2016 Annual Report

Organization of the Petroleum Exporting Countries

OPEC

7th International Seminar

Vienna, Austria

Save the date:

20–21 June 2018

Hofburg Palace
Vienna, Austria

Organization of the Petroleum Exporting Countries

Annual Report 2016

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

Editorial Coordinator
Hasan Hafidh

Editor
Maureen MacNeill

Design
Carola Bayer

Production
Andrea Birnbach

Photographs (unless otherwise credited)
Herwig Steiner
Wolfgang Hammer

ISSN 0474-6317
Printed in Austria by Wograndl Druck

Contents

Foreword

Mohammad Sanusi Barkindo
Secretary General

In its long history, the oil industry has certainly seen periods full of challenges and others laden with opportunities. But the significance of 2016 stems from the convergence of so many different factors and the subsequent response at year-end of various energy stakeholders around the world. This lengthy and rewarding process culminated with a series of decisions and the renewal of broad-based optimism over the near-term oil market prospects.

At the start of 2016, things had been much different. Producers and consumers alike had increasingly felt the pressure of a persistent oil market downturn, marked above all by a dramatic price decline. This had begun in mid-2014, continued throughout 2015 and was prolonged during 2016, making it one of the oil industry's longest, most recent and protracted down cycles.

Unlike previous cycles, however, this recent cycle had been significantly supply driven. However, while oil supply growth had been outpacing demand growth for several quarters, global inventories during the year had begun to fall. In fact, over the course of the year, commercial stocks had fallen from 380 million barrels (mb) in February to below 300 mb by the end of the year.

Nevertheless, adverse conditions in the oil market and, to a far lesser degree, in the global economy, continued to weigh on the industry.

Investments in the oil industry declined by 26% in 2015 and by 22% in 2016. This made for quite difficult conditions across the whole value chain. As a result, many companies faced financial and operational challenges, and job losses were seen across the industry.

In terms of oil demand growth, conditions in 2016 were comparatively healthy. Driven in part by a return to robust economic growth in major consuming countries and by ongoing demographic and transportation trends, oil demand growth performed better than expected in OECD Asia Pacific and Europe.

Overall, the global economy was relatively healthy during most of 2016, with solid improvements in the growth dynamics seen mostly in OECD economies. The economies of some leading developing countries also seemed to have been slowly coming out of a recession in 2016, while economic growth in other countries remained rather robust for most of the year — despite some dampening of domestic consumption.

Given recent macroeconomic indicators as elaborated on in OPEC's recent *Monthly Oil Market Report*, it is worth mentioning that oil demand growth is expected to remain quite solid in 2017 as well.

Yet despite the relatively positive and supportive global economic environment, the oil industry in 2016 continued to labour under significant pressure. The global oversupply and widespread price downturn had been too burdensome, and both consumers and producers alike had experienced their negative impacts. This led to the widespread recognition that for the sake of the industry and the future stability of supply, things could not continue in the same way. Eventually the idea of having energy stakeholders around the world engage in broad discussions took hold. In this, OPEC played a leadership role.

As it has done many times before, during similarly challenging times, OPEC began to intensify its long-standing dialogue with other global actors in the energy industry and the oil market in particular. Broad consultations, which the Organization had been having since the second half of 2015, were expanded to include non-OPEC oil producers from around the world. These and other discussions centred on the possibility of finding a way to realize a broad-based rebalancing of the market and put it on a path of sustainable stability.

Amid these extensive bilateral and multilateral discussions, the Organization's Member Countries reached a landmark decision at the 170th (Extraordinary) Meeting of the Conference held in Algiers, Algeria, on 28 September 2016. At that meeting, OPEC delegates agreed to overcome differences and seek a collective decision for the good of the market, the industry, and producers and consumers everywhere. The OPEC Conference thus opted for a production level between 32.5 and 33.0 million barrels per day (mb/d) in support of the ongoing drawdown of the stock overhang — and to bring the necessary rebalancing forward.

During the latter half of 2016, OPEC continued to use other platforms — such as the G24 Ministerial Meeting and the IMF/World Bank meetings in Washington (7–9 October), as well as the World Energy Congress in Istanbul (10–13 October) — to undertake additional consultations with non-OPEC producers. In the process, they shared outlooks and perspectives regarding the market's challenges, considered how to advance the idea of joint collaboration, and discussed the possible implementation of a broad-based production adjustment.

Given the importance of holding extensive exchanges of perspectives on the challenges ahead, additional platforms were used to confer with other producers. These consultations were not only held during plenary sessions nor did they only take place within the context of formal events. In my capacity as Secretary General, personal visits to nearly all Member Countries were arranged during the final months of 2016 in an effort to consolidate the decision reached in Algiers. These visits included high-level meetings in Algeria, IR Iran, Iraq, Kuwait, Qatar, Saudi Arabia, the UAE and Venezuela.

These personal consultations certainly contributed to a strengthening of the implementation of the production decision reached in Algiers; but they also provided the foundations of what would later become the first High-Level Committee Meeting of Member Countries held on 28 October. This meeting focused on implementation of the production decision, as well as on development of a framework for holding similar high-level consultations between OPEC and non-OPEC producing countries. This was followed on 29 October by a meeting between OPEC and key non-OPEC producers, which was held at OPEC headquarters in Vienna.

The participation of several important countries in these consultations, and the broad recognition that the market required collaborative decisions on the part of producers everywhere, led to a successful outcome. Participating countries agreed that the OPEC and non-OPEC dialogue should be institutionalized, and the ensuing discussions emphasized the importance of finding a way of achieving concrete results with regard to production.

These were promising first steps. Nearly a month later, at the second High-Level Committee Meeting, delegates concluded once again that credible action on the part of producers was needed, otherwise the rebalancing of the oil market would remain elusive. A week later, on 30 November, the 171st Meeting of the OPEC Conference was held in Vienna, at which Member Countries reached a concrete decision to adjust oil production by 1.2 mb/d, effective 1 January 2017. This decision also further established a framework for structured, sustained and transparent dialogue and collaboration with non-OPEC countries.

These various inter-related efforts eventually culminated in the decision reached on 10 December. This involved not just all 13 OPEC Member Countries but also 11 key non-OPEC producers. After extensive deliberations, in a joint 'Declaration of Cooperation', all parties committed to work towards market stability in the interest of producers, consumers, the industry and the global economy. This Declaration set out the collective decision to voluntarily adjust production in various ways, with the overall aim of having non-OPEC producers reduce their own global production by nearly 600,000 b/d for six months, also effective 1 January 2017. The parties agreed that this could be extended for another six months depending on subsequent market conditions.

The historic Declaration of Cooperation represented the first such OPEC/non-OPEC cooperation in 15 years — and the markets recognized this immediately. As soon as it was announced, the Declaration quickly resulted in a return of investor confidence in the market. In late December 2016, the OPEC Reference Basket improved by nearly 20% over the previous monthly average to reach $51.67 per barrel. This was, in fact, the first time the Basket had ended above $50/b in 18 months.

Other indicators at the end of the year similarly indicated a broad improvement in the outlook for the oil market with signs of realigning. The OECD stock overhang, for example, had diminished. At the time of this writing, it was at 282 mb above the five-year average, compared to 380 mb at the end of July 2016.

It's worth highlighting that another positive outcome of the meeting that produced the Deceleration was the agreement to reinforce the collective decision by creating a Joint Ministerial Monitoring Committee, which would be tasked with monitoring progress towards full implementation of the decisions, as well as providing the necessary technical input with which to regularly review the status of cooperation.

It would not be unseemly to emphasize the global importance — and the impact — of the various historic decisions reached in 2016. They successfully responded to prevailing market realities, while also taking into consideration various short-term requirements. They addressed the medium-, as well as long-term dimensions of the challenges facing the markets, and helped to put the oil market on the road to sustainable stability by committing producers to the removal of nearly 1.8 mb/d of oil from an oversupplied market. Most importantly, they demonstrated the commitment of global oil producers around the world to make serious efforts to help restore and sustain market stability.

When I assumed the position of Secretary General of OPEC on 1 August 2016, I inherited various responsibilities from my predecessor, HE Abdalla Salem El-Badri. Part of this inheritance also involved ensuring that the actions and decisions of OPEC continue to be made for the well-being of the market, the industry and the global economy as a whole. This has been demonstrated again and again.

While it would be inaccurate to say that there were any idle moments during 2016, there is now some relief and a great deal of satisfaction arising from the fact that our efforts then were not in vain — and that our work now continues to serve an important function in global economic affairs. OPEC's numerous accomplishments last year continue to provide a degree of encouragement to everyone involved — whether producers or consumers.

As we look ahead to 2017, we continue to hope that what was achieved last year will bear plenty of fruit in 2017 — and beyond. As always, OPEC continues to stand ever ready, monitoring economic and market indicators, and when necessary, taking steps to ensure that what happens in the oil market remains always in the best interests of producers, consumers, the industry and the global economy alike.

Mohammad Sanusi Barkindo
Secretary General

The world economy

T*he world economy* was significantly impacted by commodity market developments in 2016 and oil market-related developments in particular. During past oil price declines, it was relatively easy to explain that lower oil prices were supportive to the global economy. Consumers in advanced economies enjoyed greater spending ability and central banks were able to lower interest rates to stimulate their economies. However, the GDP shortfall in oil producing economies was usually only relative, given the small size of these economies. Thus, on a global level, their GDP shortfall was much less than the positive impact on the GDP of larger oil consuming nations. This time, however, it seemed that the overall negative effect from the sharp decline in oil prices outweighed benefits in the short term, with a 'contagious' effect taking place across many aspects of the global economy.

With oil prices around 20% lower in 2016 compared with 2015, output in oil producing economies remained negatively impacted, and a continued decline in capital expenditure (CAPEX) spending weighed on global growth numbers. It is estimated that low oil prices reduced global economic growth by around 0.1 to 0.2 percentage points. Low prices provided some income relief to households, but consumer spending did not compensate for these negative effects. Even in the United States, the stimulating

Note: Figures based on March 2016 Monthly Oil Market Report.

effect of lower oil prices did not entirely counterbalance the negative effects of the price decline on the energy sector. Low average oil prices also kept inflation low, making it challenging for central banks to lift interest rates. This was another factor which kept oil markets unbalanced, as leveraging costlier unconventional oil sources was facilitated in such an economic environment. It was only in the second half of 2016 that cooperation between OPEC and non-OPEC producing countries began to rebalance the oil market and stabilise these aspects of the global economy, lifting growth in the second half.

Global economic growth in 2016 ended at 3.0%, after reaching 3.1% in 2015. Thus the global growth dynamic continued to hover at around 3%. On a regional level, it was interesting to see that the Euro-zone outpaced the US in growth at 1.7%, compared with 1.6%, respectively, as the US economy was significantly impacted by the decline in oil prices and low productivity growth. In the Euro-zone, growth momentum continued and was broad based, with peripheral economies recovering. Japan also continued to expand, though annual growth remained at 1.0%.

In the emerging and developing economies (EMDCs), growth was relatively uneven. While India saw growth of 7.5% and China also managed a considerable growth level of 6.7%, Brazil and Russia remained in recession at –3.6% and –0.5%, respectively. Latin American growth was particularly negatively impacted, as Argentina's figures also declined significantly, estimated at –2.0%.

Monetary policies were again an influential factor in 2016. While the US Federal Reserve (the Fed) started the year with a median projection of lifting its key policy rate by 1 percentage point to 1.375% by the end of 2016, ongoing challenges in the US economy and abroad kept interest rate rises at 25 basis points only in December, lifting the key policy rate to 0.625%, a full 50 basis points lower than expected by the Fed at the beginning of the year. Still, the European Central Bank (ECB) and the Bank of Japan (BoJ) held a more accommodative approach than the Fed. Both banks charged negative deposit rates at the beginning of the year, which remained unchanged over the year. Despite the low interest rate environment in the US, the difference in monetary policies between major central banks and expectations of rising interest rates in the US were enough to trigger capital outflows from major emerging economies, which also had some negative impact on economic activity and hence energy demand in those economies. Moreover, all major central banks in emerging economies — with the exception of the People's Bank of China (PBoC) — lowered interest rates over the course of 2016 to stimulate growth in their respective countries. This exacerbated capital outflows and on some occasions also led to currency weakness. Many EMDCs that are commodity exporters were, therefore, challenged by a variety of issues: currency weakness and hence higher import prices, lower income via a decline in commodity prices and capital outflows given the relatively higher yielding US dollar.

Political developments were also of major importance within the year, but did not impact economic development as much as initially expected. Among the various political developments, the UK's decision to leave the European Union was expected to materialise in significantly lower growth, but consumption held up well. The sharp decline of the pound sterling also had a limited negative effect in 2016, as exports benefitted largely from this development.

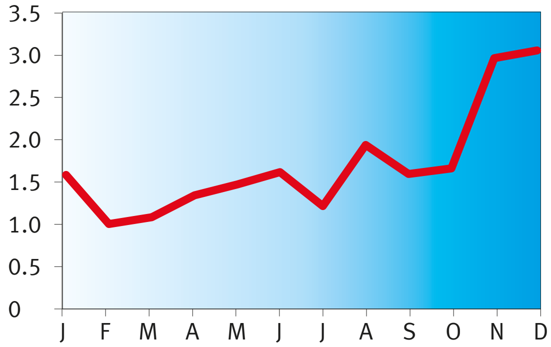
North America, Japan and the Euro-zone

The three major OECD economies again developed very different economically in 2016. While the US had a relatively weak start to the year and picked up later, Japan recorded its highest quarterly growth in the first quarter and the Euro-zone's growth pattern was relatively equally distributed. The pick-up in US growth in the second half may have also been supported by rising oil prices, which lifted the energy sector and consumer sentiment.

In the US, the labour market also showed considerable improvement over the year, supporting

Figure 1
Global industrial production, 2016

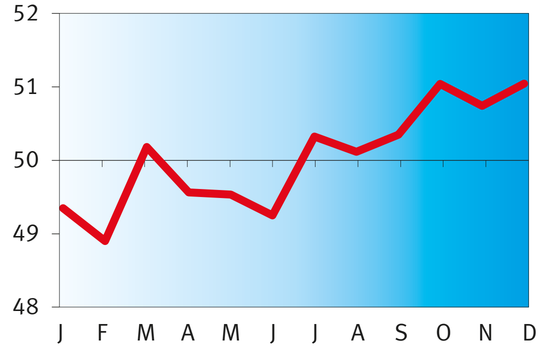
% change y-o-y



Source
Netherlands Bureau for Economic Policy Analysis and Haver Analytics.

