans, initiatives like Masdar were established and have enabled Abu Dhabi to evolve into a global hub for clean technology, renewable energy, and sustainable development.

Specifically, Masdar is on a mission to advance the clean energy

From start to finish ... Solar Impulse 2 circles over Abu Dhabi to complete its historic flight.

industry in Abu Dhabi and around the world. It is regarded as a catalyst for the economic diversification of the Emirate.

The Mubadala Development Company, which is owned by the Abu Dhabi government, established Masdar as a wholly owned subsidiary in 2006. Masdar is guided by the 'Abu Dhabi Economic Vision 2030', a programme that drives new sources of income for the Emirate and strengthens its knowledge-based economic sectors.

Masdar operates five interconnected business units and a research arm that complements their work. The units comprise Masdar Capital; Masdar Clean Energy; Masdar Special Projects; Masdar City; and the Free Zone. Masdar Institute, an independent, research-driven graduate university, completes the grouping.

The relationship between Masdar and Solar Impulse, which started in 2003, stems from a shared perspective between the UAE leadership and Solar Impulse to promote greater technological innovation, as well as encourage other countries and organizations to embrace cleaner and more efficient technologies.

"This well-matched partnership will showcase Abu Dhabi as a centre of expertise when it comes to renewable energy and at the same time Solar Impulse will demonstrate the far-reaching applications of clean energy during the first solar-powered flight around the world," Borschberg and Piccard said in a statement ahead of their flight.

"We have chosen this location as being the best and most suitable departure and return point for the round-the-world tour, due to its climate, infrastructure and commitment to clean technologies."

Solar Impulse 2 made its maiden flight in June last year. Since then, it has completed 11 successful test flights. The plane's predecessor, Solar Impulse 1, which took to the skies in 2010 and 2011, became the first solar airplane ever to fly through the night.

It is credited with eight Fédération Aéronautique Internationale world records, including absolute height: 9,235 metres; duration: 26 hours, 10 minutes, 19 seconds; and free distance: 1,506.5 km.

Borschberg and Piccard founded the Solar Impulse project in November 2003 after undertaking a feasibility study in partnership with the Ecole Polytechnique Fédérale de Lausanne. By 2009, they had assembled a multi-disciplinary team of 80 specialists from different countries, assisted by about 100 outside advisers.

Solar Impulse 2 was specifically built for the round-the-world flight. It has a greater wingspan, more efficient engines, an improved cabin, and is made from lighter materials than its predecessor.

It was delivered to Abu Dhabi from the Payerne aerodrome in Switzerland towards the end of 2014 and was unveiled in January 2015 during the World Future Energy Summit as part of Abu Dhabi Sustainability Week, which is hosted by Masdar.

All images in this feature courtesy Solar Impulse 2.

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

OPEC Secretary General meets with Iranian President

Tehran, September 6, 2016 — OPEC Secretary General, Mohammad Sanusi Barkindo, met with the President of the Islamic Republic of Iran, Dr Hassan Rouhani, in Tehran today. The meeting was also attended by Eng Bijan Namdar Zanganeh, Iran's Minister of Petroleum.

Rouhani congratulated Barkindo on assuming the position of OPEC Secretary General. He prayed for his success and welcomed his visit to Tehran to discuss the challenges, as well as opportunities, facing the global oil market.

Rouhani said Iran had suffered greatly over the years under international economic and trade sanctions (now lifted) and it was vital for the country to make up for its lost oil production. He pointed out that OPEC had a responsibility to restore market stability and Iran would continue to support these endeavours and help bring about fair prices that were conducive to both producers and consumers.

Barkindo thanked the Iranian President and offered his gratitude for Iran's support of his candidacy for OPEC Secretary General. He also conveyed greetings from Nigeria's President, Muhammadu Buhari.

The OPEC Secretary General stressed that he would continue to work with all Member Countries to overcome the challenges and uncertainties facing the current oil market. He called for maximum flexibility and accommodation among Member Countries to help achieve market stability.

Barkindo also underlined the key role Iran had played within OPEC to achieve market stability and fair prices in the past.

He praised President Rouhani and wished him long life and good health to continue to provide leadership and selfless public service to Iran and humanity in general, and said that with his guidance Iran had achieved prosperity, stability and progress for its people.

Earlier in the day, Barkindo and Petroleum Minister Zanganeh held a closed-door meeting at the headquarters of the Petroleum Ministry. The two conversed on various issues, including the current oil market situation and the importance of restoring stability, with Barkindo briefing Zanganeh on market developments since the last OPEC Ministerial meeting in June.

The two men also discussed ongoing consultations among OPEC Member Country Ministers, including Barkindo's talks with Dr Mohammed Bin Saleh Al-Sada, Qatar's Minister of Energy and Industry and current OPEC Conference President, on September 4, and with Al-Sada and Noureddine Boutarfa, Minister of Energy of Algeria, on September 5.

In a joint press conference after the meeting, Zanganeh reiterated his commitment to playing a constructive role in working with fellow Member Country Ministers and the OPEC Secretary General to help restore market stability. He said Iran wanted a stable market and therefore any measure that helped the stabilization of the oil market was supported by Iran.

Zanganeh thanked Barkindo for his visit and stated that Iran would continue to offer its full support to him in his new role as OPEC Secretary General. He expressed his confidence in Barkindo, a skilled oil industry practitioner and OPEC veteran, to achieve the common goals of the Organization.

Barkindo recalled that the first ever Secretary General of OPEC was Iranian, and thanked the country for its leading role in helping to establish the Organization in Baghdad in September 1960, as well as its continued efforts to strengthen it.

OPEC Secretary General meets with Algeria, Qatar Energy Ministers

Doha, September 5, 2016 — OPEC Secretary General, Mohammad Sanusi Barkindo, met with Dr Mohammed Bin Saleh Al-Sada, Minister of Energy and Industry of Qatar and President of the OPEC Conference, and Noureddine Boutarfa, Minister of Energy of Algeria, at a meeting in Doha, Qatar, today.

The three officials said they discussed the outlook for the oil market and considered ways that oil producers might respond to ongoing and future challenges facing the industry, according to statements made to the press after the meeting.

The Secretary General underlined the importance of working together to overcome market challenges, ensure stability, and boost security and safety. Regarding the current state of the market, Barkindo said this was not the first time, nor would it be the last time, that there would be challenges.

The high-level meeting was also attended by Saad Sherida Al-Kaabi, Chief Executive Officer (CEO) of Qatar Petroleum, and Amine Mazouzi, CEO of Sonatrach, Algeria's national oil company. They were joined by several other senior officials from the Ministries of Algeria and Qatar, and from the OPEC Secretariat.

During the tripartite meeting, the Secretary General and a member of the OPEC delegation made a presentation about oil market developments since the last Meeting of the OPEC Conference, which took place in June 2016.

The President of the OPEC Conference expressed his appreciation for OPEC's presentation and highlighted the need for the Secretariat to continue to update all Ministers of the OPEC Conference about market developments. This should take into consideration the oil market's dynamics and volatility in particular, he said.

Al-Sada also emphasized the importance of making efforts among the world's oil producers to arrive at a joint decision regarding production in the future. This, he said, would contribute toward alleviating the persistent oil inventory overhang and ensuring a rebalancing of the market.

In their statements to the press, the Secretary General, the Qatari Minister and the Algerian Minister also expressed support for the Joint Statement announced Monday by Saudi Arabia's Minister of Energy, Industry and Mineral Resources, Khalid A Al-Falih, and Russia's Energy Minister, Alexander Novak, regarding an agreement to monitor the oil market and cooperate to ensure stability.

Qatar's Prime Minister meets with OPEC Secretary General

Doha, September 4, 2016 — OPEC Secretary General, Mohammad Sanusi Barkindo, met Qatar's Prime Minister, Sheikh Abdullah Bin Nasser Bin Khalifa Al-Thani, in Doha today and discussed the oil market and other related issues.

The meeting was also attended by Dr Mohammed Bin Saleh Al-Sada, Qatar's Minister of Energy and Industry and current OPEC Conference President.

Sheikh Abdullah congratulated Barkindo on his new position as OPEC Secretary General and reassured him of "the continued support of Qatar at all times to ensure his success."

The Qatari Prime Minister expressed confidence that Barkindo would work closely with OPEC Member Countries to overcome the current challenges in the interest of all oil producers and consumers.

"The Doha initiative in February and April this year has provided both OPEC and non-OPEC oil producers a platform upon which a credible framework can be further developed to restore oil market stability," Barkindo told Sheikh Abdullah.

Qatar invited OPEC and non-OPEC oil producers for a meeting that was held in Doha in the spring this year to discuss oil market developments.

The OPEC Secretary General praised the wise leadership of Qatar's Emir, Sheikh Tamim Bin Hamad Al-Thani, and his government for transforming Qatar into "a peaceful, stable and prosperous state."

Barkindo also acknowledged the visionary Presidency of the OPEC Conference by Al-Sada.

A closed-door meeting was held later in the day between Al-Sada and Barkindo to review oil market developments.

OPEC Secretary General visits OFID Director-General

OPEC Secretary General, Mohammad Sanusi Barkindo, met with Suleiman Jasir Al-Herbish, Director-General of the OPEC Fund for International Development (OFID), on August 26 at the Fund's headquarters in the Austrian capital.

Al-Herbish congratulated Barkindo on his new position as Secretary General. He also thanked him for the good coverage that OPEC had provided of OFID in the last edition of the Organization's magazine, the *OPEC Bulletin*.

"I am very happy and pleased to see you back in Vienna leading OPEC," Al-Herbish said.

OPEC proud of OFID achievements

The Secretary General thanked Al-Herbish for his hard work in leading OFID and implementing the various programmes the Fund had to stimulate economic growth and alleviate poverty in developing countries.

"OPEC is proud of the achievements of OFID," said Barkindo, adding that he intended to work closely with OFID and its Director-General, who, he said, had extensive experience in the work of the Fund.

Al-Herbish provided the Secretary General with a detailed explanation of OFID's different programmes and focus areas. He described its participation in projects, particularly in the areas of public and private sector lending, its trade finance facility, and grant operations.

He also spoke at length about OFID's 'Energy for the Poor' initiative, which was started in 2008 in recognition of the link between human development and energy use.

Al-Herbish explained how, through his leadership during his tenure, the Fund had managed to secure a total of $1 billion from Member Countries to support the work of the institution. Total resources of OFID as of the end of 2015 amounted to $6,863 million.

OFID was established by OPEC Member Countries in 1976 as a "collective channel of aid" for developing countries. It works in cooperation with partners and the international community, and provides financing for the development of infrastructure, the provision of social services, and the promotion of trade and competitiveness. So far, 134 countries worldwide have benefited from OFID's financial assistance.

Earlier this year, OFID celebrated the 40th anniversary since its founding. In commemoration of this milestone, it dedicated the current year to addressing the plight of refugees.

Mohammad Sanusi Barkindo (l), OPEC Secretary General, with Suleiman Jasir Al-Herbish, Director-General, OFID.

Visits to the OPEC Secretariat ...

OPEC Secretary General, Mohammad Sanusi Barkindo, received numerous visitors at his office at the Organization's Secretariat in August. Full accounts of each visit can be found in the 'news' section on the OPEC Website, via the following link ***www.opec.org/opec_web/en/press_room/306.htm*** *:*

August 30

UAE Ambassador visits OPEC Secretary General
OPEC Secretary General, Mohammad Sanusi Barkindo, received United Arab Emirates (UAE) Ambassador to Austria, Hamad Al Kaabi, at the OPEC Secretariat.

August 30

OPEC Secretary General receives Venezuelan Ambassador
OPEC Secretary General, Mohammad Sanusi Barkindo, received Venezuela's Permanent Representative to the International Organizations, Jesse Alonso Chacón Escamillo, at the OPEC Secretariat.

August 25

OPEC Secretary General meets Nigerian Ambassador
OPEC Secretary General, Mohammad Sanusi Barkindo, met with Gazing Jessy Napmwang Dangtim, Charge d'Affaires of the Permanent Mission of the Federal Republic of Nigeria to Austria and Slovakia, at the OPEC Secretariat.

August 25

OPEC Secretary General receives Russian Ambassador
OPEC Secretary General, Mohammad Sanusi Barkindo, received the Russian Federation's Permanent Representative to International Organizations, Vladimir Voronkov, at the OPEC Secretariat.

August 23

OPEC Secretary General receives Libyan Ambassador
OPEC Secretary General, Mohammad Sanusi Barkindo, received Dr Ibrahim Al-Besbas, Libya's Ambassador to Austria and Permanent Representative to the International Organizations, at the OPEC Secretariat.

August 23

OPEC Secretary General receives Ambassador of Indonesia
OPEC Secretary General, Mohammad Sanusi Barkindo, received Rachmat Budiman, Ambassador of the Republic of Indonesia, at the OPEC Secretariat.

August 23

OPEC Secretary General meets Algerian Ambassador
OPEC Secretary General, Mohammad Sanusi Barkindo, received Algerian Ambassador to Austria, Ms Faouzia Mebarki, at the OPEC Secretariat.

August 22

OPEC Secretary General receives Iraqi Ambassador
OPEC Secretary General, Mohammad Sanusi Barkindo, received the Ambassador and Permanent Representative of Iraq to the United Nations, Auday Al-Khairalla, at the OPEC Secretariat.

August 10

OPEC Secretary General receives IR Iran's Ambassador
OPEC Secretary General, Mohammad Sanusi Barkindo, received Reza Najafi, Ambassador and Permanent Representative of the Islamic Republic of Iran to the United Nations and Other International Organizations, at the OPEC Secretariat.

August 10

OPEC Secretary General receives Qatari Ambassador
OPEC Secretary General, Mohammad Sanusi Barkindo, received Ali Khalfan Al-Mansouri, Qatar's Ambassador to Austria and Slovenia, and currently Permanent Representative to the International Organizations, at the OPEC Secretariat.

August 9

OPEC Secretary General receives Moroccan Ambassador
OPEC Secretary General, Mohammad Sanusi Barkindo, received Ali El Mhamdi, Morocco's Ambassador/Permanent Representative in Vienna, Austria, during which the officials discussed the COP 22 climate change talks due to be hosted by the African Kingdom in November.

August 5

OPEC Secretary General receives Ecuador's Ambassador
OPEC Secretary General, Mohammad Sanusi Barkindo, received his first official visit today at the Organization's Secretariat in Vienna, Austria. Wilson Pástor Morris, Ambassador of Ecuador to Austria and the country's OPEC Governor, was the guest of honour.

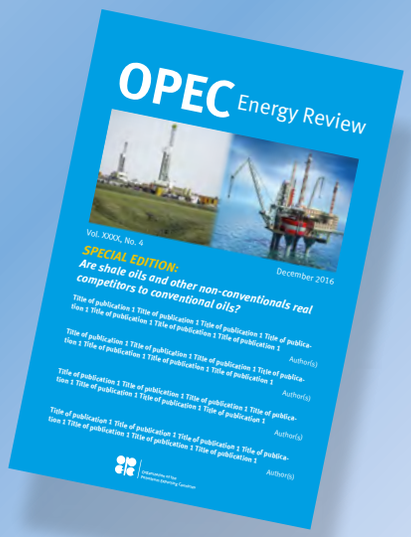
Visit our website

www.opec.org

CALL FOR PAPERS

"Are shale oils and other non-conventionals real competitors to conventional oils?"

Submit your papers by October 3, 2016



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

The three main objectives of the publication are to:

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

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

The OPEC Energy Review welcomes submissions from academics and other energy experts.
Submissions should be made via Scholar One at: https://mc.manuscriptcentral.com/opec (registration required).
A PDF of "Author Guidelines" may be downloaded at Wiley's OPEC Energy Review page at:
http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1753-0237/homepage/ForAuthors.html

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

OPEC Member Countries score success at Rio Olympic Games

Taoufik Makhloufi of Algeria poses with his silver medal.

Reuters

OPEC's Member Countries were among the 205 nations competing at the Rio 2016 Olympic Games in Brazil last month. Some of their delegations' athletes earned Olympic medals, returning home as national heroes. The OPEC Bulletin's **Scott Laury** *reports on their results and shares some Member Country Olympic history.*

In 19 action-packed days of competition and drama, the world's elite athletes once again took centre stage as they gathered in Rio de Janeiro, Brazil for the Rio 2016 Olympic Games from August 5 to 21.

The athletes inspired the world with their amazing feats of sport performance, breaking records and reaching new heights by making the seemingly impossible, possible. And as is always the case at the Olympic Games, the international comraderie, festive atmosphere, positive spirit and noble sportsmanship were omnipresent and infectious.

Towards the end of the Closing Ceremony on August 21, 2016, the President of the International Olympic Committee (IOC), Thomas Bach, a former German Olympic gold medalist in fencing at the Montreal 1976 Games,

Reuters

Handball women's quarter-final, Russia vs Angola: Vladlena Bobrovnikova of Russia, Luisa Kiala of Angola and Victoria Zhilinskayte of Russia in action.

gave his final speech before officially closing the Games of the 31st Olympiad in Rio de Janeiro.

In his remarks, he lauded the games and the host city, declaring "these were marvelous Games in the marvelous city," which was an allusion to the expression commonly used by locals, or cariocas, to describe their beloved city of Rio de Janeiro — a cidade maravilhosa.

This was the first time an Olympic Games had ever been held in South America, and they came on the heels of the mega World Cup football event, which was also hosted in Rio and 11 other host cities throughout Brazil a mere two years ago.

In fact, the final of the 2014 World Cup in which Germany defeated Argentina 1–0 in extra time was held in the famous Maracanã stadium, the same venue that hosted the Rio 2016 Olympic Opening and Closing Ceremonies, as well as the finals of the men's and women's Olympic football tournaments. In the men's tournament, Brazil earned a stunning 5–4 victory over Germany to take the gold medal after a penalty shoot-out, sending the entire country into a state of euphoria.

After the Games, the legendary stadium will immediately revert back to hosting Rio's main football clubs, including Flamengo, Fluminense, Botafogo and Vasco da Gama, as well as national and international music and sporting events.

Rio 2016 by the numbers

More than 11,000 athletes from 205 countries participated in 39 sports at 32 venues in Rio de Janeiro and at five football venues spread across Brazil's vast territory in the co-host cities of Belo Horizonte, Brasília, Manaus, Salvador and São Paulo.

It is estimated that half of the world's population and 90 per cent of Brazilians watched approximately 350,000 hours of Olympic television coverage.

The event could not have been successful without the dedication of 50,000 volunteers, 20 per cent of whom travelled to Brazil from 156 countries to join their fellow Brazilian volunteers. They performed a wide range of duties, including language support, checking accreditation, venue support, transport coordination, medical assistance, airport arrivals and departures and assisting with media queries.

This Games was also marked by two Olympic firsts, as the countries of Kosovo and South Sudan made their debut participation and a special refugee team established by the IOC competed under the Olympic flag in three sports — athletics, judo and swimming *(see sub-feature on refugee Olympic team)*.

Member Countries compete in Rio

OPEC's Member Countries were well represented at the Rio 2016 Games with a total of 492 athletes competing in a wide variety of sports. By the end of the Games, they left Brazil having achieved a total of 19 Olympic medals, of which four were gold, seven were silver and eight were bronze.

Algeria had 68 athletes competing in 53 events across 13 sports. Taoufik Makhloufi was the hero of these Games for his country, earning two silver medals, one in the men's 800 metre track race and the other in the men's 1,500 m race.

Algeria's first Olympic appearance was at the Tokyo Games of 1964. The first gold medal came in the track and field event at the Barcelona 1992 Games with Hassiba Boulmerka winning the 1,500 m competition. The country has earned a total of 15 medals over the course of 11 editions of the Games, of which four were gold, two were silver and nine were bronze.

Angola's Olympic team in Rio consisted of 26 athletes competing in ten events,

492 ATHLETES

FROM OPEC MEMBER COUNTRIES

19

MEDALS WON

4 GOLD MEDALS

1 FROM INDONESIA

3 FROM IR IRAN

Men's single kayak, 200 m: Pawel Kaczmarek of Poland, Mark de Jonge of Canada, Cesar De Cesare of Ecuador and Manfredi Rizza of Italy compete.

7 SILVER MEDALS

2 FROM ALGERIA | 1 FROM IR IRAN

2 FROM INDONESIA | 1 FROM QATAR

1 FROM VENEZUELA

8 BRONZE MEDALS

4 FROM IR IRAN | 1 FROM NIGERIA

1 FROM UNITED ARAB EMIRATES

2 FROM VENEZUELA

Taekwondo, men's +80 kg, preliminary round: Anthony Obame Mylann of Gabon competes with Mahama Cho of Britain.

across seven sports, including athletics, handball, judo, rowing, sailing, shooting and swimming.

The country made its Olympic debut at the Moscow Games in 1980, when it registered its youngest-ever Olympic athlete — swimmer Jorge Lima — who was only 13-years-old at the time. Angola is still seeking its first podium finish at an Olympic Games.

Ecuador's delegation comprised 38 athletes competing in 29 events across 14 sport disciplines.

Making its Olympic premier at the Paris 1924 Games, Ecuador did not participate in the Olympic Games again until the Mexico City 1968 event. Since then, it has competed in every edition of the Games, earning two medals during that time, both won by Jefferson Perez in the race walking event. He won gold at the 1996 Centennial Olympic Games in Atlanta and silver 12 years later at the 2008 Beijing Olympic Games.

OPEC recently welcomed **Gabon** back to its family of Member Countries. The West African country fielded a delegation of six athletes who competed in six events across four sports, including athletics, judo, swimming and taekwondo.

The Gabonese Olympic debut came at the 1972 Munich Olympic Games when it entered one athlete to compete in the boxing tournament. In nine Olympic appearances, the country achieved one podium finish when Anthony Obame won the silver medal in taekwondo at the London 2012 Games.

Indonesia, which re-joined OPEC at the beginning of 2016, sent 28 athletes to the Rio Games. They competed in 20 events and seven sports, including archery, athletics, badminton, BMX cycling, rowing, swimming and weightlifting.

The Indonesian team did not leave Rio empty handed, achieving one gold medal and two silver medals. In badminton mixed doubles, Liliyana Natsir and teammate Tontowi Ahmad overcame their tough Malaysian

Olympic badminton mixed doubles gold medal winners from Indonesia, Tontowi Ahmad (c) and Liliyana Natsir, ride on an open bus after their arrival home from Rio at Soekarno-Hatta International Airport near Jakarta, Indonesia.

Reuters

Men's freestyle wrestling 74 kg: Hassan Yazdanicharati of IR Iran celebrates winning the gold medal.

Reuters

Weightlifting men's final 105 kg: Salwan Abbood of Iraq competes.

opponents, Peng Soon Chan and Liu Ying Goh, to win the gold medal. Meanwhile, in weightlifting, Eko Yuli Irawan took silver in the men's 62 kg competition and Sri Wahyuni Agustiani also earned silver in the women's 48 kg event.

Indonesia has participated in 14 editions of the Olympic Games since Helsinki 1952. Its medals at the Rio Games came in sports they have excelled in during previous editions of the Games. Between Seoul 1988 and London 2012, the country took home a total of 27 medals in badminton, weightlifting and archery with six golds, 10 silvers and 11 bronzes.

With 64 athletes competing in 47 events in 15 sports, **IR Iran** had a significant presence at the Rio Games and left Brazil with an impressive eight medals in three sports.

Kianoush Rostami and Sohrab Moradi won gold medals in the men's weightlifting 85 kg and 94 kg events, respectively. In wrestling, Iran medaled in five different events. In the men's freestyle event, Hassan Aliazam Yazdanicharati took gold in the 74 kg discipline, while Komeil Nemat Ghasemi won silver in the 125 kg competition and Hassan Sabzali Rahimi took bronze in the 57 kg discipline. In the Greco-Roman event, Saeid Morad Abdvali and teammate Ghasem Gholamreza both took bronze in the 75 kg and 98 kg disciplines, respectively. Finally, Kimia Alizadeh Zenoorin tied with Hedaya Wahba of Egypt to bring home the bronze medal in the women's 57 kg taekwondo event.

Iran made its Olympic debut at the Paris 1900 Games and has participated in 16 editions, winning 60 medals (15 golds, 20 silvers and 25 bronzes), 33 of which came from wrestling. Weightlifting star Behdad Salimi took the gold medal at the London 2012 Games.

The delegation from **Iraq** comprised 26 athletes competing in five events within the sports of boxing, football, judo, rowing and weightlifting.

Iraq's Olympic premier was at the London 1948 Games where it fielded 11 athletes, including one who competed in track and field, as well as basketball. Over 13 editions of the Games, the country earned

Reuters

Rowing men's single sculls semifinal E/F 1 + 2: Alhussein Ghambour of Libya competes.

Men's football tournament victory ceremony: Nigeria's players celebrate with their bronze medals.

Reuters

Reuters

Mutaz Essa Barshim of Qatar competes in the men's high jump. His outstanding performance was rewarded with a silver medal.

one Olympic medal when Abdul Aziz earned a bronze in weightlifting at the Rome 1960 Games.

Though it did not have a presence at the Rio 2016 games, **Kuwait's** involvement at the Olympic Games stretches back to 1968, where it had two marathon runners competing at the Mexico City event.

The country has competed at 12 editions of the Olympic Games and won two bronze medals, both by Fehaid Al-Deehani in shooting, a sport which made its Olympic debut at the Athens 1896 Games, the first Games of the modern era.

Seven athletes from **Libya** competed in seven events across six sports, including archery, athletics, judo, rowing, swimming and taekwondo.

Like Kuwait, Libya made its Olympic debut at the Mexico City Games in 1968 where it entered one athlete who competed in the 400 m hurdles event. After appearing at ten Olympic Games, the country from North Africa is still striving to achieve its first Olympic medal.

Nigeria had a mighty presence at the Rio Games with 78 athletes participating in 37 events and ten sports.

The Nigerian men's football team brought home the bronze medal in the men's Olympic football tournament, beating Honduras 3–2 at Mineirao Stadium in the city of Belo Horizonte. Star player Sadiq Umar scored two goals and Aminu Umar capped it off with one of his own, giving Nigeria a 3–0 lead in the match. Two late goals by Honduras provided a wake-up call to the Eagles' defense, but they managed to hold off the Central American team to retain the victory.

With this victory, the Eagles football team made history as the first African team to complete an Olympic medal sweep after winning silver at the Beijing 2008 Games and gold at the Atlanta 1996 Centennial Olympic Games. The Atlanta victory was also significant as it marked the first time an African team had won a gold medal in an Olympic football tournament.

After its premier on the Olympic stage at the Helsinki 1952 Games, Nigeria appeared at 15 Olympic Games, winning a total of 23 medals, of which two were gold (football and track and field at the Atlanta 1996 Games), nine were silver and 12 were bronze.

Qatar's participation at the Rio Games included 39 athletes competing in 20 events over ten sports.

Mutaz Essa Barshim earned the silver medal in the men's high jump competition at the Olympic Stadium, which hosted all of the athletics events and was originally built in 2007 for the Pan American Games.

After getting its Olympic start at the Los Angeles 1984 Games, Qatar has participated at eight Games, reaching the podium four times, winning bronze at each event: Barcelona 1992 (in track and field), Sydney 2000 (weightlifting) and London 2012 (track and field and shooting).

In Rio, **Saudi Arabia** had 11 athletes competing in 11 events over five sports, including athletics, fencing, judo, shooting and weightlifting.

The country began its Olympic history in 1972 at the Munich Games and over the course of ten editions, it has won three medals. At the Sydney 2000 Games, Hadi Al-Somaily won silver in the men's 400 m hurdles and Khaled Al Eid earned bronze in equestrian individual show jumping. At the London 2012 Games, the Saudi equestrian team of Ramzy Al Duhami, Abdullah Al Saud,

Men's discus throw qualifying round: Sultan Mubarak Al-Dawoodi of Saudi Arabia competes.

Reuters

Matteo Marconcini of Italy and Sergiu Toma of the United Arab Emirates compete in judo.

Kamal Bahamdan and Abdullah Sharbatly took bronze in the team jumping event.

The **United Arab Emirates** (UAE) had a team at the Rio Games consisting of 13 athletes competing in 12 events within six sports, including athletics, road cycling, judo, shooting, swimming and weightlifting. Sergiu Toma earned the bronze medal for the UAE in the men's 81 kg judo event.

The first Olympic appearance for the UAE was at the Los Angeles 1984 Games. It has participated at eight Games, earning an Olympic medal at the Athens 2004 edition, where Ahmed Al Maktoum won gold in shooting.

Venezuela's delegation in Rio consisted of 88 athletes competing in 81 events over 23 sports.

The country medaled in three different sports, with Yulimar Rojas bringing home the silver medal in the women's triple jump event, while Stefany Hernandez won bronze in BMX cycling and Yoel Segundo Finol earned a bronze medal in the men's 52 kg fly boxing.

Since its Olympic premier at the London 1948 Games, Venezuela has been particularly strong in athletics, boxing, swimming, taekwondo, weightlifting and shooting, having won 12 medals at 17 editions of the Games.

Fencer Rubén Limardo won gold at the London 2012 Games, returning to Venezuela as a national hero after earning his country's first gold medal in 44 years. He defeated Norwegian Bartosz Piasecki 15–10 in the men's épée final. Hugo Chávez, who was Venezuelan President at that time, awarded him a replica of South American independence leader Simón Bolívar's sword. Though Limardo competed at the Rio Games and was said to have a chance at winning a medal again, he unfortunately was unable to repeat his performance from 2012 in London.

Faster, higher, stronger

OPEC sends rousing congratulations to all Member Country athletes who had the honour of participating at the Rio 2016 Games. Those who earned medals for their countries have achieved the highest distinction in their respective sports and will go down in the annals of sporting history.

At the same time, the amazing performances by all the other Olympians are to be celebrated because their qualifying to compete in the Games is alone an achievement most of the world can only dream of.

So, hats off to these sporting legends whose many years of hard work, blood, sweat and tears have culminated in their being part of the world's ultimate sporting event.

May they continue to achieve great things in the future as they live out the Olympic motto *'Citius, Altius, Fortius' — 'Faster, Higher, Stronger'*.

Women's triple jump final: Yulimar Rojas of Venezuela celebrates winning the silver medal in the event.

Reuters

Refugees make history at Rio Olympic Games

In an effort to bring light to the tragedy of the worldwide refugee crisis, the International Olympic Committee (IOC) decided to create a special refugee team and enabled it to participate at the Rio 2016 Olympic Games.

Ten refugee athletes were selected to compete in three sports — athletics, judo and swimming. Though they hailed from different conflict-ridden countries, they all competed under the Olympic flag — a first in Olympic history.

The refugees came from the Democratic Republic of Congo, Ethiopia, South Sudan and Syria. During the Games, several National Olympic Committees (NOCs) hosted them at their facilities in the Olympic Village, including Belgium, Brazil, Germany, Kenya and Luxembourg.

IOC President, Thomas Bach, presents the gold medal to Majlinda Kelmendi of Kosovo after she won the women's 52 kg judo event at Barra in Rio de Janeiro.

The idea for this initiative was hatched in October 2015 when IOC President, Thomas Bach, announced in a speech to the United Nations General Assembly that refugees would be allowed to compete under the Olympic flag. From there, the IOC, NOCs, International Sport Federations and the UN High Commissioner for Refugees (UNHCR) collaborated to identify refugee athletes who might qualify to compete at the Olympic level.

"These refugees have no home, they have no team, they have no national anthem," Bach said in introducing the refugee athletes to the IOC Session, which was held on August 2, 2016 in Rio de Janeiro. "We are offering them a home in the Olympic Village together with all the other athletes of the world. The Olympic anthem will be played in their honour, and the Olympic flag will lead them into the Olympic Stadium."

Yusra Mardini, a Syrian refugee swimmer, expressed her gratitude for the opportunity to show that she and her fellow refugees could make a valuable contribute to society.

"We still are humans. We are not only refugees. We are like everyone in the world. We can do something. We can achieve something," she said. "We did not choose to leave our homelands. We did not choose the name of refugees. We promise again that we are going to do what it takes to inspire everyone."

The IOC has been active for nearly two decades in assisting refugees through international sport with projects in 46 countries, including providing sport opportunities within refugee camps.

The UNHCR estimates that more than 65 million people have been forced from their homes by conflict, famine and other natural or man-made disasters. This includes 21m refugees who have sought asylum in other countries.

"We wanted to send a signal of hope to all refugees in the world," Bach continued. "These great athletes will show everyone that, despite the unimaginable tragedies that they have faced, anyone can contribute to society through their talent, and most important, through the strength of the human spirit."

The Refugee Olympic Team poses at the foot of the Christ the Redeemer statue in Rio de Janeiro.

Qatar welcomes the world in Rio

As if there were not enough opportunities to celebrate the Olympic spirit in Rio de Janeiro, which is known throughout the world for its week-long carnival celebration, 40 national hospitality houses hosted by various countries opened their doors during the Rio 2016 Games to showcase their unique cultures and traditions.

These houses, a relatively recent tradition at the Olympic Games, offer athletes, officials, invited guests and the public a variety of cultural activities, including traditional food and music, as well as opportunities to watch the Games live and celebrate athlete victories.

Qatar was among the countries hosting guests, as well as some of the estimated 500,000 foreign travellers and millions of Brazilians who flocked to Rio to take in some of the Olympic action during the Games.

Bayt Qatar

Its hospitality house, called Bayt Qatar, Arabic for House Qatar, was located in a former art museum called Casa Daros that was transformed into a Souq, or Arab market, where visitors were able to receive henna paintings and sample some tasty Middle Eastern food.

There was also a full entertainment programme, featuring live music, fashion shows, as well as interactive exhibitions on Qatari history, traditions and the country's transformation into a global sporting hub.

The house's official website lays out its vision and goals for the facility, which aims to bring together sport, culture, education and development under one roof.

"Our hospitality house will share Qatar's warm hospitality, rich heritage and commitment to the global development of sport with the world. We will embrace Olympism to bridge sport, culture, education and diversity in a true celebration of life," declared Joaan Bin Hamad Al Thani, President of the Qatar Olympic Committee (QOC).

"The Rio 2016 Games provide a unique opportunity for the world to unite in a shared vision to use the power of sport to change lives. These Games will make history for Brazil, the Olympic Movement and the world of sport, and we are honoured to be part of it," he affirmed.

Qatar also used its hospitality house to help raise funds for two legacy projects benefiting local youth.

The Shine project

One of the projects, called 'Shine', was designed by the QOC to provide an opportunity for underprivileged young athletes from Rio to train at Qatar's world-class Aspire Academy for Sporting Excellence, complete with specialized coaching and education.

Located in the capital city of Doha, the Aspire Academy aims to identify and train the best young athletes in Qatar, while, at the same time, offering them a quality education.

Its most prominent graduate is Mutaz Essa Barshim, who earned the silver medal in the high jump at the Rio 2016 Games. He was also 2014 World Indoor Champion in the high jump and earned bronze at the London 2012 Games. The academy holds training camps on a regular basis for talented young athletes from Asia.

The Shine project was developed through a partnership between QOC, the Qatar Athletics Federation, the Aspire Academy, Futuro Olimpico, a non-governmental organization founded by Arnaldo de Oliveira, Brazil's bronze medallist from the Atlanta 1996 Games, and the Rio de Janeiro Athletics Federation. The competition was tough as 200 talented young athletes from Rio vied in athletics for ten available spots for the project in Doha.

Qatar Olympic Committee/Getty Images

Qatari silver medal winner, Mutaz Barshim, walks up the red carpet at Bayt Qatar hospitality area.

The Eleva School library

After the Games are over, Casa Daros, home of Bayt Qatar during the Games, is being converted into a bilingual school, called the Eleva School. This second legacy project entails the QOC contributing to the construction and implementation of a library within the school.

On the Bayt Qatar website, QOC President Joaan Bin Hamad Al Thani commented on these noble initiatives, saying that Qatar was committed to leaving a positive legacy behind for the local Rio population, especially for promising young sportsmen and women.

"We are committed to delivering a compelling legacy from the Rio 2016 Games. We believe in the power of sport to transform lives. We want to make sure that we grasp the opportunity of the Rio 2016 Games to leave a positive impact for young people in Rio de Janeiro."

Landmarks in OPEC Member Countries

Cultural manifestation through national heritage

On the annual calendar, summer has always been a highly anticipated season for passionate travellers and adventure seekers the world over. Some go for cities and culture, others opt for the peace and tranquillity of the mountains, or alternatively spa and wellness, while the more adventurous seek the rugged outdoors, especially safaris. OPEC Member Countries might be primarily known for their oil resources, but they also offer a wide range of contrasting attractions and landmarks that often go unnoticed. And having its Members scattered across three different continents — Asia, Africa and Latin America — lends to an extensive diversity that has contributed greatly to the cultural legacy of the Organization.

In this article, OPEC Intern, *Ayman Almusallam*, takes a look at notable landmarks situated in each of OPEC's 14 Member Countries.

Notre Dame d'Afrique, Algeria.

Notre Dame d'Afrique (Algeria)

This Roman Catholic basilica was constructed in the Algerian capital city, Algiers. Its name can be translated to 'Our Lady of Africa'.

Construction work on the building, which overlooks the Bay of Algiers, began in 1858 and lasted for some 14 years. Frenchman, Jean Eugène Fromageau, was the primary architect. The basilica opened its doors to the public in 1872, revealing a distinctive neo-Byzantine style.

The church design exhibited 46 elaborate and striking glass windows that were made during the 19th century.

The building has managed to survive several potentially devastating events. It was reconstructed twice after World War II, during which time it was bombed. In 2003, it was damaged in an earthquake and four years later the restoration process started, costing around €5 million.

Over the years, the inscription on its apse has played a significant role in furthering its reputation. It states: "Our Lady of Africa, pray for us and for the Muslims."

Kalandula Falls (Angola)

This is a breathtaking waterfall that truly epitomises the beauty of Africa's natural surroundings.

Formerly known as Duque de Bragança Falls, Kalandula Falls is located in the Kalandula Municipality of northern Malanje Province in Angola. This is more than 300 kilometres from the Republic's capital city, Luanda. In Portuguese, the falls are referred to as Quedas de Kalandula.

The falls stand at a height of about 100 metres, with their width estimated at 400 m. According to the World Waterfall Database, the heavily visited attraction is considered the second most powerful waterfalls on the African continent. Lucala River is the source of the waterfalls, a tributary of Cuanza River, or Kwanza River, that discharges into the Atlantic Ocean.

The natural landscape is a prominent example of a notable tourist attraction that has not been altered or impacted by humans. Its access is free-of-charge to the public.

Kalandula Falls, Angola.

Quilotoa Lake, Ecuador.

Quilotoa Lake (Ecuador)

This fascinating landmark features a naturally-made landscape decorating the Andes mountain range.

The lake of Quilotoa is one of the highest landmarks in the Republic of Ecuador. Its tremendous elevation is estimated to amount to almost 4,000 metres.

The origin of the lake is a volcano that erupted in 1280 for the last time, creating a massive caldera. For many years, snow and rain amassed in the area forming Quilotoa Lake.

It is located in the Pujilí Canton of Cotopaxi Province in the middle of Ecuador. A canton is the second level of area division, below province, in the South American nation.

It has been reported that the caldera was created through a disastrous collapse of the volcano's crater, an event that took place some 800 years ago.

The attraction is frequently visited by tourists and has gained distinctive prominence in recent years. Numerous services operate in the region to facilitate transporting visitors to the site. In addition, a number of hostels and housing providers are situated around the area offering various accommodation choices.

Akanda National Park (Gabon)

This remarkable landmark offers the exquisiteness of a park fused with the beauty of the ocean.

Akanda is one of 13 beautiful national parks located in the Republic of Gabon. It covers a huge area of land estimated to amount to more than 500 square kilometres.

The park is situated in the western region of Gabon. Libreville, the Republic's capital, is the nearest town.

Upon a presidential order, decreed by the late Gabonese President, Omar Bongo Ondimba, Akanda and the other 12 national parks were established in 2002. This represented a move that was supported by major international organizations, most notable among them being the World Wide Fund for Nature (WWF) and the Wildlife Conservation Society (WCS).

The attraction is prominently known for its numerous mangroves and swamps. Importantly, the conservation of the national parks has aided Gabon in its determination to protect and conserve the country's extensive biodiversity.

Akanda National Park, Gabon.

Borobudur, Indonesia.

Borobudur (Indonesia)

This ninth-century landmark manifests the legacy of the south-east Asian OPEC Member Country which has recently rejoined the Organization.

Borobudur is a Buddhist temple constructed in Magelang, Central Java, in the Republic of Indonesia, the world's fourth most populous land. It consists of nine different platforms — six square and three circular.

The temple, which has a central dome that is decorated with 72 Buddha statues alone, has in total more than 2,500 relief and 500 Buddha statues.

In 825 AD, the temple was fully constructed and completed. It was considered as a United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage Site in 1991.

Interestingly, the temple remains active and open to individuals and groups seeking the landmark for worshipping and religion purposes. Every year, an enormous number of locals, expatriates and tourists visit the temple for pilgrimage.

Of note, it is acknowledged as the largest Buddhist temple across the globe.

Arg-é Bam (IR Iran)

This historical citadel is renowned for showing the strength and abilities of humans.

The World Heritage Site is located in the south-east of the Islamic Republic of Iran. It is situated in the City of Bam in Kerman Province, creating the core of the old town.

The area has gained significant prominence over the years as it overlooks the ancient Silk Road, a major trade route used in former times.

The area of the citadel is estimated to exceed 150,000 square metres. It is fortified by a gigantic wall that is some six metres high.

In 2003, the citadel was hit by a devastating earthquake that caused extensive damage. However, the site was reconstructed under a Presidential order given by the then President of the Islamic Republic, Mohammad Khatami.

Of special note, this landmark is considered the globe's largest building made of adobe.

Ancient citadel of Bam, IR Iran.

Freedom Monument (Iraq)

This landmark visualises the extensive history of Iraq.

The monument presents testimonies of various events and phases that occurred throughout the history of Iraq, both ancient and modern past.

It is situated in the Liberation Square of Baghdad, the capital city of the Republic of Iraq. Jawad Salim, an Iraqi artist, was the key and sole designer of the storytelling monument.

A report carried by the *Voice of Iraq,* an Iraqi digital newspaper, has stressed the importance of the monument to the country. It indicated that the artwork illustrates various eras of Iraq's legacy, starting from the Assyria and Babylonia periods to modern history.

The President of the Fine Arts Department in the Arts Academy, Mohammad Al-Kanany, commented on the significance of the monument saying: "This piece is considered to be one of the most important artworks completed in the history of the country."

He added that it reveals a high standard of technique and implementation used, in addition to its valuable presentation of the political, cultural and art history of Iraq.


Alamy

Freedom Monument, Iraq.


Shutterstock

Al-Mubarakeya Market, Kuwait.

Al-Mubarakeya Market (Kuwait)

A historical market located in a modernised capital.

Prior to the commencement of the oil era, the market, estimated to be around 200 years old, played a significant role in the Kuwaiti economy. In former times, Al-Mubarakeya was deemed as a critical trade centre in the country's capital city.

In 1990, the market was damaged during troubles in the region. However, several serious attempts have been carried out to restore the devastated parts and maintain its longstanding traditions.

A wide range of goods is sold in the market, particularly traditional items that reflect the culture and customs of Kuwait. For instance, they include dates, perfumes, antiques, jewellery, spices, costumes, food and carpets.

The market additionally comprises two museums and a historical Islamic pharmacy. Noteworthy, no entrance fees are imposed on visitors. Furthermore, it is regularly visited by inhabitants, expatriates and tourists.

Shutterstock

Ghadames old town, Libya.

Ghadames (Libya)

Ghadames is a historical landmark oasis town situated in the Libyan desert.

Also referred to as 'the pearl of the desert', Ghadames is situated in the north-western part of the OPEC Member Country, nearby Nalut district in the region of Tripolitania.

It is one of the oldest pre-Saharan cities and an outstanding example of a traditional settlement. The area is well-known for its indigenous language, Ghadames, which originated from Berber.

Reports suggest that the area was initially settled in 4000 BC, a viable narrative considering how the Ghadames is rich in water sources, a vital resource for survival in the desert. However, the area was actually mentioned in writings firstly during the Roman era when the settlement was known as Cydamus. Moreover, it is believed that the name of the oasis town is derived from Tidamensi, an ancient Berber tribe.

The old part of Ghadames is a UNESCO-protected historical site. The organization emphasises its unique history, acknowledging its traditional settlement and longstanding architecture.

Zuma Rock (Nigeria)

This landmark comprises a massive rock that rises stunningly in the African nation.

Zuma rock is one of the huge rocks found across the Federal Republic of Nigeria. It is situated in the Niger State region in the north of Nigeria's capital city, Abuja.

Considering the historical importance and valuable contribution of the attraction to Nigeria's tourism industry, the rock was chosen to decorate the country's 100 Naira note.

According to a report carried by *All Africa,* an African online news portal, a large number of locals believe in a superstitious power possessed by the rock.

Moreover, recent reports have indicated the country's development plans for the tourist site. Noteworthy, it encompasses the construction of a large five-star hotel to accommodate the numerous visitors.

The rock is 1,125 metres high and 725 m above its whole surroundings.

Alamy

Zuma Rock, Nigeria.

Khor Al-Udayd, Qatar.

Khor Al-Udayd (Qatar)

This landmark forms a magnificent inlet in the Gulf region.

Khor Al-Udayd, or Khowr Al Adaid, is an inlet and historical settlement situated on the Gulf. It is located in the Al-Wakrah Municipality of Qatar, in the nation's south-east region that borders Saudi Arabia.

The unique attraction plays an essential role in the Qatari tourism sector. Nowadays, Khaor Al-Udayd is one of the frequently visited sites in the State of Qatar by a tremendous number of tourists and locals. Furthermore, it represents an important pillar of the country's history

The area is protected by UNESCO as a natural landscape which is commonly known among locals as the Inland Sea.

Al-Hijr (Saudi Arabia)

This represents another UNESCO World Heritage landmark with an extensive antiquity.

Al-Hijr is an ancient site dating back to the Nabatean era that is alternatively referred to as the city of Saleh or Hegra.

Historians believe that this settlement is the second-largest in the south after the Kingdom's capital city, Petra. The Nabatean Kingdom was established in 400 BC and lasted until 106 AD.

Interestingly, several Roman and Lihyanite traces can be found across the area.

Among the public, the site possesses a notable reputation and image as a haunted place. This is a perception the Saudi Arabian cabinet has been aiming to overcome through designating the area a tourist attraction and orchestrating a robust promotional strategy.

The site is situated in the Al-Ula area, in the Al-Madinah Province of the Kingdom. The landmark is 400 kilometres away from Al-Madinah Al-Munawwara, which is the nearest major city.

Al-Hijr, Saudi Arabia.

Sheikh Zayed Grand Mosque (UAE)

The Sheikh Zayed Grand Mosque in Abu Dhabi, UAE.

This landmark is significant as an example of the rapid architectural development of the United Arab Emirates (UAE).

The Grand Mosque was initiated in 1996 in the Emirati capital city, Abu Dhabi. The construction work required 11 years to complete. By 2007, the aggregated cost of construction amounted to two billion dirhams.

The Islamic site can accommodate more than 40,000 guests concurrently. It is 420 m long and 290 m wide. During special occasions, such as Eid, additional areas are arranged to accommodate larger numbers of visitors.

The mosque is deemed as one of the UAE's key touristic points of interest and attracts a significant number of visitors annually, in addition to being a major centre of worship.

It consists of four minarets and 82 domes. Of note, the domes are built in seven different sizes.

The project was deliberately developed to reflect the cultural diversity of the country. This aim can be clearly seen when visiting the mosque's rich library. It contains books, publications and papers dating back more than 200 years and covering diverse topics and subjects, for instance, religion, science, art, civilisation and calligraphy.

Furthermore, they are written in various languages, including but not limited to, Arabic, English, French, Italian and German.

The Grand Mosque was inaugurated by the UAE's late President and Ruler of Abu Dhabi, Zayed bin Sultan Al-Nahyan.

Morrocoy National Park (Venezuela)

This landmark is a national park located in the northern region of Venezuela.

Golfo Triste is found in the north-west of the park. It is located on the eastern coast of Falcon State. Chichiriviche and Tucacas are the nearest towns to Morrocoy.

In 1974, the cabinet of the Bolivarian Republic of Venezuela declared that Morrocoy, which covers an area of more than 300 square metres, be designated a national protected site.

The declaration prohibited any manmade alterations in order to maintain its notable biodiversity. Furthermore, it also supports researches aimed at investigating the park and encourages all efforts invested in restoring any damage. Generally, the excellent condition of the park must be maintained at all times.

The nature of the park magnifies its distinctive beauty. Morrocoy consists of aquatic and terrestrial regions, in addition to several mangroves, cays and internal bays.

Morrocoy National Park, Venezuela.

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

June 6 Students from the Texas Tech University, TX, USA.

June 14 Students from the Gymnasium Hummelsbuettel, Hamburg, Germany.

June 15 Members of the German army, Berlin, Germany.

June 15 Students from Coventry University, UK.

June 16 Students from the LL M Programme in International Legal Studies, Vienna, Austria.

June 17 Representatives from the Haus der Bundespressekonferenz, Berlin, Germany.

June 23 Students from HTL Ottakring (Technichal College for Information Technology), Vienna, Austria.

June 23 Students from the Lycee Janson De Sailly Paris, France.

Vienna

A unique fusion of modernity and antiquity

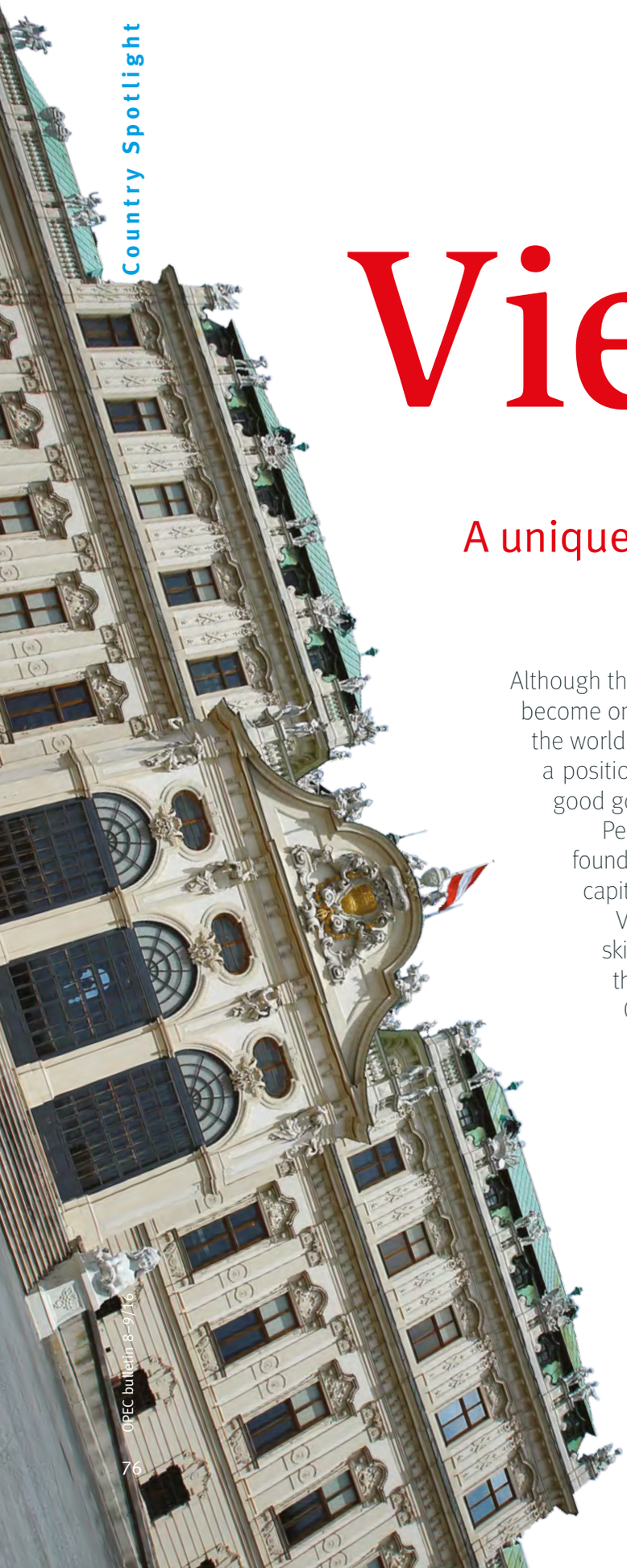
Although the Austrian capital of Vienna dates back centuries, it has grown to become one of the most advanced, modern and attractive municipalities in the world. It is a city that today stands head and shoulders above the rest, a position carved out through years of foresight, strategic planning and good governance.

Perhaps the most compelling evidence of Vienna's success can be found in a reputed international global index that consistently has the capital at the top of its rankings for quality of life worldwide.

Vienna is steeped in history. Mozart, Strauss and Freud all honed their skills and reputations in the city, while stately buildings like Schönbrunn, the Belvedere, the Hofburg, St Stephen's Cathedral and the Vienna Opera House reflect a past that is as relevant today as it was in the city's formative years. Add to these the various museums that can be found throughout the city and one reveals a culture that is rich in tradition, yet ultra-modern in approach.

Vienna also happens to be the home of many important international organizations, such as OPEC, OFID, the IAEA, in addition to being the UN's third Headquarters.

In this article of appreciation, OPEC intern, ***Ayman Almusallam***, delves into the city's charms and discovers just why it is the benchmark for international standards for quality of life.



Belvedere Castle.

They do say that small is beautiful. And while that might be termed by many as being a cliché, in the case of Austria's impressive capital, Vienna, it is a proven fact! The evidence speaks for itself: from 2009 until 2016, this city of some 1.8 million inhabitants has been dominating Mercer's global 'Quality of Living' survey after seizing the top rank from Zurich, Switzerland. Put quite simply — Vienna is the capital in which most people would like to live.

The Mercer survey is very thorough. It bases its ranking on a variety of attributes, qualities and characteristics, especially in terms of a city's economic, social and environmental strengths and weaknesses, in addition to education, entrepreneurial environment, transportation and safety.

And ever since attaining its enviable status, Vienna has become a model that councils, developers and other specialists look up to during planning and architecting other cities and towns, while students and professionals in the early phases of their careers can also learn a great deal from it.

Austria's primary city occupies an area of some 415 square kilometres. According to Vienna's City Council, the capital experienced notable population growth of ten per cent from 2005 to 2015 and forecasts show the figure continues to grow and is expected to breach the 2m mark in the years ahead.

Furthermore, it estimates that around 28 per cent of the total population of Vienna, an established international gateway, comprises expatriates and foreign citizens.

The Council has amassed a whole range of interesting facts and information about the capital:

The average life expectancy is 79.9 years. Noteworthy, it is estimated that women live slightly longer than men.

The highest elevation in Vienna is Hermannskogel, which is 543 m high, while the lowest point is Lobau, at 151 m.

The climate in Vienna is cold in winter and relatively warm during summer. Of note, it is humid throughout the year. Furthermore, spring and autumn tend to be mild.

The City of Vienna is made up of 23 districts that vary in size, yet exquisiteness remains a common factor among them. The largest one is the 22nd district, while the smallest is the eighth.

According to a Council study, 13.6 per cent of the Viennese labour force went to compulsory school, 23.3 per cent completed apprenticeships, while 9.2 per cent finished technical school, in addition to 24.5 per cent that obtained a leaving school certificate. Furthermore, 29.4 per cent of the population acquired higher education.

Vienna's public transportation is considered to be a cornerstone for the ongoing prosperity of the city.

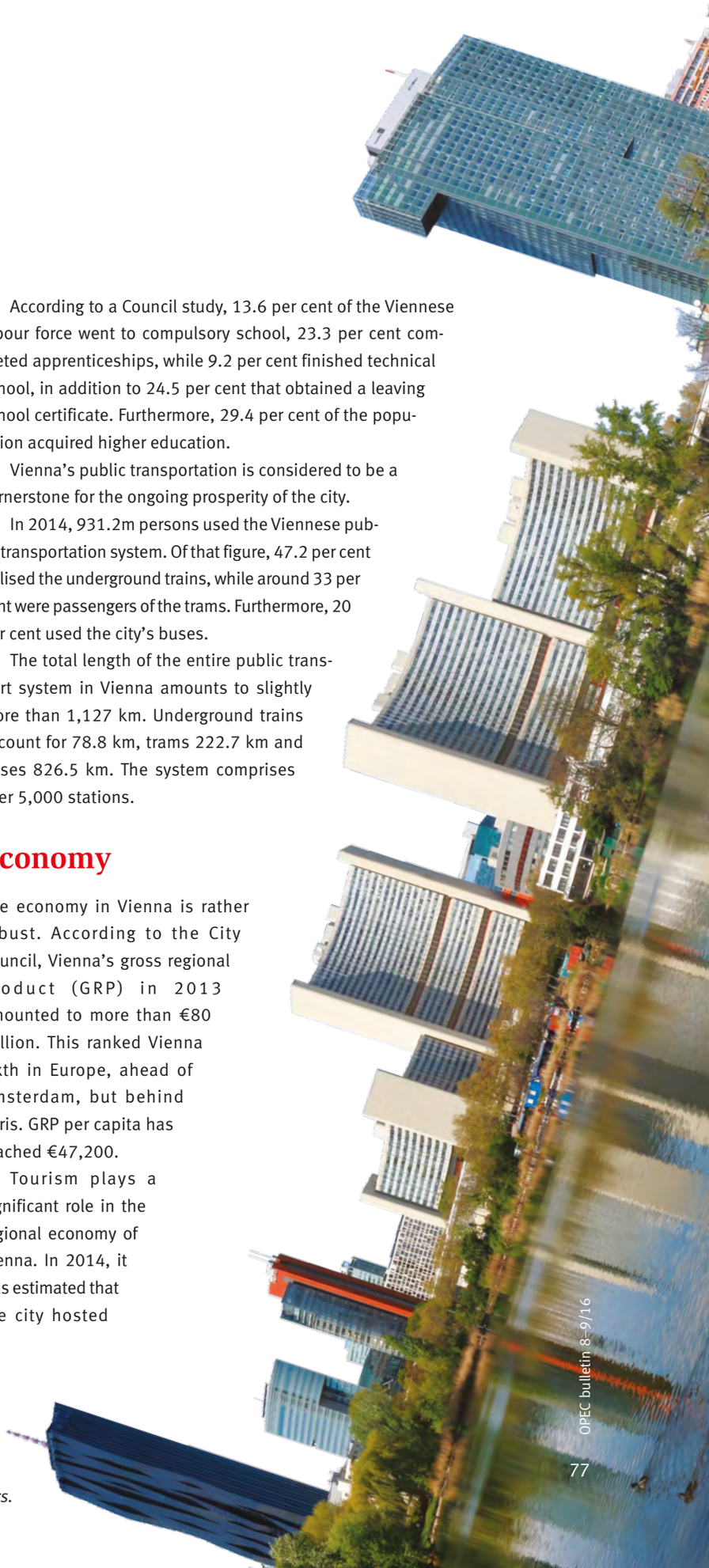
In 2014, 931.2m persons used the Viennese public transportation system. Of that figure, 47.2 per cent utilised the underground trains, while around 33 per cent were passengers of the trams. Furthermore, 20 per cent used the city's buses.

The total length of the entire public transport system in Vienna amounts to slightly more than 1,127 km. Underground trains account for 78.8 km, trams 222.7 km and buses 826.5 km. The system comprises over 5,000 stations.

Economy

The economy in Vienna is rather robust. According to the City Council, Vienna's gross regional product (GRP) in 2013 amounted to more than €80 million. This ranked Vienna sixth in Europe, ahead of Amsterdam, but behind Paris. GRP per capita has reached €47,200.

Tourism plays a significant role in the regional economy of Vienna. In 2014, it was estimated that the city hosted



UN Headquarters.

Schönbrunn Castle.

more than 13 million overnights, with the primary contributor being non-Austrian tourists.

When compared to other major European cities, Austria's capital came seventh in 2014 for touristic overnights, before Amsterdam, but behind Prague.

Of special note, meetings and congresses occur frequently in Vienna. In fact, Europe-wide, the city is ranked second — just behind Paris — for cities hosting global conferences.

Significantly, Vienna ranked first in the global survey 'Innovation Cities Global Index' in 2014, collecting similar points to London and Paris.

History and culture

The city of Vienna dates back to 500 BC, when a group of Celts settled on the banks of the Danube River. Many years later, the Romans sought safety and protection from northern German tribes through fortifying the area.

In 976 AD, a district was developed in the same location, covering an area of around 100 km. Eventually, the district was transformed into the Duchy of Austria.

The renowned Habsburg family resided in Vienna in 1440 leading to the formation of the Habsburg Monarchy in 1526. Several years later, Vienna became a major city for science and fine cuisine and a significant centre for art and music.

During the 16th and 17th centuries, the Ottomans tried and failed to conquer Vienna, while in 1679 the city survived a great epidemic of the plague.

Many years later, Vienna became the capital city of the Austrian empire, thereafter the capital of the Austro-Hungarian Empire in 1867.

The city then became the capital city of the First Republic of Austria in 1919, after the Republic of German-Austria was dissolved.

In 1945, it underwent the Vienna Offensive, carried out by the Soviet Union as part of World War II. Ten years later, the Austrian State Treaty was signed, with the Soviets renouncing the districts and areas under their rule. The agreement required Austria to declare permanent neutrality.

During the 1960s and 1970s, Vienna witnessed a landmark event. The former Chancellor and Foreign Minister of Austria, Bruno Kreisky, initiated a new district in the Austrian capital, aimed at accommodating international organizations and institutions.

In the ensuing years, numerous institutions chose Vienna as a home for their headquarters. These include the United Nations, the International Atomic Energy Agency, the Organization for Security and Cooperation in Europe and, of course, OPEC and its sister organization, OFID.

Concerning OPEC's decision to make the Austrian capital its home, the Organization's Secretariat was initially established in Geneva after OPEC was established in September 1960.

However, in 1965, the Austrian government's invitation to host the Organization's headquarters in the Austrian capital was unanimously accepted by OPEC's Members.

Since its arrival in Vienna, OPEC has been housed in four different buildings. Today,

the Secretariat is located in the city's historical first district, near the Department of Law of University of Vienna and the city's stock market.

Additionally, the OPEC Fund for International Development (OFID) was set up in Vienna in 1976. This followed a decision made at the First Summit of OPEC Heads of State and Government, which took a place in Algiers, Algeria, in 1975.

Landmarks and attractions

Schönbrunn Palace

One of several protected world heritages found in Vienna is the splendid Palace of Schönbrunn (in German: Schloss Schönbrunn).

The palace is a magnate for tourists seeking to learn more about the Austrian imperial era. Moreover, it represents a significant aspect of Viennese history, architecture and culture.

Constructed as a summer house for the ruling family, the 300-year-old palace consists of 1,441 rooms and is surrounded by massive woodland.

In 1569, the palace's grounds were bought and used as a hunting ground for recreation by Emperor Maximilian II. A mansion had already been built in the area several years prior to this purchase. The name of the Palace Schönbrunn was initially mentioned in an invoice in 1642.

Many years later, Austrian Emperor Franz Joseph I gave the palace to his wife, Maria Theresa, who was commonly referred to as Sissi.

Over the years, the stunning palace has undergone several reconstructions, adaptations and facelifts reflecting the varying tastes and interests of the Habsburg's family members.

Nowadays, the palace hosts a museum expressing the legacy of the residence and its former residents. Moreover, it is managed by a limited liability firm that is owned entirely by the Republic of Austria.

The sprawling area of forest surrounding the palace is regularly visited by Viennese residents and tourists alike for recreational and sport-related purposes.

Of special note, a remarkable event occurs at Schönbrunn every year — the Summer Night Concert hosted by the Vienna Philharmonic.

Belvedere Palace

Another historical hotspot in the Austrian capital is the Belvedere. This is a palace that was built during Vienna's mass construction era, which commenced following the successful conclusion of the wars with the Ottoman Empire.

This other notable tourist attraction is also surrounded by an enormous garden area. Moreover, the palace comprises two main buildings — the lower and upper houses.

Initially, the land was bought in 1697 and a few years later, construction work started on the lower house.

In 1715, an Italian painter was invited to complete the decoration of the lower house. Two years later, a French expert completed developing the massive park surrounding the building. Meanwhile, the development of the upper house began.

Some 15 years later, the palace underwent enhancement and modernisation resulting in its present form.

In 1781, a gallery was inaugurated in the upper house. According to the palace's website, the picture gallery is considered to be one of the first public museums on a global scale.

Thirty years later, a museum was established inside the historical palace.

During World War II, the upper and lower houses of the palace were damaged. In 1953, serious restoration and renovation efforts were made

Hofburg Palace.

to revive and restore the extensive and notable history of the palace.

Over the years, the palace has been used by members of the ruling family as a summer residence, particularly Prince Eugene of Savoy and Emperor Franz Ferdinand.

Of significance, the Belvedere was the location used for ratifying the Austrian State Treaty.

In present times, the palace and its park are used as a public attraction that is visited on a regular basis by locals and tourists.

Hofburg Palace

A pillar of Vienna's longstanding history can be found in the grand Hofburg Palace, which was constructed in the 13th century and became a significant landmark in the city during the Habsburg era.

Initially built as a winter residence for the imperial family, in former times it was also used as a seat of the Austrian cabinet. Furthermore, the palace serves additionally as the house and office of the Austrian President.

Nowadays, the Hofburg serves as a key attraction, especially for tourists. Throughout time, it has undergone numerous expansion projects. It currently consists of 13 large wings, in addition to accommodating the Museum of Hofburg. Its chapel is the only remaining indication of its antiquity.

The Hofburg is also used as a centre for conferences and conventions. Of special note, it regularly hosts the OPEC International Seminar, a highly anticipated event that brings together numerous key speakers, industry experts and ministers from the oil and gas sector to discuss the latest energy market issues.

St Stephen's Cathedral

The undoubted highlight of Vienna's city centre is the imposing and magnificent St Stephen's Cathedral.

The construction of the Roman Catholic building commenced in 1137, a period that lasted 23 years. However, it has undergone several reconstructions throughout its history.

This key landmark that occupies the always busy Stephensplatz is 107 metres long, 70 m wide and 136.7 m high. It possesses 13 main spires and 13 bells.

Furthermore, the current cathedral structure was built on the top of two bygone churches.

St Stephen's Cathedral.

Historically, it is assumed that Duke Rudolf, who was born in 1339 and passed away at the young age of 25, inaugurated the erection of the church.

The cathedral managed to remain protected during World War II. However, it suffered a massive blaze in 1945, which caused severe damage and resulted in its roof collapsing. Renovation work was carried out quickly and effectively.

An exquisite view of Vienna can be relished through the tower's room, which can be reached through climbing 343 steps.

The massive gate of the cathedral is reputed to date back to the 13th century, making it the oldest part of the church.

According to the cathedral's website, the attraction is visited by around three million people every year.

Today, the cathedral is considered an important part of Austrian history and the Habsburg's legacy. Of note, it has hosted composer Joseph Haydn, who sang in the cathedral's choir as a young boy, while Mozart got married in it.

Danube Tower.

Prater

The picturesque Prater recreation area is a huge public park used by many for leisure and recreation.

The attraction comprises a large area of land located in the second district of the Austrian capital. It consists of an amusement park and a large woodland area. The origin of the park's name is presumed to be derived from the Latin word *pratum*, meaning meadow.

The Prater land area was initially given by Emperor Friedrich I to a noble in 1162. The ownership of the land changed several times over time, until Emperor Maximilian II purchased the ground in 1560 to be used for hunting and recreation.

During the reign of Emperor Rudolf II, he enforced a prohibition on inhabitants entering the area, in order to eliminate the emerging problem of poachers.

In 1766, Emperor Joseph II proclaimed the Prater as a recreational park that could be used by the whole public. Additionally, he permitted cafés to be established in the park.

Hunting was legalised in the Prater until a general ban was imposed in 1920.

Vienna State Opera.

Danube Tower

The Danube Tower (Donauturm) is located nearby the Danube River in Vienna's 22nd district. It is the highest structure in the Republic

Prater fun fair.

A view of the main conference room in the OFID building.

of Austria. On a global scale, it is considered as one of the 75 highest towers.

The tower, which was designed by Austrian architect, Hannes Lintl, stands 252 metres high and is served by two elevators. However, the top of the tower can also be reached through walking 775 steps. Construction work started in 1962 and was completed in April 1964.

Initially, the tower was built as part of preparations by the City Council for a Viennese international cultural show that occurred in 1964

Upon completion, the structure was opened by Adolf Schärf, then Austria's Federal President.

Nowadays, the tower is frequently visited by tourists. Moreover, the structure was built in a huge park — Donaupark — another notable touristic point of interest.

The Danube Tower, as any other tower, carries various antennas, including cellular phone networks, private radio stations and many other communication and radio services.

Apart from the observation deck, a traditional restaurant serving Austrian cuisine can be found at the top of the tower. Moreover, a rotating coffee house is located beside the restaurant.

Vienna State Opera

Vienna would not be Vienna without its music. And the State Opera represents a major landmark in the city's historic first district.

As one of the country's major attractions for people the world over, Vienna's opera house is an indoor theatre that can host around 2,000 guests. Inaugurated in 1869, it is located on the inner ring road, a key thoroughfare in the Austrian capital.

The opera house was designed and planned by two Viennese architects — August Sicard von Sicardsburg and Eduard van der Nüll. However, the two creative minds did not survive long enough to witness its completion, as von Sicardsburg committed suicide and der Nüll passed away following a stroke.

In 1869, Vienna Court Opera opened its doors. The opening ceremony was held in the presence of Franz Joseph and Elisabeth, then the Emperor and Empress of Austria. Mozart's Don Juan was the feature of the event.

The following era witnessed the realisation of several important developments and expansions and several artists were invited to contribute to the effort, through sharing their experiences and knowledge.

During World War II, the opera house was badly damaged through bombing. However, again, Vienna's City Council responded quickly to ensure a quick return of the cultural scene and restoration of one of its most famous landmarks.

Initially, performances and plays continued to take place in the Volksoper opera house. And when several years later, Theater an der Wien was reopened, all shows and plays that were arranged by the Vienna State Opera were presented in these two houses.

Following years of reconstruction, the opera house reopened its doors to the public in 1955. Its management worked intensively on the reconstruction work and the development of amenities and equipment, as well as the use of newly-emerging technology.

The opera house was known as the Vienna Court Opera during the era of the Habsburg family. However, the name was altered to Vienna State Opera in 1920.

All images in this feature, unless otherwise credited, are courtesy of Shutterstock.

Vienna Coffee House.

Coffee houses

Part and parcel of Vienna's music are its coffee houses, where in years gone by famous composers like Mozart and Strauss no doubt penned their masterpieces and Sigmund Freud worked on his famous theories.

Vienna possesses a global reputation for being a cultural centre and an important part of this prominence is expressed through its coffeehouse heritage.

In fact, such is its influence and international standing in this regard that UNESCO designated Vienna's coffee house culture as an intangible cultural heritage in 2011.

A typical Viennese café experience consists of certain practices aimed at maintaining an elegant atmosphere in the establishment, while a variety of quality coffees are served in addition to newspapers.

Delicious Austrian pastries are also prepared to be enjoyed while consuming the coffee. In several cafés, piano music is played in the evenings.

And contrary to other cities and traditions, guests can linger for several hours in Vienna's coffee shops. Traditionally, guests read through the newspapers available, whiling away the hours.

Some historians indicate that coffee was initially introduced in Vienna through the second Ottoman blockade that occurred in 1683.

Smart city initiative

"Protecting our resources and strengthening our economy to provide a basis for social justice are the main challenges for cities in the 21st century," Vienna's Mayor, Michael Häupl, commented on the commencement of the Smart City Vienna Project.

The long-term strategy adopted by the City Council considers innovation and intelligence as key drivers required for the success of urban and economic development.

Smart City Vienna attempts to decrease the consumption of energy and alleviate emissions, while maintaining Vienna's prominent quality of life, sustaining living standards and enhancing mobility.

Additionally, it concentrates on developing efficient and effective mechanisms aimed at promoting sustainable and accountable use of resources. Moreover, the initiative perceives renewable sources of energy as being of great importance.

Smart City Vienna is a comprehensive strategy encompassing various aspects, such as work and leisure activities.

Several subprojects are being operated as part of the initiative, such as the Seestadt Aspern project, the Open Government Data scheme and the Citizens' Solar Power Plants project.

Vienna at a glance

Area:	415 sq km
Population:	1.8 million
Districts:	23
Mayor:	Michael Häupl
Deputy Mayor:	Maria Vassilakou
Gross regional product (GRP):	more than €80 million
Key industries:	tourism, conferences, communication, communication and information technology, creative sectors
Organizations based in Vienna:	OPEC, OFID, UN, UNIDO, IAEA, KAICIID, SE4ALL, IIASA, OSCE, UNODC

OPEC Headquarters.

OFID in the field ...

Partnering the fight against hunger

In fighting hunger, OFID collaborates with a broad coalition of partners to finance and implement projects that tackle food security from a variety of angles. Whether it is infrastructure to support the production, marketing and distribution of produce; assistance to small farmers to develop sustainable and profitable cultivation methods; the integration of the private sector; or simply emergency food rations for those in dire need, OFID mobilizes all means at its disposal to help create a world free from hunger. The following impact stories, taken from the institution's *Quarterly* magazine, are just three examples of its important work on the ground.

OFID

Palestine: Food security through the dry seasons

An innovative project implemented by American Near East Refugee Aid (ANERA) and co-funded by OFID has successfully adopted unconventional methods to tackle water scarcity and boost agricultural production in Palestine. **Alesandra Solano**, a young professional development programme participant at OFID, reports.

Rain-fed agriculture is a challenge when the country's climate is both dry and hot. This is a reality for Palestinians in the West Bank, where farming has been a part of life for thousands of years. With more than 40 per cent of the land under cultivation, agriculture is vital to the economy. Water scarcity, however, is threatening the region's future.

During the long summer months, farmers struggle to irrigate their crops. Those who can afford it have to resort to purchasing additional water, but even this cannot prevent the drop in productivity and the knock-on effect on food security.

Livestock farming, another economic mainstay of the region, is also affected, due to the high cost of fodder. Raising cows, chickens, and sheep has become an expensive business, pushing up the price of meat and dairy products and cutting profit margins on non-food products such as wool.

For some years now, the Palestinian Water Authority has been exploiting non-conventional sources of water, such as treated wastewater and desalination, among others. One example can be found in the Governorate of Jenin, home to 281,000 people and the highest percentage of cultivated land in the Palestinian territory.

It is in Jenin that ANERA has been supporting the water authority's strategy through the project 'Water Reuse and Food Security in The West Bank'. With the help of funding from OFID, ANERA has installed a 30 km distribution system to an existing treated wastewater plant.

The system connects the Jenin plant to the neighboring villages of Jalameh, Burqin, and Kafr Dan, whose inhabitants are highly dependent on agriculture for their livelihoods. Farmers in the area grow olives, citrus and stone fruits, grapes, vegetables, herbs and wheat. But, with limited access to water, yields are low, affecting the profitability of the sector and compromising food security.

To satisfy irrigation needs and ensure a reliable supply of water, the project also constructed 12 reservoirs, each with a capacity of 600 cubic metres. These reservoirs and irrigation systems enable farmers to grow crops all year round for human consumption and to feed their livestock.


OFID

Already, more than 1,000 farmers have been able to increase production as a direct result of the project. They are also enjoying higher incomes. An additional 12,000 villagers are benefiting indirectly thanks to improved access to lower-cost, locally grown fodder and other produce.

A key component of the project has been a capacity-building programme for farmers to ensure the correct use and sustainability of the new system. This will go a long way to safeguarding the longevity of the infrastructure and a more prosperous, hunger-free and healthy future for these Palestinian communities.

Revitalizing rural communities in Africa

Supported by a consortium of investors including OFID, the innovative African Agriculture Fund offers much-needed investment solutions for agribusinesses in Africa, with a positive impact on food security. This report is by **Fatma Elshhati**, OFID young professional development programme participant.

Despite hosting over 60 per cent of the world's arable land, Africa has struggled to attract significant investment in its agricultural sector, leaving many countries dependent on imported food.

In 2009, several development finance institutions, including OFID, the African Development Bank, Proparco and FMO, recognized the pressing need for finance for Africa's agribusiness sector. Together, they pooled resources to support the African Agriculture Fund (AAF) — one of the first of its kind — to efficiently direct private funding into African agribusiness and infrastructure.

"The Fund plays a vital role by providing the much needed, long-term equity that enables entrepreneurs to embark on the difficult task of building sustainable agribusinesses," explained Adebayo Babalola, from OFID's private sector team. "With specialized local and sector knowledge, AAF has the expertise to invest in, add value to, and monitor the agribusinesses that sustain food production and security."

The boost in investment, especially in rural areas, has supported local vendors to expand and develop their agribusinesses and increase productivity. With backing from AAF, companies have been able to strengthen their management, modernize their operations and improve the skills of their employees.

The AAF has supported companies in their vertical integration and in accessing new markets. In Zambia and the Democratic Republic of Congo, AAF has supported Goldenlay, a business specialized in poultry, including the production and distribution of eggs. By promoting stable and fair labour practices for rural workers, the expansion of the business has had a positive multiplier effect on the communities.

Moreover, Goldenlay has reduced its reliance on imports and external suppliers along the value chain. With this, it has provided a sense of security for many workers, including rural women and small businesses in informal sectors of the economy.


Shutterstock

In DR Congo, the Fund has helped finance the replacement of a 100-year-old palm oil mill for the agribusiness, Feronia, whose plantations deteriorated during the civil war. With support from AAF, Feronia has restored its operations to full capacity and helped the country reduce its reliance on palm oil imports.

Feronia, which currently employs over 3,500 people, has invested heavily in its employees. The company has addressed the significant shortage of skills in DR Congo by offering training and qualifications. It has also financed the refurbishment of over 3,000 employee housing units destroyed during the civil war.

Over 85,000 people living around the plantations are directly or indirectly dependent on Feronia. The company has contributed to the construction and maintenance of four hospitals, 15 dispensary clinics and four health centres. Moreover, it has supported 92 schools and contributed to the building of 2,800 km of road.

In 2011, AAF began supporting the expansion of Goldtree, a commercial palm oil extractor and producer in Sierra Leone. Located in one of the areas worst affected by the war that ended in 2002, the company's operations have positively impacted the lives of over 50,000 people. It has promoted sustainable environmental and social operations, which have improved local production and infrastructure. It sources its raw materials from 6,400 independent out-growers, securing these farmers with a fair price for their product. Moreover, through its technical assistance facility, Goldtree has assisted with the upgrading of roads to provide improved access for the rural communities.

The AAF aims to continue supporting rural livelihoods and the expansion of agribusinesses into globally competitive entities. As well as harvesting a total 1.3 million tonnes of food, its funded projects have provided over 4,000 families with housing and connected 250,000 people to main towns and infrastructure through the upgrading of 3,500 km of road.

Together, these investments are helping to tackle some of the many problems of poverty in Africa by improving livelihoods, boosting food security and promoting social and economic stability for rural communities.

El Salvador: Promising a square meal for all

Despite its vulnerabilities, the Central American nation of El Salvador is determined to fight rural poverty and hunger. OFID is standing shoulder to shoulder with the government and its development partners to help make this dream a reality. **Damelys Delgado**, OFID Information Officer, compiled this report.


OFID

After being absent from El Salvador for more than 25 years, OFID recently joined the International Fund for Agricultural Development (IFAD) and the Ministry of Agriculture and Livestock to co-finance the project 'Rural Dawn', a wide-reaching initiative that seeks to bolster food security and improve living conditions among the rural poor.

The scheme aims to achieve its goals by engaging small-scale farmers in the supply chain of key crops such as coffee, pulses, vegetables and fruits.

In recent years, the Salvadoran government has implemented several plans to tackle rural poverty, all with two main lines of action in common: foster food production to guarantee minimum nutritional levels across the country, and prioritize rural development in the most deprived regions.

The latest indicators provided by the United Nations Food and Agriculture Organization (FAO) estimate that 13.5 per cent of the population of El Salvador suffers from malnutrition, while over 19 per cent of children below the age of five suffer from chronic malnutrition.

The most recent national development plan — for the period 2015–19 — was launched under the motto 'El Salvador: productive, educated and safe'. It gives special importance to increasing productivity in the agriculture sector, providing support to family farming and strengthening cooperatives.

According to Rómulo Martínez, OFID country officer for El Salvador, OFID's contribution to Rural Dawn has focused on crucial activities that will help guarantee food production in what are relatively adverse climate conditions.

"Besides irrigation and agricultural equipment, key investments financed by OFID include the acquisition of soil protection crops and the reforestation of degraded land to improve harvesting," he told the Quarterly.

For years, El Salvador, the smallest and most densely populated country on the American continent, has been in the spotlight for unwelcome reasons. Its 12 year-long civil war claimed more than 75,000 lives and triggered a massive exodus of Salvadorans to the United States and other neighboring nations.

Even now, with the war behind it, the country continues to face severe social problems, including a high crime rate and a hugely unequal distribution of wealth.

Out of a total population of just over six million, the joint fortune of 160 Salvadorian millionaires was estimated at $21 billion in 2015, which is equivalent to 87 per cent of the national GDP.

The same year, remittances sent by some 2.7 million Salvadorans living abroad contributed to 17 per cent of GDP, compared to a share of just over 11 per cent provided by the agriculture sector.

Nature is not a friend either, with hazards such as earthquakes, volcanic activity, droughts and floods constantly holding back progress. This vulnerability, which is aggravated by environmental degradation, has led the Intergovernmental Panel on Climate Change (IPCC) to predict a rise in temperature that will reduce the country's yields of main crops by 30 per cent in 2050.

According to the Panel, the agriculture sector is dominated by large-scale commercial farmers who own almost three-quarters of the arable land. Smallholders, while vastly larger in number, share the remaining, significantly smaller portion, which leaves little scope for a fair and competitive market. With such constraints on productivity, poverty is especially severe among the rural population, which comprises 37 per cent of the total.

This is the situation that El Salvador is working to turn around through initiatives like Rural Dawn. By consolidating micro and small businesses in eight of the country's 14 departments, the project is delivering substantial benefits to rural communities.

For the more than 40,000 agricultural families that are benefiting from the project, the hope to have a decent meal on a regular basis is slowly but surely becoming a reality.

Forthcoming events

20th Sakhalin oil and gas, September 28–30, 2016, Yuzhno-Sakhalinsk, Russia. Details: Adam Smith Conferences, 6th Floor, 29 Bressenden Place, London SW1E 5DR, UK. Tel: +44 207 017 7444; fax: +44 207 017 7447; e-mail: info@adamsmithconferences.com; website: www.sakhalin-oil-gas.com.

Petroleum conference – Iran 2016, October 1–3, 2016, Tehran, IR Iran. Details: Global Event Partners Ltd, London Office, 20-22 Bedford Row, London WC1R 4JS, UK. Tel: +44 203 488 11 91; e-mail: enquiries@gep-events.com; website: www.petroconfex.com.

North American gas forum, October 2–5, 2016, Washington DC, USA. Details: World Alliance for Decentralized Energy, Edinburgh Quay, 133 Fountainbridge, Edinburgh EH3 9BA, UK. Tel: +44 31 62 53 333; e-mail: infor@localpower.org; website: http://energy-dialogues.com/nagf.

South Africa gas options 2016, October 3–5, 2016, Cape Town, South Africa. Details: EnergyNet Ltd, 110 Elm Rd, Kingston upon Thames KT2 6HU, UK. +44 20 85 47 06 98; website: www.energynet.co.uk/event/south-africa-gas-options-2016.

KIOGE 2016, October 5–7, 2016, Almaty, Kazakhstan. Details: ITE Group plc, Oil and Gas Division, 105 Salusbury Road, London NW6 6RG, UK. Tel: +44 207 59 65 233; fax: +44 207 59 65 106; e-mail: oilgas@ite-exhibitions.com; website: http://kioge.kz/en.

North Africa oil & gas security and risk, October 5–7, 2016, Rome, Italy. Details: East Med Ltd, Kemp House, 152–160 City Road, London EC1V 2NX, UK. Tel: +44 20 82 39 19 64; fax: +44 20 82 39 19 64; e-mail: info@eastmed.co.uk; website: www.northafricasecurityandrisk.com.

7th annual waste management Middle East forum, October 10–11, 2016, Dubai, UAE. Details: Fleming Gulf Conferences, Dubai Airport Free Zone, PO Box 54772, Dubai, UAE. Tel: +971 4 60 91 555; fax: +971 4 60 91 589; e-mail: info@flemminggulf.com; website: https://fleming.events/en/events/hse/waste-management-middle-east-forum.

The future for gas-to-liquids in a 'Lower for Longer' oil-price world, October 11, 2016, London, UK. Details: SMi Group Ltd, Unit 122, Great Guildford Business Square, 30 Great Guildford Street, London SE1 OHS, UK. Tel: +44 207 82 76 000; fax: +44 207 82 76 001; e-mail: client_services@smi-online.co.uk; website: www.smi-online.co.uk.

UK shale gas summit, October 11–12, 2016, Manchester, UK. Details: The Petroleum Economist Ltd, 69 Carter Lane, London EC4V 5EQ, UK. Tel: +44 207 77 98 800; fax: +44 207 77 98 899; e-mail: customerservice@petroleum-economist.com; website: www.esgos.eu.

4th Mauritanian mining and oil & gas conference & exhibition, October 11–13, 2016, Nouakchott, Mauritania. Details: AME Trade Ltd – Africa and Middle East Trade Ltd, Unit 408, United House, 39–41 North Rd, London N7 9DP, UK. Tel: +44 207 70 04 949; fax: +44 207 68 13 120; e-mail: trade@ametrade.org; website: http://ametrade.org/mauritanides.

Gas-to-liquids, October 12–13, 2016, London, UK. Details: SMi Group Ltd, Unit 122, Great Guildford Business Square, 30 Great Guildford Street, London SE1 OHS, UK. Tel: +44 207 82 76 000; fax: +44 207 82 76 001; e-mail: client_services@smi-online.co.uk; website: www.smi-online.co.uk/energy/uk/conference/gas-to-liquids.

3rd LNG supply, transport and storage Philippines, October 12–14, 2016, Manila, Philippines. Details: All Events Group Pte Ltd, 52 Foch Road, #02–02, 209274 Singapore. Tel: +65 65 06 09 51; fax: +65 67 49 72 93; e-mail: info@alleventsgroup.com; website: www.lng-world.com/lng_phil2016.

4th Offshore Indonesia convention 2016, October 13–14, 2016, Jakarta, Indonesia. Details: UMS Institute, D612, JBC Plaza, 808 Hongqiao Road, Changning District, Shanghai 200030, People's Republic of China. Tel: +86 21 61 55 39 64; fax: +86 21 51 86 15 48; e-mail: oic@umsinstitute.org; website: http://offshoreindonesia.org.

Iran upstream congress 2016, October 17–18, 2016, Tehran, IR Iran. Details: Peak Events Co, Ltd, Room 829, Building B, No 139, Kangjian Road, Xuhui District, Shanghai City, People's Republic of China. Tel: +86 21 31 06 92 50; e-mail: info@peakevents.org; website: http://iranupstream.org.

8th Saudi Arabia international oil and gas exhibition, October 17–19, 2016, Dammam, Saudi Arabia. Details: IES Srl – International Exhibition Services, Via Anton Giulio Bragaglia 33, Rome 00123, Italy. Tel: +39 06 30 88 30 30; fax: +39 06 30 88 30 4; e-mail: exhibition@saoge.org; website: www.saoge.org.

Oil & gas Vietnam (OGAV) 2016, October 18–20, 2016, Vung Tau City, Vietnam. Details: Fireworks Vietnam Co Ltd, 46/2 Tran Quy Khoach Street, Tan Dinh Ward, District 1, Ho Chi Minh City, Vietnam. Tel: +84 35 26 80 43; fax: +84 35 26 80 45; e-mail: viet@asiafireworks.com; website: http://oilgasvietnam.com.

7th carbon dioxide utilization summit, October 19–20, 2016, Lyon, France. Details: Active Communications International, 5–13 Great Suffolk Street, 4th Floor, London SE1 0NS, UK. Tel: +44 20 79 81 98 00; fax: +44 20 75 93 00 71; e-mail: claire@acieu.net; website: http://www.wplgroup.com/aci/event/co2.

3rd FPSO & FLNG Asia, October 20–21, 2016, Shanghai, China. Details: China Decision Makers Consultancy, Suite 901–910, Tower A, Shanghai Fudan Software Park, No 15 Changyi Rd Shanghai, People's Republic of China. Tel: +86 21 68 40 76 31 or +86 21 63 93 18 99; fax: +86 21 68 40 76 32; e-mail: info@cdmc.org.cn; website: www.ffa-annual.com/en.

Black Sea oil and gas conference, October 20–21, 2016, Sofia, Bulgaria. Details: Global Business Club Ltd, Office 301, 22 Highbury Grove, London N5 2ER UK. Tel: +44 845 86 88 234, +44 203 56 71 349; fax: +44 845 15 42 544; e-mail: info@globuc.com; website: www.globuc.com/blackseaoilgas.

Oil & gas sustainability forum, October 21, 2016, Marrakech, Morocco. Details: The Exchange Ltd, 5th Floor, 86 Hatton Garden, London EC1N 8QQ, UK. Tel: +44 207 06 71 800; fax: +44 207 24 22 673; e-mail: marketing@theenergyexchange.co.uk; website: http://onhym.theenergyexchange.co.uk.

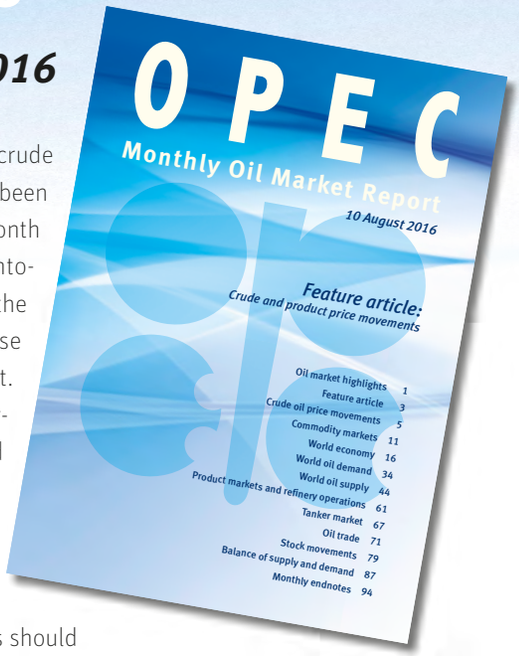
Basra oil, gas & infrastructure, October 24–25, 2016, Beirut, Lebanon. Details: CWC Associates Ltd, Regent House, Oyster Wharf, 16–18 Lombard Road, London SW11 3RF, UK. Tel: +44 207 97 80 00; fax: +44 207 97 80 099; e-mail: sshelton@thecwcgroup.com; website: www.cwcbasraoilgas.com/conference.

High performance polymers for oil and gas, October 24–26, 2016, Houston, TX, USA. Details: Shrewsbury Laboratory, Shawbury, Shrewsbury Shropshire SY4 4NR, UK. Tel: +44 19 39 25 03 83; e-mail: info@smithersrapra.com; website: www.oilgasconference.com.

Singapore international energy week, October 24–28, 2016, Singapore. Details: The Petroleum Economist Ltd, 69 Carter Lane, London EC4V 5EQ, UK. Tel: +44 207 77 98 800; fax: +44 207 77 98 899; e-mail: customerservice@petroleum-economist.com; website: www.siew.sg.

Increased oil consumption expected in coming months

***August* 2016**



Higher economic growth anticipated for some of the major oil-consuming economies is expected to lead to increased oil consumption in the coming months, particularly with the onset of the winter season in the Northern Hemisphere.

That was the view put forward by OPEC in its *Monthly Oil Market Report (MOMR)* for August.

A feature article in the publication said that with the expected increase in demand, the ongoing contango in the Brent, WTI and Dubai crude markets should continue to narrow.

"This would reduce the economic incentive to store crude, which has already begun to help ease some of the overhang, which would contribute to the expected rebalancing of the market," it maintained.

The report observed that oil prices were up more than 60 per cent from the 12-year lows of around $27/barrel hit by ICE Brent and the $26/b recorded by Nymex WTI in January, even with a seven per cent slide in July.

It said: "For five months, to the end of June, oil prices surged to the low $50/b amid an easing global supply glut, strong consumption in several countries, declining production in many regions, some supply disruptions and a weaker United States dollar," it affirmed.

The *MOMR* said the return of a significant increase in speculative long positions betting on higher prices also supported the market.

"This rally faded amid concerns that the supply overhang in crude, and particularly refined products, would pressure prices, delaying a long-anticipated rebalancing in the market," it maintained.

Additionally, it observed, the outcome of the United Kingdom referendum and uncertainties regarding the timing of the UK's exit from the European Union impacted sentiment in the broader financial markets, including for crude oil.

"Despite the fall seen in crude prices, refining margins have been weakening during the last month due to high product inventories, which were caused by the lower-than-expected increase in demand," noted the report.

It said there were lingering concerns that the US and European refiners could cut runs in response to a declining gasoline crack in both regions in a period when summer driving and margins should have been at their highest during the year.

"This has been the major factor contributing to the downward pressure on crude prices in recent weeks," professed the *MOMR*.

Meanwhile, regarding the transatlantic Brent-WTI spread, it said that even with the slight widening in July, the year-to-date average of the spread had shrunk to around $1.50/b from an average of near $5/b in 2015, amid declining US production and despite some outages in light sweet crude.

"The significant narrowing of the Brent-WTI spread made it possible for a comeback of West African crude to the US market, as observed in higher US crude imports, which have been above 8.0 million b/d recently."

With the end of the driving season in the third quarter of 2016, gasoline demand could see a seasonal downward correction.

Meanwhile, continued the report, the supply side could also continue exerting pressure on middle distillates as inventories remained high worldwide, especially in OECD countries, which were currently around 80m b higher than the latest five-year average.

MOMR ... oil market highlights

August 2016

The **OPEC Reference Basket** averaged $42.68/b in July, representing the first decline in five months. Lower-than-expected demand, high refined product stocks, and rising crude supply were the factors behind the $3.16 drop. ICE Brent ended down $3.39 at $46.53/b, while Nymex WTI fell $4.05 to $44.80/b. Speculators cut long positions further this month in all markets. The ICE Brent-WTI spread widened to $1.75/b in Brent's favour during July.

World economic growth remains unchanged at 3.0 per cent for 2016 and 3.1 per cent for 2017. Weak first half GDP growth in the US caused a downward revision in the 2016 growth forecast to 1.7 per cent, while the 2017 forecast remains at 2.1 per cent. The recently announced fiscal stimulus in Japan led to an upward revision in growth to 0.9 per cent for both 2016 and 2017. The Euro-zone's forecast remains unchanged at 1.5 per cent and 1.2 per cent. Forecasts for China and India are also unchanged at 6.5 per cent and 7.5 per cent for 2016 and 6.1 per cent and 7.2 per cent for 2017. Both Brazil and Russia are forecast to rebound from two-year recessions in 2017 with growth of 0.4 per cent and 0.7 per cent, respectively, after declines of 3.4 per cent and 0.8 per cent in 2016.

World oil demand growth in 2016 is expected to average 1.22m b/d, some 30,000 b/d higher than the previous month. For 2017, world oil demand is forecast to grow by 1.15m b/d, unchanged from the previous report. While the OECD will contribute positively to oil demand growth, adding some 100,000 b/d, the bulk of the growth in 2017 will originate from the non-OECD with 1.05m b/d.

Non-OPEC oil supply is expected to contract by 790,000 b/d in 2016, following an upward revision of around 90,000 b/d since the previous report, driven by higher-than-expected output in the second quarter of 2016 in the US and UK. In 2017, non-OPEC supply is expected to decline by 150,000 b/d, following a downward revision of around 40,000 b/d. OPEC NGL production is forecast to grow by 160,000 b/d and 150,000 b/d in 2016 and 2017, respectively. In July, OPEC crude oil production increased by around 46,000 b/d to average 33.11m b/d, according to secondary sources.

Product markets in the Atlantic Basin weakened during July, despite gasoline demand hitting record levels in the US during the peak of the driving season. The bearish sentiment was fueled by high gasoline inventories and slowing demand for middle distillates. This offset the vibrant recovery seen at the bottom of the barrel, which was supported by a tightening market and caused refinery margins to fall. In Asia, margins continued to decline due to oversupply at the top and middle of the barrel.

Sentiment in the dirty **tanker market** was weak in July, mainly on the back of a high surplus of vessels in different areas. Dirty spot freight rates dropped 19 per cent on average in July, m-o-m. Clean tanker freight rates declined on both sides of Suez as the demand for clean tonnage remained thin and market activity was limited. Global spot fixtures increased in July, and OPEC and Middle East sailings were higher than in the previous month.

OECD total commercial stocks fell in June to stand at 3,045m b, some 311m b above the latest five-year average. Crude and product inventories showed a surplus of 175m b and 136m b, respectively. In terms of days of forward cover, OECD commercial stocks in June stood at 64.9m b, around six days above the latest five-year average.

Demand for **OPEC crude** in 2016 is estimated at 31.9m b/d, unchanged from the last report and 1.9m b/d higher than in the previous year. In 2017, demand for OPEC crude is forecast at 33.0m b/d, in line with the previous report and 1.2m b/d higher than in 2016.

The feature article and oil market highlights are taken from OPEC's Monthly Oil Market Report (MOMR) for August 2016. 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.

Moderate global economic growth expected to continue

September 2016

The trend of the past years' moderate global economic growth is likely to continue in both 2016 and 2017, according to the OPEC Secretariat in Vienna,

It said in its Monthly Oil Market Report *(MOMR)* for September that world gross domestic product (GDP) growth was forecast at 2.9 per cent for 2016 and 3.1 per cent for 2017.

In its review of developments in the world economy, it observed that after particularly low growth in the first half in the United States and Japan, along with the continued contraction in Russia and Brazil, these economies were expected to pick up in the remainder of the year and to show higher growth in the coming year.

"The Euro-zone, the United Kingdom, China and, to some extent, India are forecast to show lower growth," the report commented in its feature article.

It maintained that there were several key dynamics across the globe that were significant in the short-term.

"There is a considerable negative impact on global growth from the energy sector due to the sharp decline in investments, mainly in the oil and gas sector, as well as lower output values.

"So far, this has not been entirely compensated by positive effects from consumption. Any stabilization in the crude oil market in the coming months could provide positive support to overall economic activity.

"Furthermore, interest rates are already low in major economies and the effectiveness of further monetary stimulus has diminished, despite remaining crucial for some economies.

"Here, any decision from main central banks on monetary policies, particularly the US Fed, will continue to be influential. Moreover, in most key economies the space for fiscal stimulus seems to be limited, given the high debt levels.

"Finally, political developments are becoming increasingly relevant – ranging from elections in several countries to fiscal policy decisions, as well as the implementation and possible impact of Brexit."

The *MOMR* said that within the OECD group of countries, US growth was forecast to stand at only 1.5 per cent in the current year, impacted by the decline in the energy sector and other factors that were being considered to be temporary, while next year was forecast at 2.1 per cent.

It said that despite a considerable sovereign debt level, Japan had recently announced a fiscal stimulus plan; however, the impact would be felt only in the coming quarters, following very weak economic output in the first half.

"Still, this is only expected to lift growth to 0.7 per cent this year and to 0.9 per cent in 2017. The rise in the value of the yen, persistent deflation, a tight labour market and lacklustre domestic aggregate demand will continue to drag growth," it stated.

In the Eurozone, continued the report, the challenges were manifold. The weak banking sector – impacted by non-performing loans – in combination with political uncertainty, the consequences of Brexit, ongoing high unemployment and the lessening effect of the ECB's monetary stimulus would push growth down to 1.2 per cent in the coming year, from 1.5 per cent in 2016.

The *MOMR* said that in the emerging economies, India and China continued to expand at a considerable rate of 7.5 per cent and 6.5 per cent, respectively, in 2016, a slightly higher rate than in the coming year, when growth was forecast at 7.2 per cent and 6.1 per cent.

"Domestic consumption, investment and governmental support have been key drivers in these two economies, factors that are forecast to continue supporting growth also in 2017."

The *MOMR* said both Russia and Brazil were forecast to remain in recession for a second consecutive year in 2016. In 2017, Russia was expected to recover with growth of 0.7 per cent, while Brazil was forecast to grow by 0.4 per cent, provided the political environment stabilized allowing economic reforms to be implemented.

"Further improvements in commodity prices should also help to support global growth."

The report noted that despite moderate global economic growth, recent data showed better-than-expected oil demand in some of the main consuming countries.

"This, along with a potentially improving oil supply picture, would contribute to a reduction in the imbalance of market fundamentals in the coming months," the *MOMR* concluded.

MOMR ... oil market highlights

September 2016

The **OPEC Reference Basket** rose by 42¢ to $43.10/b in August. ICE Brent ended up 62¢ at $47.16/b, while NYMEX WTI was unchanged at $44.80/b. The Brent/WTI spread widened further to $2.36/b in August. Crude prices rose on signs of an improving supply/demand balance and US dollar weakness, although a surprise build in US crude stocks, increasing supplies and worries about Chinese demand pressured prices at the end of the month.

World economic growth was revised down to 2.9 per cent for 2016 and remains at 3.1 per cent for 2017. Weak growth in the first half of 2016 caused a downward revision to the US growth forecast for the whole of the year to 1.5 per cent, while the 2017 forecast remains at 2.1 per cent. Growth in Japan was also revised down to 0.7 per cent given weak first half growth. Euro-zone growth remains unchanged at 1.5 per cent for this year and 1.2 per cent for 2017. Forecasts for China and India are also unchanged at 6.5 per cent and 7.5 per cent for 2016 and 6.1 per cent and 7.2 per cent for 2017. The figures for Brazil and Russia remain unchanged from the August *MOMR*, with growth forecast at 0.4 per cent and 0.7 per cent, respectively, for next year.

World oil demand growth in 2016 is now anticipated to increase by 1.23m b/d after a marginal upward revision, mainly to reflect better-than-expected OECD data for the first half of the year. Oil demand in 2016 is expected to average 94.27m b/d. In 2017, world oil demand is anticipated to rise by 1.15m b/d, unchanged from the August *MOMR*, to average 95.42m b/d. The main growth centres for next year continue to be India, China and the US.

Non-OPEC oil supply in 2016 is now expected to contract by 610,000 b/d, following an upward revision of 180,000 b/d from the August *MOMR* to average 56.32m b/d. This has been mainly due to a lower-than-expected decline in US tight oil and a better-than-expected performance in Norway, as well as the early start-up of the Kashagan field in Kazakhstan. In 2017, non-OPEC supply was revised up by 350,000 b/d to show growth of 200,000 b/d to average of 56.52m b/d, mainly due to new production from Kashagan. Output of OPEC NGLs is expected to average 6.43m b/d in 2017, an increase of 150,000 b/d over the current year. OPEC output, according to secondary sources, dropped by around 23,000 b/d in August to 33.24m b/d.

Product markets in the Atlantic Basin strengthened in August. Refining margins were supported by the positive performance at the top of the barrel due to strong gasoline demand and export opportunities to the European Union, as well as concerns about weather disruptions from tropical storms and flooding on the US Gulf Coast. In Asia, margins showed a slight recovery on the back of firm demand and falling inventories ahead of autumn maintenance.

Dirty **tanker spot freight rates** remained under pressure in August, with negative developments among all classes. VLCC, Suexmax and Aframax spot freight rates declined by 12 per cent, 30 per cent and 14 per cent since July. The drop in rates was mainly driven by excess tonnage supply due to new deliveries at a time when cargo loading requirements remain limited.

OECD total commercial stocks fell in July to stand at 3,091m b, some 341m b above the latest five-year average. Crude and product inventories showed surpluses of 200m b and 141m b, respectively. In terms of days of forward cover, OECD commercial stocks in July stood at 66.1 days, around seven days higher than the seasonal average.

Demand for **OPEC crude** in 2016 is estimated to stand at 31.7m b/d, some 1.7m b/d over last year. In 2017, demand for OPEC crude is forecast at 32.5m b/d, an increase of 800,000 b/d over the current year.

The feature article and oil market highlights are taken from OPEC's Monthly Oil Market Report (MOMR) for September 2016. Published by the Secretariat's Petroleum Studies Department, the publication may be downloaded in PDF format from our Website (www.opec.org), provided OPEC is credited as the source for any usage. The additional graphs and tables on the following pages reflect the latest data on OPEC Reference Basket and crude and oil product prices in general.

Table 1: OPEC Reference Basket spot crude prices

$/b

Crude/Member Country	2015 Aug	Sep	Oct	Nov	Dec	2016 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Weeks 31–35/2016 (week ending) Jul 29	Aug 5	Aug 12	Aug 19	Aug 26
Arab Light – Saudi Arabia	46.52	45.56	45.37	40.64	33.70	26.35	28.77	34.74	38.22	43.48	46.28	43.14	43.47	40.66	39.64	41.68	45.85	45.75
Basrah Light – Iraq	44.32	43.41	43.50	38.70	32.06	24.73	27.08	33.39	36.62	42.05	44.63	41.37	42.01	38.99	37.87	40.11	44.49	44.48
Bonny Light – Nigeria	47.07	48.01	49.16	44.81	38.16	30.40	32.24	38.53	41.51	46.85	48.48	45.30	46.35	42.92	41.34	44.31	49.13	49.42
Es Sider – Libya	45.82	46.71	47.56	43.30	37.16	29.75	31.46	37.51	40.48	45.83	47.28	44.00	44.85	41.62	39.84	42.81	47.63	47.92
Girassol – Angola	47.42	48.01	48.45	44.74	37.88	29.95	32.28	38.42	41.25	46.58	48.30	45.09	46.06	42.70	40.96	44.03	48.83	49.20
Iran Heavy – IR Iran	46.25	44.62	44.55	38.92	31.73	24.07	27.28	33.23	36.65	41.67	44.68	41.59	42.17	39.22	38.37	40.32	44.50	44.41
Kuwait Export – Kuwait	45.28	43.96	43.61	38.39	31.49	23.92	26.77	32.99	36.33	41.60	44.50	41.37	41.88	38.96	38.08	40.06	44.24	44.14
Marine – Qatar	46.98	45.88	45.89	41.66	34.36	26.95	29.41	35.49	38.97	44.13	46.37	43.53	43.44	40.93	39.92	41.54	45.68	45.58
Merey – Venezuela	35.26	34.13	35.48	31.87	24.42	20.80	21.38	25.83	28.84	34.28	38.22	36.71	36.46	34.37	33.06	34.11	38.57	38.76
Minas – Indonesia*	42.46	42.05	42.13	40.79	33.53	30.80	29.49	34.62	38.52	48.64	51.56	41.84	41.26	38.54	37.39	39.23	43.44	43.74
Murban – UAE	48.83	48.88	49.48	45.99	39.19	31.57	34.15	40.01	42.47	47.12	49.28	46.54	46.25	44.21	42.57	44.25	48.59	48.57
Oriente – Ecuador	39.75	41.03	39.91	36.40	32.18	24.03	24.70	31.45	35.04	41.96	44.03	40.72	40.84	37.97	36.86	39.22	43.47	43.16
Rabi Light – Gabon*	48.21	47.73	48.37	44.41	36.65	29.30	31.79	37.59	40.43	45.43	47.15	44.03	44.90	41.84	39.91	42.99	47.59	47.93
Saharan Blend – Algeria	47.17	48.36	49.51	45.30	38.59	31.28	33.26	39.41	42.33	47.73	48.98	45.30	46.35	42.92	41.34	44.31	49.13	49.42
OPEC Reference Basket	**45.46**	**44.83**	**45.02**	**40.50**	**33.64**	**26.50**	**28.72**	**34.65**	**37.86**	**43.21**	**45.84**	**42.68**	**43.10**	**40.24**	**39.10**	**41.19**	**45.52**	**45.53**

Table 2: Selected spot crude prices

$/b

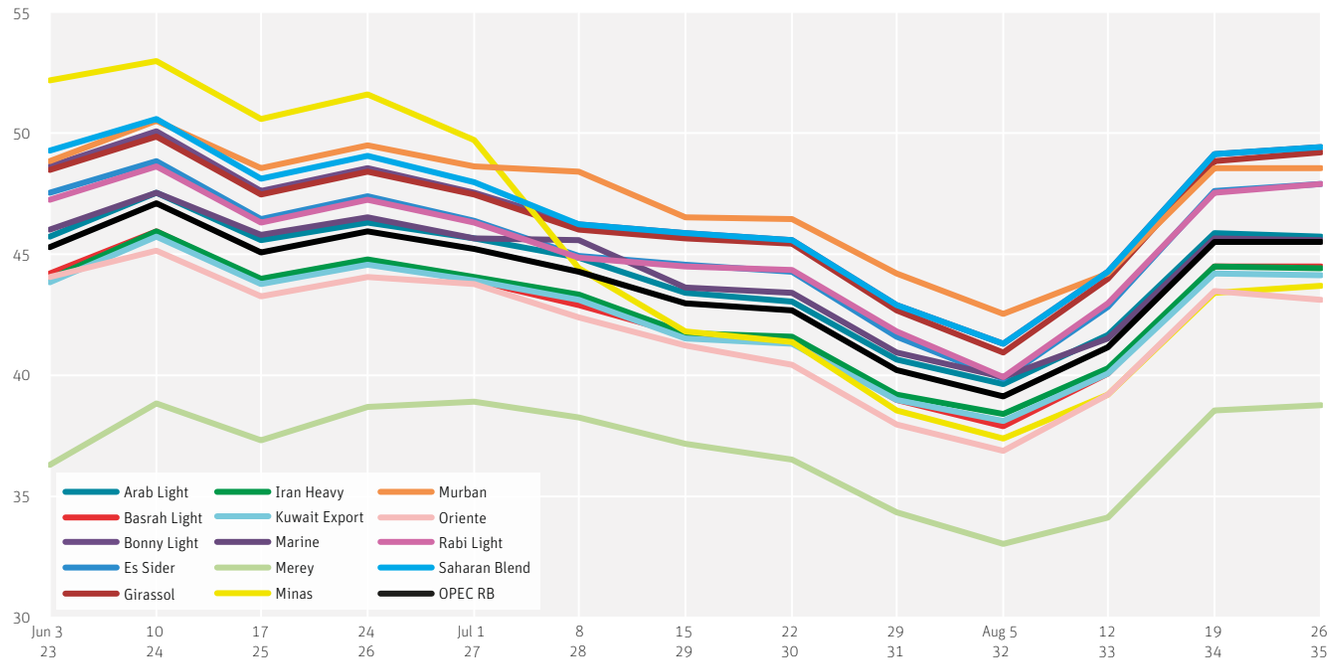
Crude/Member Country	2015 Aug	Sep	Oct	Nov	Dec	2016 Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Weeks 31–35/2016 (week ending) Jul 29	Aug 5	Aug 12	Aug 19	Aug 26
Arab Heavy – Saudi Arabia	44.82	43.37	43.01	37.00	30.15	22.50	26.15	32.76	35.92	40.69	43.68	40.40	41.00	38.09	37.24	39.14	43.33	43.22
Brega – Libya	46.32	47.25	48.21	44.02	37.91	30.60	32.31	38.36	41.42	46.83	48.28	44.95	45.87	42.57	40.79	43.82	48.68	48.97
Brent – North Sea	46.72	47.61	48.56	44.30	38.16	30.75	32.46	38.51	41.48	46.83	48.28	45.00	45.85	42.62	40.84	43.81	48.63	48.92
Dubai – UAE	47.87	45.38	45.84	41.79	34.59	26.81	29.44	35.15	39.00	44.29	46.25	42.64	43.58	40.16	39.67	41.61	45.98	45.94
Ekofisk – North Sea	47.53	48.24	49.23	45.10	38.80	31.45	32.86	38.86	42.15	47.70	48.54	44.99	45.79	42.62	40.84	43.81	48.77	49.17
Iran Light – IR Iran	45.74	46.16	47.05	43.17	35.98	28.34	30.16	36.08	39.09	44.65	46.38	43.54	43.66	41.40	39.17	41.78	46.54	46.80
Isthmus – Mexico	46.56	47.71	46.90	43.29	37.68	30.03	28.68	35.45	38.14	44.76	47.51	45.07	44.22	42.14	40.24	42.67	46.72	46.51
Oman – Oman	47.87	45.65	46.07	42.10	34.61	27.48	30.37	36.46	39.43	44.37	46.61	43.45	44.02	41.30	40.40	42.27	46.28	46.11
Suez Mix – Egypt	43.30	44.53	44.65	40.07	34.07	27.45	29.17	35.15	38.19	43.31	44.90	42.06	42.20	39.92	37.69	40.31	45.09	45.35
Urals – Russia	46.22	47.19	47.49	43.05	36.97	29.15	30.87	36.87	39.89	45.08	46.60	43.76	44.06	41.62	39.39	42.01	46.79	47.05
WTI – North America	42.77	45.48	46.26	42.67	37.23	31.46	30.33	37.77	40.95	46.84	48.74	44.90	44.75	42.00	40.83	43.10	47.17	47.15

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).

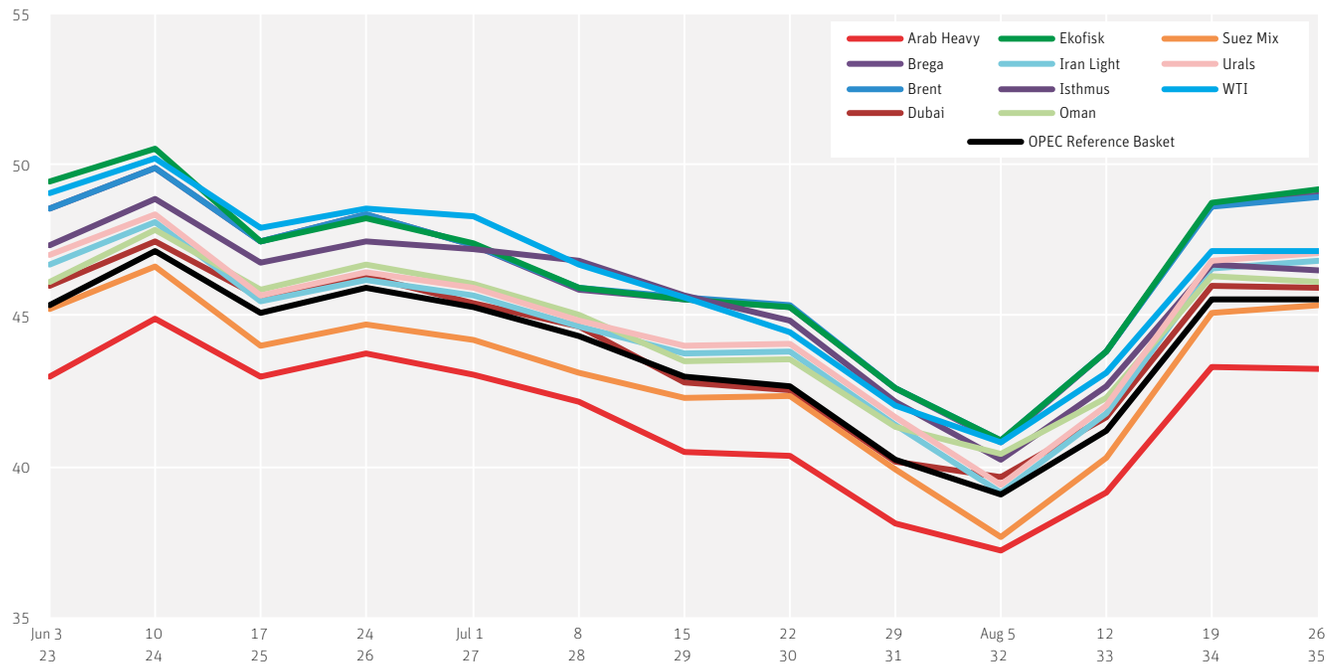
** Indonesia joined in 1962, suspended its Membership on December 31, 2008, and reactivated it again on January 1, 2016. Gabon joined in 1975 and left in 1995; it reactivated its Membership on July 1, 2016.*

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 $/b



Graph 2: Evolution of selected spot crude prices, 2016 $/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.

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
2015	August	44.38	77.52	60.66	60.18	35.24	35.80
	September	45.30	70.72	61.41	61.35	33.88	34.41
	October	47.36	66.73	59.23	59.68	33.89	34.43
	November	46.13	65.27	57.06	56.78	30.20	30.68
	December	42.67	58.79	45.68	47.54	22.40	22.59
2016	January	35.13	53.41	38.11	39.21	19.85	15.08
	February	32.32	49.48	40.41	41.48	21.45	17.91
	March	38.53	54.82	47.13	47.43	24.83	21.32
	April	41.69	66.41	49.57	50.30	27.82	23.66
	May	44.28	69.51	56.67	56.15	32.52	29.28
	June	45.89	70.22	59.37	58.80	37.81	32.24
	July	41.73	62.35	53.84	54.48	37.60	32.21
	August	40.52	64.07	54.28	54.91	36.83	32.87

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

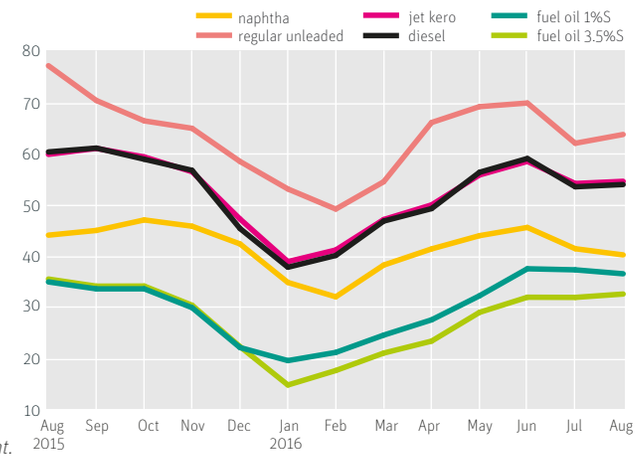


Table and Graph 4: South European market — spot cargoes, fob Italy

$/b

		naphtha	premium gasoline 50ppm	diesel ultra light	fuel oil 1 per cent S	fuel oil 3.5 per cent S
2015	August	42.33	70.26	62.21	36.31	35.76
	September	43.00	63.02	63.34	34.49	34.26
	October	45.25	58.98	61.26	36.20	34.97
	November	44.06	58.77	57.28	32.83	30.02
	December	40.29	51.81	46.40	25.88	22.20
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

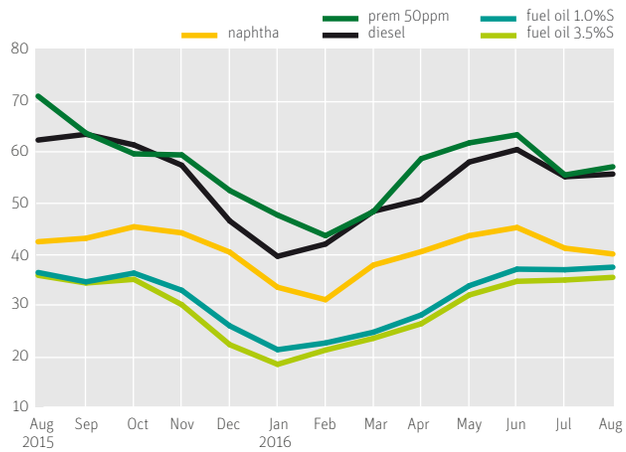


Table and Graph 5: US East Coast market — spot cargoes, New York

$/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
2015	August	68.26	58.40	60.76	44.45	36.44
	September	61.40	59.78	61.60	43.40	35.77
	October	58.62	58.73	60.94	46.36	35.64
	November	58.51	55.08	59.07	45.01	33.12
	December	53.68	43.89	49.31	35.65	24.09
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

* *FOB barge spot prices.*

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

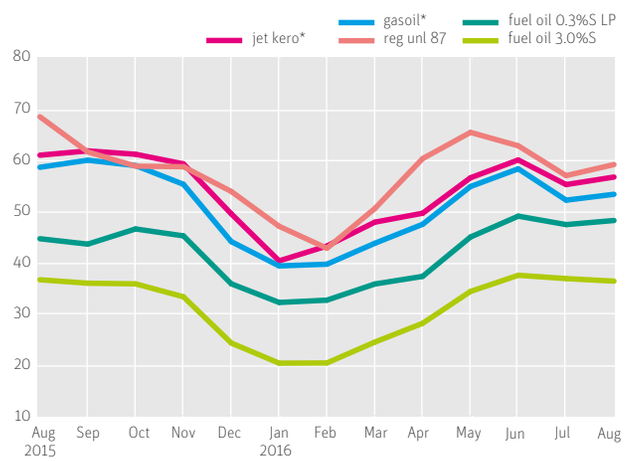


Table and Graph 6: Singapore market – spot cargoes, fob

$/b

		naphtha	premium gasoline unl 95	premium gasoline unl 92	gasoil	jet kero	fuel oil 180 Cst	fuel oil 380 Cst
2015	August	45.76	66.00	61.95	57.12	57.08	39.04	37.36
	September	46.81	65.24	61.59	59.48	58.99	37.37	36.58
	October	48.92	63.39	60.55	59.13	59.28	38.32	36.99
	November	48.95	59.10	56.42	57.46	57.46	36.11	34.98
	December	45.69	55.63	52.83	46.86	47.70	28.20	27.15
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

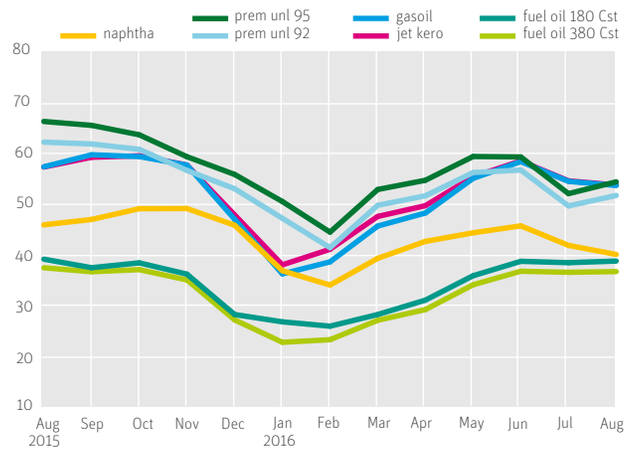
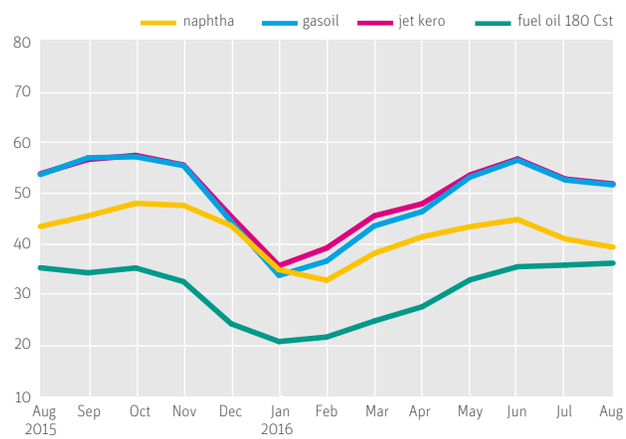


Table and Graph 7: Middle East Gulf market – spot cargoes, fob

$/b

		naphtha	gasoil	jet kero	fuel oil 180 Cst
2015	August	43.45	53.64	53.79	35.34
	September	45.55	56.93	56.60	34.36
	October	48.00	57.13	57.40	35.30
	November	47.58	55.40	55.51	32.63
	December	43.62	44.42	45.39	24.35
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



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

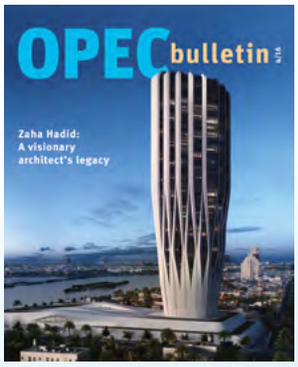
OPEC offers a range of publications that reflect its activities. Copies can be obtained by contacting this Department, which regular readers should also notify in the event of a change of address:

PR & Information Department, OPEC Secretariat
Helferstorferstrasse 17, A-1010 Vienna, Austria
Tel: +43 1 211 12-0; fax: +43 1 211 12/5081; e-mail: prid@opec.org

OPEC Bulletin 2016
(free of charge)

June/July 2016

May 2016



April 2016

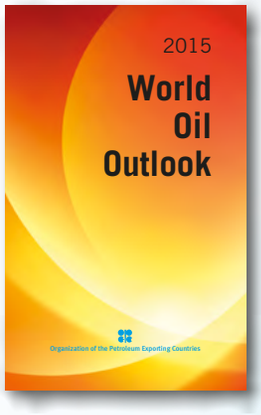
Annual Statistical Bulletin 2016

124-page book. A USB is also available (for Microsoft Windows only) which contains all the data in the book and much more.

- Easy to install and display
- East to manipulate and query

Interactive version available at http://asb.opec.org/

World Oil Outlook 2015
(free of charge)

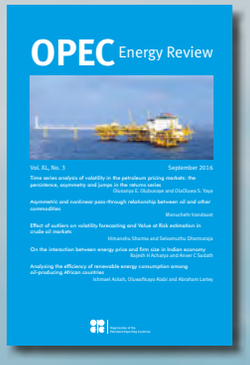


OPEC Monthly Oil Market Report *(free of charge)*

- Crude oil and product prices analysis
- Member Country output figures
- Stocks and supply/demand analysis

Annual Report 2015
(free of charge)

OPEC Energy Review



Contains research papers by international experts on energy, the oil market, economic development and the environment. Available quarterly only from the commercial publisher. Annual subscription rates for 2015:

	Institutional			Personal
	Print	Online	Print & online	Print & online
Europe €	615	615	738	182
UK £	485	485	582	123
Americas $	814	814	977	203
Rest of world $	949	949	1,139	£123

Canadian residents, please add five per cent for GST.

Orders and enquiries:
John Wiley & Sons, 9600 Garsington Road, Oxford OX4 2DQ, UK.
Tel: +44 (0)1865 776868; fax: +44 (0)1865 714591; e-mail: cs-journals@wiley.com;
http://onlinelibrary.wiley.com/

www.opec.org