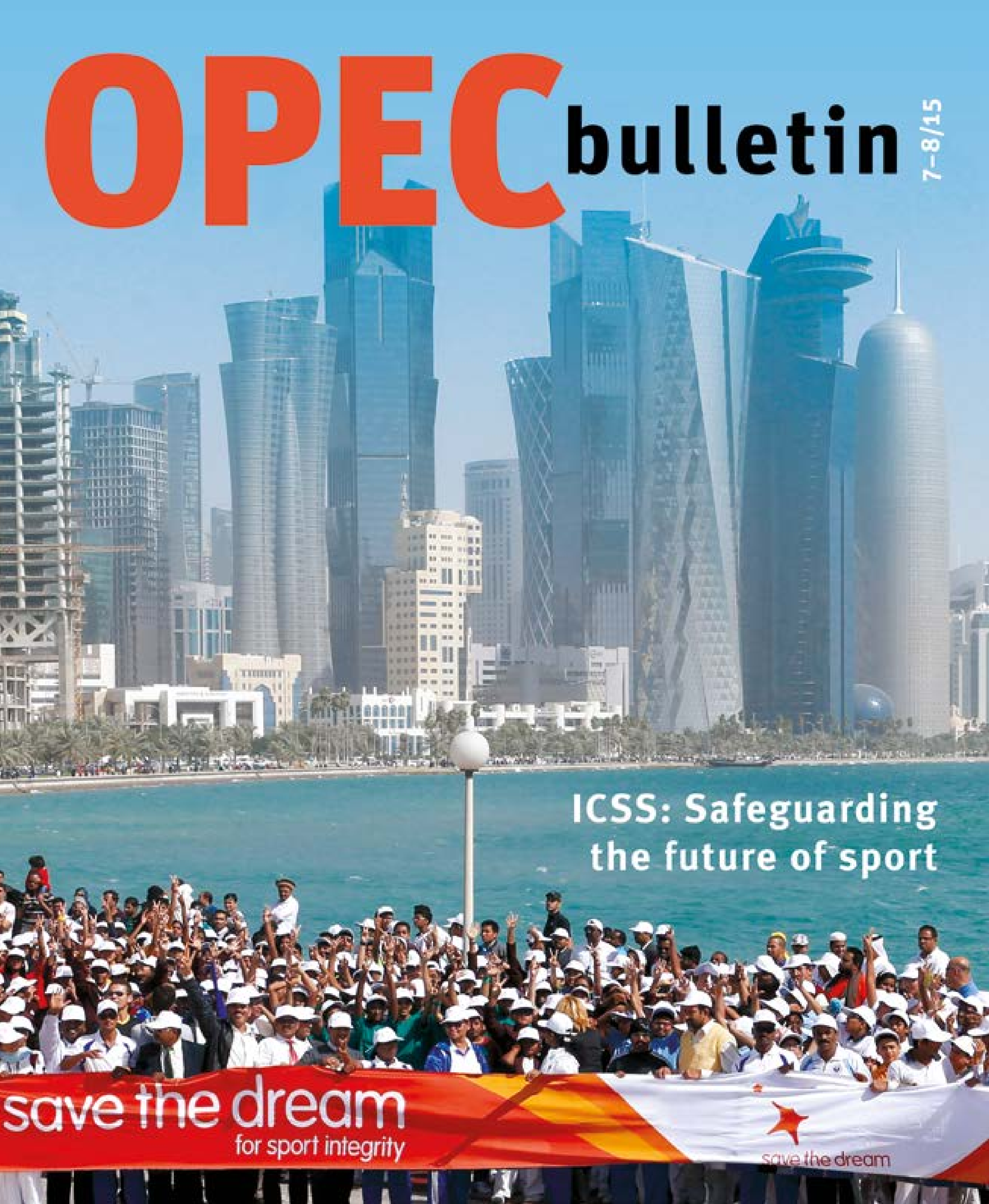
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Cooperation holds the key to oil's future

International crude oil prices in July suffered their largest monthly decline since Lehman Brothers collapsed in the United States in 2008, marking the onset of the global financial crisis. Today's continuing pressure on prices, brought about by higher crude production, coupled with market speculation, remains a cause for concern for OPEC and its Members — indeed for all stakeholders in the industry.

Apart from the obvious loss of much-needed revenue required for Member Countries' socio-economic development, there are growing fears that, under the current low-price scenario, investment in future capacity additions will continue to be shelved or cancelled altogether.

With the long lead times associated with bringing new oil to market, the industry cannot afford a lapse in spending, particularly in view of the long-term expectations for oil demand, which point strongly to a considerable rise in world oil consumption over the next two decades at least.

Failure to invest now could mean prices in the coming years spiking to levels inconsistent with what is considered 'reasonable' for both producers and consumers.

On the other hand, it is perhaps too much to expect oil companies to risk significant spending in the current economic climate. They already have enough on their plate in having to retrench and find ways of reducing costs in their existing projects, matching operational budgets to today's low prices.

The one good thing to come out of a period of lower prices is that demand customarily rises as cheaper fuel encourages more usage by the consumers. And the current situation appears to be no exception. In fact, three of the industry's main authoritative institutions — OPEC, the International Energy Agency (IEA) in Paris and the Energy Information Administration (EIA) of the United States — all forecast oil demand improving going into next year. Their forecasts show that this will occur on the back of an expected increase in global economic growth, which, in turn, should also help crude prices to strengthen.

OPEC's *Monthly Oil Market Report (MOMR)* for August points out that given the better-than-expected growth in global oil demand so far in 2015, together with signs of a pick-up in the economies of the major consuming countries, crude oil demand in the coming months should continue to improve.

It adds that this development would also serve to gradually reduce the imbalance in oil supply and demand fundamentals.

The OPEC Secretariat's projections are pinned to the fact that global economic growth will rise by 3.2 per cent this year, with an even better performance of 3.5 per cent slated for 2016.

Of significance is the fact that the OECD and Euro-zone regions, which previously suffered years of stagnation, are set to expand next year — by 2.1 per cent and 1.3 per cent, respectively.

Add to the equation the fact that India will see its gross domestic product improve to 7.7 per cent in 2016, China will still be relatively strong at 6.5 per cent, while Russia and Brazil are seen moving out of recession, and one can appreciate why there is growing optimism over oil demand growth improving.

Boosted by the OECD Americas and Europe, OPEC figures show that world oil demand this year is now expected to rise by 1.38 million barrels/day from its 2014 level to 92.70m b/d, while in 2016 it is expected to add another 1.34m b/d to growth.

This all augurs well for oil prices and should play a big role in helping to restore market stability.

History has repeatedly taught us that when dealing with something as complex and intricate as the international oil market, which involves many vested interests looking to defend their respective positions, it is rarely going to be plain sailing.

But if the wide-ranging projections on oil demand are correct, then it is just a case of riding out the storm and waiting for calmer waters to return.

Needless to say, OPEC, as always, will continue to do all in its power to create the right enabling environment for the oil market to achieve equilibrium with fair and reasonable prices.

As the Organization has stressed on numerous occasions, it stands ready to talk to all other producers. But this has to be on a level playing field. OPEC will protect its own interests. As developing countries, its Members, whose economies rely heavily on this one precious resource, can ill afford to do otherwise.

Cooperation is and will always remain the key to oil's future and that is why dialogue among the main stakeholders is so important going forward.

There is no quick fix, but if there is a willingness to face the oil industry's challenges together, then the prospects for the future have to be a lot better than what everyone involved in the industry has been experiencing over the past nine months or so. Only time will tell.

Contents

The Analytical Centre

Energy Dialogue 4 El-Badri, Novak optimistic oil market, prices will improve

Forum 8 Sustainably energizing the world

Award Winner 12 Dr Vaclav Smil: Fossil fuels — still the way forward

UK North Sea 16 What next for the UK North Sea?

Spotlight 20 From RAG to riches

Newsline 26 Algeria boosts crude oil output from two new fields

27 Angola calls for bids on ten onshore blocks

28 Iran to launch new oil model contract in December and eyes $185bn in oil and gas projects

29 Iraq sees record southern oil exports in July

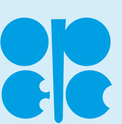
30 Kuwait awards $11.5 billion in contracts for new refinery

31 Buhari announces plans to split NNPC into two entities

32 ADIPEC to offer waterfront attraction for prospective buyers

33 Repsol announces start of Perla gas production in Venezuela

OPEC bulletin



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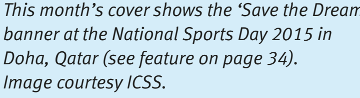

This month's cover shows the 'Save the Dream' banner at the National Sports Day 2015 in Doha, Qatar (see feature on page 34). Image courtesy ICSS.

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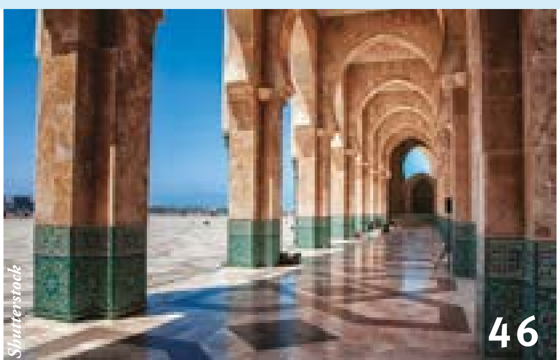
OPEC Membership and aims

OPEC is a permanent, intergovernmental Organization, established in Baghdad, on September 10–14, 1960, by IR Iran, Iraq, Kuwait, Saudi Arabia and Venezuela. Its objective — to coordinate and unify petroleum policies among its Member Countries, in order to secure a steady income to the producing countries; an efficient, economic and regular supply of petroleum to consuming nations; and a fair return on capital to those investing in the petroleum industry. Today, the Organization comprises 12 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. Gabon joined in 1975 and left in 1995. Indonesia joined in 1962 and suspended its Membership on December 31, 2008.

RAG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Security in Sport
34 Centre's global initiative seeks to safeguard youth in sport
45 Save the Dream — competition

Country Profile
46 Morocco: The quest for energy

Briefings
56 Visits to the Secretariat

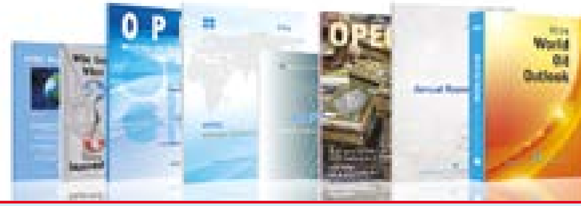
Vacancy Announcements
57 Employment opportunities

OPEC Fund News
58 OFID Ministerial Council approves new ten-year agenda

Noticeboard
60 Forthcoming events

Market Review
61 OPEC expects higher oil demand in 2016 as economy expands
63 Global oil demand forecast to continue improvement

OPEC Publications
69 Reading material about the Organization



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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.

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OPEC-Russia hold fourth Energy Dialogue meeting

El-Badri, Novak optimistic oil market, prices will improve

Alexander Novak (r), Minister of Energy of the Russian Federation and Abdalla Salem El-Badri (l), Secretary General of OPEC, during the fourth High-Level Meeting of the OPEC-Russia Energy Dialogue, Moscow, Russia.

The fourth High-Level Meeting of the OPEC-Russia Energy Dialogue was held in Moscow on July 30, 2015.

The Meeting was chaired by Alexander Novak, Minister of Energy of the Russian Federation and Abdalla Salem El-Badri, Secretary General of OPEC.

It was attended by senior executives of the national oil companies of Russia, representatives of the academic community of the Russian Federation, as well as senior representatives of the OPEC Secretariat in Vienna, Austria.

According to a joint press release issued at the end of the one-day meeting, such meetings now had a regular character which contributed to the energy dialogue and facilitated the exchange of views on pertinent issues with regard to the world oil market.

It disclosed that the meeting focused on short-term oil market developments, as well as medium- to long-term prospects. The deliberations also included the outlook for petrochemicals and fiscal regime perspectives in the Russian oil sector.

It was stressed during the meeting that price volatility and the general oversupply in the oil market observed in recent quarters had been less conducive for market stability.

"Despite current uncertainties, signs of a more balanced market in 2016 may provide much desired stability to the oil market in the longer term, a prerequisite for the continuity of timely and adequate investments," said the press release.

Shared perspectives

In his comments to the Meeting, El-Badri said the talks had built on the Dialogue and past cooperation.

He reminded delegates that the last High-Level Meeting of the Dialogue was in Vienna in September last year, at which the parties had shared their perspectives on oil market developments, future outlooks, and the importance of stable and predictable markets for the health of the oil industry.

"This year, our Dialogue also benefits from the contributions that His Excellency, Minister Alexander Novak, made at the OPEC International Seminar in June. We were grateful for his participation — and would like to thank him again."

El-Badri noted that during his presentation to the Seminar, Novak had pointed out that Russia, along with OPEC and many others in the oil industry, faced many challenges.

"This further underscores the value of today's Dialogue," he affirmed.

The OPEC Secretary General said these challenges included structural changes in the oil market — such as those related to oil demand trends, the growing diversification of oil exports and the shift towards Asia.

"In addition, both Russia and OPEC have been impacted by the market instability and price volatility that we have seen in recent quarters. This includes a general market oversupply — with rising oil stocks in an environment of global economic uncertainties — and of course, the lower price environment," he pointed out.

"The current situation is a test for all producers and investors. While prices will no doubt rebound, it is still too early to say when this will happen," he added.

El-Badri said OPEC saw signs of a more balanced market by the end of 2015 and in 2016.

"We thus expect continuity and stability in the oil market in the long term.

"I am sure our discussions today will focus on many of these challenges and uncertainties that our industry faces in both the short and long term. With our background of shared interests, there are clearly many benefits that we can gain from openly talking to each other.

"I hope that we will continue to build on the progress that we have already made in previous meetings," he concluded.

The Analytical Centre

Abdalla Salem El-Badri (c), OPEC Secretary General with members of his Secretariat team (l–r) Dr Hojatollah Ghanimi Fard, Head, Petroleum Studies Department and Oswaldo Tapia, Head, Energy Studies Department.

Meanwhile, Novak was quoted as saying that Russia and OPEC were pursuing the same goals of keeping the oil market balanced and stable.

"The global oil market is being affected by various political factors." he said. "Russia and OPEC Members, being responsible participants on the global oil market, should conduct our policy based on the full ... understanding of its (global oil market) key factors and characteristics," *Reuters* quoted him as saying.

Expressing optimism about the prospects for oil demand growth, Novak said Russia and OPEC's views on the market mainly coincided.

"We understand that starting from 2016 the supply-demand balance will mostly even out. Supply still exceeds demand. But we expect that in 2015, total demand will grow by around 1.2–1.3 million b/d," he stated.

Exchange of views

Concerning the OPEC-Russia Energy Dialogue, the Russian Minister stressed that the exchange of views between two major players was very important, noting that OPEC and Russia together accounted for around 45 per cent of global crude output.

Novak revealed that he and El-Badri had discussed a wide range of issues, including prospects for the petrochemical industry, expected additional volumes from Iran, shale oil production in the United States, the significant drop in global oil investment, oil price volatility and the balance between supply and demand.

He stressed that they saw no need for coordinated action to reduce crude oil production because the market would balance itself as the lower price environment drove out higher-cost production.

Novak contended that the balance of supply and demand should be governed by the market and that "artificial" steps should not be taken, particularly when the

Representatives from Russia included Alexander Novak (eighth right), Minister of Energy of the Russian Federation; and (l–r): Vladimir Feygin, Director, Institute for Energy and Finance; Talyat Aliev, Deputy Director of the Department of International Cooperation, Ministry of Energy; Roman Marshavin, Assistant of the Energy Minister; Vladimir Voronkov, Permanent Representative of the Russian Federation to the International Organizations in Vienna; Alexey Teksler, First Deputy Minister, Ministry of Energy; Anton Ustinov, Counselor to the President of the Russian Federation; Eugeniy Stanislavov, Director of the Department of Economic Cooperation, Ministry of Foreign Affairs; Anatoly Tikhonov, General Director, Russian Energy Agency of the Ministry of Energy; Andrey Gaidamaka, Vice President for Investors Relations, PJSC «Lukoil»; Konstantin Simonov, General Director, National Energy Security Fund; Alexander Erkov, Deputy Director of the Department of Oil and Gas Extraction and Transportation; Natalia Nozdrina, Head of Division of the Department of International Cooperation, Ministry of Energy.

markets were impacted, not only by exporting countries, but also by importing countries that, due to new technologies, could independently grow production.

Also speaking to reporters, El-Badri pointed out that even if OPEC had agreed to reduce its production by 1.5m b/d at its Ministerial Conference in November last year, "the decline in the price would not have been stopped."

Higher production cost

He stated: "At the end of the day, we really cannot compensate for any other producers, we cannot compensate for higher production cost. Higher production cost must defend itself."

El-Badri stressed that there were no disagreements among OPEC Member Countries and he referred to the last OPEC Conference in June this year, at which it was decided to maintain the current output ceiling of 30m b/d, as being "one of the best meetings ever."

He added: "We listen to each other, we understand each other."

The joint press release said that delegates had reiterated the value of such meetings and had agreed to have the next High-Level Meeting of the Dialogue in Vienna during the second half of 2016.

The OPEC Secretariat team with Abdalla Salem El-Badri (fourth right), Secretary General of OPEC; and (r–l), Nadir Guerer, Senior Research Analyst; Abdullah Al-Shameri, Advisor in the Office of the Secretary General; Oswaldo Tapia, Head, Energy Studies Department; Dr Hojatollah Ghanimi Fard, Head, Petroleum Studies Department; Ms Hend Lutfi, Fiscal Policy Analyst; Dr Aziz Yahyai, Senior Research Analyst; and James Griffin, Editor/Speechwriter.

Sustainably energizing the world

Abdalla Salem El-Badri, OPEC Secretary General.

The 2015 Yearbook of the World Petroleum Council (WPC) includes a contribution by OPEC Secretary General, ***Abdalla Salem El-Badri****, who, among other issues, talks about sustainability and the need to ensure that the world's growing population has access to modern energy resources in the years ahead. The article is reproduced here in its entirety.*

Energy has been central to a great deal of the progress of humankind over the centuries. It has positively impacted the lives of billions in terms of providing light, power and mobility. And the history of the industrialized world has been built on the back of fossil fuels.

However, we should not forget that this has not been the story for all. For many billions of people across the world, starting a car engine, switching on a light or turning on a mobile phone is not something they have experienced. These everyday things, that many take for granted, are only a dream. The issue of energy poverty is something that needs to be addressed at the highest levels.

Today, around 2.7 billion people still rely on biomass for their basic needs, and 1.3bn have no access to electricity. They need access to reliable, safe and secure modern energy services to live and prosper. Without this access, many will continue to suffer from health and environmental problems, and their economic opportunities will be limited. We need to remember that energy is recognized as an 'enabler' of sustainable development.

It is extremely positive that Goal 7 of the United Nations Sustainable Development Goals calls for nations to "ensure access to affordable, reliable, sustainable, and modern energy for all." Sustainable development is also a high priority for OPEC Member Countries. And it is also the main goal of the financial and technical assistance they

provide to other developing countries, whether directly through their own aid institutions or through their participation in the OPEC Fund for International Development (OFID).

Looking ahead, the global population will also keep on expanding. It is expected to reach almost nine billion by 2040 — an increase of around 1.7bn from today's level. And all these additional people will require access to modern energy services too.

So with more people on the planet, the need to provide more access to energy, and expanding economies, energy demand is set to grow. In OPEC's *World Oil Outlook (WOO) 2014,* between 2010 and 2040 we expect energy demand to rise by 60 per cent.

With all this in mind, the basic challenge is two-fold. Firstly, to supply enough energy to meet demand and help provide access to modern energy services for those currently without and those still to be born. And secondly, this needs to be done in a sustainable way, balancing the needs of people in relation to economic situations, social welfare and the environment.

All energies required

It is clear is that all forms of energy will be needed. But it is crucial to appreciate just what each energy source can offer to the future.

Renewables — from wind, solar, small hydro and geothermal — are expected to grow at over seven per cent per year over the coming decades, often as a result of government support and incentives. They certainly hold promise; but globally their share of the energy mix will still only be four per cent by 2040, given their low initial base.

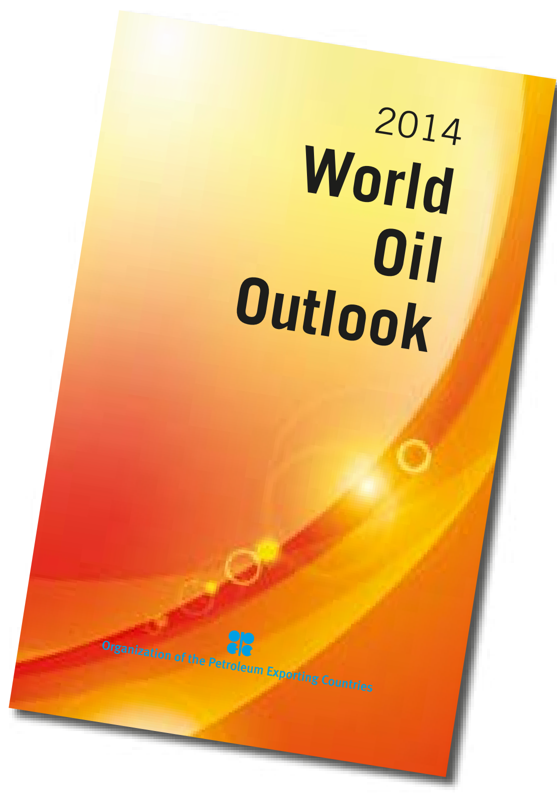
The share of biomass, nuclear and large hydro is expected to remain at steady levels throughout the period 2010–40, at around 9.5 per cent, 5.5 per cent and 2.5 per cent, respectively.

Thus, it is fossil fuels that will continue to play the dominant role in meeting demand, although their overall share will fall from 82 to 78 per cent during this period. Through the initial part of that projection period, oil is expected to continue to have the largest share of all energy types. But after 2030, the individual shares of the three fossil fuels — oil, gas and coal — are seen converging towards similar levels of around 25-27 per cent.

There are often questions asked about whether this kind of growth can actually be achieved. There is no doubt that it can.

In terms of oil, OPEC's projections see demand increasing by over 20 million barrels/day during the period to 2040, with developing Asia accounting for most of the global increase. And there are clearly plenty of available resources to meet this expanding oil demand.

"It is clear is that all forms of energy will be needed. But it is crucial to appreciate just what each energy source can offer to the future."



Technological advancements continue to help the industry increase the estimates of the amount of oil and gas that can be found, and that can be recovered, extending the reach into harsher and more remote 'frontier areas'. What was once described as 'impossible' oil has today become 'possible'.

Of course, having the resources available is only part of the story. To accompany this, oil and energy markets also need to be stable and predictable in order to help deliver and sustain our energy future. This represents a major test in itself.

"… extreme price fluctuations are clearly not conducive to the effective functioning of the market, particularly given the long-term nature of investments in our industry."

Since June 2014, there has been much focus on the near-term market, falling oil prices, and the volatility and uncertainties for all stakeholders. This is understandable, but it is also important to keep an eye on the long-term and the fact that the world will need more energy.

What is clear is that more energy requires more investment. In OPEC's WOO 2014, oil-related investment requirements alone are estimated to be around $10 trillion between now and 2040.

In looking ahead, there is no doubt that the path for the industry will be marked with challenges, just as it has been in the past. It is therefore vital to better understand some of the expected challenges, as well as opportunities, and identify areas where dialogue and cooperation among producers and consumers might help. At OPEC, we recognize the value of strong and mutually-beneficial relationships.

Negotiating the challenges

Alongside the current oil market situation, the challenges for the industry include challenges that we can call 'known' uncertainties. These include the role of financial markets and oil market speculation; manpower bottlenecks; the energy-water nexus; energy policies in some consuming countries; and, the potential impact of UN climate change negotiations. And there are also 'unknown' uncertainties. These are most often related to geopolitics and severe weather patterns.

At the end of the previous decade and in the early years of this one, the impact of the increased financialization of oil markets was much discussed as some price movements were clearly not been driven by fundamentals or the normal ebbs and flows of the market. They were being driven by market speculation.

There is also no doubt that speculation played a role in the oil price dropping by over 60 per cent between June 2014 and January 2015. The actual supply and demand fundamentals of the market did not warrant such a fall.

It is extremely important to keep a watchful eye over speculative activities. With this in mind, earlier this year the International Energy Agency (IEA), the International Energy Forum (IEF) and OPEC organized the 5th Joint Workshop on the Interactions between Physical and Financial Energy Markets.

It is clear we cannot avoid speculation and volatility altogether. But extreme price fluctuations are clearly not conducive to the effective functioning of the market, particularly given the long-term nature of investments in our industry.

The goal, for both producers and consumers, must be a stable price. It is a price that helps to deliver the necessary investments — and here we need to remember the cost of the marginal barrel — that allows producers to receive a reasonable income, and that enables the global economy to grow.

There is the human resource challenge. With strong competition from other economic sectors for skilled workers, there is a need to address the oil industry's difficulties in finding and hiring labour at the global level. The industry needs to make sure it is attractive to prospective graduates, retains talented people and transfers knowledge to the next generation. They will be the ones that push the industry's boundaries in the years ahead.

In 2013, the European Union (EU) and OPEC conducted a study and held a roundtable on potential manpower bottlenecks in the petroleum industry to consider this challenge in greater detail

There is also the energy-water nexus. It is important that we better understand the links between energy and water. Both are vital to economic development and human well-being, and scarcity in one will likely affect the availability of the other.

For producers, it is also important to have a better

understanding of the environmental and energy policies of consuming countries.

Obviously, every country has the sovereign right to set its own policies. But it is essential that they provide a clear idea as to the potential impact of policies on future oil consumption levels, as well as overall energy supply and demand patterns.

At the heart of this is security of demand. This is just as important to producers, as security of supply is to consumers.

Energy security should be viewed as a full circle. Producers do not want to waste precious financial resources on infrastructure that might not be needed, particularly given the scale of the required investments.

At the same time, however, if timely and adequate investments are not made, then future consumer needs might not be met.

And there is also the challenge of climate change and protecting the environment. We cannot pretend that climate change is not a serious issue. There is no doubt that it is. It impacts us all. But we also cannot pretend that renewables are the only solution, or that they are available at scale today. Nor can we pretend that climate change is the primary concern for the billions who remain without modern energy services. We need a balanced approach and debate — one that takes into account the diversity of needs and viewpoints.

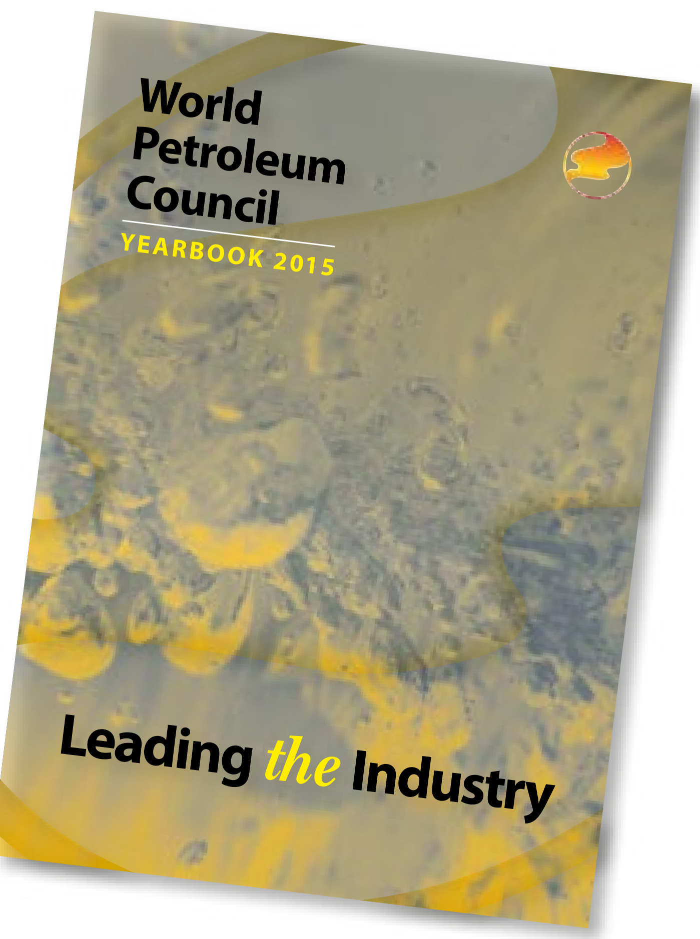
OPEC Member Countries have positively and constructively engaged in the UN climate change negotiations. And they recognize the importance of keeping in mind the three pillars of sustainable development: economic growth, social progress and environmental protection.

Dialogue with all

When talk turns to a sustainable energy future it is vital to make sure all voices are heard. We all want a secure, stable and sustainable energy future, but this means different things to different people and specifically we need to recognize the importance of alleviating energy poverty.

At OPEC, we see that many of the energy challenges we face are best confronted together. Dialogue and cooperation have long been watchwords for OPEC. Over the years, we have evolved and strengthened our dialogue with organizations and countries such as the IEF, the IEA, the EU, the Russian Federation and the G20.

Such dialogue and cooperation are essential elements in our ongoing efforts to maintain stability and confidence in the industry. Those of us who are in the energy business have a responsibility to engage in such activities, and to do everything we can to enhance the security, stability and sustainability of an energy system that is essential to all of us.



"We all want a secure, stable and sustainable energy future, but this means different things to different people and specifically we need to recognize the importance of alleviating energy poverty."

Award Winner

Fossil fuels — still the way forward

***Dr Vaclav Smil** has a unique view of OPEC and the oil industry, having been involved in industry research throughout his illustrious career. The Distinguished Professor Emeritus from the University of Manitoba in Canada is the recipient of the 2015 OPEC Award for Research. In his own words, he was "quite surprised" when he found out about the OPEC honour, bestowed on him at the 6th OPEC International Seminar, held in Vienna in June of this year, since he has often been critical of the Organization. In this interview with the* **OPEC Bulletin's Maureen MacNeill,** *he describes how crude oil has been underrated over the years, but is still the most important fossil fuel going forward.*

Dr Vaclav Smil describes oil as "by far the best source of energy on this planet we will ever know, because it is highly energy-dense — it has unique flexibility. It is the only fuel with which we can fly, run a ship on the sea, heat one's house, make plastics out of and store very easily."

Yet, he comments, its value was grossly underrated in the past and it was sold for very little. "Until 1973, we were paying $2/barrel for oil," he says, adding that OPEC has done the world a unique service by reminding it of the value of the precious commodity.

"By 1973, the average American car was only as efficient as it was in 1933 — it is just absolutely amazing. If you think of how many things improved between 1933 and 1973, everything improved, right? But not cars," maintains Smil.

"But by the end of the decade — by the 1980s — all industrial producers reduced their oil consumption very rapidly because it was such a major portion of their cost. So basically, what OPEC has done is (to protect) the environmental impact because people forget about it."

Smil notes that higher prices forced industry and individuals to become more efficient, improving air quality tremendously in the process.

The oil industry has always been changeable, he states, adding that he gets frustrated when people ask him about difficult times facing OPEC.

"People forget that in 1985 prices collapsed and they remained low for a very long period of time. This was not the first time … people always over-interpret."

Furthermore, he bristles, when people say OPEC is too powerful, "it never controlled the oil market. It is the consumers that control the oil market — they always have the choice to be more efficient and to consume less. Nobody is forcing us to consume oil, right?"

'OPEC a powerful organization'

OPEC, says Smil, had nothing to do with the rise of the Chinese economy, which sucked in so much oil, nor does it have anything to do with the relative weakening of Chinese growth, which has affected oil demand.

"Some people say that today it is over for OPEC — OPEC has no power. That is simply not true. OPEC is a powerful organization. But it has never been as powerful

“Some people say that today it is over for OPEC. That is simply not true. OPEC is a powerful organization. OPEC is not going anywhere anytime soon.”

as other people say it was. OPEC is not going anywhere anytime soon,” he stressed.

Smil points out that the Organization has naturally evolved and changed over time. “For decades, it has been totally cooperative because OPEC knows very well that it is not in its interest to jack up prices, even if it could, yet cannot.

“OPEC has been looking for a consensus with consumers, saying it (wants a price) that makes it comfortable for people to produce with reasonable profit, but not so much that it will hinder economic growth of the major economies, or especially the poorer economies,” he affirms.

There is a good and healthy price for oil, continues Smil. “…but even if you would hit this price, it would not stay there. People would not be here today saying the price is too low and OPEC is losing power if strong Chinese economic growth had continued. Chinese economic growth was exceptionally fast for nearly 20 years, but over the last two years it has slowed considerably.”

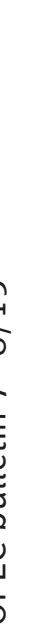
Says Smil: “If Chinese economic growth had continued as it had for the previous ten years, or if India had joined China in growing very rapidly, or if the EU had seen a better recovery, there would be no discussion.

“It is not only that OPEC is weighed down by shale production in the US, it is the fact that there is no real new demand from the EU, while Chinese demand is declining and Indian demand is not increasing as fast as Chinese demand used to.

“Even if you reached the perfect price … it would not last. It may last a day or a week, but something else would move it because suddenly EU demand disappears, or Chinese demand goes down, and so it goes.”

Smil contends that technology will also affect the price of oil. People, he says, always ask: “What is the cut-off for shale oil? Even the people producing shale oil do not know that because it depends on so many variables.

“To begin with, there is no such thing as shale. Some of these shales are really flat and thick and rich in organic



matter which you can frack the oil out of, some others are thin, poor in organic matter, very fractured.

"Then you have the technique — sometimes you have to drill very deep. Some of them have conditions where from one bed you can drill 12–16 wells, which is very economical, but with some of them you have to drill one well here, one well there.

"It all depends on the expertise. Americans have all the expertise in the world to drill those wells," he observes.

Smil notes that maybe five years ago industry people would have said a crude price of at least $60/b is needed to produce shale. Now many of them say it can live with $40, but not all of them.

He maintains that it is too early to say what will happen with prices in the next five years. Some shale producers may extract oil at $35/b; however, they may find out there is environmental opposition.

"There are so many balls in the air regarding the price of oil — it is like a juggling show. But there are not three or four balls, but a dozen balls."

"Because there is a great deal of water use with it, you can recycle some of that water, but after a while the water is so contaminated it cannot be recycled, so you have to put it down into deep storage.

"Basically, you are withdrawing the water from the natural water cycle and that eventually may cause some concern and problems. There may be an environmental backlash against some of the shale developments," he states.

"New York State says no to fracking. The whole of the US has lots of shale, tremendous deposits of shale. The whole of New York sits on great deposits of shale … it is a very complex and moving target."

Smil says environmental issues are having a greater effect on the industry as a whole, although he did not see that all international oil companies or experts believed that a comprehensive carbon agreement would be formed in December at the COP environmental talks in Paris, as a show of hands on the question clearly spelled out at the OPEC International Seminar in early June.

"But if there should be some massive price put on the cost of all fossil fuels, it would have more effect than anything else on the price. But I don't think (this will happen), because it would require a global agreement. The US will not tax itself $60 for a ton of carbon as long as China will not do it."

China has only agreed to reach a peak of CO_2 production before 2030, but it did not say at what level, states Smil. "So the Chinese clearly are not going to accept a limit of CO_2 before 2030, and that is not much of a promise."

Affecting the price of oil

He says there are "so many balls in the air" regarding the price of oil — it is like a juggling show. "But there are not three or four balls, but a dozen balls: India, China, the US economy, the EU economy, the success of technical advances in American fracking, the future of CO_2 controls, the future of global warming, the geopolitical situation in the Middle East, the Iran/US agreement on nuclear … all of these things go into affecting the price of oil.

"Don't forget that in May 2014 the price of crude was $100/b plus and people were saying it will go up and up. In a matter of months, it started going down.

"I would advise people to just not forecast the price of oil — you will not be successful. There are just too many variables. It would be better if these variables moved more slowly, or if they would move in some discernable trends, but there are just too many variables and they are too jerky … they just go boom, suddenly.

"People should have enough gumption and enough fortitude to say we are not going to forecast oil prices, but everybody wants to know and we are human creatures — we want to know. Some forecasts will work and some will not. But you will never be able to tell which ones work and which ones do not."

Smil's work has focused on the big picture of energy because, he says, "energy goes into everything." So he has not only been working on energy production, but also energy use.

"I look at energy in agriculture, energy in manufacturing. There's no such thing as economy. Economy is a transformation of energy. Without a source of energy you cannot raise anything, so I am looking at this big picture.

The resources, the effect on the environment … people do not realize to what extent everything we do has been determined, not only by the conversion of energy in the first place, but the environmental effect of it.

"Every conversion of energy — there is no superior source, there are better and worse energies — but every energy conversion has environmental consequences.

"You build a big dam, you destroy the fish around. You totally change the temperature of the water in that river. Large dams have a huge environmental impact.

"You build wind turbines. For one thing, there is the visual aspect. I for one do not like the landscape with these giant wind turbines."

And there are limitations there too … Germany has been running out of sites because one cannot put wind turbines right next to each other, states Smil. "They have to be spaced, so they decided to put more in the southern part, which is heavily forested. So it means they have to cut down forest."

Photovoltaic cells are made of silicon, a very highly energy-intensive material, adds Smil. "And what kind of energy are you using to make those, oil or coal or natural gas?"

He points out that combustion of all fossil fuels releases CO_2, sulphur dioxide, etc. So there is no energy source that does not have an environmental impact.

"To me, always the best thing is to think about how we can use as little energy as possible to do a given task. We do not talk about energy consumption … that should be our guiding principle. And energy has been so cheap for so long that it makes it easy to waste," contends Smil.

"But we have a choice … I have a super-insulated house, with triple-pane windows and super-insulated walls. But this does not abide by the code. Even in Canada there is no requirement for triple windows.

"During the past 25 years, China has experienced the biggest building boom in human history. They build houses for hundreds of millions of people. There are single-pane windows everywhere.

'We always have a choice…'

"But you should super-insulate for a cold climate, and you should super-insulate for a warm climate as well because everybody has air conditioning.

"So in this respect, China missed the ball. China could have put super-insulated housing which would last 50–80 years, but instead they built housing with thin walls and single-pane windows.

"We always have a choice to do better … so far energy has been relatively cheap. If it would be expensive, we would not think twice about triple-pane windows. That is our problem… it is still too cheap," he professes.

Smil says he has really nothing against wind turbines and photovoltaics and alternatives, but "first things first. Eighty-six or 87 per cent of energy consumed commercially in the world today is from fossil fuels and every energy transition, from coal to oil from oil to gas, from fossil fuels to alternatives, takes decades.

"Energy transitions are very slow. So we should fix the first thing which is the major thing — fossil fuels. We should use them more efficiently — we should not think that we will rapidly replace fossil fuels with other energies. That takes a long time — it goes bit by bit by bit."

In 1990, observes Smil, the world was consuming 90 per cent of its energy from fossil fuels. And 25 years later, 87 per cent of energy still comes from fossil fuels.

"That is why our number one goal should not be to develop solar and wind. There is nothing wrong with that, but in the first place we should improve the efficiency of fossil fuels. That way we would cut down a lot more on carbon dioxide emissions.

"If I close down all coal-fired plants — it is happening now in the US because of the cheap gas prices — and replace them with combined-cycle gas turbines, my energy efficiency would go up from 38 per cent for coal to 60 per cent for gas.

"… our number one goal should not be to develop solar and wind. In the first place, we should improve the efficiency of fossil fuels. That way we would cut down a lot more on carbon dioxide emissions."

"That reduces more CO_2 than any wind turbine ever could — so first things first.

"It is like — you would be concerned about consuming some rare vegetables, when most of your food intake is grains and proteins.

"Yes, we should be pushing renewables, they are valuable, but let us not fool ourselves that they can replace fossil fuels in a matter of five to ten or even 15–20 years.

"So what we need is more fossil fuels, but used and produced more efficiently. And we can do it. We have the technological means to do that," he concluded.

Happy golden anniversary

What next for the UK North Sea?

In the current period of depressed oil prices and high costs, which has sparked warnings from industry stakeholders, including OPEC, that future investment in additional capacity could be in jeopardy, operators working in the North Sea are relieved that fiscal changes have been made to encourage production from the mature United Kingdom Continental Shelf. But as the basin celebrates 50 years of offshore exploration, changes in working culture are necessary to fully exploit all opportunities for the decades to come. The* OPEC Bulletin *reports.

Waiting for luggage on the tiny carousel at Aberdeen International Airport, which over 300,000 passengers use every month, it is hard to believe that this Scottish city has blossomed on the back of oil and gas wealth. Best described as cosy, this critical piece of infrastructure does not reflect the fact that Aberdeen is now a world class oil and gas hub.

Offshore exploration began 50 years ago and to date over 45 billion barrels of oil have been recovered. With over 20bn barrels of oil and gas still to exploit from the mature UK Continental Shelf (UKCS) and competition for global investment capital, the pressure is on both the government and industry to ensure it can source 70 per cent of oil and gas in the energy mix out to 2030 and beyond. At $60/b oil, ten per cent of production from the UKCS is struggling to be profitable.

Operational difficulties

The latest statistics for the UKCS point to worrying trends — prompting headlines in the national press that the industry is on the verge of collapse.

In 2014, capital investment hit £14.8bn, due to cost over-runs and project slippage, but is expected to drop further this year to £9.5–11.3bn.

Data from Oil & Gas UK showed that 2014 marked the lowest production revenues for nearly two decades. Only seven exploration wells have been drilled so far in 2015, whereas at least 30 wells are required a year to reinvigorate the basin. In 2014, a mere 14 exploration wells were drilled.

"That harsh fact underlines why we need effective regulatory, licensing and fiscal measures in place by budget 2016 at the latest," said the association.

The UK's experience reinforces OPEC's warnings about curbed investment coinciding with depressed oil prices, leading to potential production problems, and therefore increasing the likelihood of a future sharp spike in oil prices. Higher oil prices are pivotal to stopping the investment decline.

Mangesh Hirve, Managing Director of consultancy, 1Derrick, told the OPEC Bulletin that "forty-one ready to drill licences have firm, decided or in-progress drilling and 16 licences with planned wells. There are 281 licences for which drill or drop well decisions are yet to be made."

Consultancy, Hannon Westwood, estimates there will be 20 exploration and appraisal wells by year-end. "Whilst success rates are not expected to dip dramatically, if at all, the fewer number of well spuds will likely result in fewer reserves discovered through exploration, come year-end. At this rate, 2015 is likely to represent yet another reduction on previous years."

Merger and acquisition (M&A) activities have also stagnated this year, following price pressure and access to finance.

So far, in 2015, there have been only 11 transactions in the UK North Sea, including one M&A, five finding and development deals and five farm-ins, according to 1Derrick.

"However, Shell's $82bn corporate offer for BG raised the UK North Sea M&A deal value by $4.9bn," 1Derrick added.

The UK North Sea oil industry supports over 400,000 jobs: an estimated 5,500 jobs have gone so far, although there are fears that more could disappear. Following a decade of escalating costs, this tough commercial reality is forcing operators to reduce spending and increase their efficiency and effectiveness.

"Companies are using a variety of innovative techniques from other sectors to approach the problem," explained Roman Webber, a tax partner at Deloitte.

"The UK's experience reinforces major warnings OPEC and others have issued about the current depressed oil price era, which curbs exploration."

Fiscal reform

Lobbying from industry has brought some relief in tax cuts, which are estimated to increase production by 15 per cent by the end of the decade. The changes are expected to encourage £4bn of investment over the next five years, according to the Treasury.

Presenting the summer budget, UK Chancellor, George Osborne, said the government wanted to maximize the UK's oil and gas resources, including the safe extraction of shale gas.

Industry welcomed an expansion of North Sea investment and cluster area allowances to include additional activities that maximize economic recovery — measures worth £30 million by 2020–21.

The definition of investment expenditure will be extended to include certain discretionary non-capital spend and long-term leasing of production units. The allowance exempts a portion of a company's profits from the supplementary charge.

"We now need to see sustained production to show that the UKCS continues to be an attractive basin" — Total

An Oil & Gas UK spokesperson said: "it is hoped that tax reforms will strengthen the supply chain and therefore the export of oilfield goods and services."

Another benefit will be that these changes would assist in maintaining key UKCS infrastructure, according to Brian Nottage, General Manager, and Fraser Wilson, Technical Analyst, at Hannon Westwood.

They told the *OPEC Bulletin:* "However, what is still lacking and urgently required is an effective stimulus to encourage UKCS exploration in the near term. Ultimately, the government gave an undertaking in the autumn statement to consider how this might be done, but is yet to deliver.

"Hannon Westwood feels this shortfall in incentivizing exploration is an error. Exploration is the lifeblood for the long-term future of the UKCS and more robust action is needed from both the Treasury and the Oil & Gas Authority."

These fiscal changes build upon a fuller tax-cut package — worth £1.3bn — that was unveiled in March where Osborne committed to reductions in the supplementary charge and Petroleum Revenue Tax (PRT). PRT will be set at 35 per cent, instead of 50 per cent to facilitate output from older fields.

Backdated to January, the supplementary charge for oil companies would be revised to 20 per cent from 30 per cent. The measures effectively reverse the hike in the 2011 budget when oil prices were far higher.

"The industry saw a lot of capital expenditure on the UKCS when the oil price was high," said a spokesperson for Total, which brought the HPHT West Franklin Phase 2 field onstream in January.

"We now need to see sustained production to show that the UKCS continues to be an attractive basin for global energy investment," he said.

Continuous change

Over the last nine years, the tax rate has increased three times — underscoring fears that the fiscal regime is unpredictable. Further tax changes could also be on the cards as the Treasury has pledged to consult industry on supporting exploration, improving access to decommissioning tax relief, and reforming the fiscal treatment of infrastructure.

And with the latest set of winners of the 28th UK licensing round having just been announced, investors are anxiously waiting to see what the new regime will look like, coupled with the flexing of the newly established regulator — the Oil & Gas Authority.

The government has granted 175 licences in total, covering 353 blocks. Many winners are small London Stock Exchange AIM-listed companies, which have struggled to access finance in this difficult market, so a crucial consideration is whether they can fulfil their licence obligations. Nevertheless, even the commitment to drill new wells is pitiful: only seven firm ones have been given on the acreage awarded.

Anchoring stability

A favourite word used by operators to describe what is needed to stimulate investment on the UKCS is "stability". It underpins the multi-billion investments required to bring complex reservoirs to production, particularly as exploiting easy fields with large reserves and simpler geology is no longer the norm.

So stability in the fiscal regime, stability in energy policy and, of course, stability in ministers is very much welcome.

British Prime Minister, David Cameron, has named five different people as energy ministers during the last five years in government.

Amber Rudd became the new Secretary of State for Energy and Climate Change following the general election in May: she is the first woman to hold the post.

Her appointment was welcomed by the burgeoning shale gas industry, which has been under fire by environmental groups and local communities, thereby derailing exploration plans.

The conservative government is enthusiastic about the prospects for shale gas in contributing to domestic energy security.

Carbon capture and storage, as well as fracking, are amongst the priorities at the Department of Energy and Climate Change during 2015, said Rudd.

Critics of UK energy policy point to the contradictions of the country's ambitious agenda in reducing climate change and maximizing oil and gas production, alongside welcoming companies looking for shale gas.

Cultural change

Published last February, Sir Ian Wood's Whitehall-commissioned review of the UK North Sea oil industry set out a £200bn roadmap to secure the basin's future.

He stressed that the primary aim of maximizing economic recovery was a shared responsibility between the Treasury, a new regulator, and industry itself.

The necessity of greater collaboration by industry to develop regional hubs, share infrastructure and reduce the complexity and delays in current legal and commercial processes, permeated the report.

What Sir Ian called for, in essence, was a cultural shift in working practices and behaviour.

With over 60 owners and operators on the UKCS, what does collaboration mean and what does it look like in practice? Does it require the regulator, the OGA, to enforce it so that all cooperate regardless of whether it is in their financial interests or not? Can this sit comfortably with free market principles? Will firms change their leadership style to embrace collaboration?

"The OGA was set up as quickly as could be expected and has a good mixture of talented people. It remains to be seen how it will execute its powers as regulator," reflected Deloitte's Webber.

The UK's experience reinforces major warnings OPEC and others have issued about the current depressed oil price era, which curbs exploration

Market stability is what we all desire. One thing remains clear though — the plunge in oil prices demands a new working model. With the UKCS's potential to yield $1.3 trillion in revenues over its lifetime, collaboration is a small step to ensure the industry can survive and thrive.

Over **45bn b** extracted — enough to fill **three million olympic swimming pools**

24bn b could remain

30–40 years of production remaining

Network of **36,000 km of pipelines** — equal to distance between Aberdeen and Adelaide, Australia and back again

Key dates in the UK North Sea oil industry

1964 — UK exploration licences issued
1965 — Commercial production starts from Argyl field
1969 — AMOCO announces Montrose field
1970 — BP makes huge Forties field discovery
1971 — Shell discovers Brent field
1981 — UK becomes net oil exporter
1999 — UK oil production peaks at 137 million tonnes of oil
2001 — UK offshore gas production peaks at 108bn cu m
2004 — UK becomes net importer of gas
2005 — UK becomes net importer of oil
2013 — UK becomes net importer of UK petroleum products
2014–17 — More than 30 new fields expected to start production
2015 — Amber Rudd is the first woman to be appointed energy minister

From RAG to riches

The oldest continuously running oil company in Austria, Rohöl Aufsuchungs AG (RAG), has had its share of trials. It was faced with closure when founding oil majors MobilExxon and then Shell pulled out after production had continued to drop in 2007 and the company was deemed too marginal to carry on. But then RAG did something unusual and daring — it resurrected itself as a small Austrian-owned and operated firm.

By Maureen MacNeill

RAG

Markus Mitteregger, CEO, RAG.

It is evident from the elegant, yet understated Vienna-based headquarters in the city's first district what RAG stands for. The lovely historical building which hosts the company boasts a combination of tradition, innovation and success — just like the company itself.

This is further evidenced by the company's innovative and gregarious CEO, Markus Mitteregger, ensconced in his regular-guy office. It's not Dallas. It's not Riyadh. But the company has blazed its own trail in an industry that is very international, succeeding by going in the opposite direction and becoming less international. And it has done it the 'Austrian way' — without a lot of fuss or noise, simply nose-to-the-grindstone problem-solving.

The staff is Austrian, the innovations are local, and even the oil produced is refined and sold within Austria. Through diversification and driven by plain necessity — keeping RAG running meant hanging on to local jobs — the firm is now solidly standing on its own two feet.

With simple survival out of the way, it has had time to turn to innovation, proving that brown fields can remain profitable long after majors abandon them as not profitable enough.

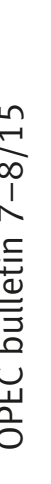
When oil production began at the Gaiselberg field in Zistersdorf, where the company has a concession, 78 years ago, the global oil industry was in its infancy. In fact, Gaiselberg 1 is now one of the world's oldest active wells. RAG built its success at that time using unconventional technology and methods ahead of its time, like steel drilling rigs, specially constructed drill bits and deviated wells. The company is replicating today's success on the same principles: find a solution, be daring.

Brown oil fields are often avoided by major oil companies, as they require much investment and normally bring declining return. RAG, however, only has very old fields and is still managing to stay profitable by recycling water into its fields, with a return of 97 per cent water and only three per cent oil.

"It's mainly about avoiding cost and you have to be creative and adapt technologies," says Mitteregger. "Three per cent oil is nothing, but still, due to a lot of technology advances and cost-containing, cost-effectiveness, we have managed to still be profitable and have shown it … it's still well below $40/barrel.

"It works and we are confident it will work for the next 20 years … and to my estimation we are beyond 40–50 per cent, maybe at 60 per cent recovery, but 40 per cent is still there."

The system uses in-house technology called MURAG, developed and tested by RAG over the past ten years. It involves circular pumps and digitalization and is based



Markus Mitteregger, CEO, RAG, with the OPEC Bulletin's Maureen MacNeill.

on an acoustic system that allows the steering of pumps from the desktop, including ongoing monitoring reservoir characteristics. "We already have contact with other operators who are buying the devices. We are servicing them and sharing their experiences to constantly improve the system," he says. RAG is hoping other countries and companies will be interested in the technology.

The greatest enemy of older fields is corrosion, continues Mitteregger. "Imagine we are pumping 97 per cent salt water, also containing CO_2, which is a very aggressive gas … we really have a strong focus on preventing corrosion.

"Corrosion kills everything, because you get pipeline leaks, you get failures in pumps … elder assets are more sensitive to high cost like (these). We have really seen that no corrosion is by far the best."

The potential for brown-field technology is enormous, explained Mitteregger at OPEC's 6th International Seminar at the beginning of June. "Eighty per cent of today's oil fields are 40-plus years old," he said to a room full of some of the world's top oil ministers and executives.

Historical roots

Austria has a long history as an oil producer, with 1909 being a record production year for the country. More than two million tonnes of oil were produced, which accounted for about five per cent of the world's oil production. At that time, Austria was the third-largest oil-producing nation behind the US and Russia.

Oil production started in the republic of Austria in the mid-1930s after initial drilling in the Vienna Basin a few years earlier. Mobil Oil (then called Socony Vacuum Oil Company Inc) and part of the Royal Dutch Shell group founded RAG in 1935, each taking a 50 per cent stake. RAG was set up to secure oil supplies for the founding companies refineries in the Vienna area and reduce dependence on imports, still a key objective today.

In fact, ten per cent of Austrian oil is produced locally, though it was 100 per cent up until WWII, when the country was annexed and oil production taken over and rerouted to support the war efforts. The country's fields were exploited relentlessly, seeing a 20-fold increase in production between 1938 and 1941, making Austria the most important oil-producing country in the Third Reich. However, RAG saw very little of the profit from that time and the company's assets were declared enemy property.

RAG's exploration licences were transferred to four German oil companies and RAG was only allowed to keep fields in the Zistersdorf area, Aderklaa and Hohenruppersdorf. After liberation in 1945, production resumed under the Soviet army, which returned the company's concessions. Other rights were not returned. Production was low as the company tried to rebuild and at the end of 1955 the Oesterreichische Mineraloelverwaltung (OMV) acquired most of RAG's former fields in Lower Austria, granting some permits for concessions in other areas as compensation.

Today the company has 245 active wells and holds concessions in Austria (6.142 sq km), Germany (4.716 sq km) and Hungary (2.993 sq km).

Staying green

The company's Zistersdorf site is set among beautiful rolling hills, vineyards and an abundance of green landscape about an hour's drive north of Vienna. Here again, the company challenges the stereotypical image of oil production as a dirty and destructive business. Zistersdorf not only hosts some of the world's oldest production wells, it is one of Austria's oldest wine-growing areas as well.

Wine is produced alongside oil rigs and a view through a pair of binoculars shows an unblemished landscape, pure and filled with an abundance of wholesome agricultural goings-on.

The company has kept its oil business very green, and enjoys a very high rate of acceptance among locals and other Austrians.

"It is essential," says Mitteregger. "We know that for the long run it is really important to have no emissions. No methane, no CO_2, so we really try to keep everything down and we know that especially in Austria there is a strong trend in renewables and fossils are not really modern anymore, so we try to be modern. It's like a garden and people appreciate that. It looks very clean, it is clean, it's the latest technology and it really pays off."

The company states as its goal: Providing environmentally friendly, safe and affordable energy for the future is RAG's prime objective, its greatest challenge and the focal point of its operations. The steady rise in global energy demand means that responsible use of the valuable energy resources at our disposal, as well as environmental protection and gaining acceptance as a good neighbor, are more important than ever.

When OPEC Secretary General, Abdalla Salem El-Badri, visited Zistersdorf in 2011 he said, "RAG's longstanding facilities are an excellent example of environmentally friendly, resource-efficient and sustainable oil production — and we can learn a lot from them. What's more, production is taking place in the heart of one of Austria's most picturesque wine-growing regions."

Producing CNG

RAG has different projects, past and present, to ensure that the region remains beautiful. Recycling water in fields and capturing gas are ways of doing this. The company is now embarking on a new project, currently in the testing phase, that will bring more 'local content' to the gas released when producing oil. The plan is to capture gas at the well and process it on site for local use as compressed natural gas (CNG) or liquefied natural gas (LNG).

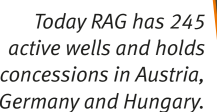
"There are programmes in the EU to support that and you are seeing that this is a value gained. If you take this gas and process it directly at the well into CNG or LNG, you get about a three-fold price compared to just selling it as pipeline gas (normally the gas is separated, processed and sold to the local pipeline grid), says Mitteregger.

"This of course raises the revenue of the whole operation. Oil (price) is set by others, by the market, but you can do something about the value of your gas."

The idea was in the testing stage in the winter, with the intention of implementing it in a more widespread way in the coming months and years. It is most certainly profitable, says Mitteregger, adding that the company knows the operating costs and the gas. "It's just a question you need half a year or one year of running time to make it perfect.

"Basically, it's already a business because you have a comparable price for CNG/LNG to diesel, which is three-fold the price of pipeline gas and it makes sense. It's economic, yes."

If it works, it would have a tremendous impact, he adds. For stranded gas, for associated gas, for preventing flare gas at smaller units. It's completely self-sufficient. Sites would be independent from other gas infrastructure and power lines aren't needed. "You just need



Today RAG has 245 active wells and holds concessions in Austria, Germany and Hungary.

nitrogen and the entire system works. It's modularized, it's small, not bigger than the pumping unit, it's a fuel station directly at the well." A source of isolated gas can also be captured and condensed on site and then transported by truck.

Austrians really look at where their consumables are coming from, he explains. "If it's coming from the vicinity here, then (they see it as) very good. You have a plant that is directly producing a commodity that you can use here. It fuels your car. They like it because with crude oil they can't do anything … it's pumped away."

Mitteregger also sees the possible broader implications of this kind of business idea. "I think about remote areas in Nigeria or even Canada … if you are in a remote village and they are producing oil, sometimes they are flaring the gas."

Gas storage

The company's decision to get into large-scale gas storage about ten years ago provided it with the financial cornerstone it needed to survive at a time when reservoirs were depleting.

"We saw it was necessary to grow also a sustainable long-term business next to the oil and gas business, and we got creative and discovered that gas storages could be very interesting and we approached Gazprom and other big utilities and offered to do joint ventures with them. We have the storage, they normally provide the cushion gas, we divide the investment, but we are the operator."

In a typical sandstone formation like the oil reservoirs in Austria, there is about ten per cent space free for gas, with the rest covered by water. The gas is compressed by a factor of 200 at 2,000 metres, thus much can fit into a reservoir.

The storage sites are 99.5 per cent efficient, says Mitteregger. Only 0.5 per cent of energy is required to withdraw massive amounts of gas energy, he says, adding that about 50 per cent of the company's depleted reservoirs have been converted into gas storage.

"I am completely sure we have the most modern gas storage fleet in the world," he says, adding that the company now boasts the fourth-biggest gas storage operation in Europe. Ten storage facilities have been built in the last ten years, with Gazprom investing in two stages. The gas storage constitutes the majority of the businesses income currently. Through the storage sites, RAG plays an important part in security of supply for Austria and the whole of central Europe.

"Now that we have completed these storages, we want to really grow the oil production."

Oil … in harmony with nature.

Research into renewables

Even though the company is small and local, it does not mean that it is not looking to the future. Mitteregger believes he has a possible solution to the current problem of fluctuating production that accompanies many renewable energy sources.

"Wind and sun are extremely unstable, either by far too much or too little … so you need big, big power storages."

To this end, RAG is aiming to become an early adopter of power-to-gas. Excess electricity can be converted into hydrogen through electrolysis, which could be put into the company's reservoir storage until it is needed.

"How does the sandstone react, how does the cap rock react? We want to see the entire system working, and of course you always get some unknown effects, it's the reason you do research.

RAG

Ultra-low temperature compression (ULTC) module for LNG/CNG production.

"It shows a very interesting development over the next 20–40–50 years for the oil industry. We have the freedom to do this and the necessity. There are the same drivers. If you want to establish new business and are within the limits of Austria and there are no new fields for oil and gas … we have to think about what to do."

The company is currently building a small research storage facility — which should be ready to go into operation by September — where hydrogen will be placed, "just to see what happens". There is a patent pending and field tests are expected in 2016, possibly converting a single-way industry into a sustainable cycle.

Potentially, green hydrogen could be added into the refinery system to improve octane levels of fuel, "adding green stuff to reserves and lowering emissions. Just an idea …," says Mitteregger. Crude is something that is a limited and very valuable resource, he states. Technologies can be used to conserve it, stretch it and use it wisely and economically.

Currently, ten per cent of the crude produced in Austria and worldwide is not used for energy, but other industries, such as plastics, chemicals and pharmaceuticals, for example. "Literally, you cannot have one thing that is made without a drop of oil," he states. "I don't think you will find anything, even a banana. If you go to the grocery store, there are 2,000 products. Show me one completely made without the use of oil on the way when it's been produced or in transport and packaging."

Mitteregger, himself a petroleum engineer, has a rare passion and zeal for his work. Aside from the glamour which he freely admits is still part of the industry, his lifelong career also clearly stems from what he sees as an honest truth. "There is nothing comparable to one litre of oil. If you look in evolution, it took 4.5 billion years to develop such prestigious stuff to be honest. I am not exaggerating."

Algeria boosts crude oil output from two new fields

Algeria's crude oil production fortunes have been given a boost by output from two new fields, according to the country's Energy Ministry.

An official at the Ministry was quoted by *Reuters* as saying that production in the OPEC Member Country had increased by 32,000 barrels/day following the fields' start-up.

He disclosed that the Bir Sebaa field had started producing at 20,000 b/d, while another 12,000 b/d was coming from the Bir Msana field in the Hassi Messaoud area.

Algeria produces an average of around 1.1 million b/d of crude oil and is looking to boost its output capacity. Output stood at around 1.4m b/d in 2007.

According to *Petroleum Intelligence Weekly (PIW)*, substantial investment is needed to prevent Algeria's oil production from falling below 1m b/d in the next few years.

The national energy company, Sonatrach, is pursuing a $90 billion investment plan for 2015–19 to bolster production. Some $64bn of this would be concentrated on upstream sector developments.

But there are fears this programme could be jeopardized if international crude oil prices remain low. The government recently announced that it expected its energy earnings to halve and had therefore reduced spending in its 2015 budget by 1.35 per cent.

The budget, it said, was now based on an oil export price of $60/b, down from the $90 initially anticipated. Oil and gas earnings were expected to amount to $34bn in 2015, compared with $68bn last year.

The statement noted that non-oil and gas economic growth was still slated to hit 5.1 per cent in the year, while inflation was pegged at four per cent, up from the three per cent initially expected.

Sonatrach's investment plan envisages an extra 170m b of crude oil production, together with 93bn cubic metres of gas output by 2019.

The intention is to step up exploration activity to cover an area of 26,000 square kilometres/year, with an average of 125 wells drilled annually until 2019.

Industry sources said Algeria could also turn to its abundant shale resources to meet its targets. The country has an estimated 707 trillion cu ft of technically recoverable shale gas resources.

Overall, the general plan is to increase the country's crude oil production by 50 per cent over the coming decades, while doubling gas output and exports.

Algeria's fourth bidding round for oil exploration saw only four licences awarded out of 31 on offer and Sonatrach officials are now mulling over whether to negotiate direct agreements with international oil companies and service firms.

With global oil and gas demand expected to rise considerably in the years ahead, Algeria, in keeping with other producers, is looking to expand its production capability. Last year, the country's oil and gas production increased by 4.4 per cent to 200 million tonnes of oil equivalent (toe) — around 4m b/d.

According to the Energy Ministry, this level of output reversed the trend of declining production seen over the past few years.

Former Energy Minister, Dr Youcef Yousfi, announced earlier this year that Algeria was due to drill its first offshore oil well by the end of 2015.

In support of its capacity expansion plans, Algeria is planning to launch its fifth exploration bidding round in the third quarter of 2015.

Energy Ministry data showed that, last year, 30 finds were made, 29 of which were by Sonatrach alone.

Reuters

A worker is seen at the Zarzaitine gas field in In Amenas, southeast of Algiers.

Angola calls for bids on ten onshore blocks

OPEC Member Country Angola has invited prequalified oil companies bidding in its onshore licencing round to submit their bids for ten exploration blocks by the middle of September.

According to a report carried by the *International Oil Daily,* the blocks comprised 1, 5 and 6 in the onshore lower Congo Basin, near the northern border with Congo (Kinshasa), and 3, 5, 6, 7, 8, 9 and 17 in the Kwanza Basin in the south of the country.

The report noted that the round, launched in 2014, was primarily aimed at Angolan companies, as part of the government's indigenization programme. Local firms would, if necessary, team up with foreign concerns.

Foreign companies prequalified to operate the concessions include Eni of Italy, Chevron of the United States, OMV of Austria, Portugal's Galp, Ecopetrol of Colombia, Azerbaijan's Socar, Abu Dhabi's Mubadala Petroleum, Glencore of Switzerland, and Argentina's Pluspetrol.

Other firms prequalified as operators include United Kingdom independents, Dragon Oil and Tullow Oil, and Canada's Pacific Rubiales.

The national energy company, Sonangol, has revealed that each of the ten blocks on offer potentially held reserves of around 700,000 barrels of crude.

Terms of reference

For all ten blocks, Sonangol will be entitled to a 30 per cent interest, as per conditions agreed under the 25-year production-sharing accords.

Successful foreign companies will be required to work with Angolan firms that will be entitled to a 20 per cent stake under Luanda's local content policy.

A typical licence will comprise a minimum work commitment of 750 kilometres of 3-D seismic and the completion of up to five wells over a maximum of six years.

Angola's upstream petroleum operations have mainly been focused on its offshore areas, which have proved very successful.

So far, onshore exploration results have been varied. France's Total was among companies that drilled 133 onshore exploration wells in the Kwanza Basin before the independence struggle and then civil war, discovering 11 oil fields with estimated reserves of 400 million barels.

However, more recently 2-D seismic activity has pinpointed areas with thick presalt sedimentary deposits that could contain potential reservoirs.

Angola is aiming to attain its long-awaited crude oil production target of two million barrels/day by the beginning of next year.

The head office of the Angolan state oil company, Sonangol, in the capital Luanda.

Sonangol said earlier this year that to achieve this target by 2016, domestic production would have to rise by around 330,000 b/d from the 1.67m b/d average produced last year.

The 2014 production figure was 50,000 b/d lower than the 1.72m b/d recorded in 2013.

Oil output was expected to average 1.84 million b/d in 2015, up from 1.67m b/d in 2014.

IR Iran eyes $185 billion in oil and gas projects

IR Iran has drawn up a list of some 50 oil and gas projects worth $185 billion which it intends to start developing once longstanding economic sanctions against the country are lifted, most likely later this year, or early in 2016.

The announcement follows the United Nations Security Council's endorsement of a deal reached in mid-July between the OPEC Member Country and the so-called 5+1 group (the five permanent Security Council members — China, France, Russia, the United Kingdom, and the United States, plus Germany — to end 12 years of economic sanctions on Iran in return for limitations on its nuclear programme.

Mehdi Hosseini, who heads the committee in charge of developing the new model, recently announced that speakers at the three-day event would include Rokneddin Javadi, Managing Director of the National Iranian Oil Company (NIOC), along with himself and Zamaninia, as well as other senior Iranian petroleum officials.

IR Iran has been preparing for the day sanctions are removed by holding talks to attract major international oil company investment in its underdeveloped hydrocarbons sector.

As part of this effort, Iranian Petroleum Minister, Eng Bijan Namdar Zangeneh, held meetings with executives from such companies as Shell, Total, Eni, Lukoil and Sinopec on the sidelines of the OPEC Conference and OPEC International Seminar in Vienna in early June.

ddpimages

Officials at the last working session of Iranian Nuclear negotiations in July in Vienna, Austria.

The European Union has already approved the Iran nuclear deal, which is regarded as a first step toward lifting Europe's economic sanctions against Tehran. However, the agreement still needs the approval of United States Congress.

And inspectors from the International Atomic Energy Agency (IAEA) in Vienna must also give the green light that Iran is complying with the conditions of the accord. It is scheduled to issue its final report by December 15.

Iran's Deputy Petroleum Minister for Commerce and International Affairs, Hossein Zamaninia, announced that post-sanctions and in preparation for talks with potential foreign partners, Iran had drawn up a new model contract which it called its integrated petroleum contract (IPC).

"This model contract addresses some of the deficiencies of the old buyback contract and it further aligns the short- and long-term interests of parties involved," he was quoted as saying.

He said the deals would last 20–25 years — much longer than the previously less popular buybacks, which effectively were fee-paying deals with global oil majors.

Iran will now present its new upstream oil model contract at a December 14–16 conference in London.

Iran's Deputy Economy Minister, Mohammad Khazaei, has been quoted as saying that the country had already completed negotiations with some European companies wanting to invest in the country. Many European firms have already shown interest in re-establishing business ties with Iran. Germany sent its economy minister, Sigmar Gabriel, and a team of businessmen on the country's first top level government visit to Tehran in 13 years.

According to Iran's Minister of Industry, Mines and Trade, Mohammad Reza Nematzadeh, once the sanctions were lifted, Iran would focus on its oil, gas, metals and car industries.

"We are looking for a two-way trade, as well as cooperation in development, design and engineering," he said in Vienna. "We are no longer interested in a unidirectional importation of goods and machinery from Europe," he maintained.

In an interview with Austria's *Wiener Zeitung* newspaper, he said Iran needed around $100bn to bring its oil industry back to the level it was five years ago. Nematzadeh pointed out that he expected his country to rejoin the international electronic payment system, SWIFT, after the sanctions were removed.

Iraq sees record southern oil exports in July

Iraq recorded record crude oil exports from its southern operations in July, although the country's total exports for the month were slightly lower than the overall record high set in June.

According to figures released by Iraq's South Oil Company, oil exports from the south increased in July to an average of 3.064 million barrels/day, up by 42,000 b/d from the 3.02m b/d recorded in the previous month.

Officials were quoted as saying that deliveries rose as a result of the country's move to split the crude stream into two grades — Basra Light and Basra Heavy — in order to resolve quality issues. It enabled some firms working in Iraqi oilfields to boost their output.

The figures showed that Basrah Light exports amounted to 2.24m b/d in the month, while Basrah Heavy shipments stood at 822,000 b/d.

According to Oil Ministry spokesman, Asim Jihad, the Ministry had made a special effort to boost its crude oil exports from the country's southern ports, as compensation for the delayed tanker loadings previously as a result of bad weather.

Iraq's total crude oil exports for July was gauged at 3.104m b/d, with exports from the country's north via Ceyhan in Turkey averaging only 41,000 b/d, compared with 164,000 b/d in June.

Crude oil exports from the north stood at 451,000 b/d in May when an Iraq-Kurdistan Regional Government (KRG) export deal was still in being.

Under the 2015 budget law, the KRG was expected to transfer 550,000 b/d of crude to Iraq's SOMO at Ceyhan in exchange for 17 per cent of the country's revenues after state costs. This deal is now experiencing problems.

The Oil Ministry put revenues from Iraq's total July oil sales at $4.91 billion, compared with the June figure of $5.32bn. Crude in July was sold at an average price of $50.9/b, some $5.3/b below the price average for the previous month. The export price contained in the Iraqi budget stands at $56/b.

Jihad pointed out that the country's total crude oil exports could have been higher in July with a new record expected if production from the north had not fallen again.

Data showed that based on the July export figures, stock levels and domestic supplies to refineries and power stations, Iraq's estimated well-head production during the month was 3.4m b/d.

The post-1979 record oil exports of 3.187m b/d set in June was were up by 42,000 b/d from May.

Exports from the south increased over the month by 328,000 b/d to 3.022m b/d, whereas shipments from Ceyhan stood at 164,733 b/d, down 286,000 b/d from the 451,000 b/d recorded in May.

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Kuwait awards $11.5 billion in contracts for new refinery

Kuwait has taken a significant step towards boosting its domestic refining capacity with the award of contracts for the construction of a new plant.

The Kuwait National Petroleum Company (KNPC) awarded $11.5 billion worth of contracts to build its planned Al-Zour refinery.

According to the Kuwait state news agency, KUNA, KNPC had commissioned a consortium including Spain's Tecnicas Reunidas, China's Sinopec and South Korea's Hanwha Engineering and Construction, which will be responsible for building the main process units of the refinery, worth $3.9bn.

A second consortium, including Daewoo Engineering and Construction, Hyundai Heavy Industries and the Fluor Corporation of the United States, would provide support units and infrastructure services for $5.6bn.

Meanwhile, another consortium, including Hyundai Engineering and Construction, SK Engineering and Construction and Italy's Saipem, was awarded a $1.4bn contract to build a marine export terminal, KUNA quoted KNPC spokesman Khalid Al-Asousi as saying.

He added that he expected the last major contract for the project to be awarded in the next few weeks. The official signing of all contracts would take place in early October.

Targeted for completion in late 2018 or early 2019, the project will help Kuwait in its plans to boost domestic refining capacity to 1.415 million b/d from the current 936,000 b/d.

The Al-Zour plant is slated to produce around 250,000 b/d of low-sulphur fuel to run Kuwait's power stations and desalination plants, as well as its expanding petrochemical industry.

It will also produce 375,000 b/d of high-quality low-sulphur products for export, including naphtha, benzene and kerosene.

The ambitious downstream plans supplement Kuwait's upstream development programme which sees the Kuwait Oil Company (KOC) sustaining its crude oil production at a level of 3.15m b/d over the next two years.

Then, following the development of a number of oil fields in areas throughout the country, its production goal of 3.65m b/d of crude should be reached in 2020.

This amount would set to represent KOC's share of the overall Kuwaiti target of attaining a production capacity of 4m b/d by the start of the next decade.

Hashem Hashem, KOC Chief Executive Officer, announced that he hoped to launch new enhanced technical services contracts this year with international oil companies.

Excluding the Neutral Zone Kuwait shares with Saudi Arabia, KOC plans to spend some $40bn on upstream developments over the next six years in an effort to boost oil output capacity to the 3.65 million b/d level.

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Buhari announces plans to split NNPC into two entities

Nigeria's President, Muhammadu Buhari, who has pledged to implement plans aimed at enhancing the OPEC Member Country's petroleum-based economy, is intending to divide the state energy concern, the Nigerian National Petroleum Corporation (NNPC), into two separate entities.

The President's spokesman, Femi Adesina, announced that the first of the two new operations would act as an independent regulator, while the second concern would be responsible for investment.

The move forms part of Buhari's intended reforms, aimed at combating corruption and enhancing the country's fortunes.

In June, he dissolved the board of the NNPC and has since announced he would not be selecting a government cabinet until September.

At the moment, the NNPC covers all the interests in the country's oil and gas exploration, including managing the energy sector and acting as industry regulator.

Industry experts were quoted as saying that the Corporation could not continue to be a regulator, a revenue collector and a business, all rolled into one.

According to Adesina, Buhari has already met with the chief executives of Nigeria's foreign oil partners to discuss the future of the industry. Petroleum accounts for some 80 per cent of the Nigerian government's overall revenue and more than 85 per cent of its foreign exchange earnings.

Adesina said that, at those talks, the President had spoken about ensuring security for the operators' oil and gas installations, as well as the maritime activities, in the country's bid to boost the energy sector's performance and increase overall earnings.

"President Buhari has listed the removal of bureaucratic bottlenecks created by multiple government agencies that currently impede the operations of companies in the oil and gas sector as one of the reforms to be undertaken by his administration," commented Adesina.

Even though the country has the potential to produce well over three million b/d of crude oil, theft, pipeline sabotage and corruption regularly limit output to around just 2m b/d.

Said Adesina: "The vandalism of oil installations and pipelines, piracy, oil theft and the fall in the international price of oil have made our economic situation very disturbing.

"This government will do all within its powers to secure the environment and encourage more investments in the oil sector," he was quoted as saying by Reuters.

Also as part of his reforms Buhari, who took up office as the country's President for the second time at the end of May, has established the National Economic Council, which he has mandated to look into the NNPC's management of the West African nation's oil windfall account.

He will also be taking a detailed look at the proposed Petroleum Industry Bill (PIB) and ensure its speedy passage into law. The PIB has been in the offing for some considerable time and has suffered delays.

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ADIPEC to offer waterfront attraction for prospective buyers

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The Abu Dhabi International Petroleum Exhibition and Conference (ADIPEC) will take place on November 9–12, 2015, at the Abu Dhabi National Exhibition Centre in the United Arab Emirates (UAE) capital.

It is the only oil and gas exhibition in the Middle East, Africa, and the Asian sub-continent to dedicate an entire new waterfront section to the offshore, marine and heavy equipment industry.

"This addition will attract buyers and decision-makers from the offshore, marine and heavy equipment sectors. It will unite global industry experts to outline key offshore projects, as well as provide vital updates relating to maritime security and safety, shipping and technological advances," observed the organizers.

Hosted by the Abu Dhabi National Oil Company (ADNOC), ADIPEC 2015 will bring the global oil and gas community together over four busy days of unrivalled networking. It will create an ideal platform for petroleum professionals worldwide to drive and support innovation within the industry.

Ali Khalifa Al Shamsi, ADNOC's Strategy and Coordination Director, and Chairman of ADIPEC 2015, stated: "ADIPEC is a showcase for innovation in the hydrocarbons industry, both regionally and worldwide. Technology and strategies are evolving, products and services developing even as we speak. ADIPEC provides a platform for collaborating, sharing and partnering as we maximize our joint resources and expertise."

According to the organizers, this year the event is expected to attract 2,000 exhibiting companies and 85,000 visitors, including 23 international pavilions, 20 international oil companies and 18 national oil firms from around the world.

"There is no better concentration of opportunity that provides the same level of access to key decision-makers, offering true turnkey solutions to unlocking the benefits of operating across the Middle East region," the organizers said.

The exhibition, which will showcase all the latest industry products and services, will be complemented by an Offshore and Marine Conference, enabling high-level networking and learning from industry leaders.

Under the theme 'Innovation and Sustainability in a New Energy World', the conference will offer a comprehensive programme, featuring two ministerial sessions, two CEO plenary sessions, six panel sessions, three industry breakfast sessions, three topical luncheons, 79 technical sessions, and numerous knowledge-sharing sessions.

And on November 8, a 'Women in Industry' conference will be staged to reach out to the increasing number of women across the oil and gas sector. This will discuss the evolving role of women in the energy sector.

The event will once again feature the ADIPEC Awards, which celebrate achievement and accomplishment in the oil and gas industry and recognize the leading companies, individuals, initiatives, projects and technologies.

Since their inception in 2010, the Awards have recognized a wide range of companies and individuals who have excelled in their contributions to industry excellence and progress.

Another feature will be 'Young ADIPEC', which will offer students from schools across Abu Dhabi an exciting line-up of events designed to encourage them to choose a career path in the oil and gas industry.

The initiative provides students from the ages of 14 to 17 with the opportunity to gain hands-on experience in the energy sector through a series of educational and engaging activities, including a photography competition, a sustainability zone, field trips to leading oil and gas companies, live demonstrations and the chance to learn about the key engineering design processes involved in the oil and gas industry today.

Repsol announces start of Perla gas production in Venezuela

Spain's Repsol oil company has started up the first producing well at the giant Perla field in OPEC Member Country, Venezuela.

According to the Madrid-based integrated global energy firm, Perla represents the largest gas discovery in the company's history and the biggest offshore gas field in Latin America, holding 17 trillion cubic feet (tcf) of gas in place.

Perla is located in the Cardón IV block, in shallow waters in the Gulf of Venezuela, 50 kilometers offshore.

Following its initial operations, the company now expects to start producing at a rate of 150 million cubic feet (mcf) of gas a day, which is forecast to rise to 450 mcf/d by the end of 2015.

In the two following phases, production is set to increase to 1.2 bcf/d in 2020, a volume that would be maintained until the end of the contract in 2036.

According to the company, the gas produced would first be used for local consumption in Venezuela.

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Repsol and Italian company, Eni, discovered the Cardón IV block in 2009, where the consortium has drilled seven of the 26 wells planned as part of the development plan, which will feed four producing platforms that use underwater connections to transport the gas onshore for processing.

The Cardón IV license is held by the Cardón IV S.A. joint venture between Repsol (50 per cent) and Eni (50 per cent).

Repsol has been operating in the oil and gas sector in Venezuela since 1993, with a net production of 36,800 barrels of oil equivalent a day in 2014.

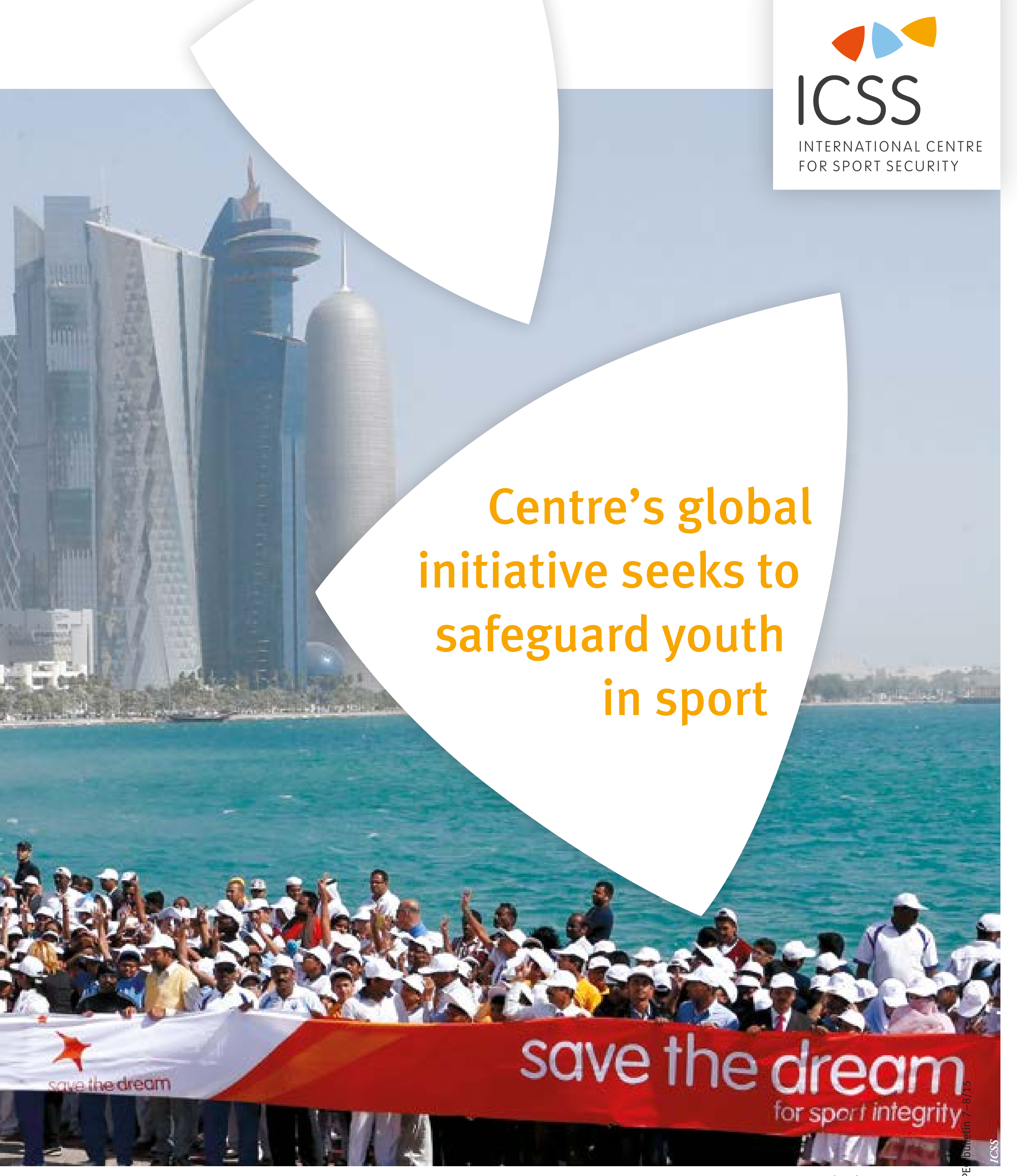
The company stresses that it is committed to supporting the country's growth by actively participating in its development, creating jobs, as well as taking part in and launching social development programmes.

Repsol holds mining rights in eight Venezuelan producing blocks, totalling a net surface area of 853 square kilometres: Cardón IV, Carabobo, Quiriquire, Quiriquire (gas), Yucal Placer Norte, Yucal Placer Sur, Mene Grande and Barúa Motatán.

It said in a statement that the start-up of the field was an important milestone in the company's development strategy.

Perla represented the eighth key growth project to be launched as part of Repsol's 2012–16 strategic plan. The other projects now operational were: Sapinhoá (Brazil), Mid-continent (United States), AROG (Russia), Margarita-Huacaya (Bolivia), Lubina and Montanazo (Spain), Carabobo (Venezuela), and Kinteroni (Peru).

save the dream
for the purity of sport
save the dream
for sport integrity



Centre's global initiative seeks to safeguard youth in sport

National Sports Day 2015 — Siham Alawami, Director of Special Projects at the ICSS, leads students from the Indian Birla Public School (BPS) in Doha delivering a message to all the girls in Jamia, India: "Believe in your dream, work hard, be honest."

ICSS

The International Centre for Sport Security (ICSS) has made great strides since it was launched in the Qatari capital, Doha, in 2011. Set up to provide expert advice and shape policy on sport safety, security and integrity, the international organization has already signed numerous important agreements the world over and implemented far-reaching schemes. Perhaps the most significant of these is 'Save the Dream', an initiative that targets the all-important protection of youth in sport to safeguard future generations. Siham Alawami, a former public relations specialist at OPEC, and now with the Centre, is heavily involved in this programme. She recently spoke to the OPEC Bulletin *about its effectiveness and the success of the ICSS in general.*

Mohammed Hanzab, President of the ICSS, during the Centre's annual Securing Sport conference in London in 2014.

The ICSS Secretariat building in Doha, Qatar.

Think of sport and visions of champion athletes, cheering fans and children enjoying themselves come to mind. Unfortunately, today, that picture is being tarnished. In fact, the very fabric of sport is under threat.

Over the years, criminal elements have infiltrated sport, leading to corruption and match-fixing, while unsavory elements have ruined the spectacle of sport by compromising the safety of spectators.

A few years ago, Mohammed Hanzab, a former Lieutenant Colonel in the Qatari armed forces, decided to follow his passion for sport and address the threats to its existence.

It signaled the birth of the International Centre for Sport Security (ICSS), an international, not-for-profit organization based in Doha, capital of Qatar, a longstanding OPEC Member Country.

The Centre was established in 2010 and formally launched in March 2011 with a global mission to promote and protect the safety, security and integrity of sport worldwide.

The Centre's key activities include advisory, training and research. It works primarily with organizing

Some ICSS Advisory Board Members and Senior Management. Front row (l–r): Siham Alawami, Director, Special Projects; Éric Drossart, Advisory Board Member; Juliette Kayyem, Advisory Board Member; Mohammed Hanzab, President; Lord John Stevens, Chairman of the ICSS Advisory Board; Monica Seles, Advisory Board Member (until 2014). Middle row (l–r): Rick Parry, Advisory Board Member; Peter Ryan, Advisory Board Member; Horst R Schmidt, Advisory Board Member; Teresa Aguilar, Former Secretary of the Advisory Board, current CEO of Pivot Sport. Top row (l–r): Heinz Palme, Vice Director General; Helmut Spahn, Director General; Mohammed Hajjaj Al Hajri, Vice President ICSS.

committees, governments, bidding nations, infrastructure owners, sports associations, leagues and clubs. It also convenes an annual conference *'Securing Sport',* which has been held in Doha and London. It attracts top global sporting, government and industry officials.

Since its formation, it has become involved in numerous areas and activities across the world in its bid to ensure the highest levels of safety and security in sport, but importantly also to bring awareness about the need for integrity in a world that is open to corrupt practices.

Through its various initiatives and partnerships, it is playing an increasingly integral role in addressing critical issues in sport, such as corruption, betting fraud and transparency.

The Centre's vision and strategic direction are driven by Hanzab, its President, along with Vice-President, Mohammed Hajjaj Al Hajri, who also has a high-ranking military background.

According to Hanzab, there are now significant threats to sport safety, security and integrity that, if left unchecked, could damage the fabric of society.

He stated: "We at the ICSS are committed to protect sport from all threats which result in losing young people's trust in sport. With our global awareness programme *'Save the Dream'* and together with our partners like the Qatar Olympic Committee and UNESCO, we are able to reach out to young men and women and help them understand the importance of believing in their dream to become champions in both sport and life."

Lord John Stevens, Chairman of the ICSS Advisory Board.

ICSS

The ICSS team of international experts, advisors and specialists, drawn from law enforcement, international policy, sport, government and anti-corruption concerns, has a wealth of experience and knowledge which it is putting to good use in tackling the various pressing issues involved.

It includes ICSS Director General, Helmut Spahn, former Chief Security Officer of the German Football Association, and Lord John Stevens, Chairman of the ICSS Advisory Board, who is a former Commissioner of the Metropolitan Police in the United Kingdom.

"It is a known fact today that organized crime is controlling 25 per cent of all competitive sports," commented Siham Alawami, ICSS Director of Special Projects.

She told the *OPEC Bulletin* that this alarming figure was disclosed at the fourth ICSS Securing Sport Conference in London in 2014 by the head of the World Anti-Doping Agency (WADA).

"Organized crime is said to be making an estimated €500 billion every year from illegal betting," she maintained.

"One can only imagine the huge level of organization and methods these people are using to accrue this huge amount of money," said Ms Alawami, who spent 33 years in OPEC in Vienna before moving back to her country around four years ago for family reasons.

It was in Doha that she got to know about the Centre and was immediately taken by the work it was doing. As a keen sportsperson herself, she was proud to become a member of the team and be a part of its ground-breaking plans and activities going forward.

Protecting young people

Since joining the ICSS, Ms Alawami has put her years of public relations and communications experience to good use in supporting several schemes. And the icing on the cake for Siham has been the *Save the Dream* initiative — founded by Hanzab and launched by the Centre jointly with the Qatar Olympic Committee.

Save the Dream, under the direction of its Executive Director, Massimiliano Montanari, is committed to protecting young people and working with governments and leading international organizations to eliminate violence, abuse and discrimination in sport.

The far-reaching programme, which is expanding its

Ms Alawami (r), Director, Special Projects at the ICSS, with Bulletin Editor, Jerry Haylins.

reach virtually every week, is designed to promote and protect the core values of sport for young people at a global level.

It is guided by a panel of distinguished personalities from diverse fields of sport, art, business, international affairs and media, who work closely to define and develop the vision and direction of the programme. According to the ICSS, *Save the Dream* works with youth, and for youth, towards a sport free from corruption, violence and discrimination.

Implementing initiatives

"We implement initiatives and support promising ideas in the fields of dialogue, education and social innovation, harnessing the passion for sport to protect its purity for future generations," it said.

"We are working on four things in different parts of the world: child protection; inclusion; sport for all, as well as sports values awareness," observed Ms Alawami.

"This global initiative basically represents the dream of children the world over to become athletes, something many of us aspired to when we were young as we watched our idols play soccer, tennis or whatever sport," she affirmed.

"But we have to bring awareness to these children of the dangers of such actions as match-fixing. And we need to do this with children from kindergarten age — to make them understand the moral values attached to sport and to believe in them.

"If they stick to the sports values, it will protect them in the long run against corrupt people who are always looking to utilize a lot of methods, like bribery and using threats, to try and manipulate match results," said Ms Alawami.

"If you think today, illegal betting or internet betting is everywhere — it even enters your bedroom. So every impressionable child is subject to this kind of activity and can easily be approached by match-fixers. Talented kids, especially, can be

approached in this manner, so we have to bring awareness to them about this.

"*Save the Dream* is about empowerment of youth, child protection and awareness. It has a noble mission," asserted Ms Alawani, who was speaking to the *Bulletin* on the sidelines of the 6th OPEC International Seminar in Vienna in early June.

"I came to the OPEC Seminar to bring to the attention of the heads of OPEC national oil companies and the executives of international oil firms, who are operating in different parts of the world, the mission of *Save the Dream*," she explained.

"We would love to be a part of these companies' corporate responsibility schemes — to launch our programme with them, so that they can help educate and spread sport values among children in the areas they operate."

Goals of *Save the Dream*:

- Child protection
- Inclusion
- Sport for all
- Sports values awareness

Sport and integrity

Ms Alawami stressed that one of the very successful early exposures of *Save the Dream* was domestically. It was tied to the Seventh Schools Olympic Programme, launched by the President of the Qatar Olympic Committee in 2013–14. Held under the theme 'sport and integrity', the pioneering initiative aimed at encouraging a healthy lifestyle among young people by integrating the practice of sport into daily life.

"Under this plan, we addressed all the schools in Qatar — something like 80,000 students benefited from this programme. It was a great success. I personally spoke to around 20,000 children. I made workshops with them to bring awareness of sport integrity, sport values," she stated.

Many educational tools tailored to primary, preparatory and secondary students were used in the lectures, to stimulate students' thoughts on sport integrity, including a colouring book depicting the "true spirit of sportsmanship", as demonstrated by Spanish athlete, Ivàn Fernàndez Anaya, winner of the inaugural 'Save the Dream Award'.

"We also made research, the results of which will be published soon. This surveys the behaviour of children, determining their sport beliefs — what they think about sport values and who their favourite sport personalities are. We would like to work with the NOCs of OPEC to run such programmes locally — as best practice — and conduct more research in the schools to help develop educational programmes tailored to the findings of such research," she observed.

Ms Alawami pointed out that it is still in its early days, but *Save the Dream* has progressed beyond all expectations in a relatively short period of time. In fact, it will soon become an organization in its own right. Such is the extent of its growth.

As for the ICSS, she informed, it is already partners with hundreds of organizations and institutions, including the Council of Europe, the OECD, the Organization of American States (OAS), the World Bank, the Community of Portuguese Language Countries and Commonwealth sport ministers.

"We are looking to form partnerships with all sport ministries, in order for them to adopt *Save the Dream* and the values it portrays," she affirmed. "In this regard, we have signed agreements in Portugal, Spain, Greece and many other European countries, as well as with nations in Latin America. We are also organizing and taking part in many relevant conferences.

"We are continually making alliances and, most importantly, we are working closely with United Nations organizations, such as the UN Educational, Scientific and Cultural Organization (UNESCO), the UN Children's Fund (UNICEF), and the UN Office on Drugs and Crime (UNODC)," she stated.

For example, *Save the Dream* teamed up with UNESCO to support the 12th FINA World Swimming Championships (25m), which took place in Doha in December last year. One month earlier, the programme was supporting the 3rd FINA World Aquatics Convention, also held in the Qatari capital.

"We are playing a big role in Brazil, where we are helping to protect children from potential adverse effects during major sporting events, such as the World Cup."

Of note, the ICSS became involved in 'Protega Brazil', a smartphone application developed to facilitate the reporting of violence against children and adolescents.

"Children on the streets of countries like Brazil are exposed to all forms of abuse. So with the help of the authorities and the government we initiated this special application. If a child is in distress, an icon on the phone can be tapped and the police will respond immediately," observed Ms Alawami.

"There have already been thousands of reports used

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Massimiliano Montanari, Save the Dream, Executive Director, seen during the dinner reception of the annual Securing Sport conference in London in 2014.

in this manner. This was a great initiative by the Brazilian government, with many other organizations, including the ICSS and UNICEF," she said.

The schemes in Brazil have been backed by an innovative photographic collection — a collaboration between leading photographic agency, Magnum Photos, and *Save the Dream*. 'Noites do Brasil' comprises a collection of over 100 stunning images taken in the streets of Brazil around 12 World Cup host cities showcasing the emotion, spirit, passion and humanity for sport and highlighting the ethos and vision of *Save the Dream*.

Another scheme the ICSS got involved in is in Jamia, India. Named 'Delhi Dreams', it featured the Aston Villa football club and the Centre for Equality and Inclusion (CEQUIN) and is aimed at improving the lives of disadvantaged girls living in the slum areas of New Delhi by educating and encouraging participation in sport.

Said Ms Alawami: "We provided over 100 girls with football training and advice on healthcare. And we then brought some of them over to the UK to play at the Aston Villa Girls' Development Centre for a week. This was another great initiative."

Ms Alawami, Director, Special Projects at the ICSS, during the interview with the OPEC Bulletin.

Ms Alawami with Italian football legend Alessandro Del Piero (l), at the Del Piero Academy in Turin.

Monthly seminars for the girls and their community will now be held to offer training and expertise on skills, ethics and values learned from sport, and extending into every aspect of life. Educational workshops on topics ranging from health, nutrition, water and sanitation to government schemes, sport purity and sport integrity, self-help groups, leadership, life skills, and career counseling, will form an important part of the clinics.

The ICSS through *Save the Dream* is venturing into all areas of sport — even the art of cheering. 'TifiAMO Positivo' is a competition designed to encourage and engage youth to promote a positive culture of cheering in sport. It was implemented in Italy in 2014 by *Save the Dream* in partnership with the Italian Olympic Committee, the Italian Ministry of Education, the UN Interregional Crime and Justice Research Institute, and the Italian Football Federation.

"The decision to create ADPLOG stems from my desire to pass on everything that I have learnt from sport, to the youth in particular. I thought that art and music could be a very powerful tool to view sport through different eyes and enhance passion for it. It is the same approach I have applied to Save the Dream and my support of ADISCO, the Italian Cord Blood Donors Association. This is my way of keeping dreams alive."

— Alessandro Del Piero

TifiAMO Positivo

The first two prize winners of the competition then took part in a study visit to Brazil during the 2014 FIFA World Cup where they observed the implementation of "It's in your hands to protect", a joint campaign between *Save the Dream*, UNICEF and the Secretariat on Human Rights focused on child protection during major sporting events.

The model of TifiAMO Positivo is expected to be implemented in other European countries, beginning with Spain and Portugal in 2015.

ICSS
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Group picture during the 2nd ICSS Securing Sport Conference in Doha, Qatar.

Ms Alawami stressed that one of the Centre's most prominent successes to date was to partner with the Sorbonne University in France, UNESCO and other experts to produce the most comprehensive report ever conducted in the field of match-fixing and betting fraud.

"The report provides guiding principles for governments, sport organizations, betting regulators and operators — in essence, offering a legal framework under which countries can make laws for the punishment of match-fixers," she said.

"This was followed by a conference organized by the UNODC at which it was clearly acknowledged and defined that match-fixing is an organized crime," she added.

One of the key initiatives of the ICSS enterprise is the ICSS Sport Index, developed in collaboration with the Harvard Kennedy School's Centre for International Development.

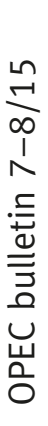
Encouraged and supported by the World Bank and UNESCO, the index aims to offer a powerful and unique approach to economic development and competitiveness and to identify ways and means of using sport to facilitate and stimulate short-, medium- and long-term economic growth, while also assessing the social impact involved.

Ms Alawami said that in conducting its activities, it was very important that the ICSS worked at all different levels — "from the highest level, down to the kids playing ball on the streets.

"Almost every week, we have another new initiative under *Save the Dream*, from cooperation accords to memoranda of understanding. They are happening everywhere in the world and we are doing them in record time.

"We are approaching all these entities to really spread the message of the programme as quickly as possible," she added.

Ms Alawami pointed out that *Save the Dream* is assisted by a group of athlete ambassadors, led by Italian



football legend Alessandro Del Piero, who, as champions in sport, are inspirational role models and deeply committed to protecting and spreading the values of sport to young people around the world.

"He who cheats betrays sport, himself, and future generations," Del Piero was quoted as saying in literature advertising his role in the programme. "It is with pride that I wear the captain's armband for *Save the Dream*, a team of great athletes from all over the world and different sporting backgrounds.

"We will work together to safeguard the integrity of sport. And we will strive to protect the innocence of those who look up to us," he added.

As to the prevalence of match-fixing in sport, Ms Alawami said one might be surprised to find that it is not just confined to Asia. Europe also has significant issues to overcome.

"It is going on everywhere in the world and it is the role of every single sporting federation to really look at the situation and take the appropriate measures, especially to protect children from match-fixing and other illegal actions," she maintained.

"That is why *Save the Dream* is going everywhere and wants to work with every federation and every sport ministry, in order to bring this issue to the highest level so that we can all work from the top down in protecting youth in sports.

"If you believe in sports values, then you can help yourself by not being subjected to match-fixing."

Asked to comment on where she sees *Save the Dream* in five years' time, Ms Alawami said she hopes by that time it will have grown to become a very significant independent organization that has the power to help all children globally through the progamme's four strategic areas — child protection, empowerment, inclusion and awareness.

"I see the ICSS with alliances with all entities in the world that are concerned about our children. We have already achieved a lot of our dreams, but we really have to make sure that the next generation believes in sport and enjoys sport. So we have to help the youth now — to save sport for the next generation," she professed.

Video competition

The latest programme Ms Alawami wants to promote among schoolchildren and youth in the world and in all OPEC Member Countries is the *Save the Dream* animated video competition *(see page 57 for competition entry information)*.

ICSS

Students from the Indian Birla Public School in Doha spread the 'Save the Dream' message.

Save the Dream promotes the core values of sport at a global level, empowering youth and inspiring societies to protect its purity for future generations

To make children and youth and their families aware of this, *Save the Dream* has put together the **Save the Dream Animated Video Competition**. Children and youth get to learn about the importance of protecting the core values of sport and they can win cash prizes for their schools and themselves. The winners have to use the money to finance a project of their choice. **Why?**

This approach opens doors for the winners to get involved in community improvement projects. This will help them learn how to start and manage such projects at a very young age.
So please take some time to read through this information and see how you can get involved.

What is your challenge?
Create an animated video with one or more of the following themes:

- *'Stop fighting, let them play':*
  This theme is based on the Olympic Truce
- *'Give them a chance, sport for all':*
  This theme promotes social inclusion, hope, empowerment through sport
- *'Together against racism, for equality in sport':*
  Sport against racism and other forms of discrimination
- *'For the purity of sport, say No to cheating':*
  This theme promotes sport values to protect sport from match fixing temptations, cheating and use of doping

Competition entry is free. You can enter as a class, in teams, or as an individual. It's completely up to you.

How to enter
E-mail your interest to: Siham.Alawami@theicss.org
This will tell us you are planning to submit an entry, and we can then follow-up with you as needed.

Any questions?
If you have a question about the *Save the Dream Animated Video Competition*, please e-mail: Siham.Alawami@theicss.org.

Morocco: The quest for energy

__Saadallah Al Fathi__, a former Head of Energy Studies at the OPEC Secretariat in Vienna, has written extensively for the OPEC Bulletin *since moving to Dubai, in the United Arab Emirates (UAE), where he now lives and works as an oil specialist and freelance writer. In the past, he has reported on the fortunes of both OPEC and non-OPEC oil producers. But in this article he looks at the flipside of the energy coin — the gross oil importer. His latest travels take him to the alluring Arab 'Kingdom of the West' — Morocco, where one famous historic city — Casablanca — has perhaps been responsible for singlehandedly putting the country on the world map, only for the world to rediscover the beauty of the country's other cities as well.*

Shutterstock

Visiting the beautiful country of Morocco for the first time made me realize a longstanding desire to experience first-hand another Arab country that had not figured on my list of 'places to visit'. This trip was by choice and coincided with a small family gathering there.

Unfortunately, my visit was limited to the bustling city of Casablanca, which, in serving as the country's economic capital, is basically cosmopolitan. Despite its obvious Hollywood fame, perhaps other cities would have offered me more about the spirit and real culture of this intriguing North African Arab country. But there will be other visits — hopefully.

In any case, my visit made me wonder just how this country of 33 million people, covering an area of 447,000 square kilometres and with a gross domestic product (GDP) of $104 billion is managing its energy needs, considering its scarce domestic resources and ever-growing demand.

With very little oil and gas reserves, Morocco produces no more than 5,100 barrels/day of crude oil and condensate and 0.1bn cubic metres (bn cu m) of natural gas annually. Therefore, it is almost totally dependent on imports to satisfy a growing demand for these sources of energy.

According to official paper on the country presented to the 10th Arab Energy Conference, held in the UAE capital, Abu Dhabi, in December last year, total primary energy demand in Morocco in 2013 stood at 18.4 million tons of oil equivalent (mtoe). Domestic energy demand has been growing, on average, by about 5.3 per cent per annum over the last ten years or so. In the meantime, the country's per capita consumption has increased from 0.36m to 0.56m toe between 2002 and 2013, an indication of the expanding economic activity and improved standard of living, among other things.

The share of energy sources used indicate that 58.4 per cent went to oil, 21.9 per cent to coal, 7.6 per cent to imported electricity, 6.2 per cent to gas and 5.8 per cent to renewables, where wind energy contributed 1.9 per cent and the rest came from hydroelectricity.

It is clear then why import-dependency in Morocco is at 93.7 per cent, which represents little improvement over that recorded ten years ago, while the import bill has reached about $12.3bn, with the additional burden of volatile markets for oil, gas and coal.

The policy aims of Morocco as set out in the 2009–12 government plan are to provide optimal electricity services based on sound technology and competitiveness; to increase the share of renewables; to conserve energy and raise efficiency; to mobilize domestic resources and seek integration with others when possible.

While these aims are well under way to being realised, there is a lot more to be done. It will be a real challenge to increase wind and solar electricity by 3,893 megawatts between 2013 and 2017 by investing almost

Pictured above is the port of Casablanca, Morocco.

75.2 Moroccan dirhams (about $8bn). Further down the road, Morocco aims at increasing renewable electricity to a share of 42 per cent by 2020 with the addition of 2,000 MW each of wind, solar and hydroelectricity.

Morocco has adapted its administrative structure to create the responsible bodies within the Ministry of Energy, Minerals, Water and Environment to ensure that these plans are carried out in a timely fashion. Each administration has already identified the projects to be pursued.

The Ministry is even considering a national commission to deal with all aspects of conservation and improving the efficiency of energy use to achieve the targets of a 12 per cent improvement by 2020 and 15 per cent by 2030. These are huge undertakings and a real challenge in comparison to what has happened in more advanced countries.

The efficiency improvement "has been elevated to a national priority, with a range of measures on lighting, building standards, appliances and vehicles" and is said to target these sectors by regulations and by making people aware and encouraged to do their part. It is going to be costly, but for a country that depends so much on imported energy it is worth it to tap the supply achieved by conservation.

The Ministry of Energy reserves all rights to act as overseer for all enterprises in the energy sector and is custodian of agreements with foreign and private-sector investors to ensure the execution of governmental policies concerning energy, mining and geology.

The Ministry is enabled by many laws that encourage investment, especially with respect to renewable energy and even in the more complex sector of oil refining. Its responsibility to ensure the provision of safe and reliable energy supply to the entire population has been amply demonstrated by the impressive 99 per cent of electricity coverage achieved, according to the World Bank.

But this is not without its problems. Morocco, though it is trying hard to phase out energy subsidies, is still burdened with them to the tune of over $2bn for petroleum products. And that was in 2008. The increase in domestic sales prices since then may have reduced the burden.

As for electricity, the Ministry foresees the need to install annually some 500–600 MW of capacity for the next ten years and is progressively liberalizing the market by raising tariffs to encourage private investment.

There is a good chance that Morocco will do well to realize the aims set in 2009, which focuses on security of supply, diversification of energy sources, reducing dependence on imports, accessibility of energy for all at the lowest cost, energy efficiency, as well as the environment and safety.

Oil and gas

Morocco is less fortunate than others with its meager endowment of oil and gas. Its petroleum reserves are hardly mentionable in references and are estimated at a mere 1m b of oil and 1bn cu m of gas only. But the government policy is to invigorate exploration. Three discoveries were made in recent years and the 34 companies engaged in exploration in the country have 142 licences, including 90 offshore.

These licences cover an area of 400,000 sq km and the drilling budget for 2014 was close to $500m. The country is encouraged also by some discoveries in nearby Mauritania and, therefore, it is possible that reserves can improve over time.

Morocco is taking a very careful approach with respect to its shale resources, due to their high investment cost, long lead times and possible environmental implications.

According to a 2013 report sponsored by the US Energy Information Administration, Morocco has 571bn cu m and 200m b of technically recoverable shale gas and oil resources, respectively. Foreign companies are already studying some of the deposits and some have

reached the feasibility study stage, but no actual production is apparent so far.

Because of its lack of energy resources, the country depends almost completely on imports. Its oil consumption has risen from 6.43m t in 2002 to 10.75m t in 2013. However, crude oil imports in 2013 were only 5.49m t as the country's only refinery also depends on imports of other components for its conversion facilities and for blending to the tune of 2m t a year.

Sometimes the refinery is operating below capacity as private importers of products compete with its supplies, a point that the government should perhaps address to improve utilization and profitability of the plant as its market share of 50 per cent is well below its potential.

Morocco depends on product imports to balance and complement its refinery product production, while the refinery also exports a surplus of its products to the tune of 1.3m t in 2013.

This trend may have been the result of the large area of the country and the ability of its ports on the Atlantic Ocean and Mediterranean Sea to receive product imports and to optimize the internal need for transportation.

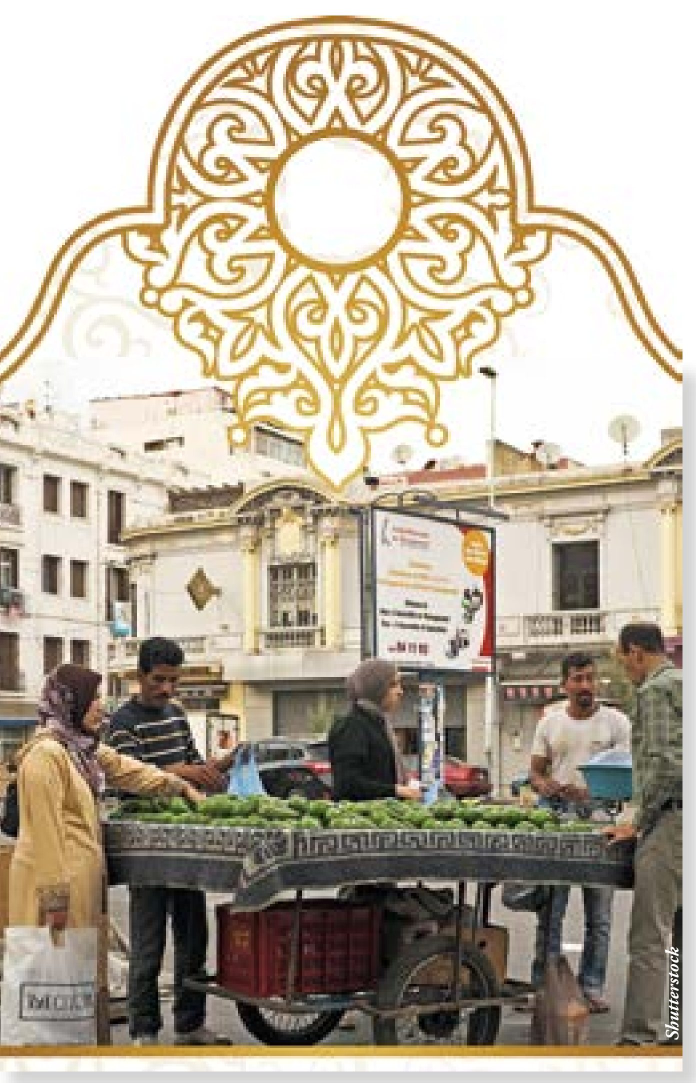
The petroleum product consumption slate is very much biased towards middle distillates (jet fuel and diesel) with a share of over 50 per cent of product consumption. The refinery, as we shall see later, had to invest in conversion processes to satisfy demand for middle distillates as far as possible. Yet diesel imports are probably 57 per cent of total oil products demand in Morocco.

The refinery was established in 1959 and its capacity was increased from the original 2.25m t a year to the current 10m t per annum. The replacement of the old processing units was accomplished during the implementation of the conversion and upgrade facilities starting in 2005. Today, the refinery is highly complex and prides itself in marketing low-sulphur diesel (50 ppm) since 2009.

The plant, which embarked on establishing its own distribution network, was privatized in 1997. Corral Holdings Societe Marocaine d'Industrie de Raffinage (Samir), a Saudi Arabian investment group, owns 67.27 per cent of the shares that are now freely traded on the Casablanca stock exchange.

As a largely importing country, Morocco is obliged to have large storage and terminal capacities at its Mediterranean and Atlantic coastal ports. At just the refinery, the terminal has 1m b for crude oil storage and a similar capacity for petroleum products.

But to further improve its security of supply, Morocco has expanded its storage and distribution facilities with,

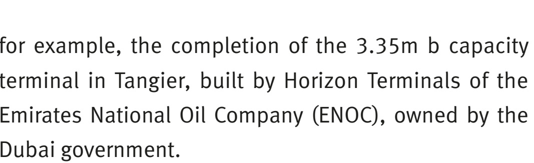


Pictured from l–r:

Local people sitting at the pavement in front of the largest mosque in the country, the King Hassan II Mosque in Casablanca, Morocco.

Exterior of the Hassan II Mosque, Casablanca.

Merchant is selling avocados in the streets of Casablanca Morocco.



for example, the completion of the 3.35m b capacity terminal in Tangier, built by Horizon Terminals of the Emirates National Oil Company (ENOC), owned by the Dubai government.

Additional storage and distribution terminals are under development in other ports, especially in the port of Jorf Lasfar on the Atlantic coast where Moroccan phosphate rock and its fertilizer derivatives are exported.

With limited liquefied petroleum gas (LPG) production from the refinery, Morocco has to import close to 2m t a year of the fuel to satisfy a growing demand. This has entailed the provision of 37 cylinder-filling and storage depots.

Turning to natural gas, Morocco undoubtedly prefers to use this fuel for its power generation, instead of coal. But the lack of sufficient production within the country is a real impediment.

However, the opportunity came with the construction of the Maghreb-Europe Gas (MEG) pipeline to export Algerian gas to Spain and Portugal, which passes through Morocco before crossing the Strait of Gibraltar at a capacity of about 10bn cu m a year.

In lieu of transit fees, Morocco receives Algerian gas to fuel some of its power stations. Moroccan consumption rose from very little in 2002 to 1.1bn cu m in 2013, including only 70m cu m from domestic production.

There is a long way ahead for the oil and gas industry in Morocco, but so far the picture is cautiously encouraging.

Moroccan renewables

Many countries in the Middle East and North Africa (MENA) region have announced interest and programmes in developing renewable energy sources, especially with respect to solar and wind energy, in addition to hydroelectricity in some states.

Morocco is not excluded from this and is said to be well positioned to be a regional leader. The International Energy Agency (IEA) in Paris has said that “persevering in this direction [energy pricing] could help Morocco emerge as a regional leader in energy sector reform, as well as in renewable energy technologies, in which it has a natural advantage.”

A general view of Ait Benhaddou, Morocco, which is listed as a UNESCO World Heritage Site.

Morocco is driven by the fact that it imports almost all of its energy requirements, which is a burden on its economy. At the same time, it is endowed with good potential in hydroelectricity, in addition to its high solar and wind energy capability.

The country is fully aware that it cannot go on relying on imports, given that energy consumption has been increasing steadily at more than five per cent a year over the last ten years.

For all that, Morocco has taken steps to create specialized administrative bodies to legislate the necessary laws and regulations and has sought the help of international organizations, as well as fellow Arab countries, to help it in its quest to make renewable energy and efficiency improvement a national priority.

Morocco has five rivers (some seasonal) and 13 dams. Some of them were constructed with loans and grants from Gulf Arab countries. The country's current installed hydroelectric power capacity is 1,700 MW, from 26 locations, including 464 MW of pumped storage generating capacity.

The potential is to move higher with two plants of 175 MW and 350 MW, expected to be completed in 2017 and 2018, respectively. Morocco has also licensed 75 MW of small micro-hydro plants to the private sector. But this is far short of the government target of 2,000 MW of new capacity by 2020 though the Ministry of Energy seems to be quite confident it can resolve the current impediments to achieve this target.

Solar energy intensity in Morocco at 6.5 KW/square metre/day is quite supportive of solar energy utilization. A total of 400 MW of photovoltaic capacity (10–30 MW for each station) is under construction, or planned.

But the plan calls for 2,000 MW of solar electricity by 2020 and in October last year the World Bank approved the financing of a $159m solar energy development project (Noor-Quarzazate), which is planned to provide 500 MW. Total investment in the solar sector is estimated at $9bn, under which four other solar power stations are to be constructed in public-private ownership.

With Morocco's power link to Europe, the day may come when it can export electricity through the Desertec project in North Africa — that is if it ever goes ahead. Finally, the Moroccan plan of 2001 called for the installation of 440,000 solar water heaters and by 2012 there were 235,000 already in operation.

In 2013, The UAE gave Morocco $100m to support its programme of building solar and wind power plants. This is reported to be part of a partnership to finance development projects in Morocco worth more than $5bn over five years.

Wind speed in Morocco at a height of 40 metres averages 9.5 to 11 metres per second, quite encouraging for pursuing wind energy projects. The country's potential onshore is estimated at 25,000 MW and the plan is to have 6,000 MW installed by 2030. The offshore potential is ten times as much, but there are no plans for schemes just yet.

The country's current wind capacity is 480 MW. Some 300 MW is about to be completed and another 150 MW is due to be awarded. The private sector is constructing

120 MW near Tangier. To reach the target of 2,000 MW by 2020, the authority is now studying offers for provision of another 850 MW.

Morocco is doing what is necessary to attract investors and contractors to realize this challenging programme of renewable energy, in addition to its efficiency improvement targets.

For this, it is looking at all opportunities to ease the financial burden, including classifying most projects under the United Nations Clean Development Mechanism. There is also the Energy Development Fund with a $500m donation from Saudi Arabia and $300m from the UAE, in addition to $200m from the Hassan II Fund for Economic and Social Development.

The privatization of some power stations, such as Jorf Lasfar and its expansion to 1,400 MW, will also help as a model for private investors. In addition, the World Bank is helping to modernize the Moroccan energy system with a loan of $100m.

Morocco's drive into renewables has been described as "understandable and admirable". It is understandable considering the lack of natural resources of fossil fuels, while it is admirable for the results that have been achieved so far and for the efforts the government is making to strengthen the legal and regulatory framework. The hope is that other Arab countries, especially those who have similar projects in mind, can benefit from Morocco's experience.

Transport

The transportation sector in any country is vital for the economy and the mobility of goods and services, as well as people. Transportation's consumption of energy is among the highest of all economic sectors and its impact on the local environment, especially in cities, cannot be underestimated.

For this reason, as well as others, Morocco has elected to use the price mechanism to rationalize its transportation fuels and reduce the burden of subsidies in a country where most of the energy supplies are imported.

The price of gasoline and diesel have been gradually brought to international levels and kept there even when prices of oil have dropped to almost half what they were in June 2014. Even electricity prices are reported to be adjusted upward. Nevertheless, the fares of taxis, buses, trains and trams remain affordable as they may receive some subsidy from the government one way or another.

The transportation system in Morocco is elaborate. The roads run to a total of 56,986 km, with 1,416 km of motorways, which join the major cities. These roads are complemented by a well-established rail network, run by a national administration and carrying 38 million passengers and 36m t of freight (including phosphate rock) in 2012–13. The length of the standard gauge network is 1,907 km of which 1,003 km is electrified, a great achievement indeed.

The network is essentially in the country's central, north and eastern regions. But projects are now well poised to reach the south where a huge investment programme will see the construction of 1,500 km of high-speed rail by 2035, in addition to much more than that in conventional railway lines.

The programme's jewel in the crown project is the high-speed link between Tangier and Marrakesh, via Rabat and Casablanca, which is currently under construction and was expected to come into operation this year. However, the project has been delayed until the end of 2016, or early 2017, for financial reasons and problems with land acquisition. When operational, the project is expected to carry eight million passengers a year and will cut journey times by more than 50 per cent. The line is also destined to be extended southward to Agadir.

The Moroccan Minister for Equipment, Transport and Logistics said during the convention on railways in the MENA region in Dubai in March last year that his country plans to refurbish the railways and expand them by investing a total of $20bn up to the year 2035, including the work underway, to modernize control systems and telecommunications on the network.

The Moroccan network is connected to Algeria's system, but unfortunately the link has been closed for years. The connection with Spain and the European network is by ferry through Gibraltar, but there are studies for a future railway tunnel under the strait.

The populous and congested cities in Morocco are also receiving attention to ease their traffic jams, improve the local environment by reducing emissions and reinforce social contact between the people.

In this connection, the $1.6bn Casablanca Tramway stands as a good example. The system is the pride of Casablanca. Work on the scheme started in 2009 and operations commenced in December 2013. The first phase comprises 31 km of track and 48 stations and is served by 74 ultra-modern low-floor, air conditioned tramcars.

The network is Y shaped now and travel time between the two ends runs to 64–69 minutes, with the cars travelling at almost 19 km an hour. Casablanca is still congested during rush hours, but one can only imagine what it was like before the advent of the trams.

The new line is fed by electrical overhead lines and is destined to be expanded to 76 km by the addition of two more links after Casablanca discarded its plans for an elevated metro system.

The success of the system is measured by its acceptability where in the first month of service the ridership was between 40,000 and 45,000 passengers/day, a figure that soon rose to an average of 100,000/d. This year the passenger average is expected to pass a quarter of a million daily.

Al-Fathi

Saadallah Al-Fathi during his visit to Casablanca.

The system is complemented by an electric railway connection from the city centre to Mohammad V airport, the major international airport serving the Casablanca region.

But the Casablanca tram system is not the first in the country. The Rabat-Salé tramway started operations in May 2011, connecting the two cities by a bridge across the Bouregreg River. The network has two lines for a total length of 19.5 km and 31 stops serving more than 400,000 inhabitants in Rabat and Salé cities.

The number of users is expected to be 180,000/day. And there are plans for additional systems, especially in Marrakesh and further expansion of the existing systems is an open option.

The way energy consumption in Morocco is growing mass transit systems and modern railways are a sure way of improving efficiency and arresting waste, in addition to the well sought after benefit of enhancing environmental improvement.

There may not be many old touristic sites in Casablanca as there are in other Moroccan cities, but a visit to the Hassan II mosque is a delight indeed. It is said that 6,000 artisans and builders worked for five years to produce this magnificent place of worship and a landmark for every visitor to the famous city.

Needless to say, I hope to be able to visit Morocco again in the not too distant future to savour the beauty and culture of other places and cities in the country that I did not get to experience. It will also give me the opportunity to gauge Morocco's progress towards realizing its energy policy aims and dreams.

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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

July 1 Students from the Global Young Leaders Conference, organized by Envision in the US.

July 7 Students from the Hanns-Seidel-Stiftung, Munich, Germany.

July 10 Students from the University of Toronto, Canada, who are also participating in the Masaryk Summer Research programme at the Masaryk University in Brno, Czech Republic.

Vacancy announcement

Environmental Coordinator

Within the Reseach Division of the Secretariat, the Environmental Unit's objectives are to analyse, report and advise on developments pertaining to the international debate on climate change and contribute to the close coordination of Member Countries' positions on environmental matters. This entails: monitoring and analysing international debate and development on climate change, sustainable development and trade; gathering and analysing data and information in these fields; contributing to coordination among Member Countries and participating in relevant multilateral fora and discussions; and building up OPEC's networks with national, regional and multilateral organizations.

Objective of position:

The Environmental Coordinator is to coordinate the activities of the Unit to fulfill its objectives. Under the supervision of the Director, Research Division, he/she is to study and analyse national and multilateral environmental policies and assess their impact on energy developments, in particular on the medium- to long-term oil outlook and on OPEC, study and analyse developments in the global and multilateral debate on climate change, evaluate the impact on OPEC and contribute to the coordination of OPEC Member Countries' positions in international fora on issues pertaining to environment in general and to the United Nations Framework Convention on Climate Change (UNFCCC) negotiations in particular.

Main responsibilities:

- Coordinates the activities of the Unit in line with its objectives;
- studies and analyses developments in the international debate on environmental issues related to the energy industry and in particular the activities related to the UNFCCC and its subsidiary bodies and the Kyoto Protocol;
- responsible for preparing for and attending UNFCCC meetings and reporting on these;
- assesses the impact of changes in environmental policies in consuming countries on the medium- and long-term development of the world petroleum industry;
- conducts studies relevant to the subject of environment as it affects the energy sector in general and oil in particular;
- contributes to the coordination of Member Countries' positions concerning environmental issues;
- contributes to speeches, articles and presentations to internal meetings and various international forums.

Required competencies and qualifications:

Education:

- University degree in Environmental Science or Economics, Engineering or other Sciences, preferably with specialization in environment
- Advanced degree preferred

Work experience:

- University degree: ten years
- Advanced university degree: eight years

Training specializations:

- Environmental policies
- Analysis of environmental issues related to energy
- International debate on environment
- Modelling techniques

Competencies:

- Managerial and leadership skills
- Communication skills
- Decision making skills
- Analytical skills
- Presentation skills
- Interpersonal skills
- Customer service orientation
- Team-building skills
- Initiative
- Integrity

Language: English

Status and Benefits:

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

The post is at grade D reporting to the Director of Research Division. The compensation package, including expatriate benefits, is commensurate with the level of the post.

Applications:

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

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

In order for applications to be considered, they must reach the OPEC Secretariat through the relevant Governor not later than **September 25, 2015,** quoting the job code: 6.1.01 *(see www.opec.org — Employment)*.

OFID Ministerial Council approves new ten-year agenda

The Ministerial Council of the OPEC Fund for International Development (OFID) has given its approval to a new corporate strategic plan that sets the framework for the institution's operational activities and institutional development for the next ten years (2016–25).

Addressing the Council at its 36th Session in Vienna in July, outgoing Chairman, Ali Shareef Al Emadi, Qatari Minister of Finance, described the agenda as a "significant strategic work plan that focuses on resilience, efficiency and innovative solutions."

He stressed that the programme would capitalize on the institution's recent achievements, especially with regard to its "special position" in fighting energy poverty.

Al Emadi underlined the significance of the coming months in defining the shape and direction of the global development agenda.

Placing OFID in this context, he said Member Countries had made clear their "continued support of OFID and adherence to the principle of comprehensive and sustainable development for all" in accordance with the new United Nations Sustainable Development Goals (SDGs) to be announced in September.

Made up of the finance ministers and other high-level representatives of OFID Member Countries, the Ministerial Council is OFID's supreme governing authority.

As is customary, the summer meeting, held at OFID's headquarters in the Austrian capital, reviewed the institution's performance and set policy for the year ahead.

It elected to the chair the Democratic and Popular Republic of Algeria, represented by Abderrahmane Benkhalfa, Minister of Finance. The Republic of Ecuador, represented by Fausto Herrera, Minister of Finance, was elected as vice-chair.

Reporting on the work of the OFID Governing Board since the last meeting of the Council in June 2014, Board Chairman, Abdul Wahab Al-Bader of Kuwait, disclosed that some $1.7 billion had been approved in fresh lending for 74 projects.

He pointed out that there had also been substantial progress in institution strengthening and human capacity building.

In his own statement to the Council, OFID Director-General, Suleiman J Al-Herbish, presented OFID as an institution that was "scaling up its activities, growing in stature and influence, and adapting successfully to an increasingly complex and uncertain business environment."

Citing figures from OFID's 2014 Annual Report, he said it had been a "record-breaking year," with both commitments and disbursements reaching the unprecedented levels of $1.6bn and $1.3bn, respectively.

"These figures are not only immensely satisfying in themselves, but also a powerful testament to the success of our various restructuring programmes and our ongoing desire to more," he told the meeting.

Al-Herbish highlighted OFID's strategic repositioning to focus on the water-food-energy nexus, which he described as representing "the defining challenges of the 21st century."

The nexus, he said, formed the lynchpin of OFID's strategic plan for the coming decade. "Already, however,

in 2014 we allocated 68 per cent of total commitments to nexus-related projects," he revealed.

The OFID Director-General went on to outline progress in the implementation of the institution's Energy for the Poor Initiative in terms of operational and advocacy efforts, both of which had increased.

Of special note, he said, was OFID's decision to lead efforts to mobilize support for energy poverty eradication from the oil and gas industry.

"We are now working closely with several companies to activate a platform for action, and look forward to our Member Countries joining this effort," he stated. Referring to the "transformational journey" that OFID had embarked upon ten years ago, Al-Herbish reiterated its objectives: to make the institution more relevant, more effective, and more sustainable.

"So far, I am pleased to say, we are ticking all the boxes," he affirmed. "I can say with confidence that when it comes to optimizing the use of our resources and balancing the pursuit of our mandate with our institution's financial sustainability, we are doing a satisfactory job."

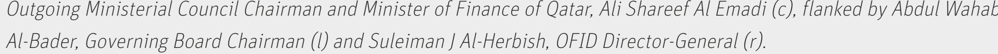
Al-Herbish concluded his statement by acknowledging the dual challenges presented by the SDGs — a new global development paradigm and a new funding architecture.

He assured Ministers: "We have confidence in our capacity to deliver on our mandate. We have faith in the unbroken trust and support of our Member Countries. And we know that we can count on the expert guidance of our governing bodies."

Other matters considered during the session included OFID's financial statements for 2014 and the Annual Report for the same year, which the Council approved.

Also taking place was the presentation of the OFID Annual Award for Development to the Children's Cancer Hospital Foundation of Egypt, and the naming of four 2015 OFID Scholars — from Kyrgyzstan, Nicaragua, Palestine and Sierra Leone.

The next Session of the OFID Ministerial Council will be held in Vienna on June 2, 2016.



Outgoing Ministerial Council Chairman and Minister of Finance of Qatar, Ali Shareef Al Emadi (c), flanked by Abdul Wahab Al-Bader, Governing Board Chairman (l) and Suleiman J Al-Herbish, OFID Director-General (r).

Forthcoming events

7th annual process safety management summit 2015, September 6–9, 2015, Abu Dhabi, UAE. Details: IQPC Ltd, Anchor House, 15–19 Britten Street, London SW3 3QL, UK. Tel: +44 207 368 93 00; fax: +44 207 368 93 01; e-mail: enquire@iqpc.co.uk; website: www.oilandgasprocesssafety.com.

Africa oil and gas expo 2015, September 8–9, 2015, Johannesburg, South Africa. Details: 3rd Floor, Archway House, 1–3 Worship Street, London EC2A 2AB, UK. Tel: +44 207 127 45 01; fax: +44 207 127 45 03; e-mail: info@oliverkinross.com; website: www.africaoilexpo.com.

7th world LNG series: Asia Pacific summit, September 8–11, 2015, Singapore. Details: CWC Associates Ltd, Regent House, Oyster Wharf, 16–18 Lombard Road, London SW11 3RF, UK. Tel: +44 207 978 000; fax: +44 207 978 00 99; e-mail: sshelton@thecwcgroup.com; website: http://asiapacific.cwclng.com.

India oil and gas summit, September 9–10, 2015, Mumbai, India. Details: ITE Group plc, Oil and Gas Division, 105 Salusbury Road, London NW6 6RG, UK. Tel: +44 207 596 52 33; fax: +44 207 596 51 06; e-mail: oilgas@ite-exhibitions.com; website: www.oilgas-events.com/india-oil-gas.

Refining and petchem Asia, September 9–11, 2015, Singapore. Details: Centre for Management Technology, 80 Marine Parade Road #13–02, Parkway Parade, 449269 Singapore. Tel: +65 6345 73 22/6346 91 32; fax: +65 6345 59 28; e-mail: cynthia@cmtsp.com.sg; website: www.cmtevents.com.

Supply and distribution: organization, operations and economics, September 14–17, 2015, London, UK. Details: Energy Institute, 61 New Cavendish Street, London W1G 7AR, UK. Tel: +44 207 467 71 16; fax: +44 207 580 22 30; e-mail: jwarner@energyinst.org.uk; website: www.energyinst.org/events/view/327.

Pipeline week, September 15–17, 2015, The Woodlands, TX, USA. Details: PennWell, 1421 S Sheridan Road, Tulsa, Oklahoma 74112, USA. Tel: +1 918 835 31 61; fax: +1 918 831 94 97; e-mail: sneighbors@pennwell.com; website: www.pipelineweek.com/index.html#pipeline rotator_3.

Eastern Australia's energy markets outlook 2015, September 15–18, 2015, Sydney, Australia. Details: Quest Event Pty Ltd, Suite 3, Level 2, 53–55 Sydney Rd, Manly NSW 2095, Australia. Tel: +61 (0)2 99 77 05 65; fax: +61 (0)2 99 77 05 67; e-mail: info@questevents.com.au; website: www.questevents.com.au/content/eastern-australias-energy-markets-outlook-2015-conference.

9th annual European gas summit 2015, September 17–18, 2015, Belgium, Brussels. Details: Platts, 20 Canada Square, Canary Wharf, London E14 5LH, UK. Tel: +44 207 176 61 42; fax: +44 207 176 85 12; e-mail: cynthia_rugg@platts.com; website: www.platts.com/events/emea/european-gas/index.

Oil and gas industry fundamentals, September 21–23, 2015, London, UK. Details: Energy Institute, 61 New Cavendish Street, London W1G 7AR, UK. Tel: +44 207 467 71 16; fax: +44 207 580 22 30; e-mail: jwarner@energyinst.org.uk; website: www.energyinst.org/events/view/326.

Operational excellence in oil and gas Stavanger, September 21–23, 2015, Stavanger, Norway. Details: IQPC Ltd, Anchor House, 15–19 Britten Street, London SW3 3QL, UK. Tel: +44 207 368 93 00; fax: +44 207 368 93 01; e-mail: enquire@iqpc.co.uk; website: www.opexinoilandgasstavanger.com.

11th annual global local content summit for oil and gas, September 21–24, 2015, London, UK. Details: IQPC Ltd, Anchor House, 15–19 Britten Street, London SW3 3QL, UK. Tel: +44 207 368 93 00; fax: +44 207 368 93 01; e-mail: enquire@iqpc.co.uk; website: www.localcontentsummit.com.

Mozambique gas summit, September 21–24, 2015, Maputo, Mozambique. Details: CWC Associates Ltd, Regent House, Oyster Wharf, 16–18 Lombard Road, London SW11 3RF, UK. Tel: +44 207 978 000; fax: +44 207 978 00 99; e-mail: sshelton@thecwcgroup.com; website: www.mozambique-gas-summit.com.

Moscow refining and petrochemicals week 2015, September 21–25, 2015, Moscow, Russia. Details: Euro Petroleum Consultants Ltd, 44 Oxford Drive, Bermondsey Street, London SE1 2FB, UK. Tel: +44 207 357 83 94; fax: +44 207 357 83 95; e-mail: enquiries@europetro.com; website: www.europetro.com/en/moscow_week_2015.

5th upstream and downstream oil and gas exhibition and conference, September 22–24, 2015, Abuja, Nigeria. Details: INTERFAX Energy, 19–21 Great Tower Street City, London EC3R 5AQ, UK. Tel: +44 203 004 62 06; fax: +44 207 283 13 32; e-mail: amy.ward@interfax.co.uk; website: www.interfaxenergy.com.

5th LNG global congress, September 23–24, 2015, London, UK. Details: IBC Global Conferences, The Bookings Department, Informa UK Ltd, PO Box 406, West Byfleet KT14 6WL, UK. Tel: +44 207 017 55 18; fax: +44 207 017 47 15; e-mail: energycustserv@informa.com; website: www.lnggc.com.

Global oil and gas Black Sea and Mediterranean, September 23–24, 2015, Athens, Greece. Details: ITE Group plc, Oil and Gas Division, 105 Salusbury Road, London NW6 6RG, UK. Tel: +44 207 596 52 33; fax: +44 207 596 51 06; e-mail: oilgas@ite-exhibitions.com; website: www.global-oilgas.com/BlackSeaMed.

International forum on Madagascar mining and petroleum, September 23–25, 2015, Antananarivo, Madagascar. Details: The Exchange Ltd, 5th Floor, 86 Hatton Garden, London EC1N 8QQ, UK. Tel: +44 207 067 18 00; fax: +44 207 242 26 73; e-mail: marketing@theenergyexchange.co.uk; website: www.theenergyexchange.co.uk.

Floating and subsea oil and gas technologies and installations, September 24–25, 2015, London, UK. Details: Energy Institute, 61 New Cavendish Street, London W1G 7AR, UK. Tel: +44 207 467 71 16; fax: +44 207 580 22 30; e-mail: jwarner@energyinst.org.uk; website: www.energyinst.org/events/view/629.

Asset integrity management 2015, September 28–30, 2015, Aberdeen, UK. Details: IQPC Ltd, Anchor House, 15–19 Britten Street, London SW3 3QL, UK. Tel: +44 207 368 93 00; fax: +44 207 368 93 01; e-mail: enquire@iqpc.co.uk; website: www.aimaberdeen.com.

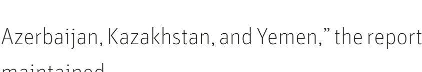
Cyber security for oil and gas, September 28–30, 2015, Amsterdam, The Netherlands. Details: IQPC Ltd, Anchor House, 15–19 Britten Street, London SW3 3QL, UK. Tel: +44 207 368 93 00; fax: +44 207 368 93 01; e-mail: enquire@iqpc.co.uk; website: www.cybersecurityoilandgas.com.

16th FPSO world congress 2015, September 28–October 1, 2015, Singapore. Details: IQPC Ltd, Anchor House, 15–19 Britten Street, London SW3 3QL, UK. Tel: +44 207 368 93 00; fax: +44 207 368 93 01; e-mail: enquire@iqpc.co.uk; website: www.fpsoasia.com.

Sakhalin oil and gas 2015, September 28–October 1, 2015, Yuzhno-Sakhalinsk, Russia. Details: Adam Smith Conferences, 6th Floor, 29 Bressenden Place, London SW1E 5DR, UK. Tel: +44 207 017 74 44; fax: +44 207 017 74 47; e-mail: info@adamsmithconferences.com; website: www.sakhalin-oil-gas.com.

OPEC expects higher oil demand in 2016 as economy expands

July 2015



An expected improvement in global economic activities in 2016 is projected to translate into higher international oil consumption, according to the OPEC Secretariat in Vienna.

In its *Monthly Oil Market Report (MOMR)* for July, it stated that as a result of the projected expansion in economic growth, global oil demand was set to reach 1.34 million barrels/day next year, translating into total oil consumption of 93.94m b/d.

"Better-than-expected momentum in the global economy, especially in the emerging markets, will contribute further to oil demand growth in the coming year," the *MOMR* observed.

In providing an outlook for the oil market in 2016, the report said the global GDP growth forecast for 2015 had been revised down to 3.2 per cent from 3.3 per cent. This, however, assumed a relatively higher growth rate in the second half, particularly after a weak first quarter.

But the publication's feature article stated that, in 2016, global GDP growth was forecast to be higher at 3.5 per cent.

The OECD region, it said, was forecast to expand by 2.1 per cent, an increase from the 2.0 per cent expected for 2015. China was expected to slow to 6.5 per cent in 2016 from 6.9 per cent in the current year, while India was forecast to reach higher growth at 7.7 per cent next year, compared to 7.5 per cent in 2015. Both Russia and Brazil were forecast to move out of recession.

In showing how this translated to regional oil demand, the *MOMR* said OECD oil demand was expected to increase by 180,000 b/d in 2016, with growth in the OECD Americas also seen rising firmly.

Oil demand growth in OECD Europe and the Asia Pacific were expected to decline next year.

"In the non-OECD region, oil demand growth is expected to be around 1.16m b/d. The highest contribution is seen coming from China, although growth is forecast to be lower than in the current year," it noted.

Looking at the oil product mix for demand in 2016, the *MOMR* said diesel oil and gasoline would continue to drive growth to supply the expanding transportation sector.

At the same time, the demand forecast for next year was subject to some uncertainty factors, including the scope of economic growth, industrial production developments, oil price trends, weather conditions, and changing oil intensity in different regions, as well as policy changes, including fuel substitution.

The *MOMR* pointed out that non-OPEC oil supply growth in 2015 had slowed compared to the previous year, although expectations had been revised up since the beginning of July to average 860,000 b/d.

"For 2016, non-OPEC supply growth is projected to slow further, increasing by 300,000 b/d to average 57.7m b/d. This prediction is based on a bottom-up approach, looking at field-by-field developments and the latest information regarding project ramp-ups and start-ups," said the publication.

Total US liquids production was expected to grow by 330,000 b/d in 2016, just one-third of the growth of 930,000 b/d expected in 2015.

"The main contributors to the growth are seen to be the United States, Brazil, Canada, Australia, Norway and China, which will be partially offset by declines in Russia, Mexico, Azerbaijan, Kazakhstan, and Yemen," the report maintained.

Output of OPEC NGLs and non-conventional liquids was expected to grow by 170,000 b/d to average 6.18m b/d in 2016.

"Based on the above forecasts, incremental world oil demand will outpace projected non-OPEC supply and OPEC NGLs, resulting in demand for OPEC crude in 2016 of 30.1m b/d."

This, said the *MOMR*, represented a projected increase of 900,000 b/d over the current year and followed an expected rise of 200,000 b/d in 2015. This would imply an improvement towards a more balanced market.

Concerning crude oil prices, the report stated that while current prices would continue to support the world economy to some extent, numerous challenges were likely to offset that positive effect, preventing higher growth.

Among these issues, it added, were the high debt levels across the OECD, still high unemployment in the Euro-zone, in combination with the uncertainties in Greece, expectations of rising interest rates in the US, overcapacity amid a slowing economy in China, and ongoing geopolitical issues.

MOMR oil market highlights ... July 2015

The **OPEC Reference Basket** averaged $60.21/b in June, representing a decline of $1.95 from the previous month. Crude oil futures prices saw mixed movement with ICE Brent falling by $1.86 to average $63.75/b, while Nymex WTI gained 46¢ to stand at $59.83/b. This caused the Brent-WTI spread to narrow to around $3.90/b for the month. Money managers further reduced net-long positions in the futures markets.

World economic growth for 2016 is forecast at 3.5 per cent, slightly higher than this year's growth of 3.2 per cent. The OECD economies are expected to expand by 2.1 per cent in 2016, compared to 2.0 per cent in the current year. China is expected to decelerate to 6.5 per cent from 6.9 per cent in 2015, while India is forecast to reach higher growth at 7.7 per cent in 2016, compared to 7.5 per cent this year. Positively, both Russia and Brazil are forecast to move out of recession. Risks to the global economic growth forecast appear to be slightly on the downside.

World oil demand in 2015 is now expected to grow by 1.28m b/d, following an upward revision of 100,000 b/d since the previous report. In 2016, world oil demand growth is forecast to pick up, reaching 1.34m b/d. OECD demand is expected to register positive growth of 180,000 b/d, while non-OECD consumption is projected to grow by 1.16m b/d.

Non-OPEC oil supply growth in 2015 has been revised up by 180,000 b/d to stand at 860,000 b/d, mainly driven by OECD Americas, Latin America and the FSU. In 2016, non-OPEC oil supply is projected to grow by 300,000 b/d to average 57.69m b/d. Output of OPEC NGLs is expected to grow by 170,000 b/d in 2016, down from 190,000 b/d in the current year. In June, OPEC production increased by around 283,000 b/d to average 31.38m b/d, according to secondary sources.

Product markets in the Atlantic Basin were mixed in June. The US driving season pushed up gasoline demand to around 9.5m b/d, a level not seen in years, providing support to the gasoline crack spreads. This partially offset the weakness in the middle of the barrel, allowing refinery margins to remain healthy in the region. Asian margins retained the strength seen in the previous month as regional demand amid a heavy maintenance season continued lending support to the Asian market.

Average spot **freight rates** for dirty tankers went up by 12 per cent in June, mainly as Aframax spot freight rates increased from the previous month. Aframax rates were supported by an active market and discharge delays at several ports. Clean tanker spot freight rates increased in both East and West of Suez as the tonnage demand remains high.

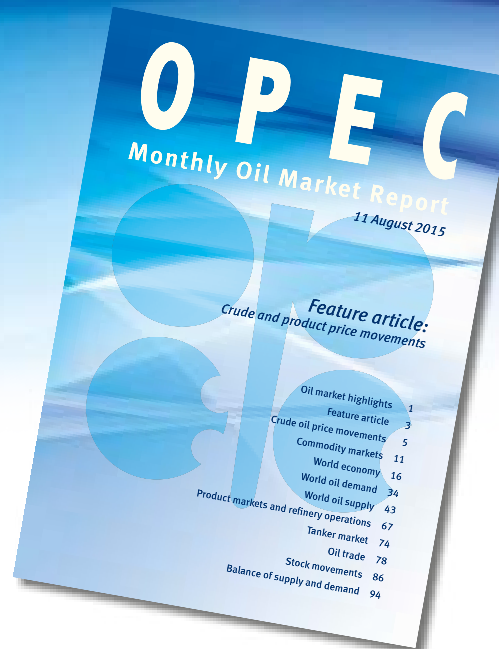
OECD commercial oil stocks continued to rise in May to stand at 2,833m b, some 142m b higher than the five-year average, with crude and products indicating a surplus of around 115m b and 26m b, respectively. In terms of days of forward cover, OECD commercial stocks stood at 61.8 days in May, some 3.7 days higher than the five-year average.

Demand for OPEC crude is estimated at 29.2m b/d in 2015, a decline of 100,000 b/d from the previous assessment and representing a gain of 200,000 b/d over the previous year. In 2016, demand for OPEC crude is projected at 30.1m b/d, up by 900,000 b/d over the estimated level for the current year.

The feature article and oil market highlights are taken from OPEC's Monthly Oil Market Report (MOMR) for July 2015. Published by the Secretariat's Petroleum Studies Department, the publication may be downloaded in PDF format from our Website (www.opec.org), provided OPEC is credited as the source for any usage. The additional graphs and tables on the following pages reflect the latest data on OPEC Reference Basket and crude and oil product prices in general.

Global oil demand forecast to continue improvement

August 2015



Crude oil demand should continue to improve in the coming months, a development that would gradually reduce the existing imbalance in oil supply and demand fundamentals, according to the OPEC Secretariat in Vienna.

The Organization stated in its *Monthly Oil Market Report (MOMR)* for August that given the better-than-expected growth in global oil demand so far this year, together with some signs of a pick-up in the economies of the major consuming countries, demand should continue to improve.

In giving an assessment of international crude oil and oil product movements and prices, the *MOMR's* feature article for the month observed that after falling to multi-year lows earlier in the year, crude oil prices had stabilized in April, remaining at around the $60/b range until June.

"However, in July, a set of bearish factors pushed crude oil prices to their lowest levels in months, with Nymex WTI nearing $45/b and ICE Brent at around $50/b," it noted.

The report said this decline in oil prices came amid a sell-off in crude futures, triggered largely by continued oversupply at a time when incremental global demand had not followed suit.

"Financial concerns in Greece and China, as well as the outcome of the P5+1 talks on Iran's nuclear programme, have all contributed to the current bearish market conditions," it maintained.

Furthermore, said the *MOMR*, the drop in crude prices was not only in the prompt months — the front-end of the pricing curve — but also in the later months — the back-end of the curve.

"The declines at the back end of the curve are also exacerbating the fall in prices at the front," it explained.

The report said that, on the physical side, crude oil values for light sweet West African grades had been pressured by several months of overhang cargoes. This was despite the recent easing of the oversupply as refiners increased utilization to capitalize on lower crude oil prices amid a rebound in gasoline demand and better arbitrage economics to Asia.

In the Middle East, it continued, spot crude cargoes were being squeezed by an inflow of Atlantic Basin crudes into the Asia-Pacific market on the back of relatively low light sweet crude prices compared with sour Middle East grades.

"Refining margins have been healthy in most regions," it said. "While margins have seen a slight weakening in Asia, they remain on the rise in the Atlantic Basin due to lower crude prices along with the excellent performance of the top of the barrel."

The *MOMR* pointed out that, during the summer driving season, US gasoline demand had reached as high as 9.5m b/d over the last two months, a level not seen in years, supported primarily by lower gasoline prices.

"This has allowed the gasoline crack spread to increase to more than $50/b in July, the highest in over two years, to once again lead the product market."

However, warned the report, with the end of the driving season early next month, gasoline margins could see a downward correction as demand turned seasonally low.

At the same time, it said, the supply side could exert pressure on the middle of the barrel, with increasing inflows from new Middle East refinery capacity, which had started to impact the diesel market in Europe and Asia.

"However, current crude oil prices levels could prevent refinery intakes from falling sharply, resulting in higher crude oil demand," it added.

MOMR oil market highlights …

August 2015

The **OPEC Reference Basket** averaged $54.19/b in July, representing a decline of more than ten per cent from the previous month. Crude oil futures were also driven lower by various bearish factors. ICE Brent settled down $6.99 to $56.76/b, while Nymex WTI dropped $8.90 to $50.93/b. Speculators' net-long positions in WTI declined by more than 50 per cent in July. The Brent-WTI spread widened $1.91 to $5.83/b in July.

World economic growth for both 2015 and 2016 remains unchanged at 3.2 per cent and 3.5 per cent, respectively, with OECD economies expected to expand by 2.0 per cent in 2015 and 2.1 per cent in 2016. China's forecast remains at 6.9 per cent for this year and at 6.5 per cent for 2016. India's forecast is unchanged with growth at 7.5 per cent this year and 7.7 per cent in 2016. While Brazil and to some extent Russia have shown some weakness recently, they are still forecast to move out of recession in the coming year.

Global **oil demand** is expected to grow by 1.38 million barrels/day in 2015, some 90,000 b/d higher than the previous month's projections with total oil demand anticipated to reach 92.70m b/d. In 2016, world oil demand growth is expected at 1.34m b/d with total world consumption hitting a record level of 94.04m b/d. The OECD region will be in the positive, registering an expansion of 180,000 b/d, although the bulk of the growth will originate in non-OECD countries with a forecast increase of 1.16m b/d.

Non-OPEC oil supply is now expected to grow by 960,000 b/d in 2015, following an upward revision of 90,000 b/d, due to higher-than-expected output from non-OPEC producers, mainly outside of North America. In 2016, non-OPEC oil supply is expected to increase by 270,000 b/d, a 40,000 b/d downward adjustment from the previous report. Output of OPEC NGLs is expected to grow by 190,000 b/d in 2015 and 170,000 b/d in 2016. In July, OPEC crude oil production increased by 101,000 b/d to average 31.51m b/d, according to secondary sources.

Product markets in the Atlantic Basin continued to see support from strong gasoline demand in the US, which pushed gasoline crack spreads to levels not seen in two years. The positive performance at the top of the barrel offset the persistent weakening seen at the middle of the barrel, allowing refinery margins to remain healthy in the region. In Asia, margins narrowed due to the lower seasonal demand amid increasing supply pressure as the maintenance season comes to an end.

Dirty vessels spot **freight rates** dropped on average in July as a result of limited tonnage demand mainly for Suezmax and Aframax. VLCC freight rates showed growth on various routes, increasing by seven per cent on average with delays in several ports supporting rates. Clean tankers' spot freight rates were healthy in July on the back of stable demand for tankers operating East and West of Suez, increasing on average by 12 per cent and five per cent, respectively.

OECD commercial oil stocks fell in June to stand at 2,858m b, some 153m b higher than the latest five-year average. Crude and products indicated a surplus of around 141m b and 12m b, respectively. In terms of days of forward cover, OECD commercial stocks stood at 62.1 days in June, some 3.9 days higher than the latest five-year average.

Demand for OPEC crude is estimated at 29.2 mb/d in 2015, unchanged from the previous assessment and representing a 200,000 b/d increase over the previous year. In 2016, required OPEC crude is projected at 30.1m b/d, 900,000 b/d higher than the estimated level for this year.

The feature article and oil market highlights are taken from OPEC's Monthly Oil Market Report (MOMR) for August 2015. 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 crude oil prices — $/b

	2014						2015							Weeks 27–31/2015 (week ending)				
Crude/Member Country	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Jul 3**	**Jul 10**	**Jul 17**	**Jul 24**	**Jul 31**
Arab Light – Saudi Arabia	107.15	102.24	97.23	85.93	76.07	60.13	44.47	53.78	52.20	57.73	62.62	60.94	54.95	59.68	55.99	55.27	53.87	51.61
Basrah Light – Iraq	103.83	99.20	94.49	83.57	73.94	57.94	42.58	51.82	50.53	55.61	60.40	58.63	53.10	57.54	53.92	53.49	52.10	49.95
Bonny Light – Nigeria	109.19	102.26	98.07	88.51	80.10	63.81	48.51	58.46	56.75	60.65	65.31	62.19	56.77	60.97	56.83	57.50	56.14	54.07
Es Sider – Libya	106.19	100.56	96.20	86.31	78.90	61.53	46.76	56.83	54.78	58.40	63.22	60.79	55.54	59.67	55.60	56.27	54.91	52.84
Girassol – Angola	107.02	101.52	97.15	86.78	78.68	61.83	47.98	58.27	56.86	61.12	65.51	63.28	56.46	61.63	56.96	56.99	55.65	53.24
Iran Heavy – IR Iran	106.21	101.42	96.14	84.61	74.46	58.99	42.84	53.26	51.27	56.26	61.38	59.86	54.86	59.18	55.80	55.04	53.92	51.72
Kuwait Export – Kuwait	105.50	100.57	95.30	83.99	74.04	58.25	42.31	52.25	50.52	55.96	60.92	59.29	53.85	58.34	54.88	54.11	52.80	50.61
Marine – Qatar	105.96	101.52	96.08	86.14	75.43	59.48	45.51	55.38	54.27	58.51	63.26	61.79	55.36	60.37	56.37	55.68	54.30	52.00
Merey* – Venezuela	95.06	92.31	88.61	76.17	68.42	51.17	37.96	48.41	45.79	49.49	55.09	51.74	44.43	49.24	45.41	45.05	43.55	40.90
Murban – UAE	108.87	104.33	98.93	89.10	77.85	62.27	48.41	58.56	57.41	61.66	66.18	64.59	57.58	63.09	58.78	57.92	56.36	53.90
Oriente – Ecuador	95.21	89.53	87.20	76.84	69.52	53.86	42.26	47.00	45.79	52.73	58.04	56.71	47.78	54.04	49.15	48.51	45.95	44.09
Saharan Blend – Algeria	106.74	100.86	97.10	87.61	79.60	62.93	47.91	58.18	56.93	59.75	64.12	61.69	56.34	60.51	56.40	57.07	55.71	53.64
OPEC Reference Basket	**105.61**	**100.75**	**95.98**	**85.06**	**75.57**	**59.46**	**44.38**	**54.06**	**52.46**	**57.30**	**62.16**	**60.21**	**54.19**	**58.90**	**55.07**	**54.59**	**53.19**	**50.92**

Table 2: Selected OPEC and non-OPEC spot crude oil prices — $/b

	2014						2015							Weeks 27–31/2015 (week ending)				
Crude/Member Country	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Jul 3**	**Jul 10**	**Jul 17**	**Jul 24**	**Jul 31**
Minas – Indonesia[1]	105.06	99.94	95.07	84.46	75.92	59.95	46.37	55.90	54.11	58.55	62.98	60.09	51.86	57.39	52.98	52.39	51.00	47.78
Arab Heavy – Saudi Arabia	103.69	99.14	93.73	82.45	72.18	56.65	40.25	51.07	49.34	54.26	59.42	58.01	53.55	57.62	54.50	53.68	52.59	50.47
Brega – Libya	105.34	100.21	96.05	86.26	79.10	62.43	47.71	57.73	55.68	59.20	63.97	61.24	56.04	60.15	56.10	56.77	55.41	53.34
Brent – North Sea	106.64	101.56	97.30	87.41	78.90	62.53	47.86	58.13	55.93	59.50	64.32	61.69	56.54	60.63	56.60	57.27	55.91	53.84
Dubai – UAE	106.13	101.73	96.47	86.73	76.33	60.25	45.57	55.85	54.66	58.55	63.54	61.76	56.15	60.71	57.12	56.29	55.21	53.03
Ekofisk – North Sea	107.33	102.04	97.75	87.87	79.27	63.15	48.48	59.22	57.18	60.51	64.86	62.21	57.02	61.08	57.11	57.76	56.44	54.28
Iran Light – IR Iran	105.73	101.30	96.41	84.90	76.88	61.32	47.42	55.97	54.79	59.34	63.97	62.28	55.76	60.83	56.20	56.45	54.88	52.54
Isthmus – Mexico	102.20	96.78	93.70	85.40	79.04	59.74	45.52	52.68	51.41	59.10	63.78	63.48	55.62	61.39	56.70	56.28	54.06	52.22
Oman – Oman	106.15	102.15	97.18	86.77	77.81	61.16	46.61	56.58	55.12	58.66	63.60	61.77	56.23	60.71	57.18	56.36	55.27	53.20
Suez Mix – Egypt	103.41	99.34	93.48	83.91	75.58	58.72	44.07	54.70	52.05	57.07	61.32	59.36	53.00	58.27	54.10	54.04	51.80	48.93
Urals – Russia	106.23	101.98	96.13	86.63	78.92	61.53	47.03	57.81	55.07	59.70	64.33	62.52	55.84	61.29	56.86	56.74	54.69	51.86
WTI – North America	102.87	96.38	93.36	84.43	76.04	59.50	47.29	50.76	47.77	54.43	59.28	59.81	51.17	57.83	52.54	51.62	49.11	47.82

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. As of January 2009, the ORB excludes Minas (Indonesia).

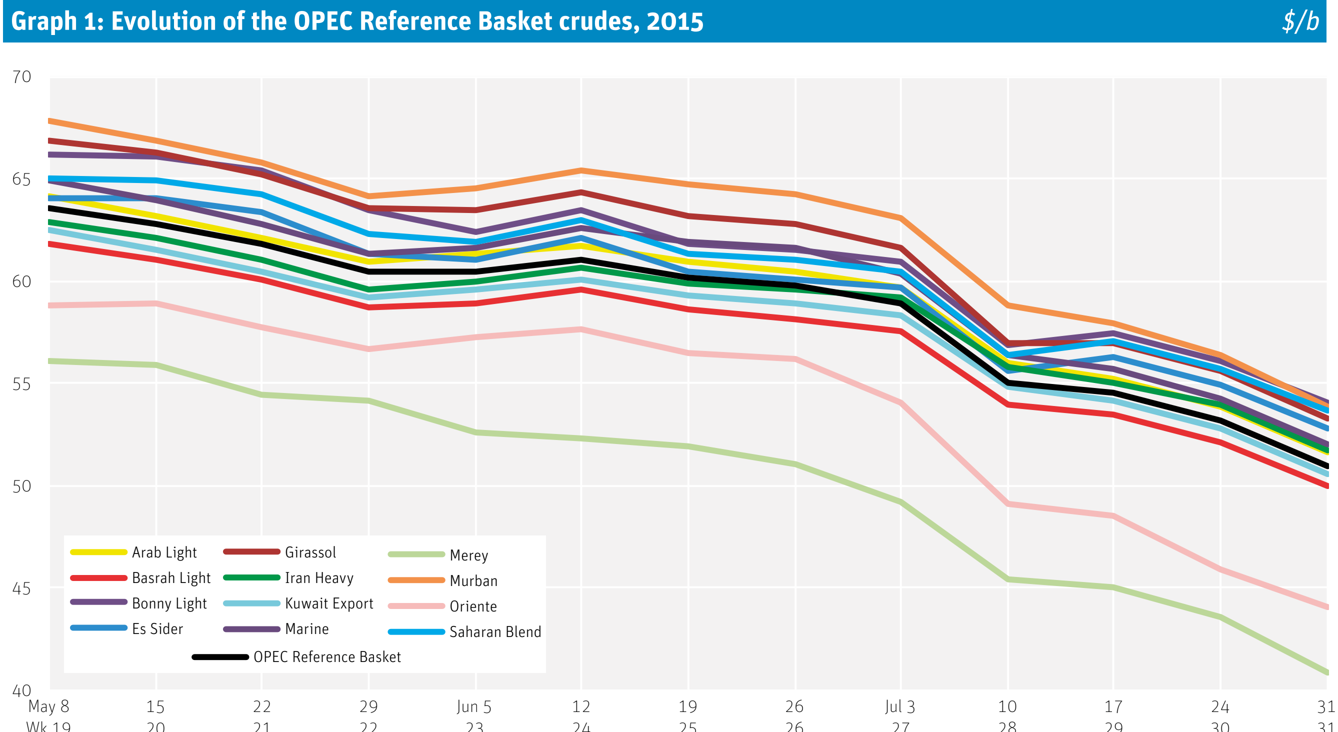
* *Upon the request of Venezuela, and as per the approval of the 111th ECB, BCF-17 has been replaced by Merey as of January 2009. The ORB has been revised as of this date.*

1. *Indonesia suspended its OPEC Membership on December 31, 2008.*

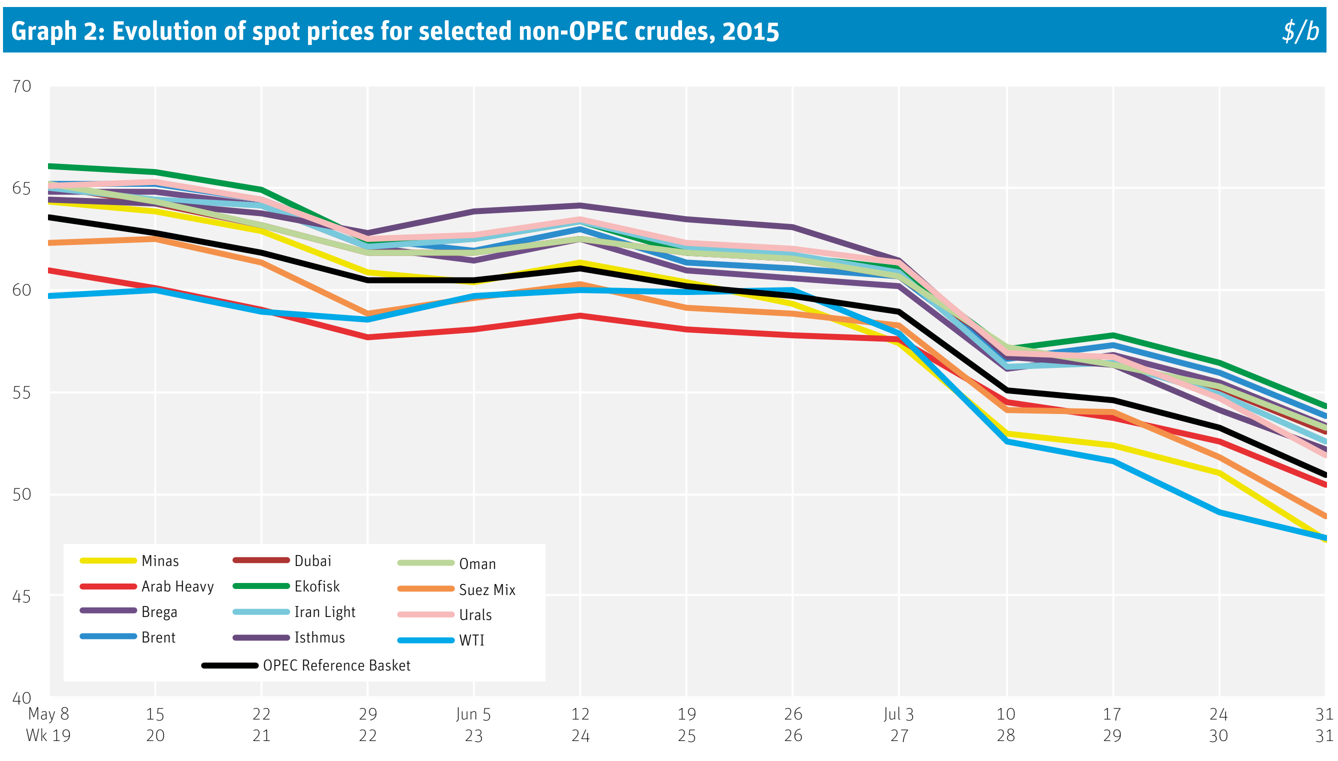
Brent for dated cargoes; Urals cif Mediterranean. All others fob loading port.

Sources: The netback values for TJL price calculations are taken from RVM; Platt's; Secretariat's assessments.

Graph 1: Evolution of the OPEC Reference Basket crudes, 2015 $/b

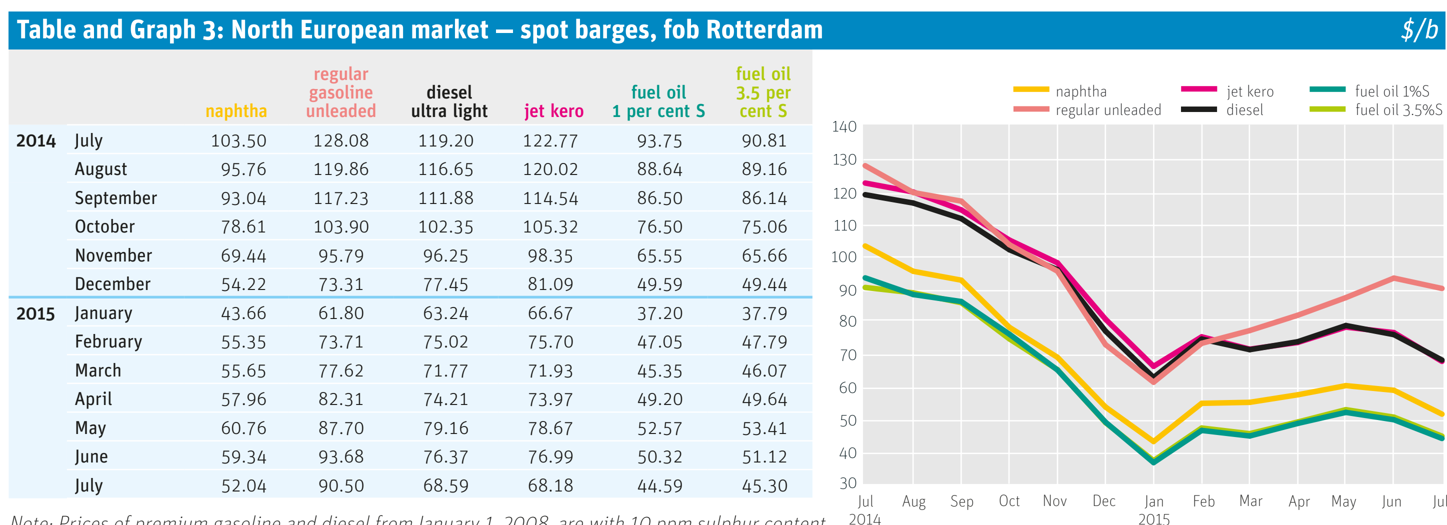


Graph 2: Evolution of spot prices for selected non-OPEC crudes, 2015 $/b



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).
Upon the request of Venezuela, and as per the approval of the 111th ECB, BCF-17 has been replaced by Merey as of January 2009. The ORB has been revised as of this date.

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
2014	July	103.50	128.08	119.20	122.77	93.75	90.81
	August	95.76	119.86	116.65	120.02	88.64	89.16
	September	93.04	117.23	111.88	114.54	86.50	86.14
	October	78.61	103.90	102.35	105.32	76.50	75.06
	November	69.44	95.79	96.25	98.35	65.55	65.66
	December	54.22	73.31	77.45	81.09	49.59	49.44
2015	January	43.66	61.80	63.24	66.67	37.20	37.79
	February	55.35	73.71	75.02	75.70	47.05	47.79
	March	55.65	77.62	71.77	71.93	45.35	46.07
	April	57.96	82.31	74.21	73.97	49.20	49.64
	May	60.76	87.70	79.16	78.67	52.57	53.41
	June	59.34	93.68	76.37	76.99	50.32	51.12
	July	52.04	90.50	68.59	68.18	44.59	45.30

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
2014	July	101.50	122.91	119.77	94.49	91.00
	August	93.81	115.19	117.07	89.68	88.87
	September	90.97	113.54	112.15	88.60	85.92
	October	75.96	99.57	101.58	76.56	75.70
	November	66.15	91.37	95.41	66.33	65.65
	December	50.28	68.70	77.48	50.62	48.88
2015	January	39.92	56.54	64.39	39.43	38.01
	February	52.53	68.31	76.34	49.07	46.78
	March	52.55	73.37	73.42	47.87	46.03
	April	54.42	78.27	75.84	51.02	49.58
	May	58.37	82.87	80.99	54.19	52.79
	June	56.05	86.19	78.19	51.87	51.46
	July	48.48	83.94	70.34	45.57	44.77

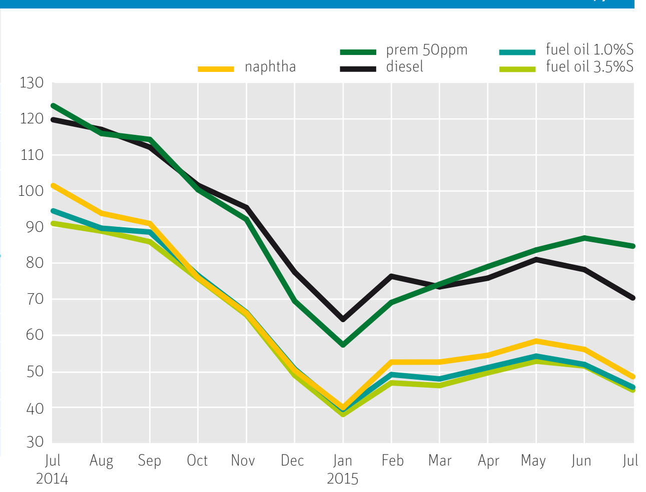
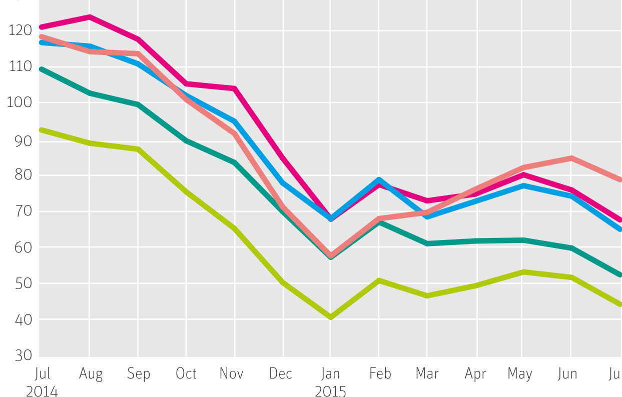


Table and Graph 5: US East Coast market — spot cargoes, New York $/b, duties and fees included

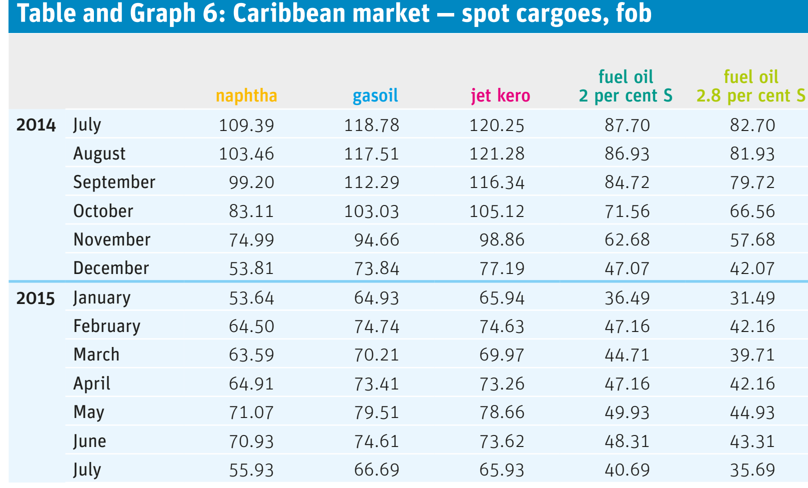
		regular gasoline unleaded 87	gasoil*	jet kero*	fuel oil 0.3 per cent S	fuel oil 2.2 per cent S
2014	July	118.21	116.61	120.90	109.23	92.39
	August	114.09	115.60	123.67	102.58	88.74
	September	113.53	110.71	117.52	99.44	87.09
	October	100.85	101.93	105.18	89.41	75.28
	November	91.42	94.81	103.88	83.40	65.14
	December	71.13	77.75	84.62	69.84	50.19
2015	January	57.53	67.86	67.73	57.16	40.53
	February	67.86	78.66	77.29	66.91	50.72
	March	69.59	68.35	72.79	60.93	46.49
	April	75.99	72.65	74.67	61.66	49.26
	May	82.00	76.98	80.00	61.89	53.09
	June	84.60	74.07	75.76	59.69	51.57
	July	78.66	64.91	67.53	52.31	44.15



* *FOB barge spot prices.*

Source: Platts. Prices are average of available days.

Table and Graph 6: Caribbean market — spot cargoes, fob $/b



		naphtha	gasoil	jet kero	fuel oil 2 per cent S	fuel oil 2.8 per cent S
2014	July	109.39	118.78	120.25	87.70	82.70
	August	103.46	117.51	121.28	86.93	81.93
	September	99.20	112.29	116.34	84.72	79.72
	October	83.11	103.03	105.12	71.56	66.56
	November	74.99	94.66	98.86	62.68	57.68
	December	53.81	73.84	77.19	47.07	42.07
2015	January	53.64	64.93	65.94	36.49	31.49
	February	64.50	74.74	74.63	47.16	42.16
	March	63.59	70.21	69.97	44.71	39.71
	April	64.91	73.41	73.26	47.16	42.16
	May	71.07	79.51	78.66	49.93	44.93
	June	70.93	74.61	73.62	48.31	43.31
	July	55.93	66.69	65.93	40.69	35.69

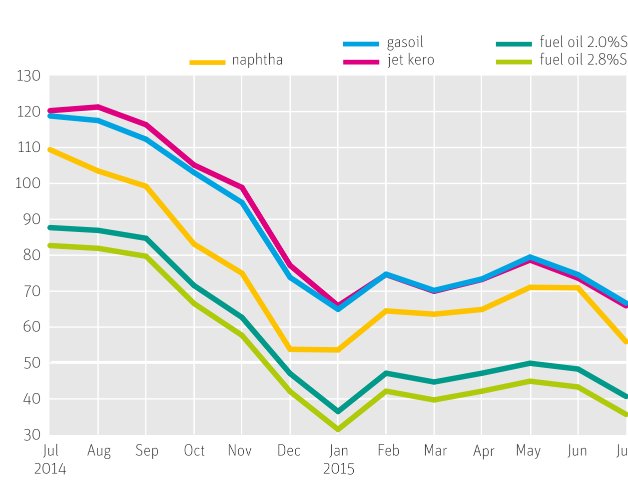


Table and Graph 7: Singapore market — spot cargoes, fob $/b

		naphtha	premium gasoline unl 95	premium gasoline unl 92	gasoil	jet kero	fuel oil 180 Cst	fuel oil 380 Cst
2014	July	106.34	121.99	119.78	118.96	118.79	94.51	93.35
	August	98.87	111.35	109.26	116.74	116.60	93.50	91.86
	September	94.45	110.58	108.61	111.95	112.48	90.86	89.14
	October	79.79	101.17	98.19	100.22	101.56	79.24	77.41
	November	71.86	90.44	87.94	93.85	96.41	71.68	70.38
	December	56.33	71.91	69.58	77.10	78.36	55.52	54.60
2015	January	45.23	57.42	54.66	62.67	63.66	43.99	42.59
	February	57.39	70.46	67.06	71.14	73.25	54.93	52.24
	March	57.38	73.84	70.34	70.75	70.01	51.54	49.42
	April	59.56	75.55	73.07	72.37	72.08	54.82	52.45
	May	62.04	83.73	81.10	78.02	77.69	61.28	58.22
	June	60.89	83.97	81.02	74.73	74.56	57.08	55.73
	July	53.15	75.95	72.52	65.07	65.81	48.71	47.49

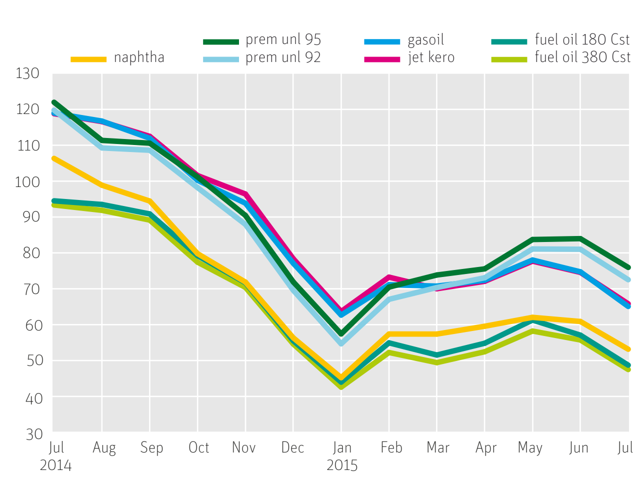
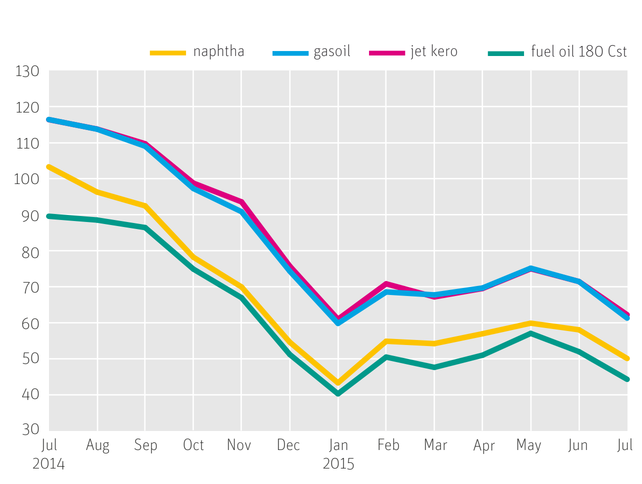


Table and Graph 8: Middle East Gulf market — spot cargoes, fob $/b

		naphtha	gasoil	jet kero	fuel oil 180 Cst
2014	July	103.28	116.40	116.37	89.56
	August	96.28	113.73	113.76	88.51
	September	92.44	108.99	109.68	86.42
	October	78.20	97.26	98.76	74.90
	November	69.94	90.82	93.55	66.95
	December	54.62	74.32	75.73	51.21
2015	January	43.32	59.82	60.98	40.28
	February	54.88	68.55	70.81	50.49
	March	54.22	67.74	67.18	47.63
	April	56.96	69.66	69.51	51.01
	May	59.89	75.15	74.98	57.06
	June	58.06	71.44	71.45	51.98
	July	50.09	61.29	62.23	44.31

Source: Platts. Prices are average of available days.



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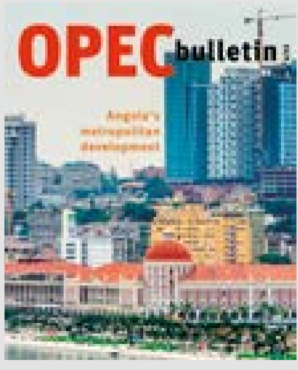

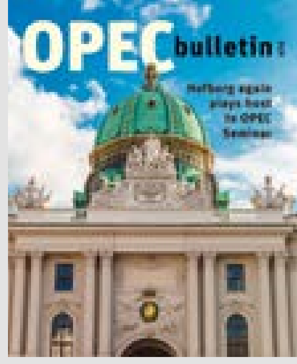

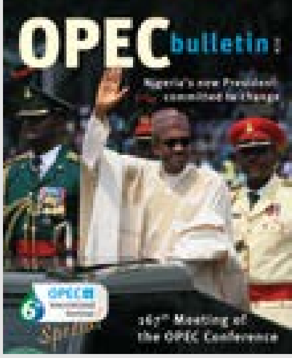

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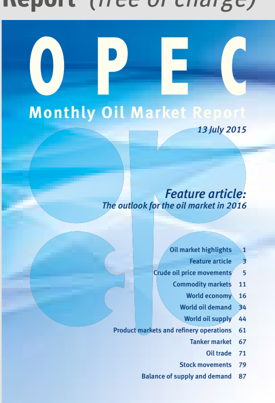

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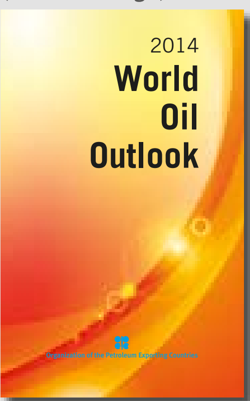

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