Figure 2
Global manufacturing PMI, 2016

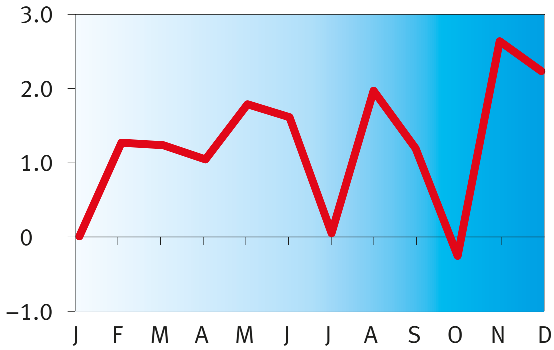
Index



Source
JP Morgan, Markit and Haver Analytics.

Figure 3
World trade volume, 2016

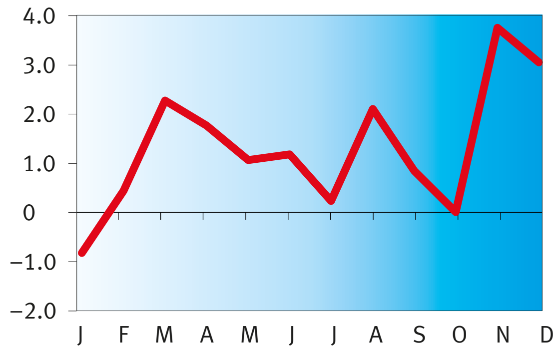
% change y-o-y



Source
Netherlands Bureau for Economic Policy Analysis and Haver Analytics.

Figure 4
World exports volume, 2016

% change y-o-y



Source
Netherlands Bureau for Economic Policy Analysis and Haver Analytics.

both consumer spending ability and sentiment. While growth stood at only 1.6% in 2016, private household consumption rose by 2.7%, albeit slightly below the 2015 consumption level of 3.2%. Still, private household consumption was the foremost supporter of the underlying growth pattern. This was certainly helped by ongoing labour market improvements, but also by lower energy prices, which were another important factor. However, positive developments in consumption in 2016 were counterbalanced by negative developments in the energy market. Investments were considerably down, with gross private domestic investments declining by 1.6%, significantly impacted by CAPEX cuts in the energy sector. Also, the rise in the US dollar weighed on growth, as exports were hit by a weakening competitive situation and managed growth of only 0.4%.

Japan's economy continued to grow, albeit at a low level of only 1.0%. This was again supported by monetary and fiscal stimulus. Government spending rose by 1.5%, compared with private consumption of only 0.4%. In addition to this, the low yen was supportive of exports, particularly at the end of the year. While exports expanded by 1.2% on a yearly average, 4Q16 export growth stood at 11.0% quarter-on-quarter seasonally adjusted annualised rate, its largest quarterly rise in the past year. While inflation remained low, appreciating oil prices in combination with rising salaries at least kept inflation from significantly declining, holding to a yearly average of –0.1%, with the largest

Table 1

World economic growth rates, 2015–2016 *(% change over previous period)*

Grouping/country	2015	2016
OECD	2.3	1.7
Other Europe	3.1	3.7
Developing countries	3.2	3.2
Africa	3.1	2.3
Latin America and Caribbean	–0.6	–1.4
Asia and Oceania	4.5	4.8
Asia Pacific	3.7	4.0
OPEC	1.3	1.4
China	6.9	6.7
FSU	–2.5	0.2
Total world	**3.1**	**3.0**

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

quarterly rise in inflation in 4Q16 of 0.3%, also supported by developments in the oil market.

The Euro-zone continued its recovery in 2016 with solid growth once again, also lifted by improving peripheral economies; hence the recovery was relatively broad based. While Germany, the Euro-zone's largest economy, led the momentum with 1.8% GDP growth, Italy, the third-largest economy, also contributed positively with 0.9% and Spain experienced a significant rise in growth of 3.2%, as did Ireland with 3.6%. The main issues holding the Euro-zone back from even higher growth rates included a still-high unemployment rate, which stood at 10% on average, low inflation, which was at 0.2% on average and a still-weak banking sector. With a more balanced oil market and ongoing ECB stimulus, inflation rose to 1.1% in December, leading the economy into a more balanced situation.

Emerging and developing economies

Brazil's GDP contracted by 2.5% year-on-year (y-o-y) in 4Q16, marking the eleventh consecutive quarter of deceleration in the country's longest and deepest recession ever. This brought the overall contraction for 2016 to 3.6% y-o-y. The deceleration in GDP seemed to have bottomed out in 4Q15 when the economy contracted by 5.8%. The pace of contraction gradually eased to 5.4%, 3.6%, 2.9% and 2.5% in 1Q16, 2Q16, 3Q16 and 4Q16, respectively. Inflation growth slowed from 11.3% y-o-y in January 2016 to 6.6% in December 2016. After experiencing deep recession for more than two years, which brought the GDP down to less than that in 2Q12, the economy finally appeared to be sending signs of a gradual reversal. One area in which Brazil saw substantial improvement is slowing inflation, which helped consumer sentiment and allowed the central bank to lower its benchmark interest rate by 50 basis points in 2016. Although remaining in recession, both the services and manufacturing sectors seemed to be turning a corner.

The economy of Russia is estimated to have contracted by 0.5% y-o-y in 2016. Official data showed contraction of 1.2%, 0.6% and 0.4% y-o-y in the first three quarters of 2016. GDP contracted in 3Q16 by 0.4% y-o-y, the slowest pace since the onset of

Table 2
Summary of macroeconomic performance of the 'BRIC' countries in 2016

	GDP growth rates	Consumer price index	Current account balance	Governmental fiscal balance	Net public debt
		% y-o-y change	*US $ bn*	*% of GDP*	*% of GDP*
Brazil	–3.6	8.7	–21.8	–6.3	71.5
Russia	–0.5	7.0	22.1	–3.6	10.1
India	7.5	4.9	–8.7	–3.8	51.6
China	6.7	2.1	260.8	–3.8	20.0

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

economic deceleration in 1Q15. Household consumption showed a slower decline, by 3.1% y-o-y in 3Q16, compared with 5.2% in the previous quarter. Gross Fixed Capital Formation (GFCF) also decreased by a notably slower pace, 0.5% y-o-y in 3Q16, compared to 4.3% in 2Q16. Exports increased nearly 7% y-o-y in 3Q16 from largely unchanged export levels in the previous quarter. Imports continued slowing for 12 consecutive quarters, though by a lesser rate of 3.0% y-o-y from 6.7% in 2Q16. The downward inflationary trend continued in December, with inflation posting 5.4%, its slowest rate of increase since June 2012. Following a 2.7% depreciation in November, the ruble appreciated by 3.4% m-o-m in December. At the same time, the benchmark interest rate was kept unchanged at 10.0% by the central bank. Robust performance in the private sector, as well as in services and manufacturing at the end of 2016 is expected to have positively influenced GDP growth in 4Q16.

India's GDP growth for 2016 is likely to expand by 7.5%, despite a strong negative shock to GDP growth late in 2016 due to demonetisation in November. GDP growth in 2015 also stood at 7.5%. Gross fixed investment fell for three consecutive quarters from January–September 2016, weighing not just on economic growth but also on employment prospects for India's rapidly growing workforce. However, monetary easing by the Reserve Bank of India, which

Table 3
Comparison: OPEC and non-OPEC developing countries

	2015		2016*	
	OPEC	Non-OPEC	OPEC	Non-OPEC
Real GDP growth rate *(%)*	1.3	3.2	1.4	3.2
Petroleum export value *($ bn)*	515.6	250.1	443.1	189.1
Value of non-petroleum exports *($ bn)*	477.6	2,895.3	484.8	2,890.0
Oil exports as percentage of total exports *(%)*	51.9	8.0	47.7	6.1
Value of imports *($ bn)*	830.4	3,526.7	804.9	3,396.3
Current account balance *($ bn)*	–82.2	–78.8	–102.5	–3.7
Crude oil production *(mb/d)*	31.5	10.1	32.5	10.0
Reserves, excluding gold *($ bn)*	1,216.4	2,831.0	1,091.4	2,935.4

**2016 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.

cut its benchmark rate (the repurchasing rate) by 175 basis points since January 2015, proved insufficient to revive industrial credit growth considerably. The supply-side GDP measure may paint a more realistic picture, although strong manufacturing growth in the December quarter probably reflects the cost effect. India's average composite Purchasing Manager's Index (PMI) slightly decreased to 52.1 in 2016 compared with 51.9 in 2015.

China's economy is slowing, with growth easing to a 26-year low of 6.7% in 2016, slightly lower than the 6.9% rate posted in 2015. Main drivers in China's economy for 2016 include faster GDP growth through improved service sector growth, which expanded by 8.3%; industrial and construction sector growth, which was at 6.1%; and agricultural sector growth, which slowed to 2.9%. Industrial value-added output slowed to growth of 6.0% in December, a five-month low. Household consumption remained robust towards the end of 2016, with moving average real growth picking up to 7.1% y-o-y in 4Q16, slightly more than a similarly calculated trend in disposable income. Investment momentum eased further towards the end of 2016, with real growth of fixed asset investment slowing to 6.9% y-o-y in 4Q16. In December 2016, the China Foreign Exchange Trade System, a unit of the PBoC, announced a revision to the basket of currencies used to manage the Chinese

Table 4
OPEC Member Countries' real GDP growth rates, 2015–2016 *(% change over previous period)*

Member Country	2015	2016
Algeria	3.9	3.4
Angola	3.0	1.0
Ecuador	0.2	–2.0
Indonesia	4.0	2.9
IR Iran	0.9	4.5
Iraq	–2.4	5.0
Kuwait	0.9	2.0
Libya	–11.7	–4.0
Nigeria	2.8	–1.5
Qatar	3.6	2.5
Saudi Arabia	3.5	1.4
United Arab Emirates	3.8	2.3
Venezuela	–6.2	–9.0
Average OPEC	**1.3**	**1.4**

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

yuan exchange rate. The average Chinese composite PMI increased to 51.4 in 2016 compared with 50.4 in 2015.

Foreign exchange currency developments

On the currency markets, the US dollar generally appreciated in the second half of the year after US GDP growth accelerated. This, in addition to further strengthening of the labour market in that country and receding concerns regarding emerging economies' growth — especially for China — supported the case to increase interest rates by the US Fed. This led to a rate hike at its December meeting, while the European Central Bank (ECB) and the BoJ remained engaged in stimulus programmes. Further upside to the US dollar was provided after the US election by the expectation of a faster pace of economic growth in that country, supported by potential stimulus programmes to be implemented by the upcoming administration.

The US dollar rose by 3.2% y-o-y *versus* the euro and increased by 2.4% y-o-y compared with the Swiss Franc. Moreover, it rose by 19.9% *versus* the pound sterling, reflecting the impact of the Brexit referendum outcome. However, it declined against the yen by 4.9%. Among emerging market currencies, the Chinese renminbi depreciated by 7.3% y-o-y against the US dollar, while the Indian rupee lost 2.0% as well. Meanwhile, commodity exporters' currencies recovered, with the Brazilian real, the Russian ruble and the South African rand gaining 13.4%, 10.7% and 7.3%, respectively.


Shutterstock

Oil market developments

World oil demand in 2016

As the initial Secretariat outlook highlighted back in July 2015, world oil demand growth for 2016 stood at 1.38 million barrels per day (mb/d), albeit with significant differences in regional growth data compared with initial projections. Improvements in the general direction of the economy and the low oil price environment supported upward revisions to OECD oil demand, particularly in Europe and the Asia Pacific region.

These developments were, however, offset by sluggish demand in main non-OECD hubs, such as Latin America and the Middle East, as a result of weaker economic growth, fuel substitution and partial subsidy removal on oil product usage. Growth in non-OECD Asian oil demand, notably India and China, remained robust and above the historical average.

From a global perspective, oil usage in the road transportation and petrochemical sectors dominated overall gains.

Gasoline, automotive diesel, as well as liquefied petroleum gas (LPG) and naphtha requirements led the growth, despite diverse regional patterns.

OECD demand

OECD Americas

In OECD Americas, improvements in macroeconomic indicators, supported by a low oil price environment, boosted transportation fuel consumption in the US. However, growth levels in other countries in the region — particularly Mexico and Canada — declined. In the US, 2016 ended with positive oil demand growth, up by around 1.0% year-on-year (y-o-y). This is particularly the result of higher transportation fuel requirements for gasoline and jet fuel. Middle distillates in 1H16 shrank by around 0.2 thousand barrels per day (tb/d) y-o-y, as weather conditions were warmer than initially anticipated, reducing heating fuel demand. However, 2H16 experienced a rebound in middle distillate requirements as demand was supported by heathy improvements in industrial activity and overall economic activity.

OECD Europe

In OECD Europe, 2016 oil demand surprisingly expanded by around 0.25 mb/d, with gains distributed almost equally between the four quarters. Oil prices propelled oil consumption. Overall, oil demand in all of the four big consumers — Germany, UK, France and Italy — grew in 2016 by around 80 tb/d, with the UK and Germany expanding the most. In the product mix, transportation fuels — which include automotive diesel and gasoline — led growth, mainly as a reflection of positive vehicle sales throughout the year of 7% (y-o-y). This, along with the lower oil price environment, encouraged economic growth. However, demand for transportation fuels was somewhat capped, as progress in efficiency standards, the use of alternative fuels and policies of high taxation in major European consuming countries negatively affected growth.

OECD Asia Pacific

Oil demand rose in 2016 for the OECD Asia Pacific region, mainly as a result of better-than-expected demand growth in South Korea and less shrinkage in Japanese oil demand growth data. The flourishing petrochemical industry, notably in South Korea, coupled with improvements in power generation requirements in support of expanding economic activities, allowed for oil requirement levels to be higher on an annual basis for the first time since 2012. On the other hand, the year saw a drop in oil consumption in Japan of around 0.13 mb/d. Negative growth was apparent for nearly every month of 2016, with the exception of November, when demand inched up due to higher petrochemical feedstock requirements and colder-than-anticipated weather. From a products point of view, LPG and naphtha were the leading fuels, as petrochemical margins encouraged higher utilization rates in the petrochemical sector. Fuel oil also received strong support from the power generation sector, particularly in South Korea.

Non-OECD demand

Other Asia

Oil demand in the highest-consuming nation of the region — India — rose compared with 2015, showing an annual surge of around 0.31 mb/d. Indian oil demand growth was led by increases in oil consumption for the road transportation and residential sectors. Gasoline demand grew sharply in the transportation sector. Similarly, LPG usage increased in the residential sector. Sharp gains in the sale of vehicles — particularly two-wheelers — in combination with a growing economy, supported the rise in gasoline demand. Strong LPG usage in the residential sector has, in fact, a long tradition in India and is additionally supported by subsidized LPG cylinders. Fuel oil requirements in the agriculture and power generation sectors gained some momentum and rose above the previous year's levels, showing positive performance in 2016. Growing construction activity led to additional demand for the heavy part of the barrel, particularly bitumen for road construction. Meanwhile, naphtha fed the

Figure 5
World oil demand by main region, y-o-y growth, 2015–2016

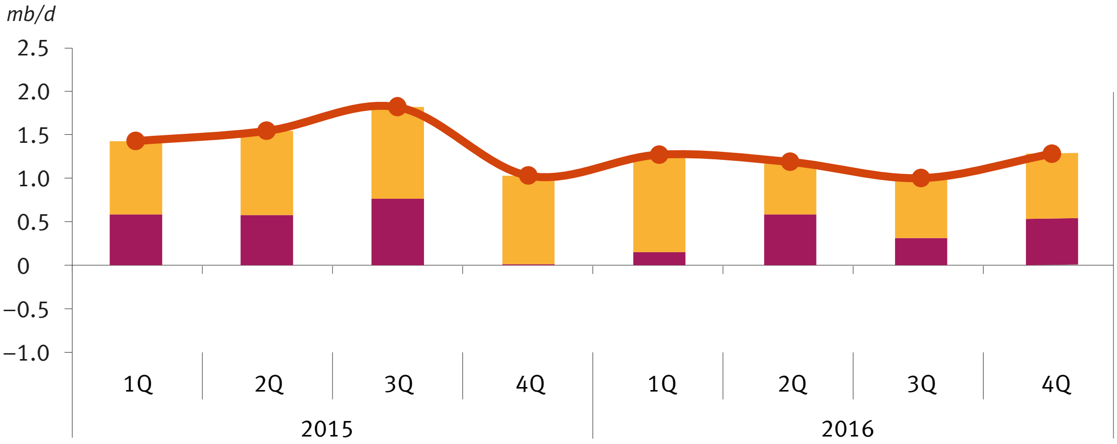
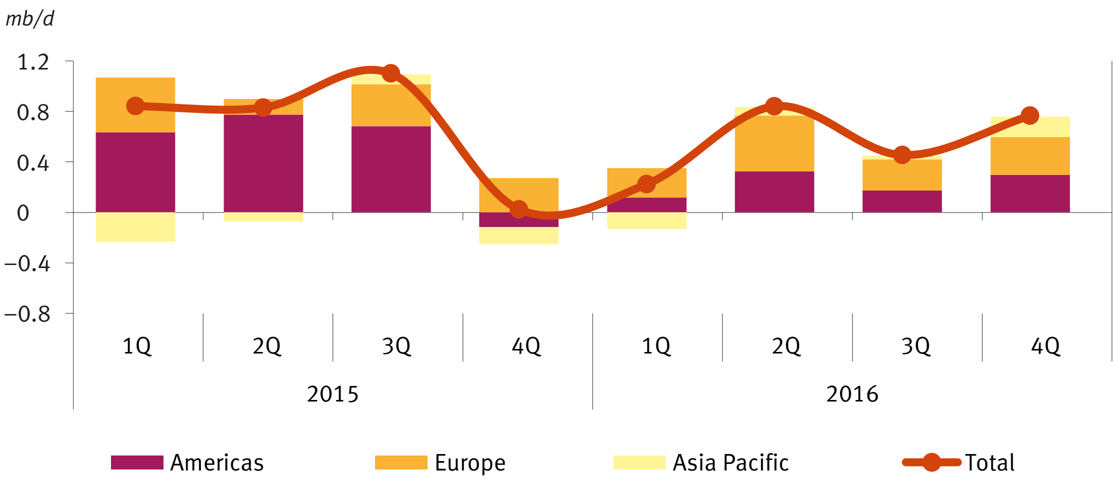


Figure 6
OECD oil consumption by quarter and region, y-o-y growth, 2015–2016



petrochemical industry, marking solid improvements in line with firm margins for naphtha cracker operators. Oil demand was also encouraging in other parts of the region such as Indonesia, Malaysia, Vietnam and Taiwan.

Latin America

Oil demand in the region's largest consuming nation — Brazil —continued its sluggish performance in 2016 with oil demand dipping by 90 tb/d y-o-y, consistent with weakening macroeconomic conditions. Declines were witnessed across all products, with the exception of gasoline, which became a replacement for ethanol and LPG, which grew marginally. On the other hand, fuel oil and middle distillates weakened in 2016. Gasoline demand growth was positive, remaining more economically viable to end users than ethanol, which was affected by rising sugar prices. Middle distillate demand was lower y-o-y; growth potential deteriorated mainly as a result of slowing economic factors. Demand from different sectors, practically the industrial sector, recorded sluggish numbers coherent with poor manufacturing activity. Similar to middle distillates, weakening economic conditions contributed adversely to fuel oil demand numbers, as less consumption was observed in power generation segments and in the use of fuel oil as a bunker.

Middle East

In the Middle East, oil demand declined in Saudi Arabia, the largest consuming nation in the region. However, in 2016, oil demand declined slightly in the region, by 10 tb/d y-o-y. The sharply rising level of natural gas substitution, particularly after commencement of the Wasit Gas Plan in 1Q16, coupled with the Kingdom's partial removal of subsidies, were the main factors behind the decline. However, negative growth was observed in three products only — direct crude burning, (other products) bitumen and jet/kerosene. In addition, the drop in other products consumption can be largely attributed to less-than-anticipated demand in various sectors such as road building and construction. Oil demand grew in the United Arab Emirates and Iraq. Transportation fuels, notably gasoline, dominated this increase.

China

In China, oil demand recorded better-than-expected growth, as demand from the petrochemical and transportation sectors lent support to oil consumption despite early doubts over a slowing overall economic pace. China's oil demand painted a similar picture to 2015, remaining driven by a number of factors. The first of these is expansion in propylene dehydrogenation plants in the petrochemical sector, encouraging higher LPG and naphtha demand; second, firm demand in the road transportation sector as increasing car sales provided support to gasoline demand; and third, increasing jet fuel drove demand for the air transportation sector. On the other hand, the consumption of residual fuel oil and diesel oil declined mainly as a result of higher fuel substitution by natural gas and coal, particularly in the industrial sector. LPG and gasoline demand increased by about 24% and 4% y-o-y, respectively, while jet/kerosene grew by about 9% compared with 2015. On the other hand, diesel oil and fuel oil decreased by around 8% y-o-y.

World oil supply

The world's liquids supply grew by 0.42 mb/d to average 95.87 mb/d in 2016, despite two years of global E&P reductions of more than 45%. Cuts in international oil companies' (IOCs) CAPEX compared with a year earlier relatively reflected crude oil, condensate and natural gas liquids (NGLs) output declines from non-OPEC countries, particularly from the US onshore lower-48 states, as well as in China, Mexico, Brazil and Colombia. Meanwhile, OPEC crude oil and NGLs output increased by 0.96 mb/d and 0.13 mb/d, respectively.

Non-OPEC countries produced 57.34 mb/d of liquids on average, indicating a decline of 0.66 mb/d in 2016. In terms of breakdown, they produced 42.2 mb/d of crude oil, 7.7 mb/d of NGLs and 5.1 mb/d of unconventional liquids. Processing gains grew by 10 tb/d to reach an average of 2.18 mb/d in 2016. OECD saw the greatest yearly decline among regions of 0.47 mb/d, predominantly from OECD Americas. OPEC crude oil production rose in 2016 by 0.96 mb/d to average 32.47 mb/d. Moreover, OPEC NGLs and unconventional liquids grew by 0.14 mb/d to average 6.08 mb/d in 2016. In general, an oversupply of 1.28 mb/d was seen in the world in 2016, assuming total global demand of 94.62 mb/d.

Non-OPEC supply

The non-OPEC liquids supply averaged 57.34 mb/d in 2016, a contraction of 0.66 mb/d over the previous year. Declines were driven by OECD Americas, with the US being the main contributor, followed by Mexico. Declines were also seen in other regions, including developing countries (DCs) in Latin America and Africa, as well as China. On the other hand, oil supply in the former Soviet Union region increased in 2016, mainly in Russia.

Table 5

OPEC crude oil production based on secondary sources, 2012–2016 *(1,000 b/d)*

	2012	2013	2014	2015	1Q16	2Q16	3Q16	4Q16	2016	Change 2016/15
Algeria	1,209	1,157	1,123	1,106	1,091	1,084	1,090	1,089	1,088	–17
Angola	1,736	1,737	1,654	1,753	1,765	1,772	1,761	1,623	1,730	–23
Ecuador	499	518	544	544	543	550	547	543	546	2
Indonesia	237	226	222	220	222	219	219	209	217	–3
IR Iran	2,985	2,672	2,778	2,838	3,094	3,539	3,646	3,725	3,502	664
Iraq	2,980	3,035	3,269	3,935	4,238	4,290	4,396	4,601	4,382	447
Kuwait	2,794	2,814	2,783	2,771	2,842	2,799	2,879	2,876	2,849	78
Libya	1,394	927	470	405	370	312	311	571	391	–13
Nigeria	2,060	1,896	1,944	1,861	1,782	1,541	1,417	1,570	1,577	–284
Qatar	750	731	714	666	667	662	652	645	656	–9
Saudi Arabia	9,760	9,611	9,688	10,142	10,181	10,299	10,596	10,544	10,406	264
UAE	2,624	2,742	2,773	2,898	2,858	2,921	3,004	3,082	2,967	68
Venezuela	2,392	2,389	2,361	2,367	2,285	2,182	2,112	2,056	2,159	–208
Total OPEC	**31,420**	**30,456**	**30,323**	**31,506**	**31,939**	**32,168**	**32,629**	**33,135**	**32,470**	**964**

Note
Totals may not add up due to independent rounding.

Source
OPEC Secretariat assessment of selected secondary sources.

OECD Americas experienced the greatest decline among all non-OPEC regions in 2016 at 0.47 mb/d, followed by OECD Asia Pacific at 0.03 mb/d. The US experienced the highest decline in oil supply among all non-OPEC countries in 2016, down by 0.43 mb/d to average 13.61 mb/d, affected by declines in onshore lower-48 states output, including tight oil and conventional crude oil production in different regions. Canada's oil supply saw mild growth of 0.09 mb/d y-o-y in 2016 to average 4.51 mb/d, after facing outages of nearly 0.76 mb/d for three months in 2Q16. Mexico encountered a decline of 0.13 mb/d y-o-y to average 2.46 mb/d, but this was less than the contraction of 20 tb/d in 2015. In OECD Europe, oil production in the North Sea increased mainly in Norway and the UK, where it was boosted by 50 tb/d and 60 tb/d y-o-y, to average 1.99 mb/d and 1.02 mb/d, respectively. However, Other Europe countries

Table 6
OPEC crude oil production based on direct communication, 2012–2016 *(tb/d)*

	2012	2013	2014	2015	1Q16	2Q16	3Q16	4Q16	2016	Change 2016/15
Algeria	1,203	1,203	1,193	1,157	1,128	1,126	1,162	1,168	1,146	–11
Angola	1,704	1,701	1,654	1,767	1,773	1,730	1,720	1,611	1,708	–59
Ecuador	504	526	557	543	548	554	551	543	549	6
Gabon	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
IR Iran	3,740	3,576	3,117	3,152	3,385	3,570	3,653	3,993	3,651	500
Iraq	2,944	2,980	3,110	3,504	4,598	4,523	4,666	4,802	4,648	1,144
Kuwait	2,977	2,922	2,867	2,859	3,000	2,934	2,969	2,915	2,954	96
Libya	1,450	993	480	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Nigeria	1,954	1,754	1,807	1,748	1,667	1,485	1,209	1,431	1,447	–301
Qatar	734	724	709	656	675	655	644	632	652	–4
Saudi Arabia	9,763	9,637	9,713	10,193	10,225	10,360	10,651	10,602	10,460	268
UAE	2,652	2,797	2,794	2,989	2,944	3,035	3,174	3,201	3,089	100
Venezuela	2,804	2,786	2,683	2,654	2,510	2,392	2,331	2,287	2,379	–275
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.

declined by 50 tb/d. In OECD Asia Pacific, Australia's oil supply experienced a decrease of 30 tb/d in 2016 to average 0.35 mb/d.

Oil production in DCs also declined in 2016 by 0.08 mb/d, mainly in Latin America, to average 12.23 mb/d compared with one year earlier. The Middle East and Other Asia regions experienced supply growth in 2016 of 10 tb/d and 20 tb/d, respectively, while Africa and Latin America registered production declines of 20 tb/d and 90 tb/d, respectively. A relative contraction of 0.12 mb/d by Colombia in Latin America contributed to a remarkable fall in DCs in 2016.

The FSU's oil supply experienced remarkable growth of 0.18 mb/d in 2016, to average 13.88 mb/d. Russia's robust growth of 0.25 mb/d was partially offset by annual declines from other producing countries in this region. Russia produced 11.10 mb/d of liquids on average in 2016. China's oil production decline was the highest after the US in 2016 at 0.31 mb/d y-o-y. The average oil supply in China declined to 4.08 mb/d on a yearly basis.

OPEC crude oil production

According to secondary sources, OPEC crude oil production averaged 32.47 mb/d in 2016, an increase of 0.96 mb/d over the previous year. It was higher in 2H14 by 1.02 mb/d to average 33.07 mb/d compared with 1H14. OPEC crude's share of the global liquids supply in 2016 increased to 36.87% (+3.86%) from 33.01% the previous year. Growth came mainly from the Islamic Republic of Iran (IR Iran), Iraq and Saudi Arabia, which were up by 0.66 mb/d, 0.45 mb/d and 0.26 mb/d, respectively, while the greatest decrease was seen in Nigeria and Venezuela by 0.28 mb/d and 0.21 mb/d, respectively, according to secondary sources.

OPEC NGLs and non-conventional oil

OPEC NGLs and non-conventional oil are estimated to average 6.09 mb/d in 2016, including 5.81 mb/d of NGLs and 0.28 mb/d of non-conventional oil, mainly gas-to-liquids, revised down by 10 tb/d due to lower 4Q16 condensate output in Nigeria, still representing growth of 0.14 mb/d over the previous year. OPEC NGLs production increased in Saudi Arabia, IR Iran and the United Arab Emirates (UAE) by 94 tb/d, 82 tb/d and 54 tb/d in 2016, respectively, while output declined in Qatar and Nigeria.

Transportation

In 2016, the tanker market weakened in its various sectors, and annual average spot freight rates on all reported routes fell from those registered on the same routes a year before. As expected, a foreseen expansion in the tanker fleet cast a shadow on freight rates of different vessel classes in the market, while scrapping activities were not high enough to create a balance in the tanker market. Nevertheless, spot freight rates did encounter some enhancement in 4Q16, driven by seasonal demand, discharge delays and prompt replacements.

On average, spot freight rates for dirty vessels very large crude carrier (VLCC), Suezmax and Aframax fell by 4%, 8% and 14%, respectively, from a year before. In a similar pattern, clean tanker market average spot freight rates also declined as a result of less freight both east and west of Suez. Annually, clean tanker spot freight rates declined by 10% in the east and 18% in the west of Suez.

At the same time, bunker fuel prices dropped further from the previous year. Bunker prices in all major bunkering ports edged down, mainly following the crude oil price drop. On average, bunker fuel prices were almost 20% less than registered in the same period a year ago. Lower bunker prices offset ship owners' losses when margins were reported at their lowest levels.

VLCC average spot freight rates fell by 4% in 2016 from a year earlier, as rates on all reported routes declined with no exception. Rates for VLCCs operating on the Middle East-to-East and Middle East-to-West routes were lower by 7% and 3%, respectively, while those for VLCCs operating on the West Africa-to-East route were almost stable from the previous year. The drop in VLCC rates mainly came as a result of high new tonnage additions to this class, reduced delays, planned refinery maintenance, as well as easing congestion in Asian ports, which led to lower tonnage demand and utilization in general.

Suezmax and Aframax spot freight rates followed a similar trend to VLCC rates in 2016. In an annual average, Suezmax and Aframax spot freight rates dropped by 8% in the tanker market over 2016 and 14%, respectively, in 2016 compared with the previous year. The smaller class vessels — Suezmax and Aframax — also witnessed lower freight rates during the same period compared with a year ago, leading to freight rates occasionally reaching their lowest levels in some time. Suezmax rates were also affected by lesser output in the Mediterranean and supply disruptions in Africa. Aframax freight rates followed the same pattern, as the market suffered from an increase in vessel supply due to easing weather and port delays, lighter tonnage demand in several regions and ongoing fleet expansion.

Clean tanker spot freight rate developments followed similar dynamics in 2016 to those seen for dirty tankers. On an annual basis, clean tanker average spot freight rates were lower in 2016 compared with a year earlier. The drop in average rates came as a result of lower freight rates for tankers trading east and west of Suez, which were down by 10% and 18%, respectively. The clean segment of the market, as with the dirty segment, suffered from an increase in fleet capacity, as this sector was oversupplied, which negatively impacted spot freight rates across all reported routes.

Refinery industry

Product markets in the Atlantic Basin were supported during the driving season, with US gasoline demand hitting record levels in 2016. However, the end of the driving season, along with weaker middle distillate fundamentals, caused refinery margins to fall. In Asia, refinery margins fell throughout 2016, pressured by an oversupply environment. Higher refinery runs across main hubs contributed to an upward trend in product inventories worldwide, which led to a record level of middle distillate inventories and weaker fundamentals in the market, in turn, pressuring refinery margins worldwide. Refinery throughput continued to increase worldwide, mainly in Asia, with some regions hitting record highs.

US Gulf Coast (USGC) refining margins suffered a drop of more than $7 during 4Q15 and continued weakening in 1Q16, due to a slump seen in middle distillate demand, which witnessed a sharp y-o-y drop of more than 360 tb/d during 1Q16, amid increasing inventories and lack of support from warmer winter weather. This caused a significant decline in middle distillate crack spreads, which dropped to levels not seen since 2009, and refinery margins fell to average $5/b in 1Q16, despite unseasonably strong gasoline demand.

With the start of the driving season, US product markets got support from stronger domestic gasoline demand, which continued rising to hit 9.7 mb/d at the end of the 2Q16, the highest level seen since 2007.

This positive performance at the top of the barrel, along with a temporary tightening sentiment caused by Canadian crude supply disruptions, allowed US Gulf refinery margins for WTI crude to gain more than $3/b *versus* the previous quarter's levels to average around $8/b during 2Q16. However, despite healthy gasoline performance, weakened demand at the middle of the barrel and a high levels of inventory, which remained well above the five-year average, caused US refinery margins to fall during 2H16 to average around $6.5/b during 2016, down more than $5/b *versus* the previous year's level.

US refiners continued with higher refinery runs, supported by stronger domestic gasoline demand amid increasing export opportunities, mainly to Latin America. Refinery runs reached 91.3% of capacity

Table 7

World oil demand and supply balance, 2013–2016

	2013	2014	2015	1Q16	2Q16	3Q16	4Q16	2016
World demand *(mb/d)*								
OECD	46.1	45.8	46.4	46.8	46.3	47.3	47.1	46.8
OECD Americas	24.2	24.2	24.6	24.6	24.7	25.1	24.8	24.8
OECD Europe	13.6	13.5	13.7	13.6	13.9	14.4	14.0	14.0
OECD Asia Pacific	8.3	8.1	8.0	8.6	7.6	7.7	8.3	8.1
DCs	29.4	30.1	30.8	31.0	31.3	31.8	31.3	31.3
FSU	4.5	4.6	4.6	4.5	4.4	4.7	5.1	4.7
Other Europe	0.6	0.7	0.7	0.7	0.6	0.7	0.8	0.7
China	10.4	10.8	11.2	11.1	11.5	11.5	11.9	11.5
(a) Total world demand	**91.1**	**92.0**	**93.7**	**94.1**	**94.0**	**95.9**	**96.1**	**95.1**
Non-OPEC supply *(mb/d)*								
OECD	22.3	24.3	25.3	25.4	24.2	24.6	25.2	24.8
OECD Americas	18.2	20.1	21.1	21.0	20.1	20.5	20.8	20.6
OECD Europe	3.6	3.6	3.8	3.9	3.7	3.6	3.9	3.8
OECD Asia Pacific	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4
DCs	11.9	12.1	12.3	12.1	12.1	12.3	12.4	12.2
FSU	13.6	13.5	13.7	14.0	13.7	13.7	14.2	13.9
Other Europe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
China	4.3	4.3	4.4	4.2	4.1	4.0	4.0	4.1
Processing gains	2.1	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Total non-OPEC supply	**54.2**	**56.5**	**58.0**	**58.0**	**56.5**	**56.9**	**58.0**	**57.3**
OPEC NGLs + NCOs	5.6	5.8	5.9	6.1	6.1	6.1	6.1	6.1
(b) Total non-OPEC supply and OPEC NGLs + NCOs *(mb/d)*	**59.8**	**62.3**	**63.9**	**64.0**	**62.6**	**63.0**	**64.1**	**63.4**
OPEC crude oil production[1]	**30.5**	**30.3**	**31.5**	**31.9**	**32.2**	**32.6**	**33.1**	**32.5**
Total supply *(mb/d)*	**90.3**	**92.6**	**95.5**	**96.0**	**94.7**	**95.6**	**97.3**	**95.9**
Balance (stock change and misc.)	**–0.8**	**0.6**	**1.8**	**1.9**	**0.7**	**–0.3**	**1.1**	**0.8**
OECD closing stock level (outside FCPEs) *(mb)*								
Commercial	2,559	2,704	2,986	3,012	3,052	3,058	2,986	2,986
SPR	1,584	1,580	1,587	1,593	1,591	1,594	1,601	1,601
Total	4,144	4,285	4,573	4,606	4,643	4,652	4,587	4,587
Oil-on-water	909	924	1,017	1,055	1,094	1,068	1,102	1,102
Days of forward consumption in OECD								
Commercial onland stocks	56	58	64	65	65	65	63	63
SPR	35	34	34	34	34	34	34	34
Total	**90**	**92**	**98**	**100**	**98**	**99**	**98**	**97**
Memo items *(mb/d)*								
FSU net exports	9.0	8.9	9.1	9.5	9.4	8.9	9.1	9.2
Difference (a — b)	**31.2**	**29.7**	**29.7**	**30.0**	**31.5**	**33.0**	**32.0**	**31.6**

Note

Totals may not add up due to independent rounding.

[1]OPEC Secretariat assessment of selected secondary sources.

during the peak driving season to average 89% during the year, corresponding to an average of 16.2 mb/d of throughput, around 340 tb/d more than in 2015, despite some outages. Refinery operations were impacted by heavy flooding, which caused significant operational problems, mainly in southern Louisiana, amid some temporary operational limitations in the Colonial Pipeline, which also impacted the sector.

In Europe, product markets showed weak performance during 2016 due to pressure from an oversupplied environment and increasing inflows to the region, which kept middle distillate fundamentals very weak.

Market sentiment in Europe witnessed a temporary recovery during 2Q16, supported by positive developments at the top of the barrel on the back of higher gasoline export opportunities. However, product markets in Europe lost momentum since the start of 3Q16, as strong gasoline export opportunities to the USEC and the recovery seen in a tightened fuel oil market were outweighed by a continued lack of support from the middle of the barrel as oversupply and high inventories continued hitting the gasoil market. This continued to bring refinery margins under pressure to average around $6/b in 2016, a sharp drop of almost $3/b *versus* the previous year.

European refiners have been operating at a high level over the last years, as export opportunities have encouraged an increase in refinery runs, which led to more than 12 mb/d of throughput during 2H16 to reach an average of around 11.7 mb/d of throughput for all of 2016 (OECD Europe). However, this level was around 150 tb/d lower than the previous year, as the sector was impacted by a French strike, which affected operations in several refineries, ports and gas stations during 2Q16.

Asian product markets weakened since the start of the year due to an oversupply environment in the region, which caused refinery margins in Singapore to drop by around $2/b over the previous year to average around $8/b during 2016. Refinery margins were impacted by a deceleration in middle distillate demand growth, while the demand for power generation supported the bottom of the barrel, thus avoiding further losses.

In Asia, refinery runs continued to rise to meet increasing demand in the region amid new online capacity, with Chinese refineries increasing throughput to hit a new record high of 11.7 mb/d during 2Q16 to average around 11.5 mb/d during 2016, representing an increase of almost 500 tb/d *versus* the previous year. In Singapore and Japan, refinery runs for the year averaged around 85%.

Stock movements

Total OECD inventories — including commercial and government stocks — rose by 14 mb at the end of 2016 from the same time the previous year to stand at 4,607 mb. This build was attributed to an increase in the Strategic Petroleum Reserve (SPR), which ended the year at 1,601 mb, while commercial oil inventories remained unchanged to stand at 3,006 mb by the end of 2016.

On a regional basis, a build in total OECD Americas' inventory of 52 mb offset a stock draw in OECD Europe and Asia Pacific, where there was a decline of 32 mb and 20 mb, respectively. On a quarterly basis, total OECD inventories experienced a stock build of 33 mb in the first quarter, followed by a build of 38 mb and 9 mb in the second and third quarters, respectively. The fourth quarter saw a seasonal stock draw of 65 mb.

The first three quarters of 2016 saw a cumulative build in total commercial stocks of 72 mb, with the bulk of the build coming in 2Q15, when it increased by 40 mb. The fourth quarter registered a stock draw of 72 mb due to a contraction in non-OPEC supply.

At the end of 2016, OECD commercial stocks finished the year 286 mb above the five-year average. Within the OECD regions, OECD Americas experienced a surplus of 236 mb above the latest five-year average, followed by OECD Europe with a surplus of 42 mb, while OECD Asia Pacific indicated a gain of 9 mb above the seasonal norm.

Table 8

Average quarterly and yearly spot prices for selected crudes, 2015–2016

		2015	1Q16	2Q16	3Q16	4Q16	2016	% Change 2016/15
OPEC Reference Basket		**49.49**	**30.16**	**42.37**	**42.90**	**47.52**	**40.76**	**–17.6**
OPEC Basket crudes	Arab Light	49.85	30.16	42.72	43.11	47.76	40.96	–17.8
	Basrah Light	47.87	28.61	41.17	41.76	46.47	39.53	–17.4
	Bonny Light	52.95	33.92	45.68	46.49	49.91	44.02	–16.9
	Es Sider	51.38	33.10	44.59	44.86	48.09	42.69	–16.9
	Girassol	52.96	33.76	45.44	45.95	49.18	43.61	–17.7
	Iran Heavy	48.80	28.41	41.07	41.72	46.97	39.57	–18.9
	Kuwait Export	48.13	28.11	40.88	41.50	46.63	39.30	–18.3
	Marine	50.71	30.83	43.22	43.49	48.09	41.43	–18.3
	Merey	41.11	22.80	33.85	36.85	42.48	34.02	–17.2
	Murban	53.87	35.45	46.35	46.40	51.06	44.83	–16.8
	Rabi Light	44.94	26.92	40.43	40.93	45.39	38.44	–14.5
	Oriente	52.83	33.10	44.41	44.82	48.03	42.62	–19.3
	Saharan Blend	52.79	34.85	46.41	46.26	49.51	44.28	–16.1
Other OPEC crudes	Arab Heavy	47.01	27.38	40.16	40.59	45.57	38.45	–18.2
	Dubai	50.94	30.67	43.24	43.31	48.27	41.39	–18.7
	Dukhan	52.87	34.08	45.21	45.04	49.99	43.69	–17.4
	Forcados	54.41	34.02	45.41	46.09	49.05	43.70	–19.7
	Iran Light	51.40	31.58	43.40	43.81	47.63	41.66	–18.9
	Zueitina	52.36	33.90	45.39	45.66	49.15	43.55	–16.8
Other Non-OPEC crudes	Brent Dated	52.41	34.10	45.59	45.86	49.41	43.76	–16.5
	Isthmus	51.14	31.53	43.55	44.60	49.72	42.37	–17.1
	Minas	49.17	31.74	46.36	41.12	45.13	41.11	–16.4
	Oman	51.21	31.65	43.53	43.84	48.74	41.96	–18.1
	Suez Mix	48.94	30.64	42.16	42.35	46.29	40.41	–17.4
	Tapis	55.75	36.06	47.03	48.01	51.58	45.69	–18.0
	Urals	51.90	32.49	43.92	44.10	48.05	42.16	–18.8
	W T Intermediate	48.73	33.36	45.58	44.93	49.14	43.27	–11.2
	W Texas Sour	48.99	33.22	44.75	43.47	48.19	42.43	–13.4
Differentials	B. Light – A. Heavy	5.94	6.54	5.52	5.90	4.34	5.57	
	B. Light – S. Blend	0.16	–0.93	–0.73	0.23	0.40	–0.26	
	Brent – WTI	3.68	0.74	0.01	0.93	0.27	0.49	
	Brent – Dubai	1.47	3.43	2.35	2.55	1.14	2.37	

Notes
Quarterly and yearly averages based on daily quotations.

Source
Platts and direct communication, OPEC Secretariat assessments.

Within the components, OECD commercial crude saw a build of 6 mb at the end of 2016, while products experienced a stock draw of 6 mb. Crude and product stocks stood at 199 mb and 87 mb above the five-year average, respectively. Middle distillates indicated a large surplus of 40 mb above the seasonal norm, while the surplus in gasoline stocks was at 4.0 mb compared with the five-year average.

In terms of days of forward cover, OECD commercial stocks stood at 63.4 days at the end of 2016, 1.5 days higher than was observed 12 months before and 5.1 days higher than the latest five-year average. OECD Americas was 7.9 days above the historical average to stand at 65.1 days at the end of 2016 and OECD Europe stood 1.4 days above the seasonal average to finish the year at 69.8 days. Meanwhile, OECD Asia Pacific indicated a surplus of 2.3 days, averaging 48.5 days.

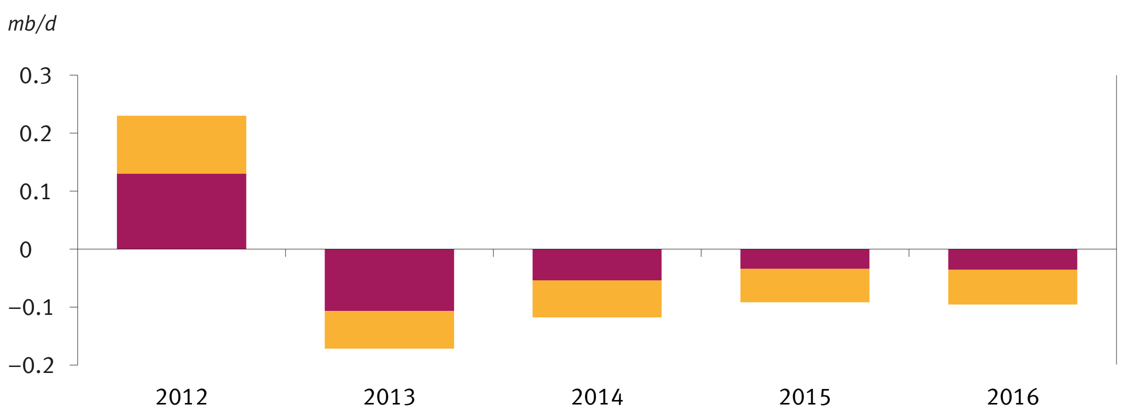
Total SPR in the OECD at the end of 2016 rose by 14.0 mb from the previous year to stand at 1,601 mb. This build was divided between OECD Asia Pacific and OECD Europe, which increased by 6 mb and 8 mb, respectively. OECD Americas remained unchanged at 697 mb. OECD Europe's SPR stocks ended 2016 at 481 mb and OECD Asia Pacific at 422 mb.

Estimated total non-OECD stocks — including commercial and SPR — stood at 2,248 mb at the end of 2016, up by 48 mb from the end of 2015. China saw a build of around 64 mb followed by non-OECD Asia, with a build of 18 mb, while the Middle East experienced a stock draw of 38 mb.

Balance of supply and demand

World oil demand grew by around 1.4 mb/d in 2016, higher than initial projections, averaging total demand of 95.1 mb/d. Both OECD and non-OECD countries contributed to this growth, with increases of 0.5 mb and 0.9 mb/d, respectively. Demand growth in 2016 was encouraged by lower prices across the globe. Meanwhile, the forecast for non-OPEC supply

Figure 7
Japanese direct crude and residual fuel burning, y-o-y growth, 2012–2016



growth in 2016 experienced a downward revision from initial projections. Non-OPEC supply registered a contraction of 0.7 mb/d to stand at 57.3 mb/d. The US oil supply saw the largest decline among all non-OPEC countries in 2016, followed by China and Mexico. Growth of OPEC NGLs and non-conventional oils in 2016 remained almost unchanged from the initial forecast of 0.1 mb/d to stand at 6.1 mb/d.

Based on these revisions, the forecast demand for OPEC crude in 2016 has been changed up from the initial forecast to stand at 31.6 mb/d. This represents an increase of 1.9 mb/d from 2015 levels. This upward revision mainly reflects higher world oil demand combined with lower non-OPEC supply. On a quarterly basis, required OPEC crude in 2016 stood at 30.0 mb/d and 31.5 mb/d in the first and second quarters, respectively, while it was higher in the second half of the year, averaging 33.0 mb/d in the third quarter and 32.0 mb/d in the fourth quarter.

Meanwhile, OPEC production in 2016 averaged 32.5 mb/d, indicating a yearly implied stock build of 0.8 mb/d. The first and the second quarters saw stock builds of 1.8 mb/d and 0.7 mb/d, respectively, while the third quarter experienced an implied stock draw of 0.3 mb/d. The fourth quarter registered an implied stock build of 1.1 mb/d.

Crude oil price movements

Although the OPEC Reference Basket (ORB) value rose sharply toward the end of 2016 after OPEC and non-OPEC countries made a historical decision to adjust production in order to curb crude oversupply, it still ended the year at its lowest point in more than 12 years, averaging $40.76/b, around 18% less than its average value in 2015. At the beginning of 2016, the ORB value deteriorated significantly to its lowest point since September 2003. This occurred as the saga of the oil market's supply glut and the weakening of the Chinese economy continued, exacerbated by an unusual slowing in seasonal heating demand amid a continuation of mild weather in key consuming regions over the entire winter. Moreover, swelling crude and product inventories also continued to pressure the oil complex. Subsequently, in February 2016, the ORB value rebounded for the first time in three months, supported by a number of positive factors and despite overwhelming oversupply, a slowing global economy, record high inventories and a rising US dollar. Apart from positive market sentiment, arising from the efforts of major producers to trim output and expectations for dwindling US production, support came from healthy physical oil markets, particularly in Asia. The ORB's value continued to move higher and by the end of 1H16, it was up for five months in a row to average above $45/b for the first time since October 2015. This, despite pressure from falling commodity prices amid a rallying US dollar after Britain's vote to exit the European Union. The ORB managed to improve on commercial crude oil stock draws in the US, as well as healthy oil demand amid supply disruptions. It also soared more than 40% in 2Q16 as part of a 75% rebound since hitting 12-year lows earlier this year, as firming global demand and unplanned production cuts from Canada to Nigeria eased the glut that had prompted the worst price rout in years.

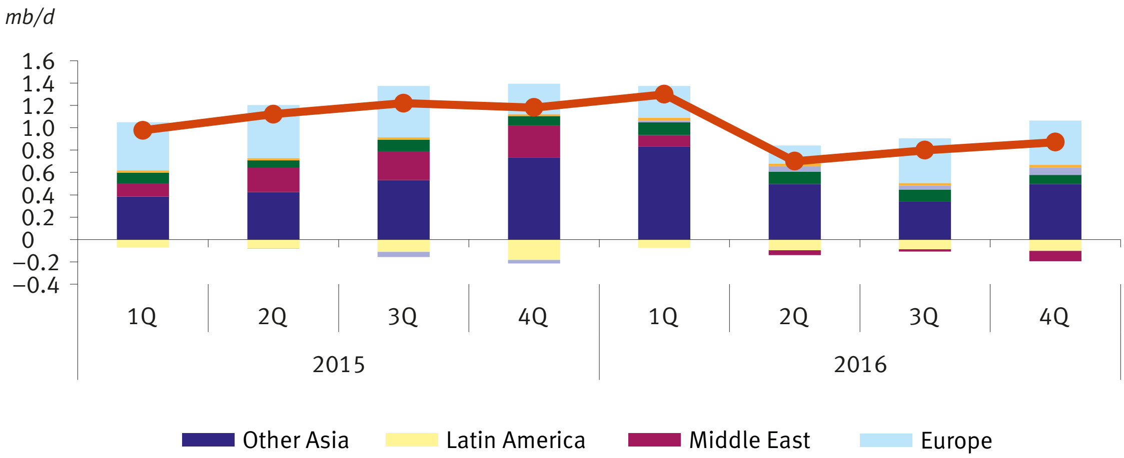
The ORB value fell against a backdrop of less-than-anticipated demand at the start of 2H16 causing high stocks, particularly of refined products, and rising supply. Hedge funds also turned more negative, contributing to further pressure on oil prices. Nevertheless, at $42.68/b, the ORB remained up by more than 60% from the 12-year low seen at the beginning of the year. The recovery also faded after prices above $45/b enticed US oil drillers to return to the well pad. However, the ORB recovered slightly in August, supported by a brief rebound in the oil market, which was triggered by speculation that oil producers might agree to curb output at a September meeting in Algeria. Oil prices were also supported by forecasts that the oil market would tighten in 2H16, amid an expected healthy draw in global oil stocks and a more balanced market. By the end of the year, the ORB jumped nearly 20% in December to end above $50 for the first time in a year-and-a-half at $51.67/b, as the oil complex surged after a historic OPEC and non-OPEC decision was made to reduce the oil supply overhang that had depressed prices for two years. Nevertheless, the ORB 2016 yearly average value was at its lowest since 2003 at around $40/b.

Earlier in the year, sweet/sour differentials narrowed in Asia after widening significantly since the beginning of 2015. Meanwhile, differentials widened in Europe and on the USGC. Despite strong demand for light sweet crudes in Asia amid robust refining margins, a greater supply of light sweet oil put pressure on the Malaysian crude premium. Regional light sweet crude grades were supported a month earlier by improved freight rates, and were at their highest level in years. The falling cost of sending tankers from the Middle East and West Africa to Asia put pressure on shorter-haul grades. Meanwhile, Middle East sour crude benchmark Dubai was somewhat buoyed by robust demand from Chinaoil in the Platts crude oil price assessment window. The light sweet Tapis premium over medium sour Dubai decreased to $6.30/b. In Europe, the Urals medium sour crude discount to Brent increased in January back to record highs as a healthy loading programme and the return of Iranian crude to European markets put Russia's main export grade under further pressure in Europe. On the other hand, North Sea light sweet crude differentials were supported by stronger demand and arbitrage opportunities to Asia. The Dated Brent-Med Urals spread widened to $1.60/b. In the USGC, the Light Louisiana Sweet (LLS) premium over medium sour Mars surged to $5.20/b in January, amid softer heavy conversion or complex refinery demand for sour crudes due to maintenance. In contrast, unseasonably cold weather in West Texas curtailed production and tightened the market for local light sweet crudes, supporting similar USGC crudes such as LLS.

By mid-year, sweet/sour differentials narrowed slightly in all markets. In Europe, the discount of Urals medium sour crude to light sweet North Sea Brent decreased to $1.68/b. The North Sea light sweet crudes

Figure 8

Non-OECD oil consumption by region and quarter, y-o-y growth, 2015–2016



were pressured by overhang volumes. In Asia, the premium of light sweet Tapis over medium sour Dubai shrank to $3.30/b, the narrowest spread in over eight months. This occurred as Asian Pacific regional sweet grades continued to suffer from an ample supply of competitive arbitrage volumes amid somewhat weakening crack margins for light sweet crudes. In the USGC, the premium of LLS over medium sour Mars remained roughly unchanged for the second month in a row, registering $5.30/b, as both grades continued to be affected by disruptions in Canadian crude oil supplies to the US.

Sweet/sour differentials were relatively stable in December, flattening in Europe, narrowing slightly on the USGC and widening a little in Asia. In Europe, the Urals medium sour crude discount to light sweet North Sea Brent remained at $1.30/b in December, as both markets fundamentally improved equally over the month on good demand. In Asia, the previous month's widening trend in the Tapis/Dubai spread continued as Asian Pacific light crudes gained support from healthy regional gasoline and naphtha margins. The easing arbitrage flow of Brent-related light sweet crudes, due to a wider Brent-Dubai spread, also supported the increase of the Tapis premium over Dubai. The Tapis/Dubai spread widened by 40¢ on a monthly average basis to $3.70/b. (The Dated Brent/Dubai spread also widened by 35¢ to $1.50/b.) In the USGC, the LLS premium over medium sour Mars was reduced further in December to rest at $4.15/b, down 55¢. Both grades were supported by the widening of the WTI/Brent gap over the month as it made local crude more attractive compared with imported volumes.

Going into 2017, the premiums for light sweet grades are expected to soften as a result of the joint OPEC and non-OPEC output reduction agreement, which is likely to primarily reduce the availability of medium-sour crudes. Moreover, relatively healthy fuel oil cracks in Asia and the US — where support was drawn from falling Russian fuel oil output — contrast with likely weak gasoline fundamentals weighing on the cracks. These combined factors are likely

Figure 9
Year-on-year percentage change in OPEC production, 2012–2016

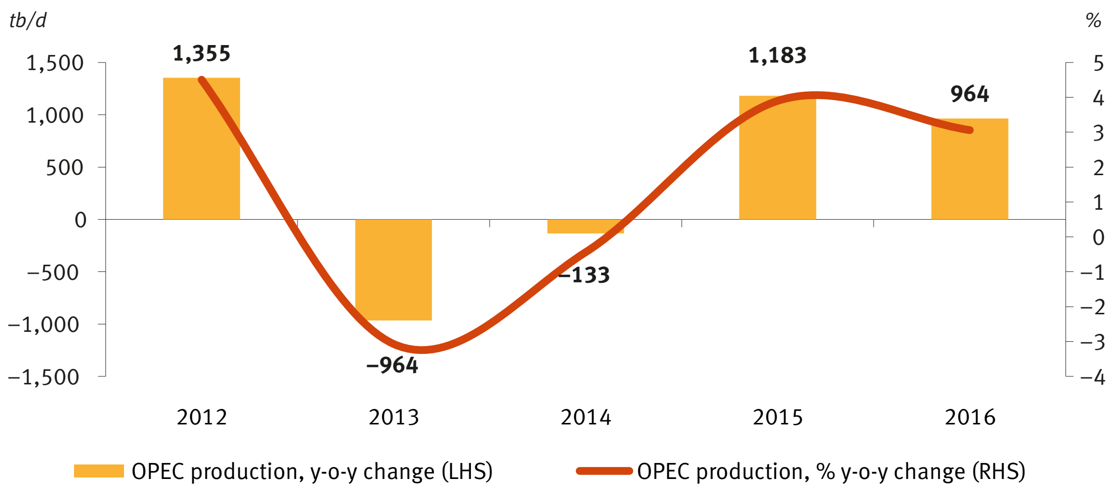
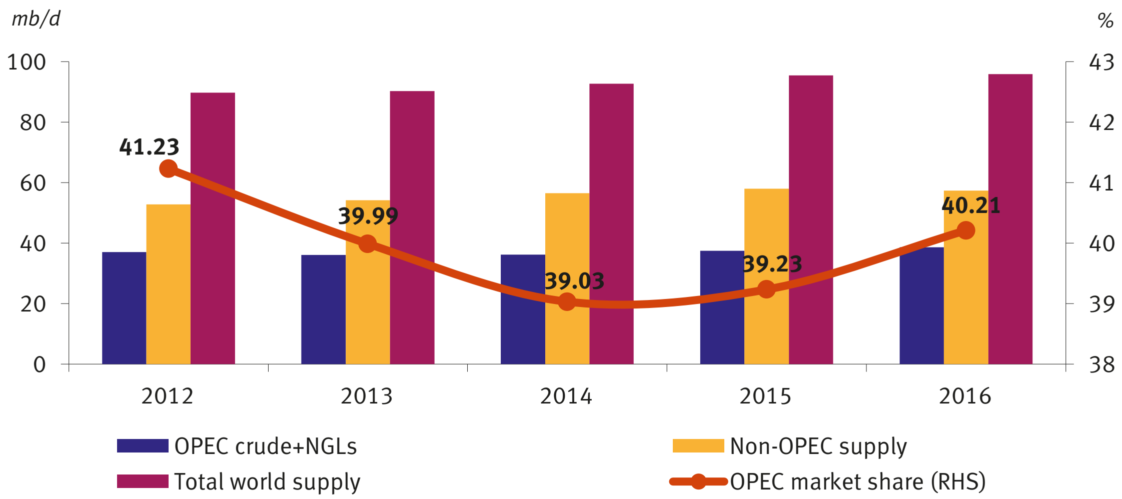


Figure 10

OPEC[1], non-OPEC[2] and total world supply, as well as OPEC market share, 2012–2016



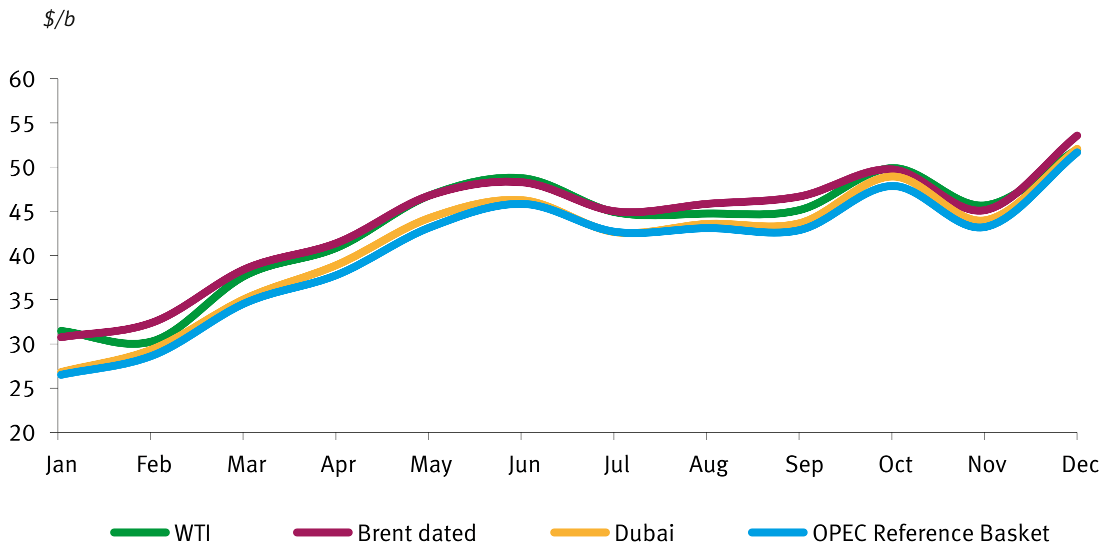
Notes

[1] Including OPEC NGLs+non-conventional oils.

[2] Including processing gains.

Figure 11

Monthly oil price movements, 2016

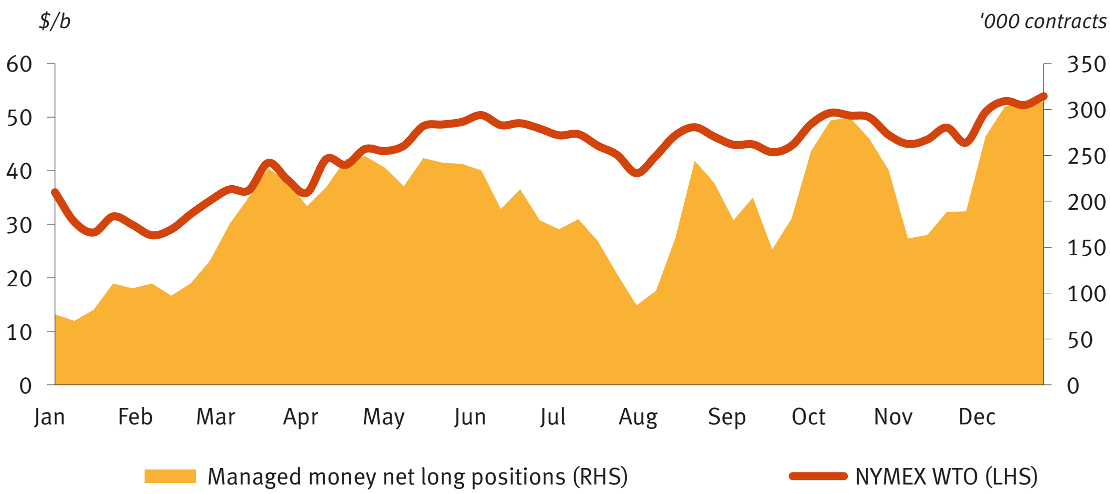


to limit the upside potential for sweet crude premiums to sour. This should be true for Asia in particular, and it wouldn't be a surprise to see Dubai relatively more supported.

Despite a surge in oil prices after the OPEC and non-OPEC year-end decision to adjust production, the main crude oil futures declined significantly for the third straight year in 2016, when one of the worst slump cycles since the financial crisis in 2008 was witnessed, ending in the worst yearly average in 12 years. ICE Brent ended 2016 down $8.60, or 16%, at $45.04/b on average, while Nymex WTI declined by $5.48, or 11.2%, to $43.32/b. These yearly oil futures averages are the lowest since 2004.

Earlier in the year, repeating the supply glut pressure on the global oil market, crude oil futures declined significantly, taking prices to 12-year lows. ICE Brent ended January down at $31.93/b on a monthly basis, while Nymex WTI fell to $31.78/b. Both contracts started the year sharply down, diving below $35/b for the first time since 2004 for the worst January showing in 12 years. The sell-off in the oil market continued amid deepening concerns about fragile Chinese demand and the absence of any output restraint, with momentum-driven dealing and overwhelmingly bearish sentiment surrounding the market. Oil prices also slumped to more than 12-year record lows as the market anticipated a rise in Iranian exports following the lifting of sanctions against the country's oil exports after three years. The oil market fell under additional pressure from a firmer US dollar as traders sought safer havens and signs of a further swell in already-record US inventories. Growing stocks of oil in the US stoked market fears about demand. Also, concerns about US economic uncertainty amplified demand concerns.

Figure 12
Nymex WTI price *versus* speculative activity, 2016

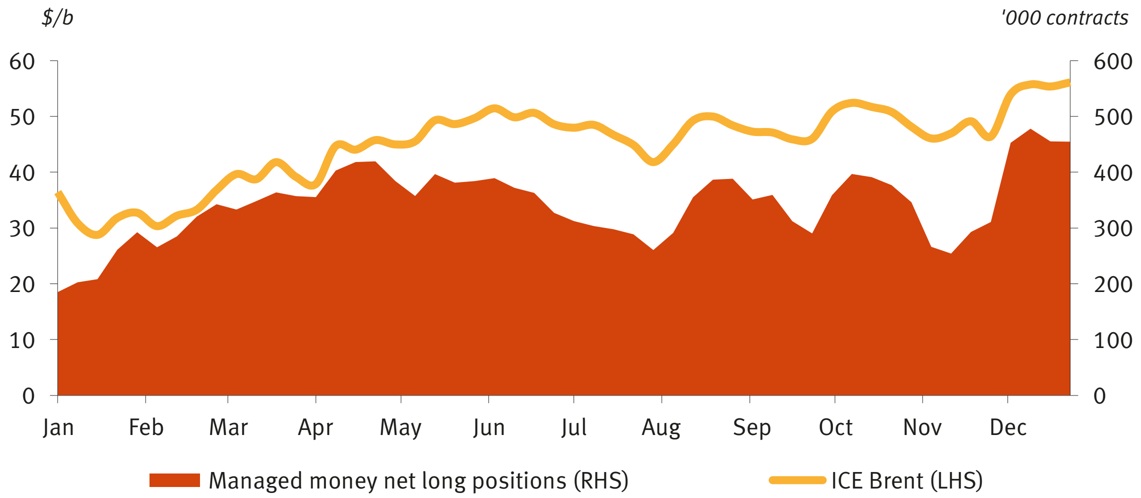


The warmer-than-usual winter in the Northern Hemisphere due to the El Niño weather phenomenon crippled demand for heating oil.

By the end of 3Q16, both oil futures across the Atlantic edged up, being greatly pushed up by a late-month rally in the oil complex. Before the OPEC Extraordinary Meeting in Algeria to tackle the persistent oversupply in the market, oil futures had been caught in one of their most volatile few weeks in months amid uncertainty regarding the meeting's outcome. After the meeting, with an announcement by OPEC that aimed for a production adjustment with a view to rebalancing the market the next year, prices gained considerable support, with ICE Brent nearing the $50/b level. Oil prices were also supported after US government data showed a surprise drop in domestic crude stockpiles for four weeks in a row. The month-long drawdown in crude stocks was a surprise after a massive 14 mb storm-related drop in inventories was seen earlier.

At the end of the year, crude oil futures rallied sharply, with oil futures on both sides of the Atlantic rising to their highest point in 18 months, to well above the key $50 mark on average. Both crude oil benchmarks have made big gains since OPEC and non-OPEC producers decided to adjust production in an attempt to balance an oversupplied market. OPEC shocked the oil market at the end of November by deciding on a coordinated production adjustment of 1.2 mb/d. However, it didn't stop there. The Organization persuaded 11 non-OPEC countries to join in and reduce their output, which would take another 558,000 barrels per day off the market, in an overwhelming move that sent crude prices to their highest levels in more than a year and a half. Prices were also supported by several countries detailing their production cuts as part of the November

Figure 13
ICE Brent price *versus* speculative activity, 2016



OPEC-non-OPEC output decision and the softening of the US dollar after it rallied to its highest point since 2002. For the year, however, oil futures witnessed one of their worst slump cycles since the financial crisis of 2008 to end at their worst average in 12 years.

In 2016, the transatlantic (ICE Brent *versus* Nymex WTI) spread or Brent premium over WTI narrowed further greatly with US crude gaining some support from reduced drilling and the lifting of a ban on most US crude exports, which briefly pushed US crude to a premium to global benchmark Brent for the first time in more than a year. Brent was pressured by oversupply. This narrowing trend supported the import of West African crudes back to the US. For the year, the spread narrowed to $1.72/b from $4.84/b in 2015, down by $3.12/b. In two years, the spread dropped by almost $5/b to normal historical levels. In a related trend, trading surged to a record on options that bet on the spread between WTI and Brent, which some traders attributed to a US Republican tax proposal that would levy corporate taxes on imports to the US while exempting exports from US tax. Such a tax regime would encourage oil producers to favour foreign markets and refiners to buy domestic crude, and the increased demand could push up the price of US crude relative to global oil prices, which could cause the spread between WTI and Brent to narrow, or even reverse.

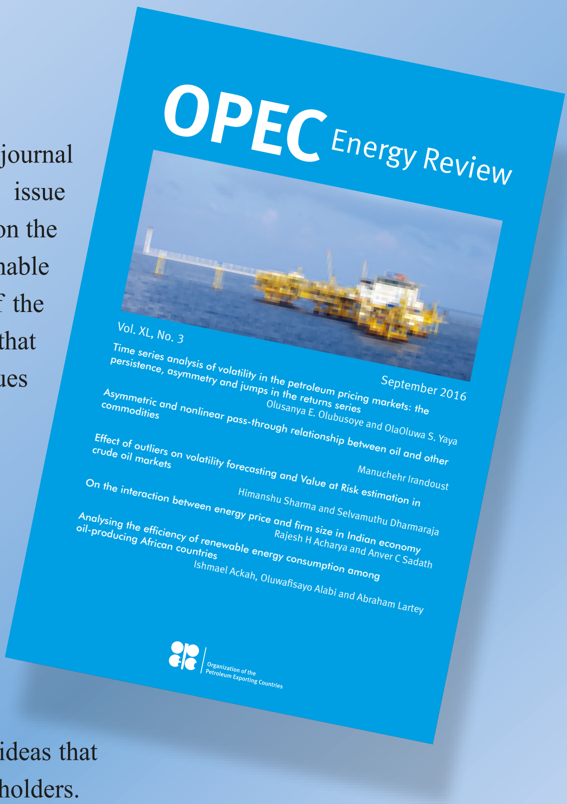
By the end of 2016, although in the near term all oil markets remained in contango even after the OPEC and non-OPEC decision to reduce oversupply, the first signs of backwardation were visible in the futures curve, as summer 2017 contracts traded above the 2018 strip average. The decision by OPEC and 11 non-OPEC countries, led by Russia, to jointly adjust crude output by some 1.8 mb/d for the first six months of 2017 pushed near-term oil prices to their highest level in 18 months. Developments further down the curve were significant, with Nymex WTI shifting into backwardation around the end of 2017, while the overall back-end curve shifted lower. The Brent crude futures structure flipped into backwardation for the first time in two-and-a-half years, mimicking the shift in the US crude futures market. The December 2017 contract traded at a premium to the December 2018 contract, in backwardation for the first time since June 2014, when the current global oversupply began.

Near term, the deep Dubai contango eased amid strong Asian demand. The Dubai M1 discount to M3 decreased to 63¢/b. The North Sea Brent contango also narrowed amid firm demand and lower supplies. The M1–M3 discount moved in to around $1.20/b on average. In the US, the WTI contango worsened further amid a build in US stocks. The WTI contango (M1–M3) widened to $1.87/b.

As for speculative activities, by the end of 2016, hedge funds and other institutional investors' bets on rising crude oil prices hit fresh all-time highs, providing additional fuel to ongoing steady gains in prices. Speculators bet heavily on higher oil price increases, as indicated by traders' commitment data from both the ICE and Nymex exchanges. Money managers' net length in Nymex WTI crude surged to 307,909 contracts in the period from the OPEC meeting on 30 November to the end of the year. Speculators increased net long positions to 454,585 lots for ICE Brent futures and options. Total futures and options open interest volume in the two exchanges also increased to 5.46 million contracts.

Moreover, in 2016, Nymex WTI total traded volume was significantly higher at 277 million contracts, compared with 202 million in 2015, about 37% higher y-o-y. ICE Brent traded volumes also increased to about 210 million lots, up 15% from 2015.

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 which cover 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 welcomes new Secretary General

On *1 August 2016*, OPEC received a new Secretary General. His Excellency Mohammad Sanusi Barkindo of Nigeria assumed office at the OPEC Secretariat in Vienna, Austria. HE Barkindo was officially appointed to the post for a three-year term at OPEC's 169th Meeting of the Conference on 2 June 2016 in Vienna.

He replaces outgoing Secretary General HE Abdalla Salem El-Badri who had led the Organization since 1 January 2007.

An accomplished oil technocrat and veteran of OPEC, HE Barkindo brings to the Organization a wealth of experience in the oil and gas industry, both in Nigeria and internationally.

From 2009 to 2010, he was Group Managing Director of the Nigerian National Petroleum Corporation (NNPC). Previous to that, he served as Deputy Managing Director of Nigerian Liquefied Natural Gas, a joint venture between NNPC, Shell, Total and Eni. Earlier in his career, he was Special Assistant to former Minister of Petroleum Resources and OPEC Secretary General, HE Dr Rilwanu Lukman.

HE Barkindo also worked in several key roles at OPEC between 1986 and 2010. In 1986, he was appointed to Nigeria's delegation to OPEC, and from 1993 to 2008, served as Nigeria's National Representative on the Organization's Economic Commission Board. In 2006, he served as Acting Secretary

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

He has also helped produce the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol as the leader of Nigeria's technical delegation to UN negotiations since 1991. And he served as Vice President of the 15th Session of the Conference of the Parties (COP15) in 2010, when he chaired the opening session in Copenhagen attended by more than 100 heads of state and government. He is the longest serving member of the country's delegation to the UNFCCC. He also served as Chairman of the OPEC Task Force of the United Nations Commission on Sustainable Development for the 15th session.

El-Badri says goodbye to OPEC

Meanwhile, OPEC paid tribute to His Excellency Abdalla Salem El-Badri, departing OPEC Secretary General, following nine-and-a-half years as head of the Organization. El-Badri's term, which ended on 31 July 2016, is the longest in the history of the Organization.

Accolades were led by HE Barkindo, who praised the legacy El-Badri left for the Organization, and acknowledged his position as an "icon of the global oil industry and respected round the world". HE El-Badri began his oil industry career with Esso Standard back in 1965, and in the intervening years has been Chairman of the Libyan National Oil Company (NOC), Libya's Minister of Petroleum, its Minister of Energy, Oil

Incoming and outgoing Secretaries General bid each other all the best in their upcoming challenges.

and Electricity and its Deputy Prime Minister, President of OPEC, and of course, OPEC Secretary General.

HE Barkindo added that he has known HE El-Badri for almost 30 years and recalled the first time they met. "I was a junior member of a Nigerian delegation to Libya, and His Excellency was then head of Libya's NOC. Despite his senior position, he made sure he welcomed and conversed with all of us. He was a humble man of great integrity, and he remains this way today."

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

HE El-Badri said it was an honour for him to lead OPEC and thanked all of the Secretariat's staff for their cooperation, dedication and support that had been extended to him during his time in office. He said: "It has proved to be a challenging and fulfilling task, and I leave with many warm and positive memories, both professionally and personally, of a time I consider to be one of the highlights of my career."

In a statement shared with staff, HE El-Badri also highlighted some of the challenges, successes and advancements that had been achieved with their backing and assistance. "I believe we were able to guide the Organization through one of the greatest challenges of our generation: The Great Financial Crisis of 2008 and its aftermath. I believe we have considerably strengthened our research, which is now more detailed and more extensively shared. Our publications are widely disseminated and used by analysts and researchers the world over.

"I believe we have provided our Member Countries with more comprehensive and more specific analysis, information and data, and become a broader platform for extending dialogue and cooperation. I believe we now have a stronger and more respectful relationship with the international media. And I believe that we have been able to improve many of our internal systems and procedures for the benefit of staff."

In welcoming his successor, HE El-Badri said that he was "leaving the OPEC Secretariat in good hands, as the Organization looks to further evolve and strengthen." He added that "Mr Barkindo had a deep and long understanding of the Organization" and was sure this would prove to be beneficial in the years ahead.

Historic cooperation changes course of the oil market in 2016

The year 2016 was a year of change, with OPEC taking a leading role in finding a solution to the imbalance in the oil market which started in mid-June 2014.

The latest cycle — and the worst in three decades — was marked by a sharp crude oil price decline observed between June 2014 and January 2016, when the OPEC Reference Basket price fell by an unprecedented 80%. It was the largest percentage fall in five cycles of sharp price declines.

Supply outpaced demand, which led to a sharp global inventory build between mid-2014 and the start of 2016. Over 2016, OECD commercial oil stock levels saw little change, remaining more than 300 million barrels above the five-year average. There was also a dramatic rise in non-OECD inventories, plus expansion in some non-OECD strategic petroleum reserves.

In both 2015 and 2016, a dramatic contraction in oil industry investments took place. For example, global oil and gas exploration and production spending fell by around 26% in 2015 and a further 22% in 2016. Combined, this equated to more than $300 billion.

This was accompanied by significant job losses across the industry, as well as increasing financial and operational stresses for many companies. In 2016, it became evident that all producers, as well as most consumers, came to comprehend the gravity of the most recent oil cycle.

Throughout the year, OPEC undertook numerous bilateral and multilateral meetings and consultations concerning these challenges. These consultations gathered pace at the beginning of August 2016 with the new OPEC Secretary General HE Mohammad Sanusi Barkindo, many OPEC Ministers, non-OPEC Ministers, as well as some Heads of State and Governments engaging in the process of rebalancing the oil market, and expressing their views on the need to see sustainable stability return.

This initially led to a decision, which was agreed upon by all OPEC Member Countries at the 170th (Extraordinary) Meeting of the OPEC Conference in Algeria on 28 September. The Conference opted for a production level ranging between 32.5 and 33 million barrels per day (mb/d).

The decision focused on the urgent need to stimulate acceleration of the drawdown of the stock overhang, bring market rebalancing forward and ensure that much-needed investment returns to the industry. Additionally, it initiated a process of consultations between OPEC and non-OPEC oil-producing countries to establish a platform based on which OPEC and non-OPEC producers could take proactive measures that would ensure a balanced oil market on a sustainable basis.

An exhaustive process took place to turn the decision of the 170th (Extraordinary) Meeting of the Conference into a lasting and viable solution for oil market stability. The courage, dedication and compromise of every OPEC Member Country finally led to OPEC's landmark decision, adopted on 30 November at the 171st Meeting of the Conference. This understanding saw the Conference decide to adjust production down by 1.2 mb/d and implement a new OPEC production level of 32.5 mb/d effective from 1 January 2017.

It was the first production adjustment made by OPEC since the 'Oran Decision' at the 151st (Extraordinary) Meeting of the OPEC Conference in December 2008.

Soon after, a pledge was made by a group of non-OPEC producers to adjust production at a joint ministerial-level meeting in Vienna on 10 December.

Eleven non-OPEC producers sat down with OPEC Member Countries in the Austrian capital on that day

L–r: Eng. Mohamed Hamel, Senior Advisor to the Minister and Chairman of the Board of Governors; Alexander Novak, Minister of Energy, Russian Federation; Dr Mohammed Bin Saleh Al-Sada, President of the Conference and Minister of Energy & Industry, Qatar; HE Khalid A. Al-Falih, Minister of Energy, Industry & Mineral Resources, Saudi Arabia; and Mohammad Sanusi Barkindo, OPEC Secretary General.

and settled on the 'Declaration of Cooperation', which called for a combined output reduction of 600,000 b/d.

This amount, added to the 1.2 mb/d output reduction already decided upon by OPEC at its 171st Ordinary Meeting of the Conference, meant that, from the beginning of 2017, some 24 of the world's oil producers would implement joint reductions totalling nearly 1.8 mb/d, which would ease the oversupply in the market.

The production decision was to be for six months with the possibility of extending it for another six months.

Welcome decision

The outcome marked a turning point after months of discussion and deliberation, particularly between OPEC and the Russian Federation.

This historic measure represents the first time in 15 years that OPEC has reached such an understanding with non-OPEC producers. Calculations show that the countries involved in the decision together account for around 55% of total world crude oil production, while the reduction itself represents around 2% of current supply and was deemed sufficient to spark an all-important drawdown in stocks.

The OPEC-non-OPEC Ministerial Meeting, held at the OPEC Secretariat, was jointly chaired by Dr Mohammed Bin Saleh Al-Sada, President of the OPEC Conference and Minister of Energy and Industry of Qatar, and Alexander Novak, Minister of Energy of the Russian Federation.

A communiqué issued at the end of the talks importantly stressed that the Meeting recalled the rights of peoples and nations to permanent sovereignty over their natural wealth and resources.

Assembled Ministers took into account current oil market conditions and short- to medium-term prospects and recognized the need for joint cooperation of oil exporting countries, "to achieve lasting stability in the oil market in the interest of oil producers and consumers."

The communiqué recalled how OPEC's 30 November decision to implement a production adjustment confirmed Member Countries' commitment "to a stable and balanced oil market" and underscored the importance of other oil producing countries joining their efforts.

"The Meeting recognized the desire of Azerbaijan, the Kingdom of Bahrain, Brunei Darussalam, Equatorial Guinea, Kazakhstan, Malaysia, Mexico, the Sultanate of Oman, the Russian Federation, the Republic of Sudan, and the Republic of South Sudan, as well as other non-OPEC producers, to achieve oil market stability in the interest of all oil producers and consumers.

"In this regard, the aforementioned countries proposed to adjust their oil production, voluntarily or through managed decline, starting from 1 January 2017 for six months, extendable for another six months, to take into account prevailing market conditions and prospects," it stated.

Along with the production adjustment, the communiqué added that three OPEC Members and two participating non-OPEC countries shall join a Joint Ministerial Monitoring Committee (JMMC), which will be assisted by the OPEC Secretariat. It additionally stated that cooperation should be strengthened, including through joint analyses and outlooks, 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 JMMC's first meeting was scheduled for 22 January 2017. To support the JMMC, a Joint Technical Committee was also formed, which will help in preparing a monthly production data report on OPEC Member Countries' crude oil production and participating non-OPEC countries' oil liquids production.

Extensive discussions

For all of 2016 and the second half of 2015, OPEC was in discussions with non-OPEC producers, led by the Russian Federation, on ways and means of restoring balance to the international oil market, particularly in supporting healthy prices and drawing down the excessive levels of petroleum stocks.

Initially, discussions centred on the possibility of oil producing countries implementing a production freeze, rather than an actual adjustment in output.

In a meeting hosted by Qatar in April 2016, some 18 OPEC and non-OPEC oil nations gathered in Doha to look at reaching some form of effective cooperation.

However, despite a positive round of talks, a resolution did not materialize, prompting the President of the Conference, Mohammed Bin Saleh Al-Sada, to tell reporters that the Organization needed more time to construct the outlines of a deal to freeze output.

But as developments unfolded, it became apparent that just freezing oil output would not be sufficient in dealing with the oversupply situation and the growing problem associated with swollen stocks.

In May 2016, in stressing the importance of maintaining dialogue with oil producing countries outside the Organization, OPEC convened a technical meeting of oil and economic experts from both OPEC and non-OPEC countries.

Held in Vienna, the meeting discussed oil market fundamentals and the global economy, with participants concluding that market stability remained a common objective for all producers and was attainable through cooperative effort.

Threat to investment

Delegates agreed to convene again before the end of the year and a second meeting was subsequently held

OPEC and non-OPEC Ministers during the signing of the 'Declaration of Cooperation'.

in October, where officials spoke of the threat to future oil investment from continuing low oil prices.

It was at this meeting that former Venezuela's People's Minister of Petroleum, Eng. Eulogio Del Pino, made the long trip to Vienna especially to present his country's proposals for measures to balance the market, including a suggestion for an OPEC-non-OPEC summit on the subject.

In between these technical meetings, OPEC reached its landmark decision at its 170th (Extraordinary) Meeting in the Algerian capital on 28 September.

High-ranking officials from OPEC and non-OPEC countries took the process of dialogue to stabilize the oil market one step further when they held informal consultations in Istanbul, Turkey on 12 October, on the sidelines of the 23rd World Energy Congress (WEC).

The talks included the Oil and Energy Ministers of OPEC Members Algeria, Gabon, Qatar, the United Arab Emirates (UAE) and Venezuela, as well as non-OPEC ministers from Russia and Mexico.

Specifically, Conference President Al-Sada and OPEC Secretary General, HE Barkindo, met with Algerian Minister of Energy, Noureddine Boutarfa, and Venezuela's Del Pino, in addition to Russian Energy Minister Novak.

Separately, HE Barkindo met with the President of the Bolivarian Republic of Venezuela, Nicolás Maduro Moros, who gave a presentation to the WEC. At the informal meetings, officials discussed the

OPEC and non-OPEC Ministers gather for a group photo.

situation in the international petroleum market and a roadmap to stabilize it and move it forward.

"We are building on Algiers," Novak was quoted as saying, stating that the Istanbul meeting did not discuss specific figures, but rather focused on interaction mechanisms and studied analysis and data.

"OPEC has keen discussions with different blocks in the international community. We are working very hard now within our sphere to do our best and try to rebalance the market in the interest of everybody," OPEC's Al-Sada told the press.

He pointed out that a fair crude price was necessary to address the decreasing levels of oil sector investment experienced in the past two years.

Ahead of OPEC's 30 November Conference in Vienna, OPEC Oil and Energy Ministers and Russia's Novak met in Doha to further their discussions about what action to take to correct the market imbalance.

Concern about the oil market situation had been prevalent for many months. It had become the longest down cycle suffered by the industry in OPEC's history, which stretches well over half a century.

Oil and energy ministers, industry experts and analysts reiterated the need for producers to establish some form of cooperation to ease the oversupply situation and stabilize the market and prices.

This action was taken up by OPEC's new Secretary General, HE Barkindo, who after assuming office on 1 August worked tirelessly, travelling to OPEC Member Countries and speaking with non-OPEC officials, all in pursuit of a cooperative effort to improve market conditions.

Expectations exceeded

After many months of hard work by OPEC officials, and dedication by both OPEC and non-OPEC countries, the above-mentioned three historic decisions were reached, which have set a framework to continue to guide the oil market through turbulent times and will aid in future cooperation. Thus ended 2016 on a bright note, with expectations and predictions for the oil market in 2017 significantly brighter than throughout 2016.

Activities of the Secretariat

Office of the Secretary General

In 2016, OPEC staff bade farewell to HE Abdalla Salem El-Badri, who was with the Organization as Secretary General for almost a decade, until 31 July 2016.

The Secretariat welcomed HE Mohammad Sanusi Barkindo, the new Secretary General, who assumed his duties on 1 August 2016.

The Office of the Secretary General (SGO) was responsible for arranging courtesy visits for the incoming Secretary General to Austrian government officials, relevant international organizations based in Vienna and OPEC Member Country ambassadors based in Vienna.

Additionally, the usual Ministerial Conferences, Board of Governors (BOG) Meetings and other *ad hoc* high-level meetings in the latter half of the year, and as mandated by the OPEC Conference, were prepared for and supported by the SGO, along with a number of ongoing OPEC and non-OPEC Ministerial Meetings and committees.

The SGO was strongly involved in organizing the Secretary General's missions abroad in order to, among other things, rebuild confidence within the Organization and consensus towards reaching the landmark decisions attained in the second half of 2016. They also involved reaching out to the leadership of non-OPEC participating countries in the run up to the historic Declaration of Cooperation on 10

December 2016. The office coordinated the preparation of reports and documentation for submission to Ministerial Conferences, Meetings of the BOG and OPEC and Non-OPEC Joint Ministerial Meetings.

The SGO was also occupied with minuting these meetings, writing *précis* of the discussions that took place and preparing summaries of the decisions taken, as well as preparing formal, 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 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 USA, and kept the BOG and the OPEC Conference abreast of case proceedings.

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.

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 in international *fora* and at a national level;
- 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) in international *fora*;
- Review and evaluation of legal implications regarding memberships and cooperation with various international organizations and entities;
- 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 and review of internal guidelines, manuals and procedures.

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

- Leading Arbitrators' Symposium;
- AIPN International Petroleum Summit;
- IBA Annual Conference;
- *Crans Montana* Forum;
- IACA Assembly of Parties;
- 12th IEF Executive Board;

- International Award Writing;
- Oil & Gas IP Summit;
- Conference on *Nord Stream 2 and Its Impact on Europe*;
- Various roundtables and seminars organized by the *Juridicum* or international reputable law offices in Vienna;
- A teleconference on the *Legal Implications of Oil Fluctuations – Focus on North Sea*, organized by *DLA Piper*.

In addition, the LO participated in the 16th Multi-Disciplinary Training Course (MDTC), organized by the Secretariat and delivered presentations on the role of the Legal Office in the Secretariat to students from the *Centro Universitario de Brasilia* and LLM-students from the *Vienna Juridicum*.

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;
- Personnel Committee;
- Contracts Committee;
- Missions Committee;
- Editorial Board of the OPEC Energy Review;
- Website Publication Task Force;
- Library Task Force;
- Medical Contingency Committee.

Research Division

The Research Division (RD) is responsible for an ongoing research programme with particular emphasis on energy and other related matters. The division consists of the Petroleum Studies Department, the Energy Studies Department (ESD), the Data Services Department (DSD) (including the Information Centre), and the Environmental Matters Unit (EMU).

The RD's annual work programme for the year 2016 was set up on the basis of the Secretariat's third five year Medium-Term Programme (MTP-III) and OPEC's second Long-Term Strategy (LTS), and provided a coherent and consistent vision and framework for the Organization's future. The Secretariat, in line with decisions of the 166th Meeting of the Conference (27 November 2014), undertook a review process of the LTS during 2015 and 2016. Accordingly, reports prepared by the Secretariat provided an assessment on the achievements of the LTS during the previous five years, including a review of the objectives and key challenges identified in view of the fast-evolving energy scene and associated underlying drivers. The Conference approved the revised LTS in November 2016.

In line with its annual work programme, the activities of the Division included:

- The monitoring of key short-term energy market developments and prospects, particularly related to oil markets;
- Monitoring of energy policies, important technological developments and dynamic structures in the international energy industry;
- Gathering, compiling and dispensing of pertinent up-to-date statistical data and information as a reliable basis for the analysis of relevant energy developments;
- Conducting comprehensive energy market analysis and forecasts, with emphasis on medium-term demand and supply in the oil market outlook, developing long-term oil market scenarios, and updating the models required to perform such analysis;
- Preparation of up-to-date and reliable analysis to the Ministerial Conference, the Board of Governors, 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 applications in addition to specialized relevant information and reference services;
- Following relevant debates and policy

- developments in international fora, multilateral discussions and multidisciplinary task forces in order to assist Member Countries 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;
- Providing a platform for coordination among Member Countries in multilateral negotiations, as well as technical support in multilateral fora.

Projects further focused on developing medium- and long-term analyses pertaining to supply and demand, as well as technological developments.

Another substantial part of the Division's work was dedicated to activities in the context of international dialogues as well as OPEC and non-OPEC cooperation. Providing reliable and up-to-date information for decision makers proved to be of utmost importance in the run-up to the Algiers Accord and the Joint Declaration on Cooperation between OPEC and non-OPEC producers.

Cooperation with other International Organizations

Under China's 2016 Presidency, the *G20 Energy Initiatives* focused on six workstreams, namely: Energy Access in Asia-Pacific; Clean Energy; Energy Efficiency; Market Transparency; Inefficient Fossil Fuel Subsidies that Encourage Wasteful Consumption; and Global Energy Interconnection.

OPEC welcomed the inclusive approach taken by the G20 on energy issues under China's Presidency and highlighted the Organization's ongoing commitment to developing and enhancing current and future opportunities for energy cooperation.

OPEC welcomed the balanced and inclusive approach being taken on *Energy Access* and stressed its long-standing commitment to supporting efforts for improving access to energy that is affordable, reliable, sustainable and modern, stating that "as an organization of developing countries, OPEC recognizes the importance of considering energy access from the standpoint of 'the productive use of energy."

On *Clean Energy*, OPEC welcomed the Paris Agreement and stressed that challenges related to the environment and climate change are a concern for everyone, then highlighted the commitment of OPEC and its Member Countries to sustainable development. The intervention also highlighted the need to recognize that there is no 'silver bullet' for the greening of the energy sector, as no single energy source can achieve sustainability on its own.

OPEC welcomed the opportunity to contribute to the G20 initiative on *Energy Market Transparency*, which is consistent with OPEC's active involvement in consumer-producer dialogue, and lent its strong support to efforts to enhance energy market data transparency, including extending it to other primary energy commodities such as coal and renewables.

OPEC also highlighted the important role that *energy technology innovation* plays in meeting the energy challenges facing the global community and turning them into opportunities. It also looked forward to continuing efforts to proactively facilitate the development of as well as the dissemination and deployment of innovative energy technologies across a broad range of energy sources.

The *G20 Energy Ministerial* was held in Beijing, China, on 29–30 June 2016 and represented the culmination of energy work being carried out under the Chinese G20 Presidency. This was the second time that an Energy Ministerial had been held under the G20 and the first Ministerial in which an OPEC delegation participated.

The *IEA-IEF-OPEC Workshop* on the interactions between physical and financial energy markets was held at the OPEC Secretariat on 15 March 2016. As in the past, the workshop brought together a broad range of high-level experts from industry, governments, and the financial and regulatory sectors of the developed and emerging economies to discuss the interactions between physical and financial energy markets. The high-level technical event built upon the four previous workshops held starting in 2011, as well as a more focused technical meeting in 2015.

Discussions noted that crude oil price volatility was near six-year highs, driven by a multitude of factors, including fundamentals, financial linkages, and uncertainty regarding future market conditions. Higher volatility increased uncertainty about future demand/supply and made forecasts less reliable.

Furthermore, discussions on the role of financing and hedging in oil market developments sought to enhance understanding of the role that hedging and finance play in influencing oil supply developments. The results were very rich discussions highlighting the complexity of these interactions and the statement that much remains to be seen about how they will impact the market's return to balance.

An update was provided on ongoing efforts to enhance regulation and oversight in the financial oil markets. Regulators are in the process of establishing a comprehensive framework covering the financial and physical worlds, accelerating the shift toward exchange-traded activity, increasing trading venue options, improving transparency and implementing a stronger market regime to protect from abuse.

The final session addressed longstanding efforts to develop and strengthen benchmarks for crude flows to Asia. An assessment of current and potential Asian benchmarks was provided, which highlighted potential shortcomings in all available options.

At the conclusion of the workshop, participants noted that discussions had provided important insight into a large and complex set of ongoing and emerging issues concerning the interactions between physical and financial energy markets. The benefits of continuing to pursue a high-level technical dialogue on this complex issue were also reiterated.

An OPEC delegation participated in both sets of bi-annual IMF/World Bank meetings — the Spring Meetings in April and the Annual Meetings in October. This particularly included participation in meetings of the International Monetary and Financial Committee and the G24.

The IMF/World Bank Spring Meetings again provided first-hand information about the status of the global economy. This time, the focus on oil market developments was substantial, given the sharp decline in oil prices and other commodities. The IMF concluded that the net effect of the drop in oil prices was likely to be negative for the global economy. Importantly, numerous members within the Group of 24 — among them important commodity producers and OPEC Member Countries — raised concerns about sharply declining commodity prices and the potential negative impact this may have on their economies and highlighted the potential spill-over effects this may have on the global economy.

In the October Annual Meetings, the OPEC Secretary General provided interventions at both the IMFC and the G24 meetings, in which the supportive implications of a well-balanced oil market on the global economy were highlighted, given effects on inflation, investments and global economic growth. The IMF highlighted that global economic recovery is continuing slowly and unevenly, and growth is expected to pick up only slightly next year, mostly on account of emerging market economies. Importantly, the effects of lower commodity prices, particularly oil prices, on exporting countries were underscored as an ongoing concern that may weigh down the global growth outlook. The October meetings were complemented by a meeting of an OPEC delegation with the Managing Director to discuss oil market-related matters and further cooperation between the IMF and OPEC Secretariat on economic matters. This understanding of cooperation was followed by a presentation of the *World Oil Outlook 2016 (WOO)*, the annual OPEC publication on medium- and long-term aspects of the oil market, to IMF staff and management in December by an OPEC delegation headed by the Secretary General.

The *Sixth IEA-IEF-OPEC Symposium on Energy Outlooks*, which took place at the IEF Headquarters in Riyadh in February 2016, covered short-, medium- and long-term global energy outlooks. The Symposium, which connected many experts from industry, government and academia, provided the setting for a lively exchange of views on energy market developments. A technical meeting among IEA, IEF and OPEC experts was also held.

The *Third IEA-IEF-OPEC Symposium on Gas and Coal Market Outlooks* took place in December 2016 in Paris. The objective of the Symposium was to foster dialogue on gas and coal market outlooks and enhanced market transparency, to take stock of current developments in gas and coal market competition and to discuss other key topics, including regulation and sustainability.

As an active member of the *Vienna Energy Club*, OPEC played a coordinating role in the second half of 2016 and hosted a meeting in December. The ESD helped to organize the event, which is normally held biannually and at which information and outlooks are shared between various Vienna-based international organizations dealing with energy issues.

The Secretariat continued its active stance in promoting data transparency through 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 attended the JODI Inter-Secretariat Meetings in London (February 2016) and Paris (December 2016), while it hosted a meeting in July 2016. The Secretariat also participated in the JODI Training Workshop in Moscow (November 2016).

The main JODI Oil activities relate to improvements in overall data quality and focus on specific fundamental data points, as well as general technical issues, such as the harmonization of conversion factors and metadata notes. The JODI Oil database faces challenges concerning the 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 among some JODI partners. The initiative envisages future improvements in the data time lag from (M-2) to (M-1).

The focus on JODI Gas is to further improve submitted data quality, as the JODI Gas database was only launched during the 14th IEF Ministerial Meeting (April 2014).

Other JODI activities relate to considerations of expanding the initiative to include data collection on other primary commodities, particularly coal.

Two separate but complementary *IEA-IEF-OPEC Technical Meetings on Historical Baseline Data* were held in July and December 2016. The meetings were attended by senior statistical experts and the heads of IEA and OPEC statistical departments and were coordinated by the IEF. They are part of an agreement to improve the comparability of the IEA and OPEC Energy Outlooks.

Energy dialogue

OPEC continues to promote close links with the EU. Recent activities include the *12th EU-OPEC High-Level Meeting*, which took place in Vienna in March 2016. Both parties emphasized that the Energy Dialogue, which was inaugurated in 2005, has come a long way since its establishment and is more important than ever in the current context of energy markets.

The *5th High-Level Meeting of the OPEC-Russia Energy Dialogue* took place in Vienna in October 2016. Both sides exchanged views on global short-term oil market developments and long-term prospects, now regular features of the dialogue. Formally established in 2005, the dialogue provides a valuable occasion to share energy outlooks and specialized subjects of interest affecting oil and energy demand and supply.

In July 2016, the Secretariat hosted the *2nd Technical Meeting on Asian Energy and Oil Outlooks* in Vienna. The meeting offered a valuable chance for a focused discussion on current Asian energy developments and prospects, including related policy issues. The contributions of senior experts from China, South Korea, Japan, India, the Asia-Pacific Energy Research Centre and the Economic Research Institute for ASEAN and East Asia, as well as presentations from the OPEC Secretariat, enabled a valuable exchange of information and viewpoints.

In order to strengthen consumer dialogue, representatives of the Secretariat continued outreach activities via meetings with high-level US representatives. A future dialogue with