2017 Annual Report

Organization of the Petroleum Exporting Countries

2017
Annual Report

Organization of the Petroleum Exporting Countries

Organization of the Petroleum Exporting Countries
Public Relations & Information Department
Helferstorferstrasse 17
1010 Vienna, Austria
Telephone: +43 1 211 12-0
Fax: +43 1 216 43 20
www.opec.org

Head, PR & Information Department
Hasan Hafidh

Editor
Maureen MacNeill

Design
Carola Bayer

Production
Andrea Birnbach

Photographs
Herwig Steiner
Wolfgang Hammer
Cover and pages 4, 18, 52, 84, 86, 88, 90, 94: Courtesy Shutterstock

Copyright 2018
Organization of the Petroleum Exporting Countries
ISSN 0474-6317
Printed in Austria by Grasl Druck & Neue Medien GmbH

Table of Contents

Mohammad Sanusi Barkindo
OPEC Secretary General

Foreword

There are occasions when greatness becomes the order of the day, uniting ordinary people in a spirit of connectedness to do extraordinary things, allowing the unthinkable to become the thinkable. So it is with the unique and remarkable Declaration of Cooperation, which celebrated its first year in 2017. It is a first in the history of energy markets on many fronts. The year has seen the successful implementation of this landmark agreement, signed on 10 December 2016, beyond the imagination of its signatories.

On 1 January 2017 the 24 OPEC and non-OPEC oil producing country participants to the Declaration of Cooperation forged ahead with actions to adjust the total amount of oil produced by around 1.8 mb/d, in order to speed up the drawdown of stocks in a flooded market. All eyes turned to OPEC as producers, consumers and investors put their trust in the Organization to find a solution to the massive and damaging market imbalance which had started in mid-2014.

The Declaration of Cooperation has since been extended twice; once at the second joint OPEC and non-OPEC Ministerial Meeting on 25 May 2017, when the parties agreed to extend voluntary production adjustments for nine months commencing on 1 July 2017, and again at the 173rd Meeting of the Conference on 30 November 2017, when a second amendment prolonged the decision until the end of 2018.

In this regard, OPEC wants to extend hearty thanks and congratulations to non-OPEC participants, who have powerfully and consistently supported the mandate of the Declaration of Cooperation. Together, we have created a new framework of cooperation which will continue to solidify and positively impact the market long into the future.

We want to especially thank our Russian friends, who were instrumental in gathering support from other non-OPEC countries and who were and continue to be a driving force behind the Declaration of Cooperation.

The implementation of the Declaration of Cooperation had an immediate effect on the market, and investor confidence started to spring back already upon its announcement in December 2016.

The achievements of the Declaration of Cooperation and the steady rebalancing of the oil market over the year could be clearly seen in depleting stock figures. The overhang of 340 million barrels (mb) of oil in OECD economies at the beginning of 2017 dropped by 268 mb by the end of the year. Additionally, floating storage dropped by nearly 50 mb between June and December 2017.

High conformity levels by participants provided a significant boost to confidence and to the success of the Declaration of Cooperation in its first year, with total monthly average conformity levels reaching a remarkable 109%, and ending on a high at a record-breaking level of 129% in December.

The realization of implementation was supported in no small part by the work of two supporting pillars of the Declaration of Cooperation, which were formed under its umbrella to ensure its success: the Joint Ministerial Monitoring Committee (JMMC) and the Joint Technical Committee (JTC).

These two bodies worked together to provide oversight on conformity to the Declaration of Cooperation. The JMMC, which met six times in 2017 was supported in its work by the JTC, which had 11 meetings in 2017. The JTC was tasked with oversight regarding levels of conformity to production adjustments through the provision of a monthly production data report on crude oil production by OPEC and non-OPEC participating countries. The JMMC and JTC will continue their hard work in 2018.

President of the OPEC Conference for 2017 and Minister of Energy, Industry and Mineral Resources of Saudi Arabia, Kahlid A. Al-Falih stated at the end of 2017: “If we had not acted, it would have taken the market a long time to rebalance, over which time a lot more surplus oil would have been added to already bulging stocks. The impact on global oil investment, which had been quite severe since the slump began, would have continued and, in fact, worsened.”

To his end, the Federation of Russia’s Energy Minister Alexander Novak stated, “…oil producing countries had never before engaged in real cooperation on this scale… Future developments in the market showed that this joint initiation became a new milestone in the development of the global oil market.”

The January OPEC *Monthly Oil Market Report* stated that oil markets received wide-ranging support from the production adjustment resulting from the Declaration of Cooperation, strong economic and demand growth, as well as sentiment in the financial markets, which has significantly helped to improve market fundamentals.

The optimism throughout the world was echoed in figures for virtually all economies across the board. Global GDP growth for 2017 was at 3.8%. Meanwhile, growth in the Euro-zone lifted to 2.5% in 2017, while the OECD reached 2.5% in 2017. The momentum in the global economy is set to continue into 2018, with an ongoing, synchronized expansion across the world.

Emerging and developing economies also saw strong momentum in 2017, with Brazil’s economy continuing to recover and experiencing growth of 1.0%, China’s GDP growth was stable at 6.9%, India saw growth of 6.4% and Russia continuing to recover from a recession, with growth of 1.5%. OPEC Member Countries saw an overall improvement in business conditions with GDP growing at the highest rate since the oil market downturn of 2014.

Oil demand was revised up throughout the year to stand at 1.62 million barrels per day (mb/d), averaging 97.0mb/d. This was partly due to better-than-expected data for OECD Europe and China.

Non-OPEC supply continued to grow in 2017, by 0.87 mb/y to average 57.87 mb/d, led by production in the US, Canada, Mexico and the UK. The US remained the key driver of non-OPEC supply growth, with US tight crude production surpassing expectations.

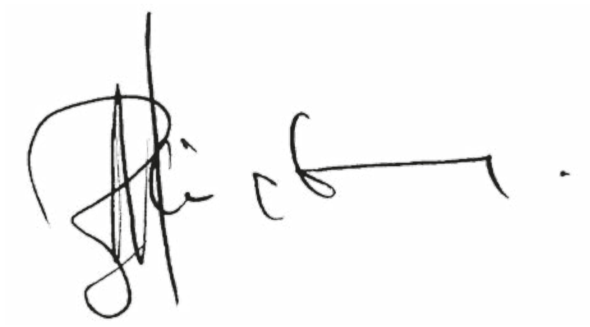
The healthy developments were further reflected in the oil futures market in 2017, which improved to exceed $50/b, spurred on by strong demand and declining global inventories. Meanwhile, the OPEC Reference Basket ended 2017 significantly higher at $52.43/b, up by 28.6%, or $11.67, compared with 2016.

As always, there are many factors influencing the oil market. Downside pressure may come from renewed production from OPEC countries which saw disrupted volumes over the past years, as well as strong growth in non-OPEC production. However, there are plenty of sources of upside pressure as well, including geopolitics, natural decline, weather interruptions, the incomplete rebound of investment, high debt in some countries and monetary policy.

Whatever challenges come along, the new framework of cooperation will help us to manage them. In addition to simply focusing on the current market situation, our work with non-OPEC producers has grown under the Declaration of Cooperation to include joint technical meetings, joint ministerial meetings, dialogues, technical interactions, workshops and the possibility of deeper cooperation in the future on various fronts.

In addition to the 24 original participants of the Declaration of Cooperation, six more non-OPEC producing countries were present as observers at the 30 November 2017 Meeting of the Conference, showing that the interest in and desire to be a part of this cooperation is growing.

We are confident that – together with our non-OPEC partners – we are more able to meet future challenges than ever before.



Mohammad Sanusi Barkindo
Secretary General

The world economy

The world economy recovered its strength in 2017. GDP growth was estimated to stand at 3.8%, after reaching only 3.2% in 2016. This momentum was supported across all major economies in the OECD and non-OECD with the exception of the UK in the OECD and India in the emerging economies. On a regional level, for a second consecutive year, the Euro-zone outpaced the US in growth. Another important factor that helped the global economy to improve was the stabilization of the global oil markets, which not only led to rising investments in oil producing economies, but also resulted in improving output and fiscal situations in those economies. In the advanced economies, labour markets continued to improve considerably with the US reaching almost full employment at the end of the year, while Japan experienced a record low unemployment level and the Euro-zone reached the lowest unemployment rate since the onset of the financial crisis (or the Great Recession) in 2007/2008.

This was not only supportive to domestic consumption, but, to some extent, also to inflation, which – after years of very low levels in most major economies – started to pick up again to healthier levels. However, while rising, inflation remained subdued in the Euro-zone and in Japan. This was mainly due to still low wage growth in both economies and to some extent this was also the case in the US. In this respect, the recovery in oil prices also seemed to provide a welcome support to global inflation, as it allowed central banks to normalize their monetary policies at a time when core inflation remained subdued.

Central banks started to consider inflationary momentum, and the US Federal Reserve took the lead in normalizing monetary policies. While the two other major central banks, the European Central Bank (ECB) and the Bank of Japan, remained much more accommodative in their monetary policies, they also started to consider a tighter regime towards the end of the year. This consequently impacted currency markets, weakening the US dollar in the second half of the year, particularly in relation to the euro. In general, monetary policies remained relatively supportive to the global economy, also in the US, as low interest rates continued. The positive sentiment also lifted stock market levels to record highs, kept volatility at a very low level and supported the energy sector via improving economic prospects and rising demand for energy sources to fuel economic expansion. In addition to monetary support, the anticipation of fiscal measures in the US helped to improve sentiment in asset markets, with a spending effect coming towards the end of the year.

Thus, the US economy saw strengthening momentum in the second half of 2017 ending the year with growth of 2.3%. In the Euro-zone, broad-based growth momentum continued as well during the last year with peripheral economies recovering and Germany, and to some extent France, taking the lead with growth of 2.5% in 2017. Japan's economy also continued to expand, supported by government-led stimulus and strong exports, leading to annual GDP growth of 1.7%.

In the emerging and developing economies, growth strengthened as well, with the exception of India, which had to undergo broad structural reforms that are expected to benefit the economy in the medium- to

Note: Figures based on March 2018 Monthly Oil Market Report.

long-term. While India saw growth of 6.4%, China recovered to growth of 6.9%, the first year since 2010 that the economy saw stronger growth than in the previous year. Brazil and Russia recovered from a two-year recession to growth of 1.0% and 1.6%, respectively.

Political developments were also of major importance during the year, but did not impact economic development as much as initially expected. Among various political developments, the UK's decision to leave the European Union was expected to materialize in significantly lower UK growth, but the UK's domestic consumption held up well, and exports were considerably supported by the weak pound sterling. So while the UK continued its Brexit-driven slow-down, 2017 growth stood at 1.7%, somewhat better than initially expected.

North America, Japan and the Euro-zone

The three major OECD economies all performed better in 2017, compared with 2016. The positive effects of the previous year's monetary stimulus materialized in above-average growth in all geographies. Moreover, sentiment lifted in the US with the administration focusing on easing the business environment and while the medium-term effects remain to be seen, it seems to have supported spending behaviour. In the Euro-zone, all economies improved, and with the support of a strengthened labour market, they are continuing on a growth trend. In Japan, economic developments were certainly supported by a strong export market with positive spill-overs to domestic consumption, fuelled by strength in OECD economies and China.

While both the US and Japan started the year at a relatively weak pace, growth picked up in both economies as the year progressed. The US managed to maintain good momentum until year-end, but Japan recorded its lowest quarterly growth by the end of the year. The trend for both economies from the last quarter is expected to carry over into 2018, with ongoing rising momentum in the US, while Japan is forecast to slow down somewhat. As in 2016, the Euro-zone's growth pattern was relatively equally distributed.

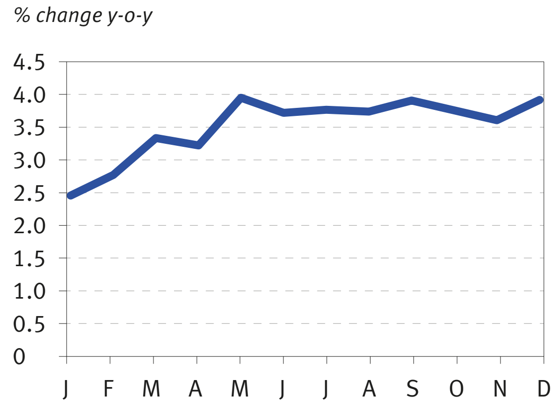
In the US, 2017 growth stood at a healthy 2.3%. The labour market showed considerable improvement over the year, supporting both consumer spending ability and sentiment. This sentiment was complemented by a new US administration that focused on improving the business environment in the short term via fiscal spending, tax reform and deregulation. Private household consumption rose by 2.7%, the same level as in 2016, while gross private domestic investment expanded by 3.2% year-on-year (y-o-y), compared with –1.6% in 2016, a positive signal of improving business sentiment and re-emerging investment in the energy sector. This positive momentum also led to rising inflation, which stood at 2.0% growth in 2017.

Japan's economy continued to grow considerably at 1.7%. This was again supported by monetary and fiscal stimulus, while structural reforms also continuously added to growth. Private consumer spending provided considerable support in 2017, rising by 1.0%, compared with private consumption of only 0.1% in 2016. In addition to this, exports expanded by 6.8%, a significant rise from 1.3% in 2016. Inflation remained low as consumer prices picked up by only

0.5% in 2017; still better than the decline of 0.1% experienced in 2016. Appreciating oil prices, in combination with rising salaries, however, kept inflation from declining significantly.

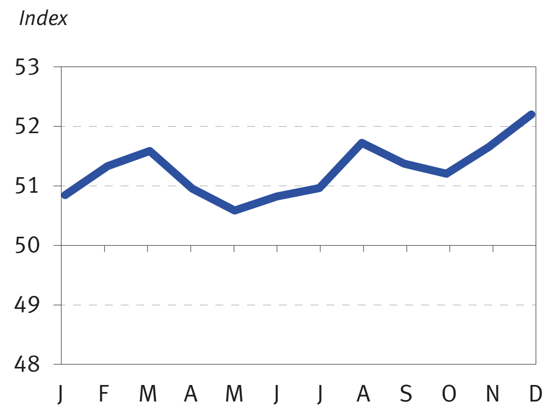
The Euro-zone continued its recovery in 2017 with strong growth of 2.5%, lifted by a broad growth trend, which was also seen in peripheral economies. While Germany and France, the Euro-zone's two largest economies, led the momentum with 2.6% and 2.0% GDP growth, respectively, Italy, the third-largest economy, also contributed significantly with 1.6% and Spain experienced

Figure 1
Global industrial production, 2017



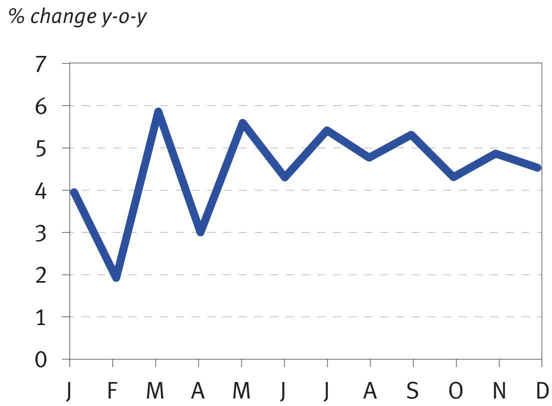
Source
Netherlands Bureau for Economic Policy Analysis and Haver Analytics.

Figure 2
Global manufacturing PMI, 2017



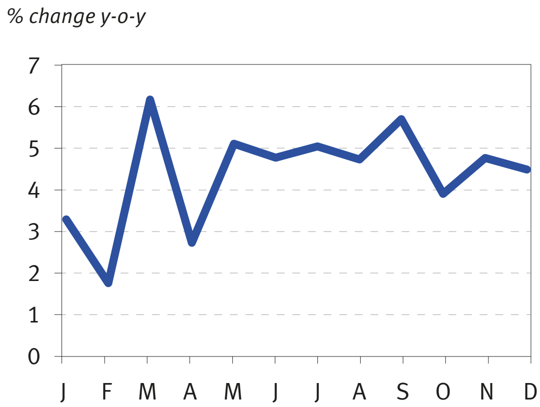
Source
IHS Markit and Haver Analytics.

Figure 3
World trade volume, 2017



Source
Netherlands Bureau for Economic Policy Analysis and Haver Analytics.

Figure 4
World exports volume, 2017



Source
Netherlands Bureau for Economic Policy Analysis and Haver Analytics.

a significant rise in growth of 3.1%, as did Ireland with 5.2%. The labour market improved noticeably as the unemployment rate fell from 9.6% at the beginning of the year to only 8.6% in December. With a more balanced oil market and ongoing ECB stimulus, inflation rose to 1.5% y-o-y on an annual basis, much better than in 2016, when it stood at 0.2% y-o-y.

Emerging countries

Brazil's GDP is estimated to have grown by around 1.0% y-o-y in 2017, signalling the first annual increase in GDP since 2014 when the economy grew by 0.5% y-o-y. GDP grew for the third quarter in a row in 4Q17 by 2.1% y-o-y. Private consumption, gross fixed capital formation (GFCF) and exports were supportive of growth. Private consumption grew by 2.6% y-o-y in 4Q17, up from a 2.2% increase the previous quarter. GFCF posted the first increase since 1Q14, rising by 3.8% y-o-y in 4Q17. Exports went up by 9.1% y-o-y in 4Q17, after growing by 7.6% in the previous quarter. Government consumption continued falling for the sixth consecutive quarter in 4Q17, declining by 0.4% y-o-y. Brazil's imports rose by 8.1% in 4Q17, up from 5.7% in 3Q17, after enduring nearly three years of deep recession, which shaved 7% from GDP between 2Q14 and 1Q17. GDP changes were at 0.0%, 0.4%, and 1.4% y-o-y in the first three quarters of 2017, respectively. In 2017, Brazil's trade surplus soared by 41% y-o-y to register $67 billion. Exports jumped 18.5% to $217.7 billion and imports rose by 10.5% y-o-y to $150.7 billion. China remained the main destination for Brazilian exports, followed by the US and Argentina, while China was also

Table 1
World economic growth rates, 2016–2017 *(% change over previous period)*

Grouping/country	2016	2017
OECD	1.8	2.5
Other Europe	3.9	4.8
Developing countries	3.5	4.0
Africa	2.3	4.2
Latin America and Caribbean	−1.7	1.1
Asia and Oceania	5.4	4.7
Asia-Pacific	4.0	4.7
OPEC	2.4	2.4
China	6.7	6.9
FSU	0.4	2.2
Total world	**3.2**	**3.8**

Sources
Secretariat estimates; OECD, Main Economic Indicators; OECD, Economic Outlook; International Monetary Fund (IMF), World Economic Outlook; IMF, International Financial Statistics.

the main exporter to Brazil. The manufacturing sector was in expansion territory starting in March 2017, as suggested by the IHS Markit Brazil Manufacturing PMI, whereas the services sector was mostly in contraction. Inflation posted 2.0% y-o-y in November vs. 5.4% y-o-y at the beginning of 2017.

The economy of Russia is estimated to have expanded by 1.5% y-o-y in 2017, following a 0.3% y-o-y depreciation in 2016. The GDP grew by 1.8% y-o-y in 3Q17, the second-highest figure since the beginning of 2014, as reported by the Federal State Statistics Service. Household consumption continued its upward trend in 3Q17, rising by 5.2% y-o-y, from 4.4% the previous quarter, while growth in GFCF slowed to 3.9% in 3Q17, from 6.3% in 2Q17. Exports rose by 4.5% and imports accelerated by 16.3% in 3Q17. The GDP posted growth of 2.5% y-o-y in 2Q17, up from 0.5% growth the previous quarter. This represents the fastest rate of growth since 3Q12. The IHS Markit Russia manufacturing PMI remained in growth territory in 2017. The index inched up to 52.0 in December, from 51.5 in November. The index survey showed an increase in production to a four-month high together with a rise in new orders. While remaining upbeat, manufacturing PMI data for 4Q17 suggests some slowdown in the pace of growth. The average reading of the index registered 51.5 in 4Q17 *versus* 52.0 in 3Q17. The services activity PMI suggests a solid overall improvement in 2017, posting 56.8 in December, from 57.4 a month earlier. The survey highlighted continued growth in new orders, albeit at a softer rate.

India's economy, affected by the double shock of government demonetization

Table 2

Summary of macroeconomic performance of the 'BRIC' countries in 2017

	GDP growth rates	Consumer price index *% y-o-y change*	Current account balance *US $ bn*	Governmental fiscal balance *% of GDP*	Net public debt *% of GDP*
Brazil	1.0	3.4	−9.8	−8.0	74.0
Russia	1.6	3.7	32.7	−1.5	11.5
India	6.4	3.3	−45.3	−3.3	50.4
China	6.9	1.5	120.1	−4.3	18.7

Sources
Source: OPEC Secretariat, Consensus, Economist Intelligence Unit (EIU).

measures and the introduction of the Goods and Services Tax (GST), lost momentum during 1H17, with growth slowing to 6.0% due to weaker private spending and sluggish investment activity. GDP demand growth in 3Q17, as well as a pickup in fixed-investment growth were encouraging signs of improving business investment, as companies started slowly scaling up fresh investments after a long deleveraging process and, to a certain extent, more regulatory clarity following the bumpy introduction of the new GST in July. In 3Q17, India's GDP supply-side growth – real gross value added – was up 6.1% y-o-y during the September quarter, also accelerating from 5.6% y-o-y in 1Q17. The most significant aspect of the supply-side data was a strong improvement in manufacturing-sector growth, which gained support from a pickup in production after the GST roll-out in July. India's GDP growth expectation was about 6.4% in 2017. India's composite PMI averaged 50.79 in 2017, compared with 52.08 in 2016, with the manufacturing PMI at 51.36, compared with 51.69, and the services PMI at 50.10, compared with 51.80 in 2016.

China's GDP grew by 6.9% in 2017, a slight improvement from 2016, as a result of strong overseas demand and services growth. Growth in 4Q17 GDP was unchanged

Table 3
Comparison: OPEC and non-OPEC developing countries

	2016		2017*	
	OPEC	Non-OPEC	OPEC	Non-OPEC
Real GDP growth rate *(%)*	2.4	3.5	2.4	4.0
Petroleum export value *($ bn)*	443.1	189.1	579.0	244.0
Value of non-petroleum exports *($ bn)*	484.8	2,890.0	445.0	3,242.0
Oil exports as percentage of total exports *(%)*	47.7	6.1	56.5	5.5
Value of imports *($ bn)*	804.9	3,396.3	803.2	3,790.7
Current account balance *($ bn)*	–102.5	–3.7	59.6	–49.3
Crude oil production *(mb/d)*	32.6	9.8	32.4	9.7
Reserves, excluding gold *($ bn)*	1,091.4	2,935.4	1,040.1	3,142.0

**2017 data are preliminary estimates.*

Note
Figures are partly estimated. Non-OPEC DCs do not include China, the former Soviet Union and Russia, in line with ECB country groupings.

Sources
IMF, International Financial Statistics; IMF, World Economic Outlook; EIU country reports; World Bank Development Indicators; OPEC Annual Statistical Bulletin; OPEC database; OPEC Secretariat estimates.

compared with 3Q17 owing to slowing consumption, stable industrial output and declining investment; most notably, infrastructure investment growth dropped significantly, and real estate investment growth set a new low for 2017. The Chinese government targets average GDP growth of at least 6.5% for the period 2017–20 to achieve the objective set in 2010 to double GDP and per-capita income by 2020. Infrastructure spending remains a key policy goal, although it will slow on tightening in local government financing. Strong real wage growth and a resilient labour market are lifting household living standards, feeding into robust spending. Private consumption is becoming an increasingly important driver of growth as households get richer, and demand for services is expected to remain strong. Indeed, the services sector has outpaced industry since 2012 and accounted for 51.6% of economic output last year. The Chinese Communist Party's 19th Party Congress concluded on 24 October 2017 with the formal election of the party's executive committee and its Standing Committee. Beijing says it is planning to pay less attention to the economic growth side of the equation in its struggle to balance rapid development *versus* increasingly serious environmental

Table 4
OPEC Member Countries' real GDP growth rates, 2016–2017 *(% change over previous period)*

Member Country	2016	2017
Algeria	3.3	3.0
Angola	1.1	1.4
Ecuador	–1.6	2.0
Equatorial Guinea	–6.0	–3.0
Gabon	3.2	2.5
IR Iran	9.7	6.5
Iraq	7.0	1.8
Kuwait	2.0	–0.4
Libya	–4.0	55.0
Nigeria	–1.6	0.8
Qatar	2.2	1.9
Saudi Arabia	1.7	–0.7
United Arab Emirates	3.0	1.8
Venezuela	–11.0	–7.0
Average OPEC	**2.4**	**2.4**

Sources
IMF, International Financial Statistics; IMF, World Economic Outlook; EIU, country reports; official OPEC Member Countries' statistics; OPEC Secretariat estimates.

problems. By de-emphasizing numeric goals, the government will have more room to manage the economy. In terms of China's monetary policy, money supply growth declined in September to 9.2% y-o-y, still above GDP growth, but much lower than the 10-year average. Chinese non-financial corporate debt to GDP declined from 99.8% in 2016 to 94.5% in 3Q17. China's yearly average composite PMI was 51.82 in 2017 compared with 51.40 in 2016, while the yearly average manufacturing PMI was 50.91 in 2017 compared with 49.81 in 2016 and the average services PMI was 52.12 in 2017 compared with 52.18 in 2016.

In the currency markets, the US dollar generally declined against both major and emerging market counterparts. The weakness of the US dollar ($) mainly reflected a more gradual pace of monetary policy normalization than previously anticipated by the US Federal Reserve amid still muted inflationary pressures and some delays in the approval of economic reforms in the US Congress. At the same time, other central banks in major economies already started either normalizing monetary policy or announcing some reduction of their monetary stimulus programmes.

The US dollar dropped by 10.9% y-o-y versus the euro on the expectation of some removal of monetary policy accommodated by the ECB in 2018, while it declined by 3.2% y-o-y compared with the Swiss franc. Moreover, it dropped by 6.8% *versus* the pound sterling on anticipation of the first interest rate hike since 2007 by the Bank of England, while it declined against the yen by 2.5%. In terms of emerging market currencies, the dollar declined against the Chinese renminbi by 4.7% y-o-y, while it lost 5.4% against the Indian rupee. Meanwhile, the dollar lost 1.8% against the Brazilian real, 5.7% against the Russian ruble and 4.7% against the South African rand.

Crude oil price movements

The OPEC Reference Basket (ORB) ended 2017 significantly higher at $52.43/b, up by 28.6%, or $11.67/b, compared with 2016. This value is above the key $50/b yearly average and the highest since 2014. Oil prices have received wide-ranging support from production adjustments led by OPEC and Russia, which started in January 2017 and are set to last through 2018, as well as from strong economic growth and financial markets. Together these factors have helped to tighten markets. US commercial crude inventories fell by 7.4 mb in the last week of December to 424.5 mb, according to data from the Energy Information Administration (EIA), down 20% from the peak reached last March and close to the five-year average of 420 mb.

At the end of 1H17, the ORB declined to $45.21/b, down by more than 8% to its lowest value for the year. The oil market witnessed a sell-off amid significant bearish sentiment ignited by oil supply gluts and still-high oil inventories, despite ongoing high conformity by OPEC and non-OPEC producers. Oil continued to be weighed down by the slow pace of inventory drawdown globally amid a vast rebound in global oil supplies. After reaching a 2017 peak in early February, the ORB's value plunged 21% by June. Nevertheless, toward the end of the month, its value recovered.

By the end of 2H17, the ORB rose for the sixth consecutive month to sustain its value further above $60/b, reaching close to $65/b on 29 December 2017. This came as six months of positive market sentiment was fuelled by the decision of OPEC and non-OPEC ministers at the 3rd OPEC and non-OPEC Ministerial Meeting on 30 November to extend the Declaration of Cooperation through 2018. By year end, the ORB had increased for six consecutive months, gaining more than $15/b, or about 35%, since the price rise began in summer. Moreover, OPEC and participating non-OPEC countries' conformity levels averaged 109% through 2017. Month-on-month, the ORB value rose by $1.32/b, or 2.2%, to settle at $62.06/b on a monthly average.

For the year, ORB component values improved significantly along with relevant crude oil benchmarks and positive monthly changes in respective official selling price (OSP) differentials due to sustained backwardation, particularly for Middle East crude oil benchmarks. Spot prices for crude oil physical benchmarks Dated Brent, WTI and Dubai increased by $10.41, $7.55 and $11.69, respectively. The value of light sweet crude Basket components from West and North Africa jumped to near $65/b. Values for Saharan Blend, Es Sider, Girassol, Bonny Light, Equatorial Guinea's Zafiro and Gabon's Rabi increased on average by $10.59, or 24.5%, to $53.86/b. Latin American ORB components Venezuelan Merey and Ecuador's Oriente edged up to $47.63/b and $50/b in 2017 gaining $13.61, or 40%, and $11.56, or 30.1%, respectively. Tight sour crude supplies on the US Gulf Coast (USGC), amid considerably lower imports of heavy sour crudes from OPEC Member Countries and lower Canadian supplies, supported these grades. Backed by tighter supply, healthy demand and an uplift in OSP offsets, the value of multiple-region destination grades Arab Light, Basrah Light, Iran Heavy and Kuwait Export improved over the year. On average, these grades' values expanded by $12.10, or 30.4%, for the year to stand at $51.94/b. Market sentiment was also supported by a wide spread between Brent and Dubai, which supported demand for Dubai-linked grades from the Middle East and Russia at the expense of those priced on Dated Brent from the Atlantic Basin. Similarly, Middle Eastern spot components Murban and Qatar Marine saw their values improving greatly by $9.99, or 22.3%, to $54.82/b and $11.37, or 27.4%, to $52.80/b, respectively.

In 2017, premiums for light sweet grades softened considerably as a result of the joint OPEC and non-OPEC decision, which reduced the availability of medium-sour crudes. Moreover, relatively healthy fuel oil cracks in Asia and the US – drawing support from falling Russian fuel oil output – contrasted with weak gasoline fundamentals weighing on cracks. These combined factors limited the upside potential for sweet crude premiums to sour. This was true for Asia, in particular, as Dubai received a relative increase in support due to lesser availability of the grade. Meanwhile, Urals differentials to Dated Brent were stronger on continuing limited supply of the grade, as well as lower supplies from OPEC producers to Europe. Urals differentials improved against Dated Brent due to weaker Russian exports and healthy demand from European refiners. Light sweet grades were supported at the end of the year by the temporary outage of Forties crude production in the North Sea.

In Europe, the light sweet North Sea Brent premium to Urals medium sour crude slumped to 90¢ from $1.60/b in 2016, down 44%. In Asia, the Tapis premium over Dubai decreased to $3.21/b from $4.30, 25% lower. In the USGC, the LLS premium over medium sour Mars dropped by $1.42/b to $3.42, down $1.42.

Table 5
Average quarterly and yearly spot prices for selected crudes, 2016–2017

		2016	1Q17	2Q17	3Q17	4Q17	2017	% Change 2017/16
OPEC Reference Basket		**40.76**	**51.95**	**48.47**	**49.98**	**59.35**	**52.43**	**28.6**
OPEC Basket crudes	Arab Light	40.96	52.13	48.59	50.00	59.68	52.59	28.4
	Basrah Light	39.53	51.31	47.83	49.57	58.81	51.87	31.2
	Bonny Light	44.02	53.96	50.12	52.28	61.89	54.55	23.9
	Es Sider	42.69	52.10	48.15	50.76	60.30	52.82	23.7
	Girassol	43.61	53.75	49.71	52.62	61.84	54.47	24.9
	Iran Heavy	39.57	51.71	48.12	48.99	58.06	51.71	30.7
	Kuwait Export	39.30	51.33	47.82	49.03	58.26	51.60	31.3
	Marine	41.43	52.74	49.51	50.02	58.97	52.80	27.4
	Merey	34.02	45.92	44.54	45.96	54.14	47.63	40.0
	Murban	44.83	55.00	51.25	51.81	61.25	54.82	22.3
	Oriente	38.44	48.44	46.13	47.97	57.49	50.00	30.1
	Rabi Light	42.62	52.52	48.76	51.10	60.30	53.16	24.7
	Saharan Blend	44.28	53.67	49.13	51.84	61.87	54.12	22.2
	Zafiro	42.43	53.35	49.17	52.13	61.52	54.04	27.4
Other OPEC crudes	Arab Heavy	38.45	50.39	47.06	48.70	57.75	50.96	32.5
	Dubai	41.39	53.03	49.61	50.44	59.28	53.08	28.2
	Dukhan	43.69	54.15	50.59	50.99	60.58	54.12	23.9
	Forcados	43.70	53.17	49.26	53.33	62.43	54.58	24.9
	Iran Light	41.66	51.19	46.87	50.78	60.45	52.36	25.7
Other non-OPEC crudes	Zuetina	43.55	53.26	49.18	51.40	60.75	53.64	23.2
	Brent Dated	43.76	53.66	49.70	52.07	61.27	54.17	23.8
	Isthmus	42.37	54.35	51.18	52.96	59.92	54.60	28.9
	Oman	41.96	53.53	49.84	50.64	59.30	53.32	27.1
	Suez Mix	40.41	50.55	46.76	49.64	59.20	51.56	27.6
	Tapis	45.69	55.81	51.62	54.14	63.61	56.29	23.2
	Urals	42.16	52.25	48.57	51.34	60.94	53.27	26.4
	W T Intermediate	43.27	51.73	48.14	48.13	55.31	50.82	17.4
	W Texas Sour	42.43	50.31	47.09	47.14	54.88	49.85	17.5
Differentials	B. Light – A. Heavy	5.57	3.57	3.06	3.58	4.14	3.59	
	B. Light – S. Blend	–0.26	0.29	0.99	0.44	0.02	0.43	
	Brent – WTI	0.49	1.93	1.56	3.94	5.96	3.35	
	Brent – Dubai	2.37	0.63	0.09	1.63	1.99	1.09	

Notes
Quarterly and yearly averages based on daily quotations.

Source
Platts, Argus and direct communication, OPEC Secretariat assessments.

Oil futures improved markedly in 2017 to exceed $50/b, spurred by strong demand and declining global inventories. International benchmark Brent crude futures ended the year with a rise of almost 22%, to average about $55/b, supported by a year of ongoing supply adjustments by OPEC and non-OPEC producing countries, as well as strong demand, particularly from China. The NYMEX WTI ended 2017 gaining nearly 18%, despite a significant increase in US oil production. These gains indicated that the global glut that had dogged the market since 2014 was shrinking.

By the end of 1H17, oil prices slumped on concerns that rising crude production from Nigeria, Libya and elsewhere would undermine output adjustments under the Declaration of Cooperation. ICE Brent settled below the $50/b mark for the first time in the year on concerns that rising global supply would counter output adjustments from OPEC and non-OPEC producers. US crude inventories remained more than 100 mb above the five-year seasonal average. Oil futures crumbled due to concerns that persistent US production growth would translate into crude inventory builds, should seasonal refinery demand back off. Hedge funds also embarked on a new cycle of short-selling in Brent and WTI, which added to downward pressure on prices.

But prices rallied nearly 50% after the middle of the year on robust demand and strong conformity with voluntary production adjustments. By the end of 2017, oil futures had improved further to levels not seen since late 2014, with ICE Brent near $67/b and NYMEX WTI around $60/b. Both futures contracts continued to be supported by growing indications that the oil market was heading smoothly towards rebalancing, backed by lower crude oil stocks, healthy demand and geopolitical tensions. The positive outcome of the decision between OPEC and non-OPEC producing countries to extend the Declaration of Cooperation to the end of 2018, as well as supply disruptions in the North Sea, buoyed the sustained gains in oil futures throughout December. Crude futures were also boosted after the North Sea Forties pipeline closed and US crude oil inventories continued to draw sharply. The EIA said crude oil stocks fell 4.6 mb in the last week of the year. Inventories – excluding the nation’s strategic reserve – have declined by more than 11% in 2017. For the year, ICE Brent was $9.61, or 21.3%, higher at $54.74/b, while NYMEX WTI rose by $7.39, or 17.0%, to $50.85/b.

The spread between benchmarks NYMEX WTI and ICE Brent widened throughout the year, as Brent responded to the drawdown in supply from major world producers while US output continued to grow. The spread doubled, from $1.72/b in 2016 to $3.88/b in 2017, allowing the US to export record volumes of crude to Asia and Europe in 2017 partially to make up for a shortfall in some OPEC supply. This significant increase in the spread also supported an increase in US domestic crude premiums over the year.

Moreover, in 2017, NYMEX WTI total traded volume was significantly higher at 310 million contracts compared with 279 million in 2016, about 11% higher y-o-y. ICE Brent traded volumes also increased to about 241 million lots, increasing by 30.7 million lots, or 14.6%, from 2016. Daily aggregate traded volume for both crude oil futures markets increased by 261,667 contracts to 2.2 million futures contracts, or about 2.2 billion barrels of crude oil every day.

Hedge funds and money managers continued to boost their bullish wagers on US crude throughout 2017. By the end of the year, the speculator group raised its combined futures and options position in NYMEX WTI to a near record 411,972 lots, the US Commodity Futures Trading Commission said. Gross short positions rose to 41,498 contracts, while gross long positions surged to 453,470 contracts, data showed. During this period, US crude prices were the at their highest levels since 2014. Similarly, hedge funds and money managers raised their combined futures and options net length positions in ICE Brent to 561,284 lots – a new all-time high record – according to the ICE Exchange. Gross short positions rose to 61,056 contracts, while gross long positions surged to 626,515 contracts, data showed. The long-to-short ratio in ICE Brent speculative positions was at 10.92, while that of NYMEX WTI was around 10.9. The total futures and options open interest volume in the two exchanges was at 6.02 million lots.

The Brent and Dubai market structure flipped into backwardation in 3Q and onward as the oil market continued to tighten, with the market rebalancing process underway, reflecting tighter supplies and lower global crude oil inventory levels, while also helping to unwind floating storage.

By the end of the year, WTI also flipped into backwardation, albeit staying buoyant. Following Brent and Dubai and helped by supply outages, NYMEX WTI sustained its backwardation after a near three-year contango, despite US crude oil stocks having fallen by more than 50 mb since June and crude oil exports having risen by almost 1.5 mb/d at one point during the same period.

Brent futures first moved into backwardation in August and traded consistently in that structure starting in September. At the end of the year, the backwardation strengthened further, supported by outages in the Forties system.

The Dubai market structure flipped into backwardation in August, signalling strong demand for spot cargoes. Differentials for some Middle Eastern crudes have continued to set high premiums against Dubai for months. This sustained backwardation caused further commercial refinery crude stock draws in Asia, particularly in China. The steep backwardation in the Dubai structure pushed OSPs higher for all Middle Eastern crudes, which was reflected in strong gains in Middle Eastern ORB components.

On average, the North Sea Brent M1/M3 16¢/b contango in 2016 decreased to 13¢/b in 2017, down by $1.02/b. Similarly, the Dubai M1 79¢/b discount to M3 decreased to 7¢/b, improving by 72¢. In the US, the WTI contango decreased by $1.15 in 2017 as WTI M1/M3 narrowed to 62¢/b from a significant $1.77 in 2016.

Follow the OPEC Secretariat on Social Media

Facebook
facebook.com/OPECSecretariat

Twitter
twitter.com/opecsecretariat

Oil market developments

World oil demand in 2017

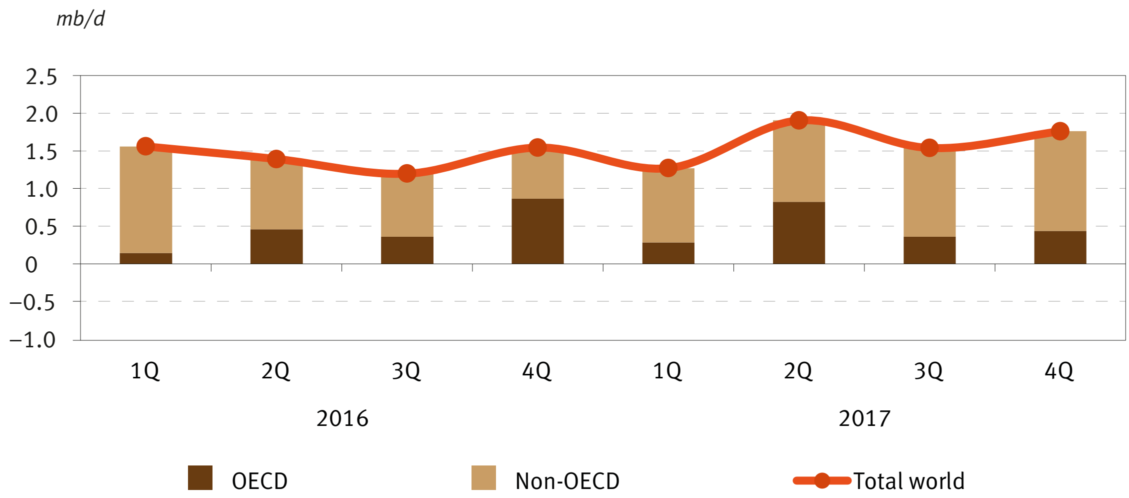
For the third consecutive year, world oil demand growth exceeded 1.4 million barrels per day (mb/d) to register growth of 1.62 mb/d, or 1.7% year-on-year (y-o-y), in 2017. Collectively, between 2015 and 2017, the world added around 5 mb/d of oil demand on the back of healthy economic conditions globally and a relatively low oil price environment. In 2017, OECD Americas' oil demand grew steadily, with the bulk of the growth coming from the industrial and transportation sectors, primarily for the light and middle parts of the barrel. In OECD Europe and Asia-Pacific, oil demand continued to be in positive territory, following steady growth over the past two years. In 2017, improvements in the economy, and consequently the petrochemical and transportation sectors, in addition to colder-than-normal temperatures earlier in the year, lent strong support to oil demand growth during 1H17.

In non-OECD China, oil demand growth was robust in 2017 as the petrochemical and transportation sectors continued to expand at a healthy pace. Oil demand growth in Other Asia – largely India – increased despite slower-than-expected oil demand growth from that country in 1Q17 after demonetization. In Latin America and the Middle East, oil demand growth rebounded into positive territory in 2017 on the back of an uptick in economic conditions in Brazil and steady growth in Iraq, Kuwait and the United Arab Emirates.

OECD

In 2017, the bulk of gains were seen in middle distillates, diesel oil and jet kerosene, as well as naphtha; gains were partly offset by shrinking

Figure 5
World oil demand by main region, y-o-y growth, 2016–2017



Source
OPEC Secretariat.

residual fuel oil and demand. Middle distillates received strong support from industrial activities in OECD Americas and from a large part of Europe, while light distillate demand improved in OECD Asia-Pacific and Europe, supported by higher utilization rates for naphtha crackers.

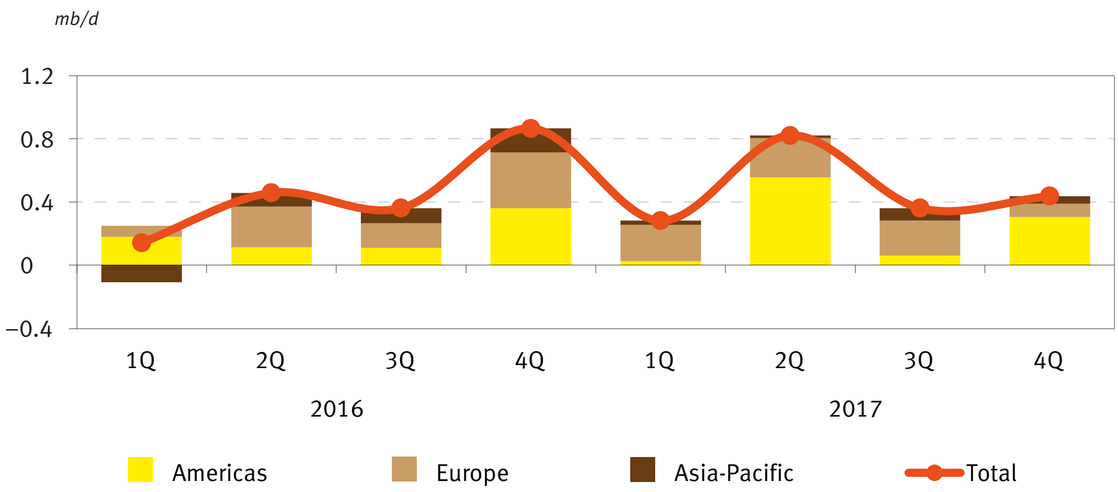
OECD Americas

In the US, oil demand increased by around 1.2% y-o-y with most of the gains appearing in 2Q and 4Q, mainly attributed to robust middle distillate and light distillate demand. Growth was notable across the board with demand for the all main products up, though gasoline remained surprisingly flat. Diesel demand returned to growth, supported by improvements in the freight market, a steady rise in industrial production and overall health in the economy. In Canada, oil demand increased by 2.2% y-o-y. Most of the increases occurred in 2H17, when industrial activities picked up pace, lending support to diesel oil demand. In Mexico, oil demand in 2017 shrank by 5.0% y-o-y despite increases in jet/kerosene and fuel oil demand.

OECD Europe

European oil demand continued on a strong path in 2017. In relation to recent historical patterns, the increase was firm and encompassed several factors: strongly improving economies in a large majority of countries in the region, steady development in the manufacturing sector y-o-y, additions to vehicle stock levels, as well as the impact of cold weather earlier in the year. Data showed European oil demand increasing by approximately 1.4% y-o-y, with industrial fuels and road transportation – notably diesel – accounting for the bulk of the increase.

Figure 6
OECD oil consumption by quarter and region, y-o-y growth, 2016–2017



Source
OPEC Secretariat.

OECD Asia-Pacific

Oil demand in OECD Asia-Pacific recorded positive gains, mainly as a result of better-than-expected demand growth in South Korea, Australia and less shrinkage in Japanese oil demand growth. In South Korea, data indicated solid oil demand, increasing by 1.9%, y-o-y. Those gains, in addition to Australia's surprising uptick in oil requirements due to hikes in mining activities, outweighed losses from oil demand declines in Japan. Gains in the petrochemical industry, which resulted in strong demand for naphtha, diesel, gasoline and jet/kerosene, were somewhat offset by slightly shrinking requirements for residual fuel oil.

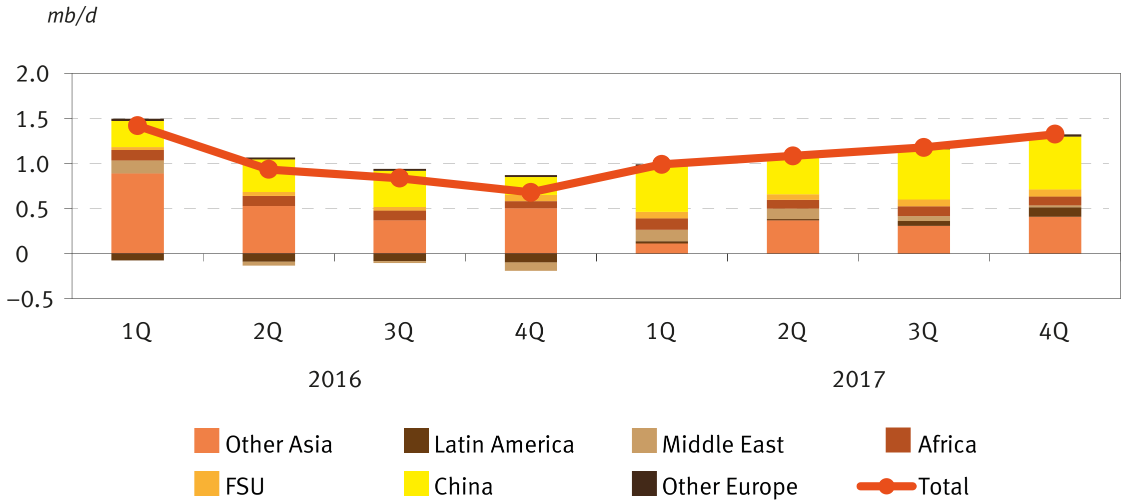
Non-OECD oil demand

In 2017, gasoline demand growth recorded a significant rise as car sales in both China and India lent strong support to gasoline demand growth. Light distillates, which include liquefied petroleum gas (LPG) and naphtha, also grew solidly in 2017, supported by healthy petrochemical margins and the ramping up of Propane Dehydrogenation Plants in China.

China

In China, oil demand growth was solid compared with 2016, increasing by 4.4% y-o-y. In absolute figures, 2017 total oil demand for the country averaged 12.3 mb/d. Products also performed well within all petroleum product categories. LPG, gasoline and jet kerosene, as well as gas diesel oil were the product categories that grew the most. These developments were in line with improvements in major petroleum consuming sectors of the economy, namely the road and air transportation sectors, as well as industry, including the petrochemical and residential sectors.

Figure 7
Non-OECD oil consumption by region and quarter, y-o-y growth, 2016–2017



Source
OPEC Secretariat.

China's manufacturing purchasing managers' index expanded every single month of 2017, providing support to demand for industrial fuels. LPG increased by a remarkable 10.8% y-o-y, while jet kerosene grew by about 9.2% compared with 2016. Car sales, furthermore, provided support to gasoline consumption, with new registrations continuing to grow significantly, rising by more than 4% in 2017 compared with total car sales in 2016.

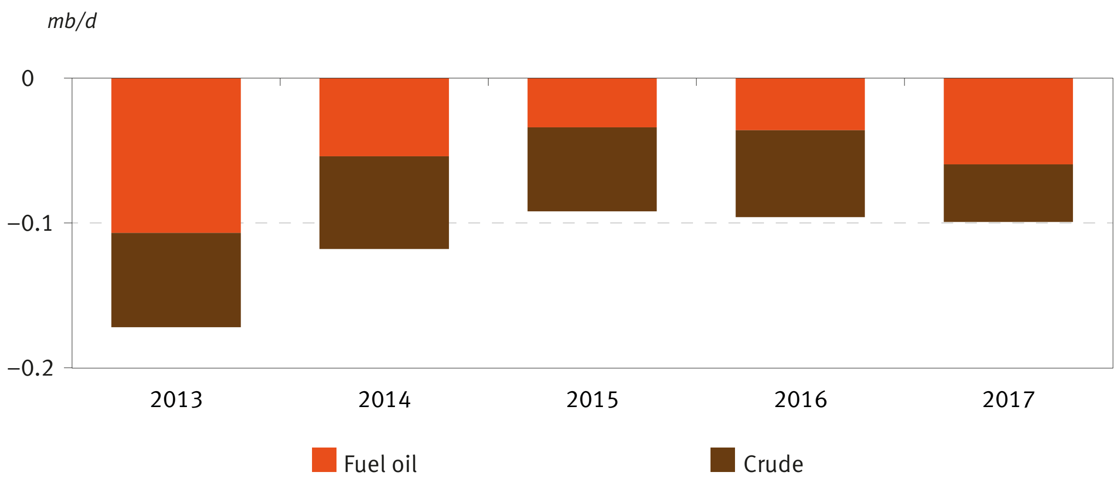
India

Oil demand in India grew modestly in 2017 compared with 2016 by 1.8% y-o-y after average growth of 7.5% y-o-y was recorded for 2016. Petroleum product categories in the lighter and middle parts of the barrel dominated oil demand growth, particularly in the transportation, industrial, residential and agricultural sectors. A bearish 1Q17, mainly due to a weaker economy and demonization policy, impacted the first quarter. However, oil growth data turned solid in 2Q17 and 4Q17 with somewhat flat growth in 3Q17 due to a heavy monsoon season, which reduced demand for transportation and industrial fuels. The introduction of a Goods and Services Tax also impacted demand negatively as uncertainties among end-users reduced demand for heavy industrial fuels such as pet-coke.

Other Asia

Oil demand in Other Asia was largely determined by healthy economic growth in a large part of the region. In Indonesia, 2017 oil demand grew slightly compared with 2016. LPG, gasoline and gas diesel oil saw the most robust growth. Like India, in Indonesia LPG is used predominantly in the residential sector, while increases in motor gasoline and gas diesel oil are related to the road transportation sector. Oil demand grew in Thailand during 2017 y-o-y with gasoline, diesel oil and jet re-

Figure 8
Japanese direct crude and residual fuel burning, y-o-y growth, 2013–2017



Source
OPEC Secretariat.

quirement gains more than offsetting declines in demand for naphtha and fuel oil. Malaysian demand growth in 2017 was modest. Transportation fuel consumption increased, mainly as a result of the lower oil price environment. Overall demand growth was also supported by improving industrial and manufacturing fuels, with the exception naphtha. LPG usage in the residential sector faced declines during 2017.

Latin America

Brazilian oil demand remained in positive territory during 2017, rising by 1.1% y-o-y. Diesel oil demand growth was meanwhile supported by steady improvements in overall economic conditions. The commercial advantage of gasoline over ethanol played a significant part in increasing gasoline demand growth every single month during 2017. Oil consumption in Argentina declined during 2017 by 1.9% y-o-y, with mixed product performance. All transportation fuels experienced growth with the exception of diesel oil. Jet/kerosene and gasoline increased solidly; conversely, diesel oil and fuel oil recorded drops y-o-y.

Middle East

Middle East oil demand rebounded in 2017 from the low levels seen in 2016, adding 1.0% y-o-y. A number of factors had particular effects on the structure of oil demand in the region, as the majority of countries are oil producers and net exporters. The performance of various economies in the region, which is impacted by oil prices, played a substantial role in oil demand. The impact of subsidy reductions is another important factor to monitor, with most countries in the region having already taken some measures during 2016 and 1H17. Substitution by natural gas also curbed oil demand in the Middle East, particularly for those countries with sufficient natural gas resources, i.e. IR Iran, Iraq, Kuwait, Qatar and the United Arab Emirates. The bulk of oil demand growth originated in the transportation and industrial sectors, notably the flourishing petrochemical industry across several countries in the region.

World oil supply in 2017

The global liquids supply grew by 0.71 mb/d to average 96.51 mb/d in 2017, despite a decrease of 0.26 mb/d y-o-y in OPEC crude oil production to average 32.38 mb/d. Rising oil prices compared with a year earlier relatively reflected liquids output growth from non-OPEC countries, particularly from US tight oil, as well as from Canada, Kazakhstan and Brazil. Meanwhile, OPEC natural gas liquids (NGLs) and unconventional liquids output increased by an estimated 0.17 mb/d to average 6.31 mb/d, respectively.

Non-OPEC countries produced 57.87 mb/d of liquids on average, indicating growth of 0.87 mb/d in 2017. In terms of breakdown, they produced 42.14 mb/d of crude oil, 8.04 mb/d of NGLs and 5.49 mb/d of unconventional liquids. Processing gains grew by 0.01 mb/d to reach an average of 2.21 mb/d in 2017. The OECD saw the greatest yearly growth among regions at 0.74 mb/d, predominantly from OECD Americas. In general, compared with a 1.28 mb/d oversupply in 2016, the total oil supply averaged 0.5 mb/d below world demand in 2017.

Non-OPEC supply

The non-OPEC liquids supply averaged 57.87 mb/d in 2017, an increase of 0.87 mb/d over

Table 6

World oil demand and supply balance, 2014–2017

	2014	2015	2016	1Q17	2Q17	3Q17	4Q17	2017
World demand *(mb/d)*								
OECD	45.8	46.4	46.9	47.0	46.9	47.7	47.8	47.4
OECD Americas	24.2	24.6	24.7	24.6	25.0	25.1	25.2	25.0
OECD Europe	13.5	13.8	14.0	13.8	14.2	14.7	14.3	14.2
OECD Asia-Pacific	8.1	8.1	8.1	8.6	7.7	7.9	8.4	8.2
DCs	30.1	30.8	31.4	31.5	31.9	32.3	32.0	31.9
FSU	4.7	4.6	4.6	4.6	4.4	4.8	5.1	4.7
Other Europe	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.7
China	10.8	11.5	11.8	11.9	12.4	12.3	12.7	12.3
(a) Total world demand	**92.0**	**94.0**	**95.4**	**95.7**	**96.3**	**97.8**	**98.4**	**97.0**
Non–OPEC supply *(mb/d)*								
OECD	24.3	25.3	24.8	25.4	25.1	25.4	26.4	25.6
OECD Americas	20.1	21.1	20.6	21.1	20.9	21.3	22.3	21.4
OECD Europe	3.6	3.8	3.8	3.9	3.8	3.7	3.7	3.8
OECD Asia-Pacific	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4
DCs	11.8	12.0	11.9	11.9	11.9	11.9	11.9	11.9
FSU	13.5	13.7	13.9	14.1	14.1	13.9	14.1	14.1
Other Europe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
China	4.3	4.4	4.1	4.0	4.0	3.9	4.0	4.0
Processing gains	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Total non-OPEC supply	**56.2**	**57.7**	**57.0**	**57.8**	**57.5**	**57.5**	**58.7**	**57.9**
OPEC NGLs + NCOs	5.9	6.0	6.1	6.2	6.3	6.3	6.4	6.3
(b) Total non-OPEC supply and OPEC NGLs + NCOs *(mb/d)*	**62.1**	**63.8**	**63.1**	**64.0**	**63.7**	**63.8**	**65.1**	**64.2**
OPEC crude oil production[1]	**30.5**	**31.7**	**32.6**	**32.1**	**32.3**	**32.7**	**32.4**	**32.4**
Total supply *(mb/d)*	**92.6**	**95.5**	**95.8**	**96.1**	**96.0**	**96.6**	**97.5**	**96.6**
Balance (stock change and misc.)	**0.6**	**1.5**	**0.4**	**0.5**	**–0.3**	**–1.2**	**–0.9**	**–0.5**
OECD closing stock level (outside FCPEs) *(mb)*								
Commercial	2,706	2,989	2,985	3,032	3,018	2,971	2,851	2,851
SPR	1,582	1,588	1,600	1,600	1,588	1,578	1,566	1,566
Total	4,288	4,577	4,585	4,632	4,606	4,548	4,417	4,417
Oil-on-water	924	1017	1102	1043	1052	997	997	997
Days of forward consumption in OECD								
Commercial onland stocks	58	64	63	65	63	62	60	60
SPR	34	34	34	34	33	33	33	33
Total	92	98	97	99	97	95	93	93
Memo items *(mb/d)*								
Difference (a — b)	**29.9**	**30.2**	**32.3**	**31.6**	**32.5**	**33.9**	**33.3**	**32.9**

Note

Totals may not add up due to independent rounding.

[1]OPEC Secretariat assessment of selected secondary sources.

the previous year. Growth was driven by OECD Americas, with the US being the main contributor, followed by Canada. Growth was also seen in other regions, including the former Soviet Union (FSU) (+0.20 mb/d), Latin America (+0.10 mb/d) and Africa (+0.07 mb/d). On the other hand, oil supply decreased from China (–0.11 mb/d), Other Asia (–0.09 mb/d), the Middle East (–0.04 mb/d), OECD Europe (–0.02 mb/d) and OECD Asia-Pacific (–0.03 mb/d).

OECD Americas experienced the greatest growth among all non-OPEC regions in 2017 at 0.80 mb/d, and the US experienced the highest y-o-y increase by adding 0.70 mb/d, followed by Canada with yearly growth of 0.34 mb/d. US crude oil production rose by 0.46 mb/d in 2017, in contrast with a contraction of 0.55 mb/d in 2016. US tight crude output was the main component for this growth at 0.43 mb/d, followed by production from the Gulf of Mexico (GoM) with y-o-y growth of 0.05 mb/d, all based on the latest actual data of December 2017. US NGLs production rose by 0.23 mb/d, with about 0.16 mb/d produced from unconventional sources of shale and tight oil formations through fracking and horizontal drilling. The preliminary US liquids supply for 2017 reached an average of 14.33 mb/d, excluding processing gains. Canada's oil supply saw robust growth of 0.34 mb/d y-o-y in 2017 to average 4.84 mb/d, despite facing outages of nearly 500,000 barrels per day (b/d) in 2Q17, following wildfires at the Mildred Lake Upgrader. Mexico encountered a significant decline of 0.23 mb/d y-o-y to average 2.23 mb/d due to several hurricanes in the GoM, heavy unexpected maintenance in offshore platforms and an earthquake.

In OECD Europe, the annual oil supply is estimated to drop by 0.02 mb/d to average 3.78 mb/d. Oil production in the North Sea decreased mainly in Norway by 30 tb/d y-o-y to average 1.97 mb/d, mainly due to an unexpected technical bottleneck in the Goliat field, longer maintenance at platforms and natural declines in mature oil fields, which outpaced production from new fields. In the UK, where production was boosted by 60 tb/d in 2016, annual production declined by a minor 0.01 mb/d compared with 2016 due to weak output in 4Q17 following a Forties Pipeline System shut-in after leakage in December. However, Other Europe countries' production was up by 20 tb/d to average 0.66 mb/d. In OECD Asia-Pacific, following drops in Australia's oil output, production experienced a decrease of 30 tb/d in 2017 to average 0.39 mb/d.

Oil production in developing countries (DCs) saw minor growth of 0.03 mb/d y-o-y, averaging 11.91 mb/d in 2017. Liquids production mainly grew in Latin America at an average of 5.20 mb/d, which represented growth of 0.10 mb/d y-o-y. While oil production increased by 0.16 mb/d to average 3.30 mb/d in Brazil, the fourth-ranked country for growth in 2017, production in other countries of the region declined. Africa was the second-ranked DC region for production growth in 2017, showing added production of 0.07 mb/d for an average of 1.86 mb/d, mainly originating from Ghana and Congo. The Middle East and Other Asia regions experienced supply declines in 2017 of 0.04 mb/d and 0.09 mb/d to average 1.24 mb/d and 3.62 mb/d, respectively. In the Other Asia region, Indonesia and Vietnam had the steepest declines among other countries of the region by 0.04 mb/d and 0.03 mb/d to average 0.89 mb/d and 0.28 mb/d, respectively.

The FSU's oil supply experienced remarkable growth of 0.20 mb/d y-o-y in 2017, to average 14.06 mb/d. Kazakhstan's robust growth of 0.17 mb/d was partially due to a production ramp-up from the Kashagan offshore field in the Caspian and annual growth of 0.09 mb/d in Russia, offset by annual declines from other producing countries in the region, mainly Azerbaijan, which saw a decrease of 0.05 mb/d. Average oil production in Russia, Kazakhstan and Azerbaijan was estimated to be 11.17 mb/d, 1.77 mb/d and 0.80 mb/d, respectively.

Oil production from countries in the Other Europe region (ie. Eastern Europe) declined by 0.01 mb/d to average 0.12 mb/d y-o-y in 2017. China's oil production decline was the highest after Mexico in 2017 at 0.11 mb/d y-o-y. The average oil supply in China declined to 3.99 mb/d on a yearly basis.

OPEC crude oil production

According to secondary sources, OPEC crude oil production averaged 32.38 mb/d in 2017, a decrease of 0.26 mb/d over the previous year. Following the Declaration of Cooperation between OPEC and participating non-OPEC oil producers, led by Russia, OPEC crude oil output in 1H17 was at 32.20 mb/d, which was 0.44 mb/d lower than the average for 2016, while production increased by 0.36 mb/d to average 32.56 mb/d in 2H17 compared with the first half due to increases in Nigeria and Libya. OPEC's share of the global liquids supply in 2017 decreased by 0.5% to 33.57% from 34.07% the previous year. Crude oil production declines in 2017 came mainly from Saudi Arabia, Venezuela and Kuwait.

OPEC NGLs and non-conventional oil

OPEC NGLs and non-conventional oil are estimated to average 6.31 mb/d in 2017, including 6.06 mb/d of NGLs and 0.25 mb/d of non-conventional oil, mainly gas-to-liquids, representing yearly growth of 0.17 mb/d. OPEC NGLs production increased in the United Arab Emirates by 60 tb/d, and in Saudi Arabia, IR Iran and Qatar by 30 tb/d each, to average 0.85 mb/d, 1.39 mb/d, 0.73 mb/d and 1.22 mb/d, respectively.

Transportation

In 2017, the dirty tanker market suffered from general weak sentiment among its various sectors, despite some hikes seen on an occasional basis supporting the annual average. On average, very large crude carrier (VLCC) spot freight rates dropped while Suezmax and Aframax rates showed relative gains in 2017 compared with the previous year. The main factors behind weak spot freight rates were the deliveries of new vessels, which limited scrapping activities, as well as the reported release of floating storage during the year.

In the clean market, spot freight rates in both East and West of Suez rose in 2017 compared with the previous year, as the fundamentals of the clean market became more balanced than in the dirty market. On the other hand, the price of bunker fuel increased, leading to negative margins for many ship owners.

VLCC average spot freight rates declined by 5% in 2017 compared with the previous year, and decreases were experienced on all reported routes. Spot freight rates for VLCCs operating on the Middle East-to-East and Middle East-to-West routes declined by 2% and 19%, respectively, while the West Africa-to-East route rates remained flat compared with one year earlier. VLCCs' low earnings came on the back of increased fleet capacity, as the year witnessed plentiful additions, reduced loading opportunities from major oil producers and a gradual release of short-term floating storage, which led to higher availability in the spot market. Moreover, reduced weather and transit delays contributed to low spot freight rates in the VLCC chartering market.

On the other hand, Suezmax and Aframax spot freight rates increased by 4% and 9%,

Table 7
OPEC crude oil production based on secondary sources, 2013–2017 *(tb/d)*

	2013	2014	2015	2016	1Q17	2Q17	3Q17	4Q17	2017	Change 2017/16
Algeria	1,161	1,111	1,108	1,090	1,052	1,054	1,055	1,014	1,043	–47
Angola	1,734	1,644	1,777	1,725	1,632	1,648	1,641	1,633	1,638	–87
Ecuador	519	553	543	545	530	530	536	526	530	–15
Equatorial Guinea	210	200	185	160	141	137	130	131	135	–25
Gabon	213	211	214	221	200	203	199	199	200	–20
IR Iran	2,666	2,773	2,836	3,515	3,796	3,793	3,833	3,823	3,812	297
Iraq	3,092	3,303	3,974	4,392	4,449	4,455	4,482	4,401	4,447	54
Kuwait	2,812	2,768	2,764	2,853	2,712	2,709	2,707	2,704	2,708	–145
Libya	921	470	404	390	656	709	932	967	817	427
Nigeria	1,878	1,921	1,838	1,556	1,512	1,594	1,763	1,762	1,658	102
Qatar	728	710	663	656	608	613	603	604	607	–49
Saudi Arabia	9,610	9,686	10,142	10,406	9,884	9,960	9,994	9,971	9,953	–453
United Arab Emirates	2,792	2,812	2,908	2,979	2,937	2,911	2,922	2,892	2,915	–64
Venezuela	2,397	2,334	2,319	2,154	2,002	1,964	1,929	1,770	1,916	–238
Total OPEC	**30,733**	**30,495**	**31,675**	**32,643**	**32,111**	**32,278**	**32,725**	**32,398**	**32,380**	**–263**

Note
Totals may not add up due to independent rounding.

Source
OPEC Secretariat assessment of selected secondary sources.

respectively, in 2017, compared with the previous year. Suezmax spot freight rates encountered volatility during 2017, partially as a result of berthing delays and port force majeure. The Aframax class showed higher gains compared with other vessels in the dirty sector on the back of weather delays, volatility in Mediterranean loadings, as well as some port congestion and ullage delays. Despite being pressured by competition from Suezmax,

Table 8

OPEC crude oil production based on direct communication, 2013–2017 *(tb/d)*

	2013	2014	2015	2016	1Q17	2Q17	3Q17	4Q17	2017	Change 2017/16
Algeria	1,203	1,193	1,157	1,146	1,087	1,072	1,065	1,012	1,059	–88
Angola	1,701	1,654	1,767	1,722	1,638	1,635	1,668	1,585	1,632	–90
Ecuador	526	557	543	549	533	534	535	522	531	–18
Equatorial Guinea	–	–	–	–	138	126	124	126	129	–
Gabon	–	–	–	–	–	–	–	–	–	–
IR Iran	3,576	3,117	3,152	3,651	3,894	3,878	3,865	3,833	3,867	216
Iraq	2,980	3,110	3,504	4,648	4,589	4,549	4,380	4,361	4,469	–179
Kuwait	2,922	2,867	2,859	2,954	2,705	2,710	2,700	2,702	2,704	–250
Libya	993	480	–	–	–	–	–	–	–	–
Nigeria	1,754	1,807	1,748	1,427	1,388	1,485	1,592	1,572	1,510	83
Qatar	724	709	656	652	595	608	589	608	600	–51
Saudi Arabia	9,637	9,713	10,193	10,460	9,882	9,965	9,978	9,977	9,951	–510
United Arab Emirates	2,797	2,794	2,989	3,088	3,010	2,984	2,969	2,904	2,967	–122
Venezuela	2,786	2,683	2,654	2,373	2,261	2,127	2,102	1,804	2,072	–300
Total OPEC	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**

Note
Totals may not add up due to independent rounding.

Source
Direct communications.

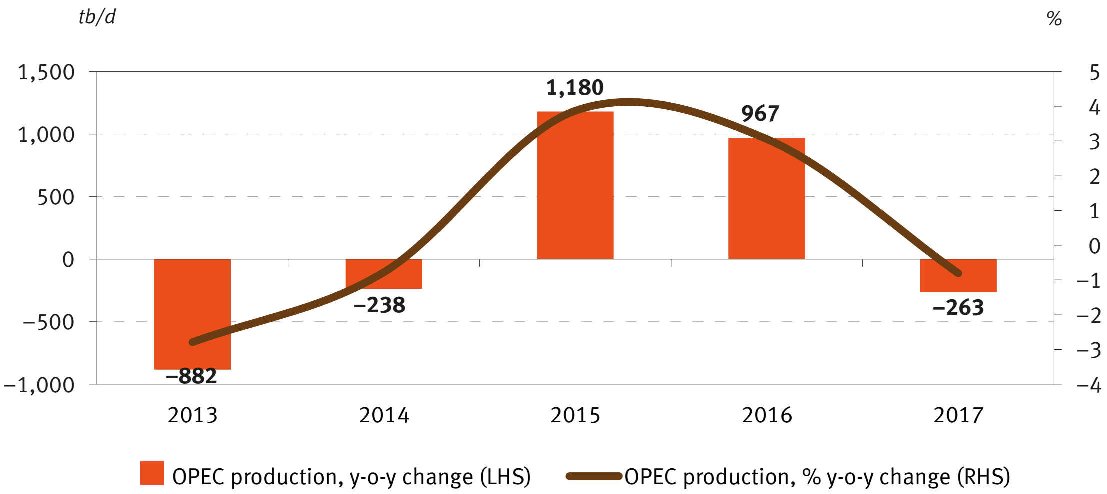
which is a cheaper alternative to Aframax, competition was also seen from long-range clean vessels offering to trade in the dirty tanker market.

Clean tanker spot freight rates followed a different trend from dirty rates. On an annual basis, average reported spot rates for clean tankers rose more evidently in 2017. Balanced clean tonnage supply and demand from different regions supported the increase in average clean spot freight rates in 2017. Freight rates for tankers trading on the eastern and western directions of Suez rose by 25% and 22%, respectively. Clean tanker spot freight rates were occasionally supported by diesel and gasoline demand from Latin America, large export volumes from US refineries to Latin America and high tonnage demand for product exports to Europe. Towards the east, rates were supported by a rise in Chinese shipments, as well as active markets in South Korea, Indonesia and India.

Refinery industry

Product markets were strongly supported in the Atlantic Basin during the driving season, and refining margins hit record-high levels. They received support from product demand growth driven by global economic growth and a tightening gasoline and diesel environment as stocks hit their lowest levels at the end of the driving season. However, the end of driving season, along with weaker middle distillate fundamentals, caused refinery margins to fall. In the US, expectations of a colder winter and anticipated considerably higher diesel demand proved insufficient to overturn steep losses seen in the gasoline complex. In Europe, refinery margins closed the year

Figure 9
Year-on-year percentage (y-o-y) change in OPEC production, 2013–2017



Source
OPEC Secretariat.

severely weakened, pressured by high Brent crude prices, which reached over $70/b. At the end of the year, high refinery runs and the end of the maintenance season contributed to some recovery in product inventories across main hubs, further pressuring already weak product markets worldwide.

US Gulf Coast (USGC) refining margins in 4Q16 remained unchanged at $6.5/b, despite considerable supply-side pressure, with several refineries returning from maintenance and higher inventories fuelling bullish sentiment in the market, bringing WTI refinery margins down to a year-to-date low of $5.2/b in November. During 1Q17, product markets strengthened as higher export opportunities at the top of the barrel continued to lend support to the US product market, offsetting weakness seen at the beginning of the year in domestic gasoline demand. The market received further support from tightening sentiment, fuelled by the heavy maintenance season and falling inventories ahead of the transition to summer-grade gasoline, which provided a gain of almost $1/b over the previous quarter.

During the driving season, US product markets soared, supported by strong domestic gasoline demand and robust export opportunities to Latin America amid heavy maintenance season. Further support also emerged from the hurricane season, which caused substantial refinery disruptions in the USGC. This development exacerbated the bullish sentiment in the product market and pushed WTI monthly margins to $16.2/b in September, the highest level seen since August 2015. However, seasonally low gasoline demand drove margins to a sharp and continual fall during 4Q17 to average $11.5/b, despite some support from the middle of the barrel due to a short-term spike in diesel demand during winter.

US refiners continued with higher refinery runs, supported by solid domestic gasoline demand and higher export opportunities, mainly to Latin America.

Refinery runs reached 95% of capacity in July and went on to historical-high weekly levels in August right before considerable refinery capacity shutdown in the USGC as Hurricane Harvey made landfall in late August. As a result of these negative developments, despite initial high runs, the 3Q17 average run was brought down to 90.7%. For the rest of the year, runs were on the rise, reaching 95.1% in December, supported by low product stock levels and expectations of higher heating fuel demand as a colder winter was anticipated.

In Europe, product markets recovered in 1Q17 from the weakening seen in December 2016, supported by higher arbitrage opportunities for gasoline to the Middle East, Africa and Asia-Pacific regions. Additional support came from a more balanced middle distillate market amid maintenance season. Refinery margins for Brent in North-West Europe averaged $6.7/b in 1Q17. Over the driving season, refining margins rose further, reaching a plateau in September on the back of mainly higher middle distillate demand as USGC refineries were disrupted, averaging $8.6/b in 3Q17. In 4Q17, the European market deteriorated on lower seasonal gasoline demand and a hike in crude prices, which drove hydro skimming refining margins into negative territory, despite firm demand. Moreover, additional pressure emerged from sizeable losses in the bottom of the barrel owed to regional oversupply amid lower global demand in December.

European refiners were operating on the low side in 1H17 due to spring maintenance. In 3Q17, refinery utilization rates increased by 2.3% to average 91.4%, supported by healthy margins. In October, refinery runs dropped due to significant scheduled maintenance work and recovered partially in the following months, but remained somewhat moderated, pressured by global product stock level improvements and economically unfavourable refining margins. In 4Q17, refinery runs averaged 91.7%.

Asian product markets strengthened as refining margins picked up momentum and were on a rising trend throughout 1H17, reaching a high of $11.1/b in August and averaging $10.5/b in 3Q17. Support derived from higher seasonal gasoline and middle distillate demand, as well as higher export opportunities from China. After the end of the driving season, Asian refining margins against Oman in Singapore continued to receive considerable support and, unlike the other major hubs, avoided a downward trend, remaining at healthy levels. Despite losses in the bottom of the barrel owing to lower fuel oil demand as power generators in major fuel oil consuming countries shifted to gas, refining margins still ended the year strong at $9.1/b in 4Q17.

In Asia, refinery runs continued to rise to meet increasing demand in Japan, reaching a new record high of 96.8% in December, averaging 89.8 % in 4Q17. In China, refinery runs dropped in 2Q17 to 87.0% due to peak maintenance of 89.5% in the previous quarter, but embarked on a rising trend thereafter to average 91.5% in 4Q17 amid new capacity additions. In Singapore, refinery runs were also brought down due to peak 2Q17 maintenance and remained constant at 88.3% in 2H17.

Stock movements

Total OECD inventories – including commercial and government stocks – fell by 168 mb at the end of 2017 from the same time the previous year to stand at 4,417 mb. This stock draw was attributed to the decrease in commercial oil inventories and the Strategic Petroleum Reserve (SPR), by 134 mb and 34 mb, respectively.

On a regional basis, OECD North America and OECD Europe stocks fell by 131 mb and 37 mb, respectively, while those in OECD Asia-Pacific went up by slightly by 1.0 mb. On a quarterly basis, total OECD inventories experienced a stock build of 47 mb in the first quarter, while the first, second and third quarters saw massive stock draws of 26 mb, 58 mb and 131 mb, respectively.

The first quarter of 2017 saw a build in total commercial stocks of 47 mb, while the last three quarters experienced a sizeable cumulative stock draw of 181 mb due mainly to the implementation of the Declaration of Cooperation between OPEC and participating non-OPEC producers. Higher-than-expected world oil demand also contributed to the decline in OECD commercial stocks.

At the end of 2017, OECD commercial stocks finished the year 71 mb above the five-year average. OECD Americas experienced a surplus of 60 mb above the latest five-year average, followed by OECD Europe with a surplus of 9 mb, while OECD Asia-Pacific indicated a small gain of 2 mb above the seasonal norm. It should be noted that the overhang in relation to the five-year average was reduced by 268 mb since January 2017, a clear sign that the rebalancing of the oil market was underway.

Within the components, OECD commercial crude and products witnessed stock draws of 61 mb and 73 mb at the end of 2017, compared with the previous year at the same time. Crude stocks stood at 77 mb above the latest five-year average, while product stocks witnessed a deficit of around 6 mb, compared with the seasonal norm. Gasoline indicated a slight surplus of 2.0 mb above the seasonal norm, while middle distillates witnessed a deficit of 12 mb below the latest five-year average.

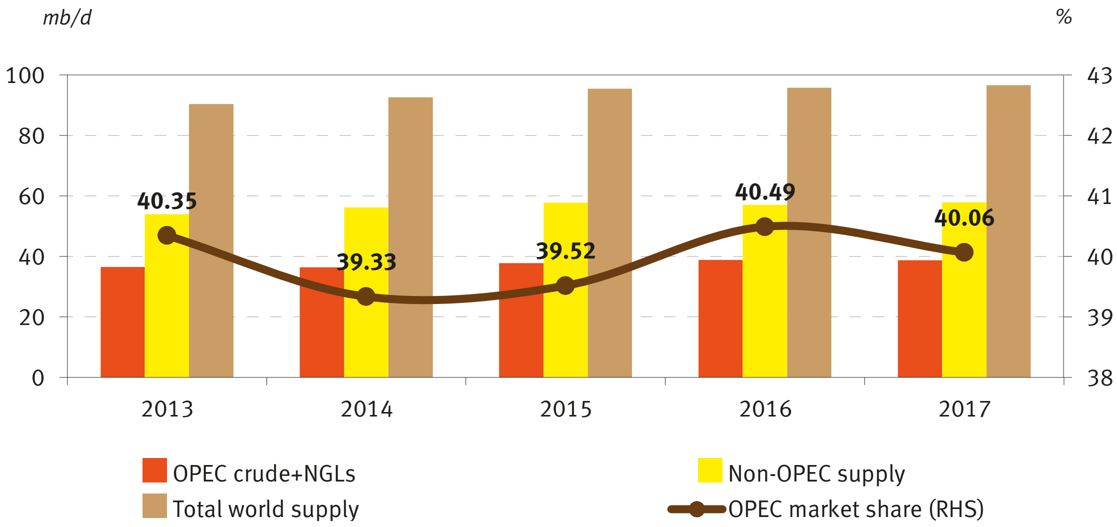
In terms of days of forward cover, OECD commercial stocks stood at 60.1 days at the end of 2017, 3.3 days lower than 12 months before but 0.3 days higher than the latest five-year average. It should be noted that the overhang in relation to the five-year average was reduced by 5.2 days since January 2017. OECD Americas was 1.1 days above the historical average to stand at 60.4 days at the end of 2017, and OECD Asia-Pacific stood 0.7 days above the seasonal average to finish the year at 47.8 days. Meanwhile, OECD Europe indicated a deficit of 1.9 days, averaging 67.3 days.

Total SPR in the OECD at the end of 2017 fell by 34.0 mb from the previous year to stand at 1,568 mb. This drop came mainly from OECD North America, which decreased by 32 mb to stand at 665 mb, followed by OECD Europe, which declined by 3 mb to 477 mb, while OECD Asia-Pacific rose by 3 mb to stand at 424 mb at the end of 2017.

Estimated total non-OECD stocks – including commercial and SPR – stood at 2,072 mb at the end of 2017, up by 30 mb from the end of 2016. China saw a build of around 100 mb to stand at 653 mb, while inventories in the Middle East and Latin America witnessed drops of 49 mb and 22 mb, respectively.

Figure 10

OPEC[1], non-OPEC[2] and total world supply, as well as OPEC market share, 2013–2017



Notes
[1] *Including OPEC NGLs+non-conventional oils.*
[2] *Including processing gains.*

Source
OPEC Secretariat.

Balance of supply and demand

World oil demand grew by around 1.62 mb/d in 2017, higher than initial projections, to reach an average total demand of 97.0 mb/d. Both OECD and non-OECD countries contributed to this growth, with increases of 0.5 mb and 1.1 mb/d, respectively. Meanwhile, non-OPEC supply registered growth of 0.9 mb/d to stand at 57.9 mb/d. The US oil supply saw the largest increase among all non-OPEC countries in 2016, followed by Canada and Brazil. Growth of OPEC NGLs and non-conventional oils in 2017 stood at 6.3 mb/d.

Demand for OPEC crude in 2017 was revised down from initial forecasts to stand at 32.9 mb/d. This represents an increase of 0.6 mb/d from 2016 levels. This downward revision reflects higher non-OPEC supply outpacing world oil demand. On a quarterly basis, required OPEC crude in 2017 stood at 31.6 mb/d and 32.5 mb/d in the first and second quarters, respectively, while figures were higher in the second half of the year, averaging 33.3 mb/d in both the third and fourth quarters.

Meanwhile, based on secondary sources, OPEC production in 2017 averaged 32.4 mb/d, indicating a yearly implied stock draw of 0.5 mb/d. The first quarter saw a stock build of 0.5 mb/d, while the second, third and fourth quarters experienced implied stock draws of 0.3 mb/d, 1.2 mb/d and 0.9 mb/d, respectively.

Figure 11
Monthly oil price movements, 2017

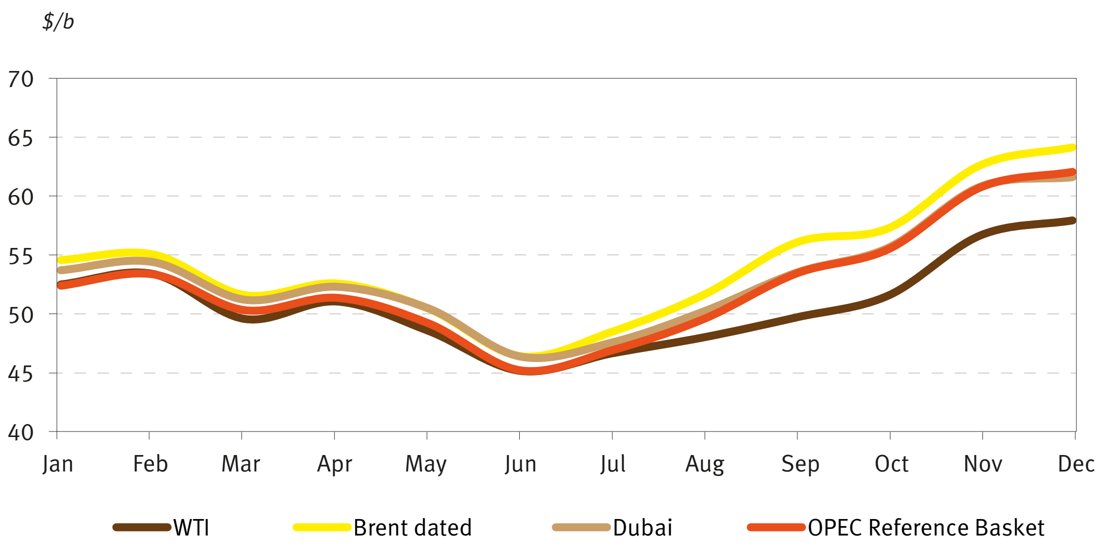
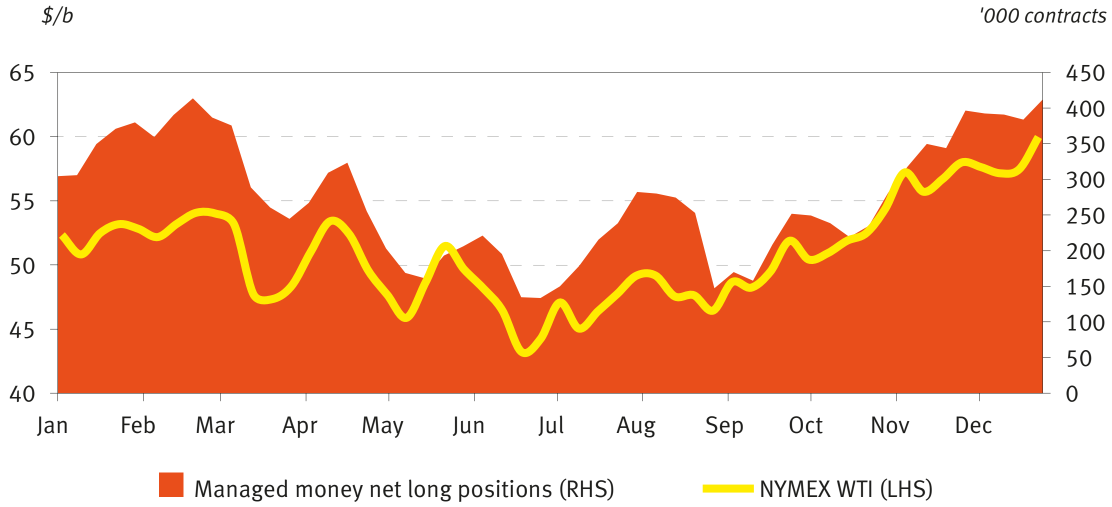


Figure 12

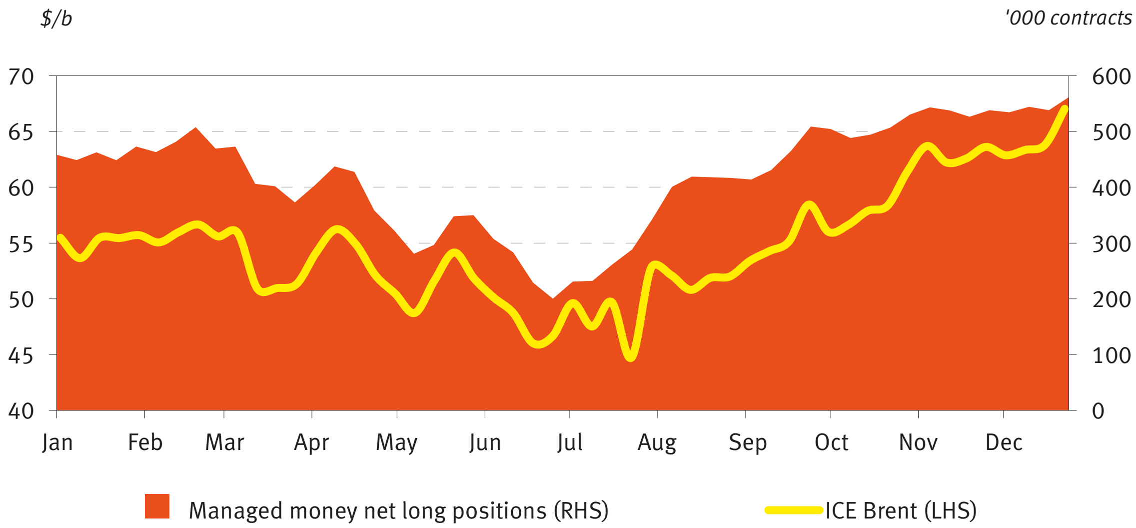
NYMEX WTI price *versus* managed money net long positions, 2017



Source
Commodity Futures Trading Commission, CME Group and OPEC Secretariat.

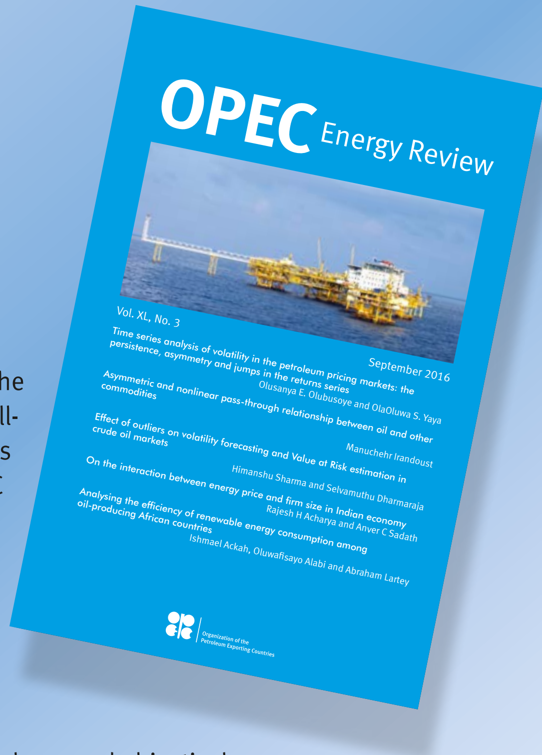
Figure 13

ICE Brent price *versus* speculative activity, 2017



Source
OPEC Secretariat.

CALL FOR PAPERS



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

The three main objectives of the publication are to:

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

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

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

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

OPEC Energy Review
Chairman, Editorial Board: Dr Ayed S. Al-Qahtani, Director, OPEC Research Division
General Academic Editor: Professor Sadek Boussena
Executive Editor: Hasan Hafidh

The Declaration of Cooperation:
When the extraordinary happens

The landmark Declaration of Cooperation involved the sharing of a vision, brought forth by dire need and circumstance, and achieved through specific players engaged at the time who each brought their own special capabilities, knowledge and drive to the table. From these humble roots grew a result successful beyond even the expectations of its makers.

The lead-up to the Declaration of Cooperation – which came into effect on 1 January 2017 – included many months of negotiations, meetings, and the building of an atmosphere of trust among all those who finally united behind the decision. The process required patience, finesse and tact. Finally, 24 leading global oil producers from both OPEC and non-OPEC countries joined together on 10 December 2016 to finalize the decision.

The Declaration of Cooperation represented a concerted effort to accelerate the stabilization of the global oil market through voluntary adjustments in total production of around 1.8 million barrels per day (mb/d). At a second joint OPEC and non-OPEC producing countries' Ministerial Meeting held on 25 May 2017, the Parties decided to extend the voluntary production adjustments for another nine months, commencing on 1 July 2017.

But the efforts did not stop there. After examining market indicators, the 173rd Meeting of the Conference decided on 30 November 2017 to once again amend its production adjustments to take effect for the whole year of 2018, while assuring full and timely conformity. Thus, all parties agreed once more to ensure the ongoing drawdown of stocks and future stability of the oil market.

Figures at the end of the year show that the OECD stock overhang of 340 million barrels (mb) of oil at the beginning of 2017 fell by 268 mb. Meanwhile, floating storage dropped by nearly 50 mb between June and December 2017, bringing market balance ever closer.

It is important to add here that monthly average conformity levels for the first year of the Declaration of Cooperation reached a remarkable 109%. Conformity levels increased on a monthly basis over the year, beginning with 87% in January and ending on a very high note, with a record-breaking conformity level of 129% reached in December.

Across a broad range of indicators, the first year of the Declaration of Cooperation has been a great success. Once again, the unwavering resolve of participating countries to balance the market has been richly shown.

Conference President

Khalid A. Al-Falih, President of the OPEC Conference for 2017 and Minister of Energy, Industry and Mineral Resources of Saudi Arabia stated to the *OPEC Bulletin* at the end of 2017 that, "Prior to the December 2016 Declaration of Cooperation the oil market sentiment was quite bearish: the market was oversupplied, OECD inventories had ballooned to almost 400 million barrels above their five-year average and market confidence was exceedingly low. If we had not acted, it would have taken the market a long time to rebalance, over which time a lot more surplus oil would have been added to already bulging stocks. The impact on global oil investments, which had been quite severe since the slump began, would have continued and, in fact, worsened."

Alexander Novak, Minister of Energy, Russian Federation, who was instrumental in the success of the Declaration of Cooperation and essential in garnering support from other non-OPEC countries said: "… without the OPEC/non-OPEC Declaration

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

Alexander Novak, Minister of Energy, Russian Federation.

of Cooperation and the solidarity demonstrated by the participating countries, the situation of the oil market and of the global economy in general would have been significantly less favourable, to say the least… I think that the situation would have been close to what we saw in early 2016, when the price of oil fell below $30 per barrel and was extremely volatile, disturbing the normal operation of the industry and causing a great deal of uncertainty.”

He added, “The fact that as many as 24 countries, including ten non-OPEC countries, who had never cooperated on this scale before, were involved was essential in terms of the effectiveness of the joint efforts. Without reaching solidarity between a critical mass of producers, I believe we would not have been able to achieve such results, so I can say that collaboration was critical to the success of the whole initiative.

“Against this backdrop, it was also unprecedented that participating countries have reached and maintained such respectable levels of conformity…Back in December 2016, hardly any market expert could have anticipated such discipline.”

Hard times

The downturn which started in mid-2014 was the severest seen in over four decades, with the largest percentage fall in six episodes of sharp price declines. The OPEC Basket fell by an unprecedented 80% between June 2014 and January 2016. The repercussions struck the entire international oil and gas sector, including producers, consumers and investors by the beginning of 2016.

Supply outpaced demand, which led to a sharp build in global inventories in this time frame. A dramatic rise was seen in non-OECD inventories, along with expansion in some non-OECD strategic petroleum reserves. The world economy also came under severe pressure, with unemployment in the oil industry spiking, and many producers experiencing a cut of at least half in their revenues. In this dire situation, investment ceased, with a contraction of $300 billion in 2015 and 2016 threatening future supply.

OPEC saw that something had to be done and intensified its efforts to dialogue with other global actors in the energy industry. New pathways of communication were built up or intensified, and the Organization reached out to many more producers. Bilateral and multilateral meetings were the order of the day, with the process picking up pace in the second half of 2016.

From the moment he started his post as OPEC Secretary General in August 2016, Mohammad Sanusi Barkindo worked with unending energy to build consensus among various stakeholders around the world, in what came to be known as "shuttle diplomacy". The lengthy and rewarding process which started in 2016 culminated with a series of decisions which led to the renewal of broad-based optimism in the oil market, guided by Barkindo.

The first was a decision at the landmark 170th (Extraordinary) Meeting of the Conference in Algeria on 28 September 2016, when the Conference settled on a production target for OPEC Member Countries ranging from between 32.5 and 33 mb/d. It also jump started a process of consultations between OPEC and non-OPEC producing countries.

The foundations of the Declaration of Cooperation began to be laid during the consultations and deliberations that took place among OPEC Member Countries at the 170th (Extraordinary) Meeting of the Conference, held in Algiers, Algeria, on 28 September 2016.

With intensive talks ongoing after this decision – including with many non-OPEC countries – in the context of various international forums, all parties agreed that OPEC and non-OPEC dialogue should be institutionalized and that a way should be found to achieve concrete production results.

Finally, this dedication and air of compromise led to the landmark decision at the 171st Meeting of the Conference on 30 November 2016, where Ministers decided to adjust production down by 1.2 mb/d and put in place a new OPEC production target of 32.5 mb/d effective 1 January 2017. This represented OPEC's first production adjustment in a decade, the previous one being the 'Oran Decision' made at the 151st Meeting of the Conference in December 2008. A framework for sustained and transparent dialogue was also established.

Just a few days later a turning point was reached when the Declaration of Cooperation followed on 10 December, when 11 (now ten, as one non-OPEC country has since joined OPEC) non-OPEC producers agreed to a production adjustment of 600,000 b/d, bringing the total adjustment with OPEC and non-OPEC partners to 1.8 mb/d, to ease the oversupply on the market, effective 1 January 2017.

Along with the production adjustment, a Joint Ministerial Monitoring Committee (JMMC) was formed to oversee conformity to the decision. It included three OPEC Members and two participating non-OPEC countries, to be assisted by the Secretariat.

A Joint Technical Committee (JTC) was also formed to provide the JMMC with oversight regarding levels of conformity to the production adjustments. The JTC is responsible for preparing a monthly production data report on the crude oil production of OPEC Member Countries and participating non-OPEC countries.

In 2017, six JMMC and 11 JTC meetings were held, and they are set to continue in 2018. A framework for cooperation came more into focus, with the Meeting stating that joint analysis and outlooks should be undertaken, with a view to ensuring a sustainable oil market for the benefit of producers and consumers, and that there should be regular reviews at the technical and ministerial levels on the status of this cooperation.

The Secretary General focused in 2017 on ensuring this monumental decision would reach fruition, seeing that all the necessary elements were in place to fulfil the commitments that were made, and working on a mutual platform that could guide the market more securely in the future.

Going beyond

All that has been achieved to date marks the beginning of a process that is set to continue, protecting producers, consumers and investors from future harmful extreme fluctuations in the oil market.

As 2017 OPEC President of the Conference, Khalid A. Al-Falih, said to the *OPEC Bulletin*, "…We have all seen, and the market analysts continue to vouch to that effect, that when we work and act together, we can overcome difficult challenges besides imparting confidence to the market.

"Not only did the participating nations and the energy industry benefit but consumers as well, and in turn, the global economy…

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

Regardless of what situation unfolds in the medium and long terms, as the future is difficult to forecast with sufficient confidence, the success to date, and the benefits accrued, would inspire producers to continue to team up for the mutual benefit of all. This is a good omen for the medium and long-term prospects."

His highlights of the year include: "establishing a special relationship with Russia, and particularly Alexander Novak, which forms the foundation of the OPEC and non-OPEC cooperation…restoring confidence in OPEC…turning around the market sentiment from highly negative to fairly positive and laying the foundation for OPEC and non-OPEC collaboration in the long term."

To his end, Minister Novak stated, "…oil producing countries had never before engaged in real cooperation on this scale. There were different opinions on how to tackle the crisis, even within OPEC, that prevented its members from taking joint action, let alone non-OPEC countries, which did not have any experience of such cooperation to begin with."

He added that it took as long as two years to agree on all the details before OPEC countries concluded their decision on 30 November 2016 and key non-OPEC oil producing countries accepted the Declaration of Cooperation on 10 December 2016. However, the time spent negotiating the deal was not in vain, he stated.

Officials and delegates at the sixth meeting of the Joint Technical Committee that was held on 22 July 2017 in St. Petersburg, Russian Federation.

"Future developments in the market showed that this joint initiation became a new milestone in the development of the global oil market. It was instrumental for rebalancing the market, sustaining the industry's long-term investment appeal, restoring stability and countering speculation.

There is another point I wanted to make. Throughout 2016–2017, we witnessed the strengthening of OPEC as an Organization capable of playing a key role in dealing with imbalances on the oil market, as well as growing solidarity among its members, which, together with the efforts of non-OPEC countries, has been instrumental to the rebalancing effort."

Novak said that successful joint action opened a new page in cooperation between OPEC and non-OPEC countries – and not just on stabilizing the market.

"Working together has helped us understand each other better, build trust and discover new horizons for bilateral cooperation… We now see new horizons, including the prospect of engaging in upstream, transportation and downstream projects in our countries and elsewhere, promoting technology cooperation by establishing joint research and development centres to design and implement new solutions in oil and gas extraction, oil field services and transport of fossil fuels, as well as joint development and production of oil and gas equipment for foreign markets."

In addition to the 24 original participants of the Declaration of Cooperation, 11 more non-OPEC producing countries were present as observers at the 30 November 2017 Meeting of the Conference, showing that the interest in and desire to be a part of this significant movement is growing.

The Conference observed at that meeting that global economic growth forecasts have improved since May 2017, with expectations for both 2017 and 2018 at 3.8%. In addition, global oil demand has been robust with upward revisions since May, with oil demand growth standing above 1.5 mb/d for both 2017 and 2018. It was also evident that market rebalancing gathered pace since May. But despite the successes, the Conference reiterated that it was vital that stock levels be drawn down to normal levels.

The Conference acknowledged the crucial role played by participating non-OPEC countries in the Declaration of Cooperation and welcomed the positive dialogue and technical interactions that have evolved among all Parties to further institutionalize the Declaration of Cooperation, including recent workshops related to COP23, US tight oil prospects, as well as the 2nd OPEC Technical Meeting of OPEC and non-OPEC Producing Countries, held on 27 November 2017.

OPEC President for 2017, Al-Falih stated in his opening remarks at the 3rd OPEC and non-OPEC Ministerial Meeting on 30 November, "There is now global recognition that without our collaborative action, the market would have continued to exhibit extreme volatility and future uncertainty, with far-reaching negative consequences for producers, consumers, investors, the industry, and the global economy at large.

"Looking ahead, economic performance is improving in most of the world's leading economies. In fact, the IMF is forecasting global growth in 2018 at 3.7%, while the European Commission has just stated that the EU this year is on track to grow at its fastest pace in a decade. Oil demand growth, on the other hand, is on firm ground, and the direction of the market over the past several months shows a distinct improvement in both fundamentals and the overall market sentiment. This gratifying outcome has resulted primarily from 100% – or more – compliance to the production targets by OPEC and non-OPEC producers.

"Such positive developments to date show that we're heading in the right direction – but we are still not where we want to be in terms of inventories reaching their target levels, and we must remain resolutely focused on this task."

He stated at the OPEC and non-OPEC dinner on 29 November that, "Although the business and market environment remains challenging, and there are still important and emerging issues…for sure the despair of last year has been replaced by confidence. GDP expectations for one thing, are better than at any time since the middle of the last decade and our collective efforts have contributed to this."

He also recognized the deeper relations between OPEC Member Countries and the non-OPEC countries that have joined the historic decision, and in particular the tireless work of Alexander Novak towards this effort.

Having reached a certain level of success for 2017, the goal for 2018 is to hold steady, keep up the pace of destocking and maintain very high conformity rates.

Incoming President of the Conference for 2018 and Minister of Energy for the United Arab Emirates Suhail Mohamed Al Mazrouei, stated that he believes the market has the potential to reach full stability in 2018 as the level of inventories are expected to be reduced to a comfortable level, giving confidence to investors to return to the levels required to achieve long-term market stability.

He added in an interview after the 30 November Meeting of the Conference, "I think the feeling is good. There is an understanding of each member's concerns. I found it easier after one year of dealing with each other to understand each other…I am optimistic…that we will come up to something that will help the market to continue the journey of recovery and hopefully we can incentivize more investment in this important sector…

"I think we have started something new, and it's still in the infant stage, but I think it has the potential to stay…I think the priorities (for 2018) are going to be to…ensure we are fulfilling whatever obligation we have as a group."

Incoming President of the Conference for 2018 and Minister of Energy for the United Arab Emirates Suhail Mohamed Al Mazrouel.

The importance of the Joint Ministerial Monitoring Committee

The Joint Ministerial Monitoring Committee (JMMC) was formed under the Declaration of Cooperation, born at the joint OPEC-non-OPEC Producing Countries' Ministerial Meeting held on 10 December 2016 at which 24 oil producing countries agreed to voluntary production adjustments of 1.8 mb/d in order to reduce a supply glut.

The work of the Committee was highly praised in its first year. The average conformity level of 109% for the year underscores just how important the JMMC has been to guiding participants of the Declaration of Cooperation in achieving their goals throughout 2017.

The JMMC had no precedence in OPEC history, combining both OPEC and non-OPEC ministers to oversee developments.

When the JMMC was created, it was decided: "That two participating non-OPEC countries, the Sultanate of Oman and the Russian Federation, alongside three OPEC Members, Algeria, Kuwait and Venezuela, shall comprise a JMMC. The JMMC shall be chaired by Kuwait with the Russian Federation as the alternate chair and assisted by the OPEC Secretariat. The Kingdom of Saudi Arabia, holder of the OPEC Conference Presidency in 2017, would also attend the JMMC meetings."

Saudi Arabia will take over the Chairmanship position for 2018, with Khalid A. Al-Falih, Minister of Energy, Industry and Mineral Resources of that country and OPEC's President for 2017, taking over from Kuwait.

OPEC Secretary General, Mohammad Sanusi Barkindo looked back on the JMMC's role in the year 2017 at the first meeting of 2018, held in Oman on 21 January. He paid tribute to the outgoing Chairman, Issam A. Almarzooq, Kuwait's Minister of Oil and Minister of Electricity and Water, "who skillfully guided this Committee to the best first year we could possibly have hoped for", and bid a warm welcome to Kuwait's new Minister of Oil and Minister of Electricity and Water, Bakheet S. Al-Rashidi, "who will be a great asset to the JMMC team".

Al-Falih added his own words of appreciation to the former Chairman, as well as Alexander Novak, the Minister of Energy of the Russian Federation. "Their exemplary work set us on the right course, and I am particularly pleased that my partner His Excellency Alexander Novak will remain as a Co-Chair in the year ahead," he said.

While still in his position of Conference President in 2017, Falih said at the 29 November meeting, the 6th JMMC, that, "This Committee is central to assessing the impact of our efforts to rebalance and stabilize the oil market and ascertaining the necessity and extent of future action."

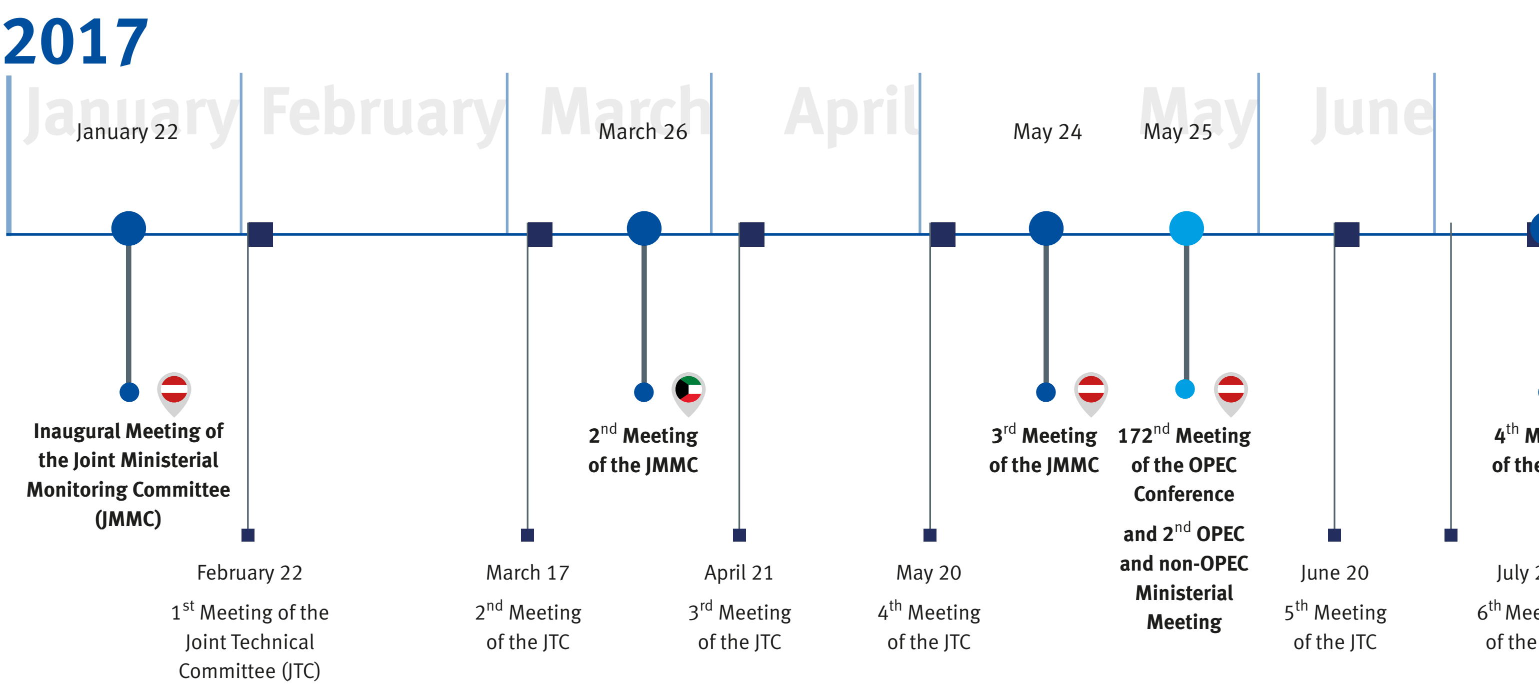
He continued that as important as it is to reach agreements, it is equally critical to turn them into action and maximize their impact on the market. "In the absence of actual results, the agreements would in fact generate negative returns as they would adversely impact our reputation…So, it is essential that we put the right mechanisms in place to maximize the impact of those agreements.

"Therefore, I'm glad that we decided early on to set up the correct organizational structure, including the JMMC and the Joint Technical Committee (JTC) whose hard work has helped guide our respective countries and oil ministries in their complex decision-making over these past months. We have achieved solid results to date, which would not have been possible without each organization in the structure effectively discharging its responsibilities."

Six meetings of the JMMC were held in 2017. The first meeting, held in Vienna on

22 January 2017 was especially important, as it set the foundations of the Committee and the Committee agreed to full and timely conformity with the following stipulations:

- The OPEC Secretariat will present a monthly production data report on OPEC Member Countries' crude oil and participating non-OPEC oil liquids production to the JMMC by the 17th of each month.
- Evaluation of conformity to respective country production adjustments will be based on production data only.
- Each of the five Member Countries of the JMMC will nominate one technical contact person, to form a JTC, which shall include the Presidency of the OPEC Conference and shall assist the respective Ministries. The JTC will regularly cooperate with the OPEC Secretariat in preparing the monthly report for the JMMC and meet on a monthly basis before submitting its report to the JMMC.
- The JMMC will communicate monthly, after the 17th of each upcoming month, to consider the reports presented by the JTC and the OPEC Secretariat.
- The JMMC will issue a monthly press release on progress regarding implementation of the OPEC 171st Ministerial Conference and the Declaration of Cooperation.
- The JMMC will report to the conference on the effect of the implementation of the OPEC 171st Ministerial Conference



decision and the Declaration of Cooperation on the market.

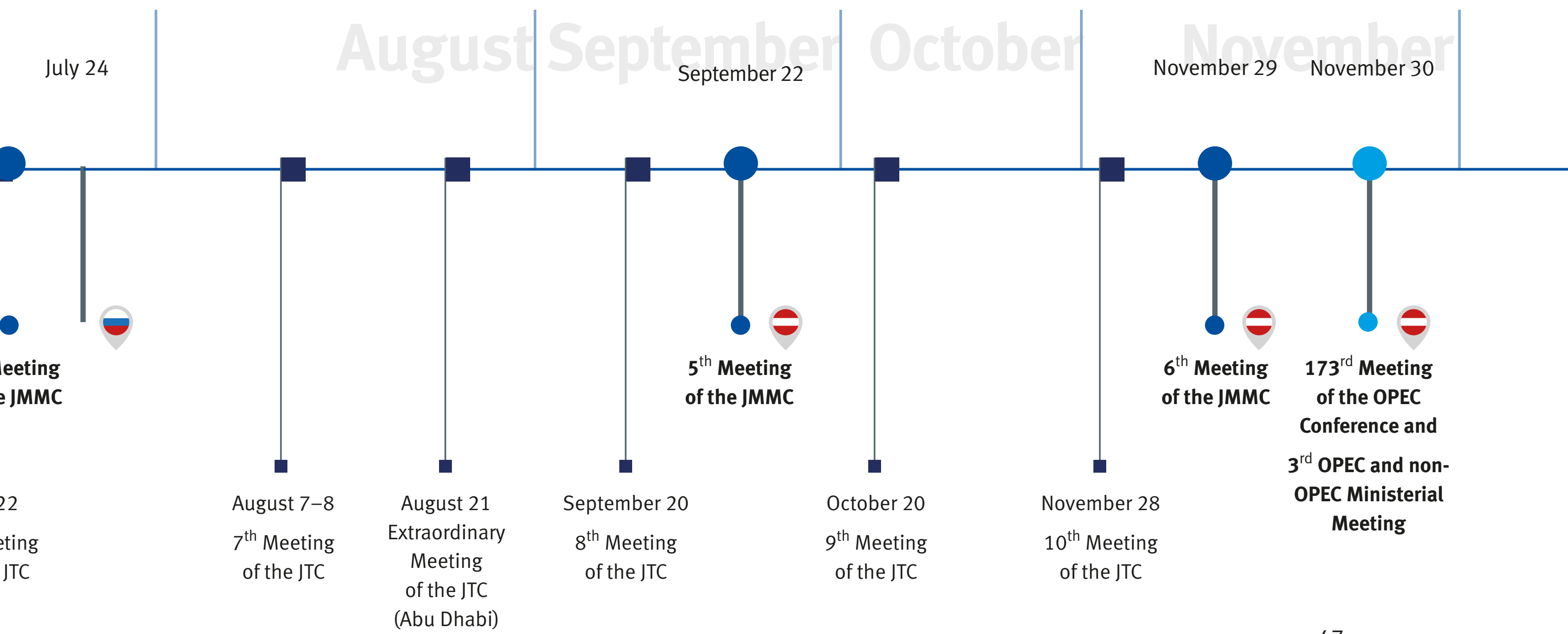
The work of this important Committee has been crucial to achieving the market stability seen today, according to Al-Falih. While the Declaration of Cooperation has established the requisite structure and foundation for market stability, the JMMC has provided a credible mechanism which has facilitated the restoration of market balance.

The JMMC has built on the vital work of the JTC, which has provided monthly reports on market conditions and figures from Declaration of Cooperation participants. The JMMC has provided the essential leadership and monitoring framework required, thus signaling to the market the determination of participating countries to succeed.

One of the most important roles of the JMMC is as a platform for knowledge exchange. It facilitates joint analysis and outlooks which provide valuable input into the evaluation of the conformity process.

As the OPEC Secretary General said at the 5^{th} meeting of the JMMC on 22 September in Vienna, "the JMMC and the JTC are key pillars of the implementation of the historic Declaration of Cooperation and have become the umbilical cord connecting the 24 participating countries."

Meanwhile, incoming Chairman Al-Falih stated in Oman "I also believe that, going forward, we will all benefit by further solidifying the JMMC platform, as we must look beyond the short and medium term to long-term stability in the market on a more sustainable basis. That is likely to require building on our current platforms and devising stronger mechanisms of data collection and ensuring their integrity and consistency for all participants."



The silent partner: The Joint Technical Committee

The Joint Technical Committee (JTC) was established at the first meeting of the Joint Ministerial Monitoring Committee (JMMC) in January 2017. Its role is to assist the JMMC in the realization of production adjustments as per the Declaration of Cooperation. The JTC was meet on a monthly basis and to regularly cooperate with the OPEC Secretariat in preparing monthly reports for the JMMC.

It was decided that each of the five member countries of the JMMC would nominate one technical contact person to form the JTC, which shall include the Presidency of the OPEC Conference and assist the respective Ministers.

At the first meeting of the JTC, held at the OPEC Secretariat on 22 January, OPEC Secretary General Mohammad Sanusi Barkindo noted that the decision taken by the JMMC to form the JTC was "the important first step in the process…to lay the groundwork for this Committee's vital role" in the implementation process.

The Secretary General also suggested that the Chair and Co-Chair of the JTC should mirror that of the JMMC. Subsequently, Haitham Al-Ghais of Kuwait and Pavel Sorokin of Russia were appointed Chair and Co-Chair, respectively.

The JTC was praised throughout 2017 by both the JMMC and the Meeting of the Conference for providing the transparency required to implement the landmark decisions taken at the end of 2016 in a timely and equitable manner.

On 17 April at the third of 11 JTC meetings held throughout 2017, it was decided that the recommendations of the JTC and the JMMC would also be considered in OPEC's Economic Commission Board prior to submission to the OPEC Conference.

Further, at the sixth JTC meeting in St. Petersburg, Russia on 22 July, the JMMC instructed it to hold additional technical level meetings with some OPEC and non-OPEC participating producing countries, with the goal of further improving conformity levels in order to accelerate the rebalancing of the global oil market. Two such meetings were held in 2017.

The 1st Technical Meeting of OPEC and non-OPEC Producing Countries was held at the OPEC Secretariat in May, and the second in November. Aside from the possibility to exchange views on key factors impacting the oil market, the first meeting included a focus session on tight oil, while the second paid special attention to developments in non-liquids supply. OPEC and non-OPEC participating countries participated in both events, at which external experts delivered interesting and informative presentations.

In his welcoming remarks at the second technical meeting, the OPEC Secretary General pointed out, "Our joint meetings and activities will support us in creating a stable market that is less subject to extremes, both today and in the future."

He added that "the technical meetings are an integral part of the critical process of strengthening cooperation through a dynamic and transparent framework for sustainable market stability in the medium to long term.

At the 22 September JMMC meeting in Vienna, the Secretary General pointed out "the heavy load and tireless work of the JTC…the technical powerhouse of the JMMC."

By the end of the year, there had been six meetings of the JMMC and 11 meetings of the JTC. These have proven invaluable for providing information to OPEC and non-OPEC Ministers in order for them make the necessary decisions to keep the oil market recovery continuing on an upward path.

Opposite page: Delegates at the 10th Meeting of the Joint Technical Committee, held in Vienna, Austria.

On 20 December 2017, a special OPEC and non-OPEC JTC dinner was held, marking the end of a year of successful meetings. In an OPEC video celebrating the event, it was stated that, "These efforts (leading up to the Declaration of Cooperation) have been central to the oil market recovery seen in 2017, driven by the Joint Ministerial Monitoring Committee and its supporting body the Joint Technical Committee.

"The conformity results — remarkably averaging over 100% throughout the year — have been nothing short of inspirational, and have had a strong positive effect on market confidence and led to the cautious return of investment. This level of engagement and commitment would not have been possible without strong leadership and guidance."

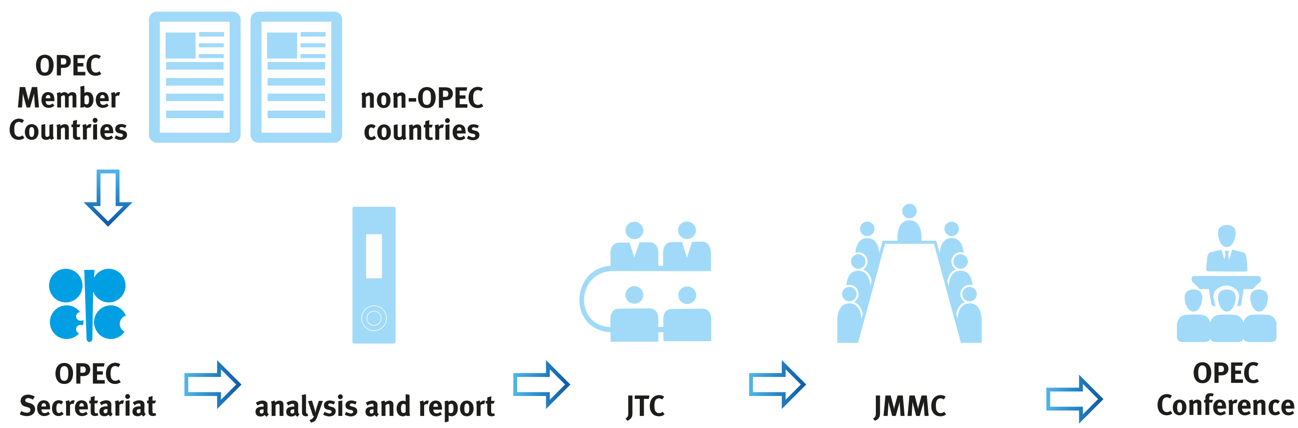
The JTC was originally designed to be a means to an end, the mechanism whereby implementation of voluntary production adjustments would be monitored. However, it has become an achievement in its own right; an institution which represents the best of OPEC's cooperation with its non-OPEC producing partners.

"The high-quality technical analysis this Committee produces each month, in collaboration with the OPEC Secretariat, goes to the core of this monitoring process and continues to provide key input and analysis to the JMMC," it was stated in the film.

This success would not have been possible without the able leadership of the JTC Chairman and Co-Chairman — Mr Haitham Al-Ghais from Kuwait and Mr Pavel Sorokin from the Russian Federation. Their strong engagement and continuous hard work have enabled ongoing efforts to bring lasting and sustainable stability back to the world oil market.

Participants of the Declaration of Cooperation have gained very rich experience over the past year, and the JTC and JMMC have been key to this. These lessons will serve all those involved well into the future. And that is where participants need to start to look; to the mid-term and beyond.

Information flow within the Cooperation



The Joint Technical Committee in pictures

Delegates attending the 1st Meeting of the Joint Technical Committee in February 2017 at the Headquarters.

Haitham Al-Ghais (Kuwait) (r), Chairman of the Joint Technical Committee pictured here with his colleague Pavel Sorokin (The Russian Federation), Co-Chair.

Estévâo Pedro, Governor for Angola and Chairman of the Board of Governors in 2017, during the 10th Meeting of the Joint Technical Committee.

The Joint Technical Committee during its 10th Meeting held in November 2017 in Vienna, Austria.

Activities of the Secretariat

Office of the Secretary General

Mohammad Sanusi Barkindo, Secretary General, continued his tour of OPEC Member Countries in 2017 and undertook a number of Missions in order to, among other things, strengthen and consolidate the relationship between the Organization and the non-OPEC producing countries of the Declaration of Cooperation. The Secretary General also participated as a Keynote Speaker and Panelist in a number of high profile international conferences and events.

The SGO was strongly involved in organizing the Secretary General's busy schedule, including travel arrangements for overseas Missions, hosting courtesy visits at the Secretariat and other prominent events in Vienna.

The Office of the Secretary General continued to organize and support the OPEC and non-OPEC Ministerial Conferences, the Board of Governors (BoG) Meetings including an Extraordinary Meeting of the Board in July, as well as the OPEC and non-OPEC Joint Ministerial Monitoring Committee, as mandated by the Ministerial Conference, which held its inaugural meeting in January, and met outside the Secretariat on two occasions during the year.

The SGO documented these meetings, drafting minutes, writing *précis* of the discussions that took place, preparing summaries of the decisions taken, as well as preparing formal and edited minutes for distribution to Ministers, Governors and Management, as appropriate.

Additionally, the SGO was responsible for coordinating the Secretariat's protocol.

The Legal Office

In line with its objectives and responsibilities, the Legal Office (LO) contributed to the conduct of the Organization's affairs by promoting the rule of law within the Organization and in its relations with governments, organizations, enterprises and individuals. It provided legal advice to the Secretary General, supervised the Secretariat's legal and contractual affairs, and evaluated legal issues of concern to the Organization, reporting its findings to the Secretary General.

It monitored, reported, maintained and defended the legal claims and interests of the Organization on international and internal legal matters.

On internal issues, the LO, through the Secretary General, delivered legal opinions to the Secretariat's governing bodies on issues relating to and arising from the OPEC Conference and the BoG, and provided *ad hoc* reports to the Secretary General and governing bodies as and when required.

On an international level, the LO monitored and, with the assistance of outside counsel, and in close liaison with the Secretariat's Legal Defense Team, defended court cases filed against the Organization in the US, and kept the BoG and the OPEC Conference abreast of case proceedings.

The LO also analyzed, advised on, recorded and followed up legal aspects of documents prepared for, and decisions taken by, the governing bodies relating to the Organization's rules and procedures. It provided legal advice and expertise to the Secretary General and management on issues which included:

- Interpretation of the Host Agreement between OPEC and the Republic of Austria regarding privileges and immunities afforded and contained therein;
- Monitoring of developments of relevant legal aspects pertaining to the energy sector;

- Monitoring of international legal issues to which it reverted, as relevant, to the Secretary General and through him to the governing bodies, thus protecting and advancing the interests of the Organization and its Member Countries (MCs);
- Review and evaluation of the implementation of the Declaration of Cooperation, as well as review of applications for (associate) membership and observers, in line with the Organization's Statute;
- Extensive contribution to the Organization's Long-Term Strategy on specific challenges and objectives;
- Drafting and review of contracts and agreements with external entities and individuals;
- Drafting, roll out and review of internal policies, guidelines, manuals and procedures.

The LO also undertook training dealing with international legal and industry-related issues of significance to OPEC, and attended events when approved by the Secretary General, submitting reports to him about the implications of such international legal, industry-related and socio-economic developments to the Organization and its MCs. These included:

- Costs in Arbitration;
- Forum on European Energy Law;
- Various roundtables and seminars organized by the *Juridicum* or international reputable law offices in Vienna;
- In-house lecture series and course on Oil and Gas Fundamentals.

In addition, the LO participated in the 17th Multi-Disciplinary Training Course (MDTC), organized by the Secretariat, and delivered presentations on the role of the LO in the Secretariat to students from the *Centro Universitario de Brasilia* and law students from the *Association BerMuePa* from Germany.

Presentations were delivered to all staff members on legal implications and communication awareness, and the LO participated in the Secretariat's *Induction Programme* for new staff members at diverse levels, and incorporated interns and Summer Fellows. In addition, the LO participated in orientation briefings to the Governor for Saudi Arabia and incoming Chairmen of the BoG, as well as the Heads of ESD, PSD and the SGO upon their assumption of duties. Furthermore, the LO was instrumental in developing the Confidentiality Policy which was rolled out through presentations to all staff members.

Participating in the Secretariat's *Outreach Programme*, the Legal Office organized an *Induction Programme for Embassies of OPEC and non-OPEC Producing Countries*, as well as organizing and hosting a *Litigation Seminar for MCs and NOCs*.

Furthermore, the LO contributed to the general work of the Secretariat through its membership on important committees and task forces, including:

- Long-Term Strategy Task Force;
- Seminar Steering Committee;
- Academic Committee;
- Personnel Committee;
- Contracts Committee;
- Medical Contingency Committee;
- Confidentiality Policy Task Force;
- Facebook Task Force.

Research Division

The Research Division's (RD) 2017 activities were closely linked to OPEC's second Long-Term Strategy and the Secretariat's Medium-Term Programme (MTPIII). The RD is responsible for a continuous programme of research, designed to meet the requirements of the Organization and its MCs, with particular emphasis on energy and related matters.

The RD consists of the following departments:

Petroleum Studies Department (PSD) which is responsible for the continuous monitoring of oil and product market developments in the short term;

Energy Studies Department (ESD) which monitors, analyzes and forecasts world energy developments in the medium and long term;

Data Services Department (DSD) which is responsible for the identification, collection and processing of energy-related information in support of the research activities of the OPEC Secretariat and its MCs. DSD also includes OPEC's Information Centre.

Additionally, the RD includes the **Environmental Matters Unit** (EMU), which focuses on energy-related matters arising from the Paris Agreement and the United Nations (UN) 2030 Agenda for Sustainable Development.

Taken together, the activities of the RD in 2017 included:

Gathering, compiling and dispensing of pertinent up-to-date statistical data and information as a reliable basis for the analysis of relevant energy developments;

Monitoring of short-term energy market developments and prospects, particularly related to oil markets;

Conducting comprehensive energy market analysis and forecasts for the medium and long terms, with an emphasis on the outlook for demand and supply, as well as developing long-term oil market scenarios, and updating the models required for performing such analysis;

Monitoring of energy policies, important technological developments, and dynamic structures in the international energy industry;

Preparation of up-to-date and reliable analysis to the Ministerial Conference, the BoG, the Economic Commission Board and similar bodies as a basis for energy policy-related decision-making (including identification of the key driving forces behind global, regional and national oil and energy markets) through the Secretary General;

Development of information technology (IT) applications in addition to specialized relevant information and reference services;

Following relevant debates and policy developments in international fora, in multilateral discussions and multidisciplinary taskforces, in order to assist MCs in formulating their positions on important issues and to play a key role in multilateral fora and dialogue;

Providing focused insight into the relationship between climate change and oil demand, the energy mix, and understanding the energy and environmental policies of key international players.

Within the framework of the OPEC and non-OPEC Declaration of Cooperation, there have been six meetings of the Joint Ministerial Monitoring Committee (JMMC) and ten meetings of the Joint Technical Committee (JTC) during 2017.

Additionally, two technical meetings of OPEC and non-OPEC Producing Countries were held in 2017 under the umbrella of the Declaration of Cooperation. The 1st Technical Meeting of OPEC and non-OPEC Producing Countries took place on 19 May 2017 at the OPEC Secretariat. The event had a session dedicated to US tight oil developments, followed by a review of short-term and medium-term oil market prospects. The 2nd Technical Meeting of OPEC and non-OPEC Producing Countries was held on 27 November 2017 at the OPEC Secretariat. The meeting was attended by OPEC and non-OPEC technical experts, including OPEC Governors, as well as the Chairman of the BoG. The first session focused on non-OPEC liquid supply developments. Participants heard a range of high-quality presentations on select non-OPEC producing regions and countries. In the afternoon session, presentations were given by the OPEC Secretariat on the short-, medium- and long-term outlook.

Additionally, a more wide-ranging Technical Workshop on US Tight Oil Prospects was held at the OPEC Secretariat on 22 November 2017, under the umbrella of the Declaration of Cooperation. The Workshop, held under Chatham House Rule, was organized into two complementary sessions. The first session focused on physical aspects of US tight oil, looking at its resources, technology and economics. It also examined the driving factors behind recovery and expected pace, as well as the sustainability of conditions, the costs of reflation and production sensitivity analysis under various price assumptions. The second session focused on financial aspects of US tight oil, specifically on the financial performance of companies active in tight oil production with regard to earnings, debt funding, financial hedging, merger and acquisitions, as well as the investment conditions and the capital expenditure profile looking forward.

International dialogues

OPEC has long been aware of the crucial effect of dialogues between energy stakeholders. Critical international energy issues such as market stability, security of supply, security of demand, economic prospects, as well as environmental issues, affect the global arena. Therefore, proactive dialogue is important for the oil and gas industry to function, while preserving its balance.

Taking this into consideration, OPEC strives to enhance current partnerships and develop future opportunities for cooperation. The Secretariat periodically takes a proactive part in international dialogues via many high-level meetings, technical meetings, joint studies, workshops and memberships. The following provides a summary of the key developments in 2017 regarding OPEC's international dialogues and collaboration.

OPEC has continued to build on its proactive engagement in the G20 Energy Initiatives to arrive at broader and more inclusive outcomes. This year is the first time that climate and energy issues have been combined in the G20 discussions.

Germany concluded its 2017 G20 Presidency with a Summit in Hamburg on 7–8 July 2017. The *Summit Communique* covered a range of initiatives, announcing "concrete actions to advance the three aims of building resilience, improving sustainability and assuming responsibility."

In the Summit Communique, 19 of the G20 Members – with the exception of the US – reaffirmed their "strong commitment to the Paris Agreement, moving swiftly towards its full implementation in accordance with the principle of common, but differentiated, responsibilities and respective capabilities, in the light of different national circumstances." To this end, the 19 participating countries endorsed the *G20 Hamburg Climate and Energy Action Plan*.

On these issues, OPEC highlighted the following:

- The importance of recognizing key concepts embedded in the Paris Agreement: equity and common but differentiated responsibilities and respective capabilities;
- The focus should be on reducing emissions, without bias to source or sector;
- The role of technical innovation – and the need to be inclusive of all technologies – should also be highlighted in the report;
- Any action plan should avoid prescriptive 'one-size-fits-all' solutions, and instead provide a range or tool-kit of options for countries to choose from depending on national circumstances.

As in previous years, the Secretariat continued its active stance in promoting data transparency through the Joint Organisations Data Initiative (JODI) by significantly contributing to the activities of both JODI-Oil and JODI-Gas. In line with the spirit of international dialogue and cooperation, OPEC hosted the JODI Inter-Secretariat Meeting in March 2017. Furthermore, the Secretariat attended the 13th International JODI Conference in London (October 2017) and participated in the 15th Regional JODI Training Workshop for African Countries in Tunis (April 2017). Moreover, and for the sake of developing more specialized national skills through the exchange of expertise and knowledge, the United Arab Emirates hosted the first technical workshop conducted by OPEC in cooperation with the Ministry of Energy (February 2017). This technical workshop was very successful, especially in view of the fact that it allowed the OPEC Secretariat to focus only on the United Arab Emirates and deal with the country's unique challenges. Based on the corresponding feedback survey evaluation, the majority of participating delegates considered the training to be very useful and effective as they benefited strongly from the workshop by enhancing their understanding and knowledge in relation to the technical definitions in the questionnaires of JODI-Oil and JODI-Gas.

The main activities in JODI-Oil and JODI-Gas relate to the improvement of overall data quality and focus on specific fundamental data points, as well as general technical issues. Both the JODI-Oil and JODI-Gas databases face challenges concerning overall quality (coverage and timeliness) of data for some major non-OPEC producing and consuming countries. These challenges persist due to a substantial lack of resources for some JODI partners.

OPEC has been instrumental in organizing events with the International Energy Agency (IEA) and the International Energy Forum (IEF) under the framework of regular joint activities of the IEF, IEA and OPEC. The 7th IEA-IEF-OPEC Symposium on Energy Outlooks, focused on the latest OPEC and IEA energy outlooks and a comparative analysis of short-, medium-, and long-term energy outlooks released by the IEA and OPEC in 2016. It was furthermore complemented by industry views on short-, medium-, and long-term energy outlooks, including perspectives on the post-Paris Agreement landscape. A dedicated session on the road transportation sector provided views on prospects for the penetration of alternative fuel vehicles, particularly electric vehicles and their impact on future oil demand. The evolution of battery costs, range anxiety, subsidies and regulatory framework were discussed and identified as important sources of uncertainty.

A technical meeting on Comparison of Historical Baseline Data took place in Vienna on 15 March 2017. This was a spin-off meeting to the IEA-IEF-OPEC Symposium on Energy Outlooks, which was conducted in order to compare the IEA's and OPEC's baseline data.

Separately, the 2nd Joint IEA-IEF-OPEC Technical Meeting on Interactions between Physical and Financial Energy Markets was held in Vienna on 16 March 2017. The Joint Meeting represents the seventh event in this ongoing dialogue. This year's technical meeting covered the following issues:

- Recent oil market volatility, highlighting changing market dynamics since the previous meeting;
- Evolving role of financial firms in the oil market, including the role of hedge funds, private equity and banks, and how their interactions with producers has evolved since the crisis;
- Financial oil market regulation: assessing the impact of Brexit and the new US Administration in light of recent global efforts to reform commodity market regulation;
- Developments in market structure, including impacts on commercial and floating storage.

An OPEC delegation regularly participates in both bi-annual International Monetary Fund (IMF)/World Bank (WB) meetings – the Spring Meetings in April and the Annual Meetings in October. This includes participation in meetings of the International Monetary and Financial Committee (IMFC) and G24 meetings. As a regular feature, on the occasion of the IMFC Meetings, the Secretariat provided written statements on the oil market to the distinguished delegates, highlighting OPEC's efforts in stabilizing the oil market and emphasizing its positive effect on the global economy.

In the IMF/WB Annual Meetings, the IMF provided an optimistic view about the short term. It was highlighted that the ongoing recovery was broadly based across countries and sectors, but that risks remain that could materialize in the medium term. Apart from the usual written statement, the Secretariat highlighted in both the IMFC Plenary and G24 Ministerial Meetings the efforts of OPEC and non-OPEC participating oil producing countries in stabilizing the oil market. The G24 also took note of this effort in its communique by reflecting that commodity prices are stabilizing.

OPEC's continued active participation in bilateral dialogues with different countries and groups, whether producers or consumers, continues to expand and flourish. The 2nd High-level Meeting of the OPEC-India Energy Dialogue took place in Vienna on 22 May 2017. This successful meeting addressed the state of affairs of the oil and energy markets, as well as other important issues such as trade between India and OPEC MCs. Furthermore, this meeting was followed by a technical meeting, which continued the discussion of the country's energy policies, growth potential and resulting significant energy demand.

The Secretariat has also been successful in maintaining the momentum of the energy dialogue with another major consumer – China. The Secretariat has been proactive and held the 2nd High-level Meeting of the OPEC-China Energy Dialogue on 12 December in Beijing. In advance of the meeting, Barkindo held bilateral talks with Nur Bekri, Vice Chairman of China's National Development and Reform Commission and Administrator of the National Energy Administration. Both sides reaffirmed the pivotal importance of the China-OPEC relationship, as it is central to the future of the oil industry. A series of options for enhancing cooperation on a technical level were agreed.

Furthermore, on 2 October 2017, the Secretariat hosted the 3rd Technical Meeting on Asian Energy and Oil Outlooks in Vienna. The meeting served as an invaluable platform for an Asia-wide focused discussion on current energy developments and prospects, including related policy milestones. As part of the OPEC-Asia Energy Dialogue initiative, the meeting provided for informal technical interaction among experts from major Asian countries, as well as the Economic Research Institute for ASEAN and East Asia on their energy and oil outlooks, as well as on regional energy and policy market analyses. The dedicated special session on road transport technology and fuels with invited experts from Japan and Europe contributed further to deliberations on this very pertinent theme.

The Sixth High-level Meeting of the OPEC-Russia Energy Dialogue was held on 31 May 2017 in Moscow. The Meeting was chaired by Alexander Novak, the Minister of Energy of the Russian Federation; Khalid A. Al-Falih, Minister of Energy, Industry and Mineral Resources, Kingdom of Saudi Arabia, and President of the OPEC Conference; and Mohammad Sanusi Barkindo, Secretary General of OPEC. Discussions at the meeting focused on the short-term oil market outlook, as well as prospects for the medium- and long-term outlooks. The deliberations also considered projections for non-OPEC supply in 2017 and 2018, as well as the key issues of road transportation and technology. Furthermore, a technical meeting was held on 20 June 2017 to deepen technical deliberations on these focus themes. The value of enhanced cooperation in joint studies and reports was underscored, and a project to conduct a joint study on road transportation with a scenario analysis on technology dimensions and impacts on oil demand was discussed.

Further to the Secretariat's interest in pursuing dialogues with producers, the engagement of the Secretariat with several government agencies and think tanks in the US, which started in December 2016, carried on during 2017. These included roundtable talks with major US independent and oil industry companies (5–6 March), major financial stakeholders (6 March), active participation in CERAWeek in Houston (6–10 March 2017) and a policy-level luncheon (9 March) at the Atlantic Council in Washington, DC. While contributing to a positive dynamic with US counterparts, these meetings also contributed to the enhancement of OPEC's image and that of the oil sector more generally. The Atlantic Council roundtable energy event in Washington DC, as a high-level policy gathering, provided an opportunity for valuable exchanges between oil companies and officials, leading international organizations in the field of energy, as well as prominent policymakers, including high-level officials from the new Administration.

The OPEC Secretariat has also conducted a long-standing lecture series with leading analysts, researchers and corporate executives, to allow for an active and timely exchange of views. In 2017, participants included BP's Group Chief Economist, Spencer Dale; Dietsmann's President and CEO, Peter Kütemann; Gabriel Sterne, Head of Global Macro Investor Services, Oxford Economics; and Nebojsa Nakicenovic, Deputy Director General/Deputy Chief Executive Officer of the International Institute for Applied Systems Analysis.

Environmental debate

The Paris Agreement and the UN 2030 Agenda for Sustainable Development are two important milestones in putting the world on a sustainable pathway, and energy – being the engine for growth – plays a critical role in enabling sustainable development.

The early enforcement of the Paris Agreement created pressure on the UN negotiation bodies to develop an operational mechanisms, known as the Paris rulebook, no later than November 2018, in order to enable its implementation. In this regard, the UN Framework Convention on Climate Change (UNFCCC) Parties should agree on the modalities, procedures and guidelines of the Paris Agreement; with the aim to achieve the objectives of the UN Convention and strengthen the global response to the threat of climate change in the context of sustainable development and efforts to eradicate poverty. To achieve the temperature target of the Paris Agreement, the Parties' participation as inscribed in their submitted nationally determined contributions (NDCs) are the anchor point for climate actions – many of which feature mitigation efforts focusing on the energy sector.

At the same time, the 2030 Agenda for Sustainable Development, underpinned by its 17 Sustainable Development Goals (SDGs), is in its early years of implementation, incorporating a holistic vision that aims to achieve economic well-being, social inclusion and environmental sustainability in an integrated manner. Energy has a prominent place in the 2030 Agenda as well, being fundamental to human development and a cross-cutting issue in socio-economic prosperity and environmental sustainability. Access to affordable, reliable, sustainable and modern energy is the focus of SDG 7.

In light of the above, the work of the EMU focused on the UNFCCC negotiation processes held in 2017. These were the Bonn Climate Change Conference held in May and the UN Climate Change Conference, which convened in November in Bonn (COP23). Prior to the May session, the Unit produced a modelling study, assessing Parties' NDCs with a focus on the potential impact on future energy demand and OPEC economies. In addition, EMU staff actively participated at the climate talks, organizing a coordination meeting in Bonn prior to the negotiations, as well as an *ad hoc* coordination meeting during the session at the request of MCs. In regards to COP23, the Unit developed a report in the run-up to the COP and organized a coordination meeting, aiming at assisting MC negotiators in their participation.

A Technical Workshop on the Transition from Intended Nationally Determined Contributions (INDCs) to Nationally Determined Contributions (NDCs) was also held with the objective to provide a valuable platform for discussions on actions and procedural mechanisms expected to implement the Paris Agreement, while focusing on the technical issues and legal processes involved when moving from INDCs to NDCs. Non-OPEC countries participating in the Declaration of Cooperation also attended. The technical workshop was the first of its kind, and was held at the request of OPEC MCs. The Secretariat expressed the desire to see this platform provide a base for similar meetings to address climate-related issues as they arise. It was stated that future collaboration should include the development of a knowledge network, platforms for dialogue, access to international experts and the possibility of conducting joint research studies.

Owing to the influential role of IPCC reports on climate negotiations, the Unit reviewed and submitted comments to the IPCC Secretariat on the first-order draft of the Special Report on Global Warming of 1.5°C – a report expected to form the main scientific basis for the 2018 facilitative dialogue. Moreover, EMU staff attended the 46th session of the IPCC, during which the Panel approved the outlines of the Working Group contributions to the Sixth Assessment Report.

OPEC publications

The OPEC *Monthly Oil Market Report (MOMR)* is the Secretariat's publication that focuses on short-term oil market developments. It represents the Organization's most viewed report and is frequently quoted and referred to by major media outlets, as well as a wide range of respected industry analysts. The *MOMR* contains ten chapters covering a wide range of information pertaining to the oil market, from oil prices and futures markets to commodity markets, the world economy, oil demand and supply, the downstream segment of refining and product markets, transportation, trade, oil inventories and the balance of supply and demand.

The feature articles in the *MOMR* provide concise and in-depth analyses of important events and outlooks, focussing on global oil demand, non-OPEC supply, summer and winter product markets, as well as the assessment of timely economic issues. The July *MOMR* and its feature article presented new forecasts for the economy, world oil demand and non-OPEC supply for the following year. In addition, feature articles reviewed crude and product prices and, of course, the assessment of global oil inventories, as a direct result of the difference between global oil supply and total world oil demand.

The OPEC website recorded a new record-high of 47,600 views for the February 2017 *MOMR*. For the year, website views averaged around 35,000 per monthly issue. A monthly podcast based on the report was also prepared.

The *World Oil Outlook (WOO),* in its 11th (2017) edition, highlights future developments in the oil and energy scene, and identifies the main challenges and opportunities facing the oil industry in the years to come. The 2017 edition of the *WOO* presented a comprehensive outlook for oil demand, supply and downstream developments for the medium (2016–2022) and long term (2022–2040).

Future developments in energy and oil markets will be driven by a number of factors, the critical ones including population growth, changing demographics, the assumed path of economic growth, policy changes, technology advancements and energy and oil prices. Global population is estimated to increase from 7.3 billion (bn) in 2015 to 9.2 bn in 2040, with the additional 1.8 bn people mainly coming from developing countries, causing the global gross domestic product between 2016 and 2040 to increase at an average rate of 3.5% per annum.

The evolution of energy markets is significantly impacted by government policies, which are used as mechanisms to stimulate change beyond purely market-driven forces. However, it can also be expected that technological advancements will continue to evolve and change the future energy panorama.

Total primary energy demand is forecast to increase by 96 million barrels of oil equivalent per day (mboe/d) between 2015 and 2040, rising from 276 mboe/d to 372 mboe/d. India and China are the two nations with the largest additional energy demand. At the global level, the largest contribution to future energy demand is projected to come from natural gas, reaching a level of 93 mboe/d by 2040. Renewables – consisting mainly of wind, photovoltaic, solar and geothermal energy – are projected to be by far the fastest-growing energy types with an average annual growth rate of 6.8%.

Oil and coal are projected to increase at much lower rates of 0.6% and 0.4% per annum, respectively. Nevertheless, fossil fuels will retain a dominant role in the global energy mix, although with a declining overall share from 81% in 2015 to 74% by 2040.

The medium-term oil demand outlook for the period 2016–2022 shows an increase of 6.9 million barrels per day (mb/d), rising from 95.4 mb/d to 102.3 mb/d. Long-term oil demand is expected to increase by 15.8 mb/d, rising from 95.4 mb/d in 2016 to 111.1 mb/d in 2040. China is anticipated to continue to be the largest oil consumer over the forecast period, adding 6 mb/d to reach 17.8 mb/d by 2040. India will be the region with the second largest overall demand growth, adding 5.9 mb/d between 2016 and 2040.

Most of the oil will be used for transportation purposes (road, aviation, marine, rail and domestic waterways). Demand in the road transportation sector is anticipated to increase by 5.4 mb/d over the forecast period. Increasing efficiency, changing driving behaviour and the penetration of alternative fuel vehicles, particularly electric vehicles (EVs) in China and India, will only partially curb demand growth.

Non-OPEC supply in the Reference Case is forecast to grow from 57 mb/d in 2016 to 62 mb/d in 2022. Of this, 3.8 mb/d, or 75%, stems from US oil production alone, with the tight oil sector expected to continue its recovery after its dramatic 2016 slump. The long-term forecast for non-OPEC supply is projected to decline by 0.3 mb/d in the 2020–2040 period, with US tight oil production estimated to peak in the latter half of the 2020s. In the Reference Case, demand for OPEC crude stays relatively flat until 2025. Thereafter, the call on OPEC crude production rises steadily, reaching 41.4 mb/d in 2040, or up 8.8 mb/d from 2016.

Around 7.6 mb/d of new refining capacity is likely to come online between 2017 and 2022, while 19.6 mb/d of new refining capacity is expected between 2017 and 2040. The majority of the new capacity is anticipated to be located in developing regions, supported by growing oil demand. At the global level, projections indicate the need to add some 10.7 mb/d of conversion units, 22.5 mb/d of desulphurization capacity and just above 5 mb/d of octane units in the period to 2040.

After its launch at the OPEC Secretariat on 7 November 2017, the interactive edition of the 2017 *WOO* was viewed more than 44,000 times up to the end of 2017. In the same period, the main *WOO* page had been visited more than 26,000 times.

The roll-out programme included presentations at the Abu Dhabi International Petroleum Exhibition and Conference (ADIPEC) in Abu Dhabi, the IEF Executive Board in Riyadh, the US Department of Energy, Energy Information Administration (EIA), the Centre for Strategic and International Studies and the International Monetary Fund (IMF) in Washington DC, and the CNPC Research Institute of Economics and Technology and the China Energy Research Institute in Beijing. A presentation of the *WOO* was additionally delivered during the 2nd High-level Meeting of the OPEC-China Energy Dialogue, also held in Beijing.

Since its first publication in 1965, the *Annual Statistical Bulletin (ASB)* has been a useful reference tool for research analysts and academics, as well as policy makers and many others working in the oil and gas industry. It makes data about the oil and gas industry available worldwide and also functions as an important source of reliable information for the benefit of different stakeholders in the oil industry. The

2017 *ASB* provided key statistical data for all of OPEC's 13 MCs — Algeria, Angola, Ecuador, Gabon, the Islamic Republic of Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates and Venezuela (the 53rd edition of the *ASB* will include data for Equatorial Guinea) — as well as their National Oil Companies. In addition, it provided useful information about other non-OPEC oil producing countries, bringing together important data on the upstream and downstream, exports, imports, production, refineries, pipelines and shipping. Through regularly publishing the *ASB* and making such data publicly available, OPEC seeks to ensure greater data transparency and increased sharing of information about the oil and gas industry and its many stakeholders. The 2017 edition of the *ASB* includes a separate interactive online version, which is freely available on the OPEC website and contains historical time-series data going back to 1960. The *ASB* is also available in a Smart App version, with many advanced features.

The *OPEC Energy Review (OER)* is a quarterly scientific journal that publishes original, peer-reviewed analytical papers on energy economics and related issues, such as economic development and the environment. The principal objective of the *OER* is to provide an important forum that will contribute to the broadening of awareness of these issues through an intellectual exchange of ideas.

Internal reports, studies and workshops

In 2017, the Division continued its research into energy-related subjects and produced a number of reports and studies addressing questions related to future market development, technology and policy.

"Energy policies in the road transportation sector" focused on taxation and regulation to discourage the consumption of conventional fuels, in combination with tangible and intangible incentives to influence the adoption of unconventional modes of transportation. For the purpose of this study, policies relating to light-duty passenger vehicles in four major consuming regions were reviewed: the US, the EU, China and India.

Markets for alternative fuel vehicles (AFV) show continuous growth, particularly for EVs. Faster electric car uptake is mostly happening in nine countries and 14 big cities with 1.5% of the global population, but accounted for 32% of new EVs in 2015. Nevertheless, projected oil consumption for the road transportation sector shows continuous growth up to 2040 with different regional patterns.

The generation of electricity in the world will continue to increase and, within the coming decades, more electrical power will be distributed to the residential, industrial, service and transportation sectors worldwide. OECD countries, with more abundant infrastructure, will have a lower share in this growth, while non-OECD countries, particularly India and China, will lead in electricity generation in the medium to long term. Coal's input to power plants retains significant weight, while India, China, OPEC MCs and other African and Middle Eastern countries account for most of the increase in gas-fired plants. Hydroelectricity remains a reliable source of power globally, and nuclear generation is projected to grow steadily.

"Drivers of tight oil and gas in the US with a special focus on tight oil in the Permian Basin" emphasizes that the US is by far the world's major producer of tight oil in commercially viable quantities. The main drivers are the US political system and its need for energy security, functional/efficient capital markets, technological innovation, expertise, fiscal policy and rights to hydrocarbons, efficiency gains and the breakeven price of tight

oil, among others. The oil rig count is no longer the only measure of production in the US. The Permian Basin is one of the major drivers of tight oil in the US, proving its resilience in the face of low oil prices

The *"Oil Downstream Outlook to 2040: The WORLD Report outlook"* covers a forecast horizon to 2040; 7.6 mb/d of new distillation capacity will be added globally in the period 2016–2022. Cumulative total additions (including assessed projects) are expected to reach 19.6 mb/d by 2040. While the US, Canada and Europe show significant drops in refinery crude runs, all developing regions are expected to see gains. The trend toward higher levels of secondary processing is driven by long-term growth in demand for light clean products combined with flat to declining residual fuel demand. Global refining investment requirements are estimated at $1.5 trillion up to 2040. In 2040, overall crude oil movements are expected to reach levels of around 44 mb/d.

A technical presentation on *"Technology advancement in oil upstream and downstream sectors"* highlights the importance of technology advances in the case of tight oil, especially in optical sensing methods with glass fibres and the Big Data approach to analysing the vast amount of information gathered therewith. The so-called transparent soil derived may allow for far more efficient access to cited tight oil reserves in the long term. As electric mobility is currently the most important topic in the downstream sector, reasons why powertrain electrification is irreversible are presented, both from an historical, as well as technical point of view. The co-existence of a broad variety of transport technologies is the most likely consequence of optimized internal combustion engines in the distant future.

"The Analysis of (Intended) Nationally Determined Contributions, (I)NDCs: Part 2 – Model-based Assessment" is the second product of research undertaken by the EMU on the impact of UNFCCC Party contributions (NDCs) for the implementation of the Paris Agreement on oil demand and OPEC economies. This study was intended to provide a quantitative analysis of possible paths to address the mitigation deficit between what was announced under the (I)NDCs and what is required to meet the Agreement's 2°C temperature target. Due consideration is given to different mitigation strategies/pathways that may be pursued by Parties, with the aim of understanding any possible impacts on future energy demand and the energy mix.

The study *"Energy poverty in Africa"* reviews the progress made in ensuring energy access to all, also providing an overview of the status of energy in Africa, including resources and electricity-generation capacity, the energy mix and share of renewable energy sources, as well as energy intensity improvements and investment needs. To this end, the study highlights the challenges and constraints facing African countries in achieving SDG 7, aiming also to increase awareness about the potential role of oil in closing the energy access gap in Africa. Moreover, the analysis includes background information on the 2030 Agenda for Sustainable Development, briefly discussing the SDGs – capturing key highlights in the context of their implementation and presenting their interconnected nature along with recent actions undertaken by the High-Level Political Forum.

The study *"The Run-up to COP23/CMP13/CMA1-2: Negotiation issues in Bonn"* aims to increase awareness about issues of importance to the collective interest of OPEC MCs, providing an analysis of the main negotiation issues in 2017 and in the run-up to the COP. The study provides background information on the Paris Agreement, briefly discussing its ratification status, as well as the decision of the US Administration to exercise its right to withdraw from the Agreement. The priorities of the COP23 presidency are also presented, along with an overview of the negotiations undertaken by the UN negotiation bodies and of the progress made in regards to organization of the facilitative dialogue. The study finally considers the key findings of the first-order draft of the *"IPCC Special Report on Global Warming of 1.5°C"*.

The *"Report of the OPEC MCs' Coordination Meeting prior to the Bonn Climate Change Conference, May 2017"* builds on discussions held during the coordination meeting that was organized in Bonn on the occasion of the May session. It summarizes the findings and messages of the presentations delivered during this event and includes key conclusions and recommendations for OPEC MC representatives in order to facilitate their participation in official talks.

The *"Report of the Ad hoc OPEC MCs' Coordination Meeting at the Bonn Climate Change Conference, May 2017"* summarizes the discussions of this event at the request of MCs. Given the uncertainties prevailing in regards to the future direction of the Paris Agreement upon its full implementation and its potential impact on the collective interests of MCs, the report highlights the importance of preparedness to defend OPEC interests, as well as the critical role of the OPEC Secretariat in supporting MCs in their effective participation in climate change negotiations.

Following the views expressed by MC representatives during the Coordination Meeting held in October, and the ensuing discussions, the *"Report of the OPEC MCs' Coordination Meeting in the Run-up to COP23/CMP13/CMA1-2"* was produced. In this report, the latest developments in climate change negotiations were discussed, as well as the uncertainties prevailing about whether all UNFCCC Parties will remain committed to the cause. The key messages of a session on the 2030 Agenda for Sustainable Development and matters related to energy poverty in Africa are also briefly presented, followed by the major findings of the latest IPCC products. The report concludes by listing the key elements and recommendations of discussions held during this event.

Additionally, regular daily and weekly reports were prepared, providing a concise and timely summary of oil market trading news and other relevant headlines directly related to short-term market developments. Similarly, a wide range of *ad hoc* briefings and background papers were prepared on short-term issues, such as:

- Assessing economic developments and their impact on oil demand;
- The development of non-OPEC supply with a special focus on the impact of the Declaration of Cooperation;
- Changes in refining systems;
- Shifts in transportation and trade;
- Oil producing companies' hedging profiles;
- Assessment of and perceived changes in the oil price cycles.

In support of these reports and studies, the RD has held dedicated workshops on key topical issues. In 2017, a Workshop on Energy Efficiency was held with OPEC MCs on 25 January at the OPEC Secretariat, with a focus on the road transportation sector. Separately, a Modelling Experts' Meeting was held on 12 September to benefit from the engagement of OPEC MC experts to support and enhance the Secretariat's quantitative analysis and utilization of integrated modelling systems in research programmes of the RD.

Database and communications

In 2017, the statistical, development and information centre teams provided data services to the Organization and its MCs. The statistical databases were updated and maintained to extend coverage. Data quality was also improved through continued automation of data processing and validation. The Secretariat's databases were expanded to include information of Equatorial Guinea, which joined OPEC on 25 May 2017.

New applications were launched over the course of the year, such as the new procurement system, which introduced automation along with digitization of document processing and notifications. All databases were unified under one server to minimize maintenance costs. Execution of the Information Security Programme was started to provide OPEC with a regulatory framework for information management. The statistical reports presentation was improved through its redesign. The redesign of OPEC financial applications continued growing to include new functionalities.

The Big Data project was started, with the general idea launched during the 3rd GCC Petroleum Media Forum in Abu Dhabi on 19–20 April 2017. Phase 2 of the project, scheduled to be completed in 2018, aims to create a user-friendly interface, incorporate fundamental oil data such as demand, production and trade, and introduce basic analytical methods.

The 16th Annual Statistical Meeting (ASM) was held at the OPEC Secretariat in Vienna on 26–27 April 2017. The main aim of the ASM was to continue the ongoing process of improving the flow of regular oil, gas and other energy-related statistical data submitted directly by MCs to the Secretariat, and to exchange technical knowledge/experience with MCs regarding energy databank management practices and the utilization of the Secretariat's statistical database. The 1st Technical Meeting on the Improvement of the Annual Questionnaire was held at the OPEC Secretariat in Vienna on 4–5 October 2017. The main aim of this meeting was to present the new structure of OPEC's Annual Questionnaire (AQ) to MC representatives and to discuss with them proposed alterations to the AQ.

In 2017, the Information Centre (IC) assisted staff members, as well as other users by providing research support, offering electronic delivery of selected information and fulfilling reference and helpdesk requests. The IC continued developing its print and digital collection during the year through the purchase of books and reports, as well as its management of subscriptions to online databases, reports, journals and newspapers.

During the last quarter of 2017, the IC undertook a review process of subscriptions with a focus on centralization, cost and usage efficiency. Numerous titles were transformed from print to online format, and more online content was offered on an IC web page.

Collaboration with other libraries in terms of resource sharing and intensifying of ILL (Interlibrary Loan) was initiated. The IC also provided support to delegates and analysts from MCs, as well as researchers from academic institutions, international organizations and students in their research endeavours throughout the year.

Training and knowledge transfer

The 17th Multi-Disciplinary Training Course (MDTC) was held at the OPEC Secretariat on 20–24 February 2017. This one-week training course offers high-potential, mid-level professionals from OPEC MCs an opportunity to learn about the structures and function of various departments at the Secretariat and gain insight into the oil market. Participants also learned about the latest developments in many areas essential to the oil industry, including technologies with potential impacts on future energy markets, short-term fundamentals and energy modelling, as well as long-term and multilateral issues related to the market.

The Visiting Research Fellow Programme (VRFP) provides an innovative approach to human capacity development and is designed to help professionals from OPEC MCs improve their research expertise and technical skills in relation to an array of energy-related issues. It does this by providing participants with the opportunity to become involved in the Secretariat's research operation through practical experience and 'learning by doing'. The following studies were undertaken this year:

"International Oil Pricing Benchmarks" studied benchmarks with regard to their continued relevance and sustainability. The potential for new benchmarks was explored, including the plan of the Shanghai International Energy Exchange to launch a crude oil futures contract that would be settled in yuan and convertible into gold.

In a separate study, the impact of interest rate adjustments on speculative activities in the crude oil financial market, as well as the behaviour of various speculator groups was analysed and linked to federal fund rate changes, which showed a negative relationship between speculative activity and shocks in the federal fund rate.

The study *"Review of US Energy Policy Developments in the Trump Administration: Implications for the Oil Industry"* provided a closer look at US energy policy developments since the 1970s and how Trump's energy policy differs. It uses qualitative risk management and risk assessment techniques to investigate if and how US energy policy developments in the Trump Administration may impact the global oil industry. The study shows that the reversal or loosening of environmental standards is anticipated by experts to have the least impact on the oil industry compared with other policies.

"*Impact of the OPEC and non-OPEC Agreement (Declaration of Cooperation) on Russian Energy Policies and Implications for the Oil Market*" concluded that the decisions taken will have positive energy and economic impacts in Russia, both in the medium and the long term. The study also states that the benefits will trickle down to the global oil market as the country adjusts to the decision and the provisions of its energy policy.

The study "*Vehicle Fleet Electrification and its Impact on the Future of Oil Demand*" concludes that what was once the aspiration of one or two niche car makers has become a central element in the strategies of virtually all of the world's major manufacturers. At the heart of these developments are major improvements in battery technology and manufacturing.

According to "*The Outlook for US Shale Gas and the Impact on the International Gas Market*", the exponential increase in US shale gas production and its forecast must be analysed, and the amount of gas that will be exported as liquefied natural gas (LNG) must be taken into account in order to properly assess possible impacts on the international market. The evolution and projection of LNG capacity are considered, and the impact of US shale gas production on the international market is exposed.

PR and Information Department

The year 2017 was a very busy one for the Public Relations and Information Department (PRID). The heavy schedule which started in the second half of 2016 and led up to the signing of the historical Declaration of Cooperation on 10 December 2016 continued throughout 2017, as the Declaration of Cooperation navigated its first year. In addition to the very great amount of travel undertaken by the OPEC Secretariat General and visits received over the year, several new meetings were added to the OPEC's yearly activities in connection with the Declaration of Cooperation. These included regular meetings throughout the year of the JMMC and the JTC which came to life under the Declaration of Cooperation, and which required extensive support by PRID staff.

Once again PRID focused on efforts to enhance OPEC's public image through the targeting of specific areas and outputs. This was reflected in the Department's manifold activities.

Improving and enriching the image of the Organization is one of the key challenges identified in OPEC's most recent Long-Term Strategy (LTS). This has thus been a focus of PRID activities, as the Department has sought to carry out many different tasks – from editorial writing and speechwriting, to public relations and outreach programmes, to the design, editing and production of materials and publications, to audio-visual activities, workshops and the distribution of key publications. In all its activities, PRID ensured that the Organization was presented to the public in a positive and desirable manner.

In the course of working towards the achievement of its departmental priorities, and in the pursuit of specific areas and the generation of high-quality output, PRID contributed to the development and fine-tuning of the Secretariat's message. It has done this by helping to ensure that in its documents and publications, as well as in the presentations made to visitors and other groups, and in the speeches, statements and interventions delivered by the Secretary General and others, the themes of 'openness and transparency', 'dialogue and cooperation' and 'stability and security' are consistently included. These various but interrelated themes, which make up a great part of the Secretariat's overall message, were widely disseminated through different media and in a variety of formats throughout 2017.

Although PRID was primarily responsible for editing, designing, producing, printing and distributing materials, the content of this output varied greatly, depending on publication type. There was especially close cooperation between PRID and the Secretariat's Research Division (RD) in the area of publications throughout the year. In addition, the work of PRID required close cooperation with other Departments and Units. These included the SGO, the LO, the EMU, the DSD, the PSD and the ESD, as well as MCs themselves. In 2017, all Departments within the Secretariat benefitted in one way or another from the expertise of PRID's three sub-sections – editorial, public relations (including audio-visual), and design and production.

Editorial Section

Much of the efforts of the Editorial Unit in 2017 were focussed on directly supporting the

OPEC Secretary General and other Members of Management in carrying out their duties through the provision of speeches, press releases, news items, video scripts, background information for interviews and commentaries and managing the press. There were also many articles written for various magazines, as well as for the Organization's own magazine, the *OPEC Bulletin*. Additionally, a great deal of time and effort in 2017 was spent editing, revising and proofreading research documents, presentations and reports and offering support at various meetings.

Speeches and statements

In 2017, more than 115 speeches were written for the Secretary General, the Director of the RD and other OPEC officials compared with about 75 the year before.

The Secretary General attended numerous major industry events throughout the year and delivered keynote speeches, statements and interventions at, *inter alia*, the Atlantic Council's 1st annual Global Energy Forum in Abu Dhabi (Abu Dhabi, United Arab Emirates); The World Economic Forum (Davos, Switzerland); the First IEF-EU Energy Day (Riyadh, Saudi Arabia); International Petroleum Week (London, UK); 17th Nigeria Oil and Gas Conference and Exhibition (Abuja, Nigeria); CERA Week 2017 (Houston, Texas); 3rd Iraq Energy Forum (Baghdad, Iraq); 3rd Petroleum Media Forum (Abu Dhabi, United Arab Emirates); 18th International Oil Summit (Paris, France); 21st St. Petersburg International Economic Forum (St. Petersburg, the Russian Federation); 22nd World Petroleum Congress (Istanbul, Turkey); the Oxford Energy Seminar (London, UK); 33rd Asia-Pacific Petroleum Conference (via video Singapore); Russia Energy Week 2017 (Moscow, the Russian Federation); India Regional CERA Week Forum (New Dehli, India); Reuters Energy Summit (via video London, UK); the Kuwait Oil and Gas Show and Conference (Kuwait City, Kuwait); Oil and Money Conference (London, UK); Oil and Gas Climate Initiative (London, UK), ADIPEC (Abu Dhabi, United Arab Emirates); UNFCCC COP 23 (Bonn, Germany); 21st Lustrum Symposium (Delft, the Netherlands); and 2018 International Oil and Gas Executive Forum (Beijing, China).

Speeches, statements and interventions delivered at these events were well received by participants and the media, given how much they were reported, analyzed and quoted. The subsequent publication of many of these on the OPEC website continues to be very useful in generating traffic, attracting positive coverage and disseminating the Secretariat's message.

Additionally, the Secretary General held private meetings with the CEOs and top management of Eni, Total, Exxon Mobil, BP, ConocoPhillips, Statoil, Pemex, Hess Corp and Saudi Aramco. He also had meetings with Patricia Espinosa, Executive Secretary of the UN Framework Convention on Climate Change (UNFCCC), and Deputy Secretary-General of the United Nations (UN), Amina J. Mohammed.

In 2017, guest editorials, articles and Q&As were provided for the following publications: Petroleum Review; the official publication of the 22nd World Petroleum Congress; the Oil and Gas Vertical; Energia; Asian Ministerial Energy Roundtable; Petroleum Economist; The Business Year Qatar; Oil and Gas Year Abu Dhabi; and Trend News Agency.

PRID also worked closely with RD to produce speeches for various conferences, seminars, workshops and meetings. These messages were delivered by the Secretary General, senior OPEC officials, as well as high-level members of MC delegations, and representatives from all sectors of the energy industry, as well as government, academia and the media.

The Organization's media exposure continues to increase globally through the Secretary General's many appearances and interventions, as well as through the Secretariat's ongoing research and public relations activities.

JMMC and JTC

There was an increase in the number of assigned tasks to provide the necessary editorial and speechwriting support for the 11 JTC and six JMMC meetings which took place in 2017. The editorial team prepared speeches for the Secretary General, the Chairman of the JMMC and the President of the Conference for these occasions; drafted press releases for each monthly meeting, as well as the special session of the JTC which took place in the United Arab Emirates on 8 August; and provided editorial assistance for the finalization of committee reports. Furthermore, special features were prepared for the OPEC Bulletin on all JMMC meetings throughout the year, as well as an in-depth feature looking at the history and evolution of the Committee in the Special Anniversary of the Declaration of Cooperation edition of the *Bulletin*.

Special events

The 2nd OPEC-China High Level Energy Dialogue took place on 12 December, the first iteration of that forum to be convened since 2005. The Secretary General also spoke at the International Energy Executive Forum in Beijing on 13 December, delivering a keynote address. The editorial team prepared the necessary speeches, press release and joint conclusion for this high-level mission.

For the first time in its history, OPEC participated in an international exposition organized by the Bureau International des Expositions. Expo 2017 took place in Astana, Kazakhstan and OPEC held a 'special day' on 5 September 2017. As Kazakhstan is a signatory to the Declaration of Cooperation, the Expo was an opportunity to celebrate the enduring bonds of friendship between Kazakhstan and OPEC. Two press releases, a speech and a feature article for the *OPEC Bulletin* were prepared.

OPEC also participated in the Iran International Oil, Gas, Refining and Petrochemical Exhibition (Iran Oil Show 2017) from 6–10 May for the fifth time in Tehran, IR Iran. During the exhibition, the OPEC booth was visited by many people, who learned about OPEC activities in the field of international oil policies. The booth was designed based on Iranian-Islamic architectural elements, as well as elements highlighting the Organization's mission, and the unique status and role of OPEC in oil market stability and world oil balance and security. It was placed in the National Iranian Oil Company's VIP hall and decorated with flags from MCs and OPEC.

The OPEC Secretary General participated in a ministerial panel discussion in Kuwait during that country's 3rd Kuwait Oil and Gas Show and Conference (KOGS 2017) from 15–18 October, held under the theme "Shaping the Energy Future: Integration and Diversification". The Secretary General was joined by HE Issam Almarzooq, Kuwait's Minister of Oil and Minister of Electricity and Water, and former OPEC Director, Research Division and former Acting Secretary General, Dr Adnan Shihab-Eldin. Representatives from more than 200 international organizations from 20 countries attended. OPEC was one of the many international exhibitors, occupying a booth in the central hall. Three members of the OPEC

Secretariat's Public Relations and Information Department attended.

Publications

OPEC publications in 2017 included the regularly produced *Monthly Oil Market Report*, which is closely followed by the oil industry, as well as many other external and internal documents. Editorial staff also attended various meetings and assisted in drafting internal write-ups and reports. They produced articles, as needed, based on these meetings for OPEC's monthly magazine, the *OPEC Bulletin*. In addition, staff produced content for the OPEC website, including press releases and news items, and assisted in providing editorial advice and input of various kinds for other Departments within the Secretariat upon request throughout the year. Editorial staff travelled to various industry events, generating articles and providing coverage for both the website and the *Bulletin*.

The annual *OPEC Diary* has become a regular feature of PRID's *Annual Work Programme*. The editorial content for this publication is generated and edited by PRID. In addition, the *Annual Statistical Bulletin* (*ASB*) continues to be published annually, providing accurate, reliable and timely historical data on various aspects of the global oil and gas industry. The *World Oil Outlook* (*WOO*) came out for the 11th time in 2017. The document has become a useful reference tool for people in the industry, and interactive versions of the *WOO* have been available for a few years.

The *OER*, OPEC's academic quarterly, celebrated its 41st year of publication in 2017. The *OER* marked its 40th anniversary in 2016 in part by re-organizing and re-composing its Editorial Board, and expanding its online presence through the use of social media. The *OER* continues to use the 'ScholarOne' portal, in collaboration with academic publisher, Wiley-Blackwell, in order to facilitate the process of manuscript submissions and reviews. It also continues to seek new ways of reaching audiences and prospective contributors. The *OER* has also started to produce occasional 'special editions' with specific thematic content. The first of these special editions was published in December 2015, under the theme "oil demand in the transport sector". A second special edition appeared in December 2016 with the theme, "the impact of the oil price on the global economy". These special editions, which bring different perspectives from different fields together, have been well received.

The monthly *OPEC Bulletin* continued to highlight the activities of the Secretariat and the Organization's MCs. Its coverage is comprised of articles of interest on various topical issues, as well as informative analytical features. In 2017, the *Bulletin* included a total of around 180 articles and features, the majority of which were drafted by editorial staff.

Of note in 2017 were articles on the following topics: in January-February, road transportation, the passing of Iranian Founding Father Rafsanjani, public transport and sports in the United Arab Emirates, and Venezuela's virtuoso Gustavo Dudamel; in March-April the OPEC Secretary General's first visit home, OPEC's 1st litigation seminar, human resources, Iraq's cultural heritage; for May, June, July coverage of the Iran Oil Show 2017, the vision of Mark Papa, BP's chief economist's views, managing used lubricating oils, the Lamido of the Adamawa Emirate, flying in Saudi Arabia, music in Vienna; in August-September the 22nd World Petroleum Congress in Istanbul, feature on new member Equatorial Guinea, Isfahan oil refinery, the changing face of OPEC media coverage, oil industry journalist Walid Khadduri, football in Venezuela; in October the 2017 Expo in Astana, Kazakhstan, feature on Isfahan, IR Iran. The November edition was special *Bulletin* dedicated to the 1st anniversary of the Declaration of Cooperation and included interviews with OPEC oil ministers, a review of the history of the Declaration of Cooperation, coverage of the JMMC and the JTC, profiles of non-OPEC Members to the Declaration of Cooperation, a feature on Vienna and coverage of the KOGS 2017.

In addition to this, there was regular coverage of JMMC meetings, and a series called Focus on Cities which explored Oran, Algeria; Diriyah, Saudi Arabia; Luanda, Angola; Guayaquil, Ecuador; Malabo, Equatorial Guinea and Libreville, Gabon.

Media relations and news monitoring

Another tool used to help improve and enhance the image of the Organization was media relations, which includes the coordination of media coverage through one-on-one interviews with the Secretary General, press conferences and briefings, speeches and statements, as well as the pro-active seeking of further networking opportunities among media outlets and journalists. This approach to media attention and coverage has helped ensure that journalists have better and more timely information about – as well as better understanding of – the Organization's activities, which has served to improve overall coverage of OPEC.

Media briefings and exclusive interviews were provided for international press at various events throughout the year. These included briefings and interviews with many members of the press from such renowned organizations such as: Al Jazeera, CNBC, Platts, Wall Street Journal and Dow Jones newswires, Energy Intelligence, Handelsblatt, the Middle East Economic Survey, PRESS TV, Ria Novosti, Russia Today, Russia 24, Sky News Arabia, Sputnik News, Tass news agency, Vedmosti, Al Arabiya, Bloomberg, Bloomberg TV, CNN, Reuters, The National, Gulf News, United Arab Emirates local media, Turkish local media, Indian local media, the BBC Persia (TV), Argus, Financial Times, Marketwatch, the Petroleum Economist, Trend News Agency, Kuwait local media, Iraqi local media, Chinese local media, Energy Voice, Oil Review Africa, Gulf Energy News, AFP, Andalou Agency, and BBC Hausa.

The editorial staff also provided background information upon request to many journalists from various media outlets, as well as contextual information for the Secretary General for various interviews and bilateral meetings. Press briefings and other media-related contributions included those undertaken at the 18th International Oil Summit, IP Week, Oil and Money and CERA Week.

The editorial section continued in 2017 to produce the Daily News Summary. This mailing/publication, which is distributed internally by e-mail, serves to provide a quick overview every weekday morning of the latest energy-related news. It aims to help Secretariat staff stay informed about coverage of MCs by Reuters and other wire services, as well as any other relevant topics.

Public Relations

As part of achieving OPEC's strategy, aims and objectives, and as part of PRID's overall work programme, the PR unit has conducted many activities to reach a wider and more varied audience, raising awareness about OPEC, enhancing its image and perspectives, and addressing any misconceptions about the Organization.

Conference preparations

Press accreditation: During OPEC Conferences and main events, the Organization receives a large number of journalists, analysts and others from the industry who are eager to attend such events personally and witness the unfolding of history, in addition to meeting decision-makers within the Organization and its MCs. A special area on the OPEC webpage has been designed for accreditation requests with an application form. The details of each request are checked and applicants are separated into groups to which badges are then issued permitting them to enter the Secretariat so they may cover events and talk to OPEC Ministers and the Secretary General.

Before and during each Conference, PR staff work together with Administration to facilitate Conference organization and logistics regarding visitors – including the press and analysts from all over the world – in terms of applications, permission and badges. In addition to that, the PR team attends to journalists requests and needs during and after the meeting, and provides an adequate working environment for journalists and analysts within the press conference room, as well as assisting in coordinating interviews with the Secretary General and Ministers from MCs, upon request.

Outreach programme

As part of achieving OPEC's strategy, aims and objectives, and as part of PRID's work programme, the PR unit has conducted many activities under the umbrella of the *Outreach Programme* to reach a wider audience, raising awareness of OPEC, enhancing its image and perspectives, and addressing any misconceptions about the Organization.

The outreach programme focused on the local community and host country Austria. The main purpose of the outreach programme is to have two-way communication with the local community in order to achieve overall organizational objectives, mainly those related to raising awareness about the Organization's mission, enhancing perception and creating support within the host country, Austria.

The programme has so far focused on the following areas:

1. Education
2. International community events
3. City of Vienna

The PR unit receives many enquiries and requests from the general public, as well as from MCs, regarding the provision of audiovisual material and publications, and answers many questions related to OPEC activities, as well as distributing background information.

The main activities conducted in 2017 are summarized as follows:

Briefing programme

Briefings are important in establishing two-way communication with the public, receiving opportunities to uncover how the public perceives OPEC and how to better address such perceptions, as well as raising awareness about the objectives and goals of the Organization and promoting the Organization's publications. They also provide an opportunity to disseminate the Organization's key messages and create a better understanding of the Organization's decisions and actions.

The briefing programme identifies the target groups for a particular year. The PR team then sends invitations to different audiences with various backgrounds and knowledge. Upon receiving an online request, the team identifies the goals and messages to be disseminated on a particular visit, depending on a group's background and knowledge of both the industry and OPEC. Briefings start with an introduction and brainstorming session, followed by a general presentation about OPEC, the screening of various films produced by the PR Unit and conclude with a Q&A session. A group picture is usually taken during such visits and a guided tour through the Main Conference Room is offered, depending on availability and time. A survey is also conducted and filled out by the group to enable PRID to improve and address any other expectations. The briefing programme normally lasts between 1.5 to 2 hours.

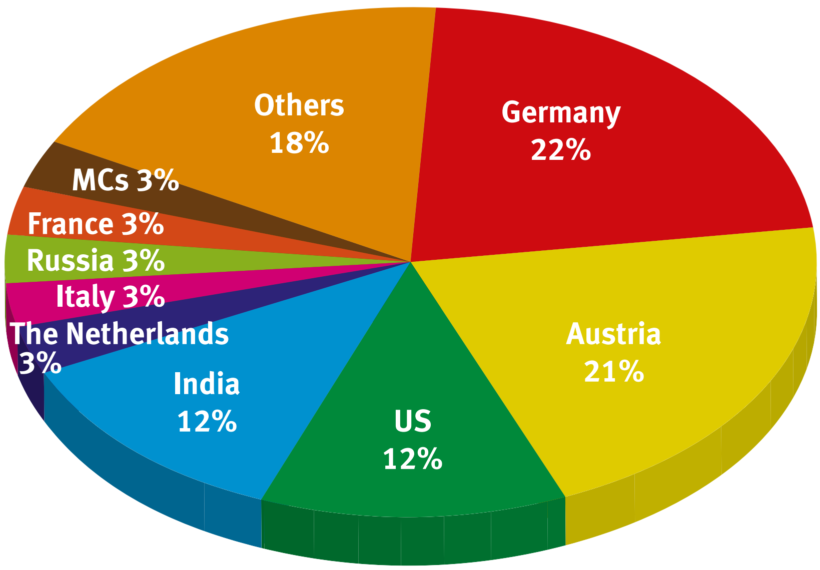
In 2017, a total number of 2,397 visitors were received, compared with 1,684 in 2016, including joint presentations with other Departments – primarily the RD, Human Resources and the Legal Office. The PR team conducted more than 99 briefings (including one online with the University of Kuwait) and visitors came to the Secretariat from 28 different countries and from both the public and private sector, as well as from government ministries, universities, schools and research institutes, other organizations and MCs' national oil companies. Individuals were also received. The age of visitors ranged from 8–78 and they came from a variety of backgrounds.

Visits

During 2017, more than 15 schools and universities were contacted for a briefing/visit. Due to a heavy schedule, only one visit was possible to Montan University, based in Leoben, Austria. Two other visits were conducted at the university over the past years as part of the OPEC Outreach Programme and in support of youth in general and future petroleum engineers in particular. The university is considered one of the top-ranking mining and petroleum engineering universities in Europe and has around 3,700 students. It recently celebrated its 175th birthday.

The PR unit has also identified various events, such as the Deutsche Bank Confer-

OPEC briefings
28 countries / 99 briefings / 2,397 visitors



ence, where the Secretariat could achieve its objectives through potential participation, providing a general presentation about the Organization's history, mission and its MCs.

Workshops, seminars and exhibitions

A very important task performed by the PR Unit is representation of the Organization at different events, both inside and outside of Austria. OPEC publications are displayed at such events, where opportunities routinely present themselves for OPEC staff to explain the role and work of the Organization in the oil industry and to provide information about its MCs.

These events are attended by high-level delegations and petroleum leaders. To this end, the Secretariat regularly arranges for a booth to be located at such events, which is staffed by PRID members. These events also provide an opportunity for direct, face-to-face interaction with both the public and high-level officials. They further allow individuals to have a closer look at specific activities undertaken by OPEC.

Science and Engineering Fair: As part of the Outreach Programme, OPEC sponsored the Science and Engineering Fair as an exhibitor, displaying important publications and playing the film "Instrument of Change". In an attempt to raise awareness and enhance knowledge about the Organization in general and the oil industry in particular, the PR team also conducted a short quiz about OPEC and the oil industry, inviting students to participate. Students used the film and OPEC publications to answer questions. OPEC's stand was well attended and visited by students, teachers, parents, judges and staff members from OPEC, OFID, the International Atomic Energy Agency and other local organizations.

United Nations Women's Guild Bazaar: As part of promoting the Organization's aims and objectives within the outreach programme, this charity event was identified as a good opportunity to achieve its goals. The event was attended by many embassies and diplomatic bodies in Austria, including OPEC MC embassies. It attracted more than 2,500 visitors from both the international and local communities. OPEC's participation was highlighted in publications and documented in the event's programme and activities at this UN-organized event.

Webster University (WubMUN Conference): OPEC has participated as a platinum sponsor in this event, at which OPEC's flagship publications, corporate presents and other related material were donated. Participation underlines OPEC's role in supporting youth in particular and educational events in general.

Expo 2017: As part of PRID's continuous effort to promote a positive and desirable image of the Organisation, the Public Relations and Information Department participated at Expo 2017 Astana.

Commissioned by the Bureau International des Expositions, the globally-renowned event took place between 10 June and 10 September 2017, in the capital of Kazakhstan, Astana, where 115 countries, 22 international organisations and dozens of private entities were present, including OPEC's sister organization, the OPEC Fund for International Development (OFID).

The participation of OPEC was comprised mainly of running a dedicated stand on a daily basis and hosting OPEC Special Day. Throughout the exhibition, the stand attracted a great number of visitors of various background, race, ethnicity and age groups, aiming to increase awareness and inform the mass public of the Organisations' objectives, mission, history, in addition to providing information of great importance and relevance.

Additionally, OPEC publications were showcased at the stand and provided for visitors. The film "Instrument of Change", which presents OPEC's history, aim and mission, and was produced by PRID's AV team, was displayed regularly to stand visitors, who also received OPEC gifts.

On 4 September OPEC held its Special Day as part of its participation in the exhibition, for which an OPEC delegation, headed by the Head of OPEC's Public Relation and Information Department, Hasan Hafidh, travelled to Astana.

The OPEC delegation and Kazakhstani counterparts used the opportunity to solidify the already-strong relations between the Organisation and the oil-producing country. They also emphasized the importance of the landmark Declaration of Cooperation, of which Kazakhstan is a participant. It contributed significantly to the intensive dialogue that preceded the realization of the decision.

The Organisation's delegation was invited to visit Nur Alem – a mega sphere used to present the host country's exceptional history, promising present and bright future. The visit was followed by a working lunch, courtesy of the host country, where both delegations enjoyed Kazakhstan's traditional food and classic music.

OPEC concluded its Special Day by hosting a reception. A number of dignitaries and respected officials were invited to the Special Day, including Tor Fjaeran, President of the World Petroleum Council's (WPC) Executive Committee, Pierce Riemer, WPC's Director General, Ulrike von Lonski, WPC's Director of Communication, in addition to several ambassadors of OPEC MCs to Kazakhstan.

A number of OPEC MCs also participated in Expo 2017 Astana, namely Algeria, Angola, Gabon, IR Iran, Qatar, Saudi Arabia, United Arab Emirates and Venezuela. While the pavilions of participating MC varied, they presented their heritage and innovation in the field of energy in outstanding fashion.

Organizing Member Country cultural events

The PR Unit organized the visit to the OPEC Secretariat of the Simon Bolivar Symphony Orchestra, led by Venezuelan Virtuoso Gustavo Dudamel. This was followed by another concert at the OPEC Secretariat, conducted by the El Sistema, comprising young Venezuelan musicians.

OPEC Diary, news monitoring publications

The *OPEC Diary* is an annual publication that the PR team produces to reach the public, targeting between 3,000–4,000 recipients from producing countries (including OPEC MCs), consuming countries, embassies, research institutes, academia, national oil companies, international oil companies, international organizations (including OFID and OPEC employees), and others. The Diary includes some useful information about OPEC and its MCs.

News monitoring

What the Papers Say (*WTPS*) continues to be produced daily. It is prepared on the basis of two reports received morning and afternoon from trusted news providers. The content of the *WTPS* includes news about energy in general, as well as petroleum, OPEC and its MCs, and a selection of the most important and informative articles from the international media. The *WTPS* is distributed to OPEC officials (Ministers, Governors and National Representatives) in addition to the Secretary General, Secretariat staff and some outside members from the industry upon request.

Distribution of publications

Distribution of printed materials plays a very important role in disseminating information about the Organization's activities. To this end, PRID continued to review and update mailing lists and distribution networks for key publications, with additional input and more rigorous review recommended in order to expand and strengthen these. Mailing lists included the media, press analysts, news agencies, banks, investment companies, universities, government institutions and more. Along with the timely dispatch of publications, email alerts are sent out.

Distribution of publications is undertaken in coordination with related departments. PRID facilitates distribution of the *ASB* and the *WOO*, in addition to the *OPEC Bulletin* and the *Annual Report* (*AR*), according to an updated mailing list supplied by the PR Unit.

Website

In 2017, PRID continued to maintain and update the content of its website in a timely and accurate manner with press releases, news items, speeches, statements, publications and reports, data and graphs, videos on demand, information about its MCs, employment opportunities, etc.

The content of the website increased tremendously over 2016. Growth was most notable within the 'Press Releases' section, where 61 releases were published in 2017 compared with 37 press releases in 2016. Within the 'News' section there were 23 news items compared with 36 in 2016. In addition, a huge amount of photographs accompanied much of this website content and were added to the online photo gallery. Live streaming of OPEC meetings and other events was provided through the OPEC website and attracted 83,789 views in 2017, slightly down from 94,515 views in 2016.

New modules and applications were also introduced to enhance the usability, functionality, look and feel of the website. These were incorporated in order to make website browsing more user-friendly overall. PRID continued to monitor the number of views to the OPEC website's various pages and prepared monthly reports on this data. These reports are critical to website operations as the Department continues to ensure that visitors find the information they require in an easy and practical manner, and works on enhancements, as needed. In general, the website attracted higher numbers of views in 2017 over 2016, with the number of views to all website pages reaching 7,397,093 in 2017.

PRID continued to maintain and update its email lists, which consist mainly of journalists, news agencies, investment banks, analysts, etc. The lists include over 700 recipients and were used to forward such things as press releases, publications, website update alerts, daily and weekly basket price data, announcements and general press information. They proved to be a timely and effective tool in informing the public about OPEC and its activities. Positive feedback was also received by the Department regarding this service.

Regular monitoring was undertaken of messages received through email and the website's 'Contact Data and Form' page and through various other means. These generally provided positive feedback to PRID on various issues and were attended to by the Secretariat.

Social media

Social media plays a critical role in the daily routine of many. It is also considered one of the main cornerstones of today's communication technologies.

In a concrete attempt by OPEC to expand its reach and improve its information dissemination practices, the Organisation inaugurated its official Facebook page in 2017.

Being the world's largest social media platform, Facebook has been attracting 2,167 million users as of January 2018, according to the German-based marketing consultancy firm We Are Social.

During the first month of operation, the OPEC Facebook page had a modest number of followers and page likes. It was also viewed more than 7,000 times and received over 700 interactions from users. The page reached more than 2,500 people.

Press releases, speeches, news stories, daily basket prices, interviews with the President of the Conference, the Secretary General, Heads of Delegations and Ministers of participating non-OPEC countries to the historic Declaration of Cooperation, press conferences, meeting highlights and OPEC publications were posted in a consistent and continuous fashion on Facebook.

Additional Facebook features were used to boost OPEC's presence on the social media platform. Events for the 174th Meeting of the OPEC Conference and the 7th OPEC International Seminar were, therefore, created to highlight these key events, as well as to promote them to a wider public, aiming to enhance their attendance.

Design and Production

The *WOO* design was adapted and a new size was defined for 2017. Layout and readability were also further enhanced. In addition to the printed version of the *WOO*, elements for the launch were designed in collaboration with the Energy Studies Department to highlight key takeaways and further processed by the AV team to cumulate in a launch video. The launch was flanked by roll-ups and posters, which were designed specifically for the event and printed in Abu Dhabi. The Design and Production Unit (D&P) was responsible for designing, typesetting, producing and overseeing the entire printing process of various publications and additional materials.

The design, layout and finishing of the *ASB* was also further improved. In addition to the 'full' version, a smaller pocket version was designed that displayed the most important tables and graphs in a consolidated form. The interactive version is available on a USB stick. D&P was responsible for designing, typesetting, producing and overseeing the printing of this publication.

The *AR* was put together in cooperation with other Departments at the Secretariat. For 2017, the design and layout of the document was adapted and the size of the publication streamlined. D&P was responsible for designing, typesetting, producing and overseeing the printing of this publication.

The *OPEC Bulletin* continues to be laid out, typeset and produced by the team, which continues to coordinate and oversee its printing at an outside printing service. Throughout the year, the layout of the *Bulletin* is adapted to fit state-of-the art corporate publication trends in an international and multicultural environment in coordination with the Editorial Unit. The Special Edition for the 1st Anniversary of the Declaration of Cooperation was the highlight of the 2017 editions of the *Bulletin*.

Numerous logo designs have also been prepared throughout the year for in-house OPEC meetings and events. Nameplates, programmes, badges, notepads, giveaways and corporate gifts have additionally been designed and produced.

D&P also provided visuals for OPEC exhibition stands at the IEF Ministerial Meeting in Moscow and at the Iran Oil, Gas, Refining and Petrochemicals Exhibition in May in order to disseminate the Secretariat's key messages. Posters and roll-ups for internal and external use were designed to display our MCs and highlight the Organization's key messages.

The Unit also contributed to the Anniversary of the Declaration of Cooperation by preparing various unique items and a design for the overall event, which was well received by both OPEC and non-OPEC participating countries to the Declaration of Cooperation. Items prepared included roll-ups, table decorations, bags, pins and much more.

OPEC Seminar

PRID is heavily involved in organizing the 7th OPEC International Seminar, which will take place on 20–21 June 2018, at the Hofburg Palace. Various tasks were already underway in 2017, including creating a logo for the event, press releases and website updates, as well as organizational activities such as securing a venue, and determining logistics and participation, among others.

Declaration of Cooperation Anniversary

PRID staff contributed to organizing the dinner of the 1st anniversary of the Declaration of Cooperation. This included various activities, including extending the Organization's appreciation to the City of Vienna.

PRID staff undertook missions and training programmes throughout the year, accordingly producing reports on these activities, which were either published in the *OPEC Bulletin* or submitted to the Missions Committee. In addition, PRID staff participated in different organizational task forces and committees and worked closely on projects with other departments, including the Academic Committee, Task force on Confidentiality and Task Force on Facebook.

Administration & IT Services Department

The primary objective of the work of the Administration staff is to ensure the provision of all necessary services in order to facilitate the smooth running of the day-to-day affairs of the Secretariat, and to allow the various specialized areas to meet their activity targets.

These services include, but are not limited to, procurement and disposal; travel and transportation; arrangements for all meetings and entertainment functions in Vienna; implementation of the Headquarters Agreement regarding visas, legitimation/diplomatic ID cards, import declarations and diplomatic license plates; up-keep of the premises and residence; security and safety.

Highlights:

- Administration carried out the planning and implementation of extensive renovation work at the Secretary General's residence, including exchanging the 60-year old windows, roof repairs, replacement of old water and gas pipe systems, grinding/fixing of interior floors, restoration of the main entrance, remodelling of all bathrooms, modification of the terrace bannister, installation of a new security system, restoration and replacement of in-house furniture, painting of building interior, etc.
- In close cooperation with the DSD and FHRD, Administration was involved in the development and implementation of an

electronic procurement system, with the objective of increasing overall efficiency of the entire OPEC Secretariat while ensuring transparency and accountability of internal financial processes.

- An increasingly high demand for various administrative services – including meeting preparations, travel/mission arrangements and driver services – required team spirit, flexibility and work re-organization efforts with a view to maintaining high quality services despite diminished staff strength due to the retirement of experienced, long-term staff members.
- In addition to the organization of regular conferences and meetings throughout the year, Administration was involved in the planning and implementation of numerous extraordinary gatherings both at the Secretariat and abroad related to OPEC's Declaration of Cooperation, including:
  - OPEC and non-OPEC Ministerial Meetings;
  - JMMC Meetings;
  - JTC Meetings;
  - Other technical meetings.
- Furthermore, intensive preparations for OPEC's 7th International Seminar were undertaken and will reach full swing in 2018.

IT Services Section

The IT Services Section is responsible for providing the Secretariat with secure and reliable IT services. The section constantly explores new technological developments in order to provide OPEC with the most effective and up-to-date IT infrastructure.

The IT Services Section is also responsible for printing/reproduction, telecommunication and mail/courier services in the OPEC Secretariat.

Apart from its routine activities, the Section carried out the following projects in 2017:

- Implementation of the FireEye Anti-malware Mail Protection System;
- Upgrade of the Active Directory and partial upgrade of the Windows server infrastructure to the Windows Server 2016 Operating System;
- Upgrade of server backup infrastructure (new hardware and major upgrade of software);
- Implementation of mail relays deployed in Amazon Cloud in order to solve IP connectivity issues with MCs;
- Implementation of additional security controls to IT systems;
- Implementation of a new surveillance (CCTV) system in HQ and at the SG's residence;
- Completion of implementation of Cisco Edge Switching Infrastructure.

Finance & Human Resources Department

The Finance and Human Resources Department continued to focus on delivering innovative human resources and financial strategies by ensuring the efficiency of each business process and the quality of its services, as well as providing world-class management of the Organization's human and financial assets in 2017.

Remarkably, the Finance Section continued to strengthen the existing financial controls of the Organization in accordance with the Financial Regulations and Financial Rules and Procedures, streamlining financial processes in conjunction with external auditors' recommendations, as well as developing new business accounting applications for greater business efficiency.

In addition to providing personnel-related services to the Secretariat, the Human Resources Section continued to monitor all human resources processes, with a view to improving the efficiency of each process, as well as the quality of service and accuracy of data provided by the section, by applying modern technology whenever possible. The section also continued its efforts to utilize the Secretariat's available manpower to the maximum extent possible to ensure efficiency and proficiency.

Heads of Delegation

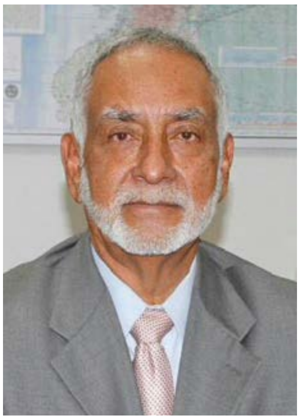
Algeria

Mustapha Guitouni

Angola

Dr Diamantino P. Azevedo

Ecuador



Carlos E. Pérez

Equatorial Guinea

Gabriel Mbaga Obiang Lima

Gabon

Pascal Houangni Ambouroue

IR Iran

Eng Bijan Namdar Zanganeh

Iraq

Jabbar Ali Hussein Al-luiebi

Kuwait

Bakheet S. Al-Rashidi

Libya

Mustafa Sanalla

Nigeria

Dr Emmanuel Ibe Kachikwu

Qatar

Dr Mohammed Bin Saleh Al-Sada

Saudi Arabia

Khalid A. Al-Falih
President of the Conference in 2017

United Arab Emirates

Suhail Mohamed Al Mazrouei
Alternate President of the Conference in 2017

Venezuela

Manuel Salvador Quevedo Fernandez

Outgoing Heads of Delegation by country

Algeria

Noureddine Boutarfa

(to May 2017)

Angola

Eng José Maria Botelho de Vasconcelos
(to September 2017)

Ecuador

Jose Icaza Romero

(to May 2017)

Gabon

Etienne Dieudonné Ngoubou
(to January 2017)

Kuwait

Issam A. Almarzooq

(to December 2017)

Venezuela

Eng Eulogio Del Pino
(to January 2017 and to November 2017)

Dr Nelson Martinez

(to August 2017)

Board of Governors

Algeria
Eng Mohamed Hamel

Angola
Estêvão Pedro

Chairman of the Board in 2017

Ecuador
Eng Patricio Larrea *(from July)*

HE Wilson Pástor-Morris *(to July)*

Equatorial Guinea
Justo Camilo Gopegui *(ad hoc Governor from July)*

Gabon
Etienne Lepoukou *(from July)*

IR Iran
Hossein Kazempour Ardebili

Iraq
Alaa K. Alyasri *(from September)*

Dr Falah J. Alamri *(to September)*

Kuwait
Haitham Al-Ghais *(from June)*

Nawal Al-Fezaia *(to May)*

Libya
Mohamed M. Oun

Nigeria
Dr Omar Farouk Ibrahim, MCIPR

Qatar
Issa Shahin Al Ghanim

Saudi Arabia
Eng Adeeb Al-Aama *(from January)*

United Arab Emirates
Eng Ahmed M. Alkaabi

Venezuela
Eng Ángel González Saltrón

Economic Commission Board

Algeria
Dr Achraf Benhassine

Angola
Kupessa Daniel

Ecuador
Eng José Cepeda Altamirano *(from June)*
Eng Alex Galárraga *(to June)*

Equatorial Guinea
No National Representative was officially nominated

Gabon
André-Brice Boumbendje *(from July)*

IR Iran
Mohammad S. Nowrozi *(ad hoc Nat. Repr. from November)*
Behrooz Baikalizadeh *(to October)*

Iraq
Ali Nazar Faeq Al-Shatari

Kuwait
Mohammad Khuder Al-Shatti

Libya
Abdelkarim M. Omar Alhaderi

Nigeria
Olusegun Adeyemi Adekunle

Qatar
Abdulla Al-Hussaini *(from January)*
Sultan K. Al-Binali *(to January)*

Saudi Arabia
Dr Nasser A. Al-Dossary

United Arab Emirates
Salem Hareb Al Mehairi

Venezuela
Eng Ronny Romero Rodriguez *(from September)*
Nélida Izarra *(to September)*

Officials of the Secretariat

Secretary General
Mohammad Sanusi Barkindo

Office of the Secretary General
Shakir M. A. Alrifaiey *(joined in January)*

Research Division
Dr Ayed S. Al Qahtani *(joined in September)*

Data Services Department
Dr Adedapo Odulaja
Mohamed Mekerba
Dr Hossein Hassani

Energy Studies Department
Dr Abderrezak Benyoucef *(joined in September)*
Oswaldo Tapia *(completed tenure in May)*
Amal Alawami *(left in June)*
Mehrzad Zamani
Dr Jorge León
Hend Lutfi
Dr Erfan Vafaie Fard
Moufid Benmerabet
Tofol Al-Nasr *(joined in February)*

Petroleum Studies Department
Behrooz Baikalizadeh *(joined in October)*
Dr Hojatollah Ghanimi Fard *(completed tenure in August)*
Elio Rodriguez Medina *(left in June)*
Eissa Alzerma
Anisah Almadhayyan
Dr Afshin Javan
Imad Alam Al-Khayyat
Hassan Balfakeih
Mohammad Ali Danesh
Hector Hurtado
Tona Ndamba *(joined in September)*

Environmental Matters Unit
—

Legal Office
Asma Muttawa
Dr Taiwo Adebola Ogunleye

Finance & Human Resources Department
Jose Luis Mora
Abiodun Ayeni

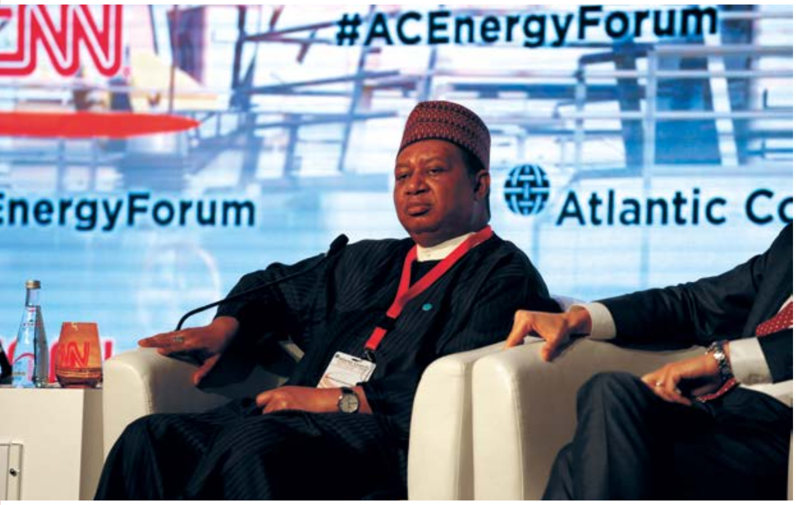
Administration & IT Services Department
Abdullah Alakhawand
Badreddine Benzida

Public Relations & Information Department
Hasan Hafidh

Secretary General’s diary

6–8 January	Mission to Member Country: Qatar
8–11 January	Mission to Member Country: Kuwait
11–13 January	Atlantic Council Global Energy Summit 2017, Abu Dhabi, UAE
15–17 January	Mission to Member Country: Venezuela
18–20 January	World Economic Forum, Davos, Switzerland
6 February	Visit to ENI, Milan, Italy
7 February	Visit to Total HQ, Paris, France
13 February	Visit to Saudi Aramco, Damman, Saudi Arabia
14 February	First IEF-EU Energy Day, Riyadh, Saudi Arabia Visit to KAPSARC, Riyadh, Saudi Arabia
21 February	International Petroleum Week, London, UK
28 February– 2 March	17th Nigeria Oil and Gas Conference and Exhibition, Abuja, Nigeria

Mohammad Sanusi Barkindo, OPEC Secretary General on the panel session at the Atlantic Council Global Energy Sumit.



Mohammad Sanusi Barkindo (l) OPEC Secretary General, with Emmanuel Ibe Kachikwu (r), Nigeria's Minister of State for Petroleum Resources, at the 17th Nigeria Oil and Gas Conference and Exhibition.

6–8 March	CERA Week 2017, Houston, TX, US
8–11 March	Mission to Washington and New York, US
2–3 April	3rd Iraq Energy Forum, Baghdad, Iraq
19–20 April	3rd Petroleum Media Forum, Abu Dhabi, UAE
27 April	18th International Oil Summit, Paris, France
1–3 June	21st St. Petersburg International Economic Forum, St. Petersburg, The Russian Federation
9–13 July	22nd World Petroleum Congress, Istanbul, Turkey
21 July– 3 August	Mission to Member Country: Equatorial Guinea
3–6 August	Mission to Member Country: Gabon
11 September	Oxford Energy Seminar Inaugural Dinner

OPEC Secretary General, Mohammad Sanusi Barkindo delivering his speech at the 3rd Iraq Energy Forum in Baghdad, Iraq.

L–r: Robert Dudley, BP's Chief Executive; Mohammad Sanusi Barkindo, OPEC Secretary General; Alexander Novak, Russian Federation's Minister of Energy; moderator Elena Cherney, The Wall Street Journal's Canada Bureau Chief and Global Resources Editor; and Khalid A Al-Falih, President of the OPEC Conference, and Saudi Arabian Minister of Energy, Industry and Mineral Resources at the St. Petersburg International Economic Forum.

3–7 October	Russian Energy Week 2017, Moscow, The Russian Federation
8–10 October	India Regional CERA Week Forum, New Delhi, India
15–18 October	Kuwait Oil and Gas Show, Kuwait City, Kuwait
17–19 October	Oil and Money Conference, London, UK
27 October	Oil and Gas Climate Initiative, London, UK
13–16 November	Abu Dhabi International Petroleum Exhibition and Conference (ADIPEC), Abu Dhabi, UAE
12–18 November	UNFCC COP23 UNFCCC Secretariat, Bonn, Germany *[According to Conference decision, SG should attend the High-level segment (13–17)]*
21 November	21st Lustrum Symposium, Delft, The Netherlands
13 December	2017 International Oil and Gas Executive Forum, Beijing, PR of China

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

Mohammad Sanusi Barkindo, OPEC Secretary General speaks at the 2017 International Oil and Gas Executive Forum in Beijing, People's Republic of China.

01 | JANUARY

M	T	W	T	F	S	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

02 | FEBRUARY

M	T	W	T	F	S	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28					

03 | MARCH

M	T	W	T	F	S	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

04 | APRIL

M	T	W	T	F	S	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

05 | MAY

M	T	W	T	F	S	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

06 | JUNE

M	T	W	T	F	S	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

07 | JULY

M	T	W	T	F	S	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

08 | AUGUST

M	T	W	T	F	S	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

09 | SEPTEMBER

M	T	W	T	F	S	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

10 | OCTOBER

M	T	W	T	F	S	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

11 | NOVEMBER

M	T	W	T	F	S	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

12 | DECEMBER

M	T	W	T	F	S	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Calendar 2017

22 January	First Meeting of the Joint Ministerial Monitoring Committee (JMMC), HQ, Vienna, Austria
25 January	2nd Member Countries Workshop on Energy Efficiency, HQ, Vienna, Austria
26–27 January	16th Special Meeting of the Economic Commission Board (ECB), HQ, Vienna, Austria
15 February	7th IEA-IEF-OPEC Symposium on Energy Outlook, Riyadh, Saudi Arabia
20–24 February	17th Multi-Disciplinary Training Course, HQ Vienna, Austria
22 February	1st Meeting of the Joint Technical Committee (JTC), HQ, Vienna, Austria
13–14 March	JODI Inter-Secretariat Meeting, HQ, Vienna, Austria
14–15 March	Litigation Seminar, HQ Vienna, Austria
16 March	2nd Joint IEA-IEF-OPEC Technical Meeting on the Interactions between Physical and Financial Energy Markets, HQ, Vienna, Austria
17 March	2nd Meeting of the JTC, HQ, Vienna, Austria
26 March	2nd Meeting of the JMMC, Kuwait City, Kuwait

L–r: Dr Sun Xiansheng, Secretary General, IEF, Mohammad Sanusi Barkindo, OPEC Secretary General and his Advisor, Dr Hojatollah Ghanimi Fard.

L–r: Majdi Al-Qahtani, Representative of Saudi Arabia, OPEC Secretary General, Mohammad Sanusi Barkindo, and Asma Muttawa, General Legal Counsel.

21 April	3rd Meeting of the JTC, HQ, Vienna, Austria
26–27 April	16th Annual Statistical Meeting, HQ, Vienna, Austria
4–5 May	148th Meeting of the Board of Governors (BoG), HQ, Vienna, Austria
7 May	OPEC Member Countries' Coordination Meeting (Climate Change), Bonn, Germany
17–18 May	127th Meeting of the ECB, HQ, Vienna, Austria
19 May	Declaration of Cooperation: 1st Technical Meeting of OPEC and non-OPEC Producing Countries, HQ, Vienna, Austria
20 May	4th Meeting of the JTC, HQ, Vienna, Austria
22 May	OPEC-India Energy Dialogue, HQ, Vienna, Austria
24 May	3rd Meeting of the JMMC HQ, Vienna, Austria
25 May	172nd (Ordinary) Meeting of the Conference, HQ, Vienna, Austria 2nd OPEC and non-OPEC Producing Countries' Ministerial Meeting, HQ, Vienna, Austria
31 May	6th OPEC-Russia Energy Dialogue, Moscow, The Russian Federation
20 June	5th Meeting of the JTC, HQ, Vienna, Austria
18 July	149th (Extraordinary) Meeting of the BoG, HQ, Vienna, Austria
22 July	6th Meeting of the JTC, St. Petersburg, The Russian Federation

OPEC Secretaray General, Mohammad Sanusi Barkindo (sixth l) among delegates and participants of the 2nd High-level Meeting of the OPEC-India Energy Dialogue.

L–r: Alexander Nowak, Minister of Energy, Russian Federation and Alternate Chair of the JMMC, Issam A. Almarzooq, Minister of Oil and Minister of Electricity & Water, Kuwait, with OPEC Secretary General, Mohammad Sanusi Barkindo.

24 July	4th Meeting of the JMMC, St. Petersburg, The Russian Federation
21 August	7th Meeting of the JTC, HQ, Vienna, Austria
12 September	Modelling Experts Workshop, HQ, Vienna, Austria
13–14 September	17th Special Meeting of the ECB, HQ, Vienna, Austria
20 September	8th Meeting of the JTC, HQ, Vienna, Austria
22 September	5th Meeting of the JMMC, HQ, Vienna, Austria
2 October	3rd Technical Meeting on Asian Energy and Oil Outlook, HQ, Vienna, Austria
4–5 October	Technical Meeting with Member Countries' on the Improvement of the Annual Questionnaire, HQ, Vienna, Austria
17 October	Technical Workshop on the transition from INDCs to NDCs, HQ, Vienna, Austria
18–19 October	Member Countries' Coordination Meeting in the Run up to COP23/CMP13, Vienna, Austria
20 October	9th Meeting of the JTC, HQ, Vienna, Austria
23–24 October	150th Meeting of the BoG, HQ Vienna, Austria
22 November	Technical Workshop on US Tight Oil Prospects, HQ, Vienna, Austria
23–24 November	128th Meeting of the ECB, HQ Vienna, Austria

The OPEC Board of Governors during their 149th (Extraordinary) Meeting at OPEC Headquarters, in Vienna Austria.

L–r: Dr Ayed S. Al-Qahtani, Director, Research Division; Mohammad Sanusi Barkindo, OPEC Secretary General; and Dr Abderrezak Benyoucef, Head, Energy Studies Department at the 17th Special Meeting of the ECB.

27 November	Declaration of Cooperation: 2nd Technical Experts Meeting of OPEC and non-OPEC producing countries, Vienna, Austria
28 November	10th Meeting of the JTC, HQ, Vienna, Austria
29 November	6th Meeting of the JMMC, HQ, Vienna, Austria
30 November	173rd (Ordinary) Meeting of the Conference, HQ, Vienna, Austria 3rd OPEC and non-OPEC Ministerial Meeting, HQ, Vienna, Austria
12 December	2nd High-level OPEC-China Meeting, Beijing, PR of China
20 December	11th Meeting of the JTC, HQ, Vienna, Austria

Technical Workshop on Transition from INDCs to NDCs.

173rd Meeting of the Conference.

3rd OPEC and non-OPEC Producing Countries' Ministerial Meeting.

Participants at the Declaration of Cooperation 2nd Technical Experts Meeting of OPEC and non-OPEC producing countries.

Mohammad Sanusi Barkindo, OPEC Secretary General, participated in a panel discussion at the International Executive Forum in Beijing.

www.opec.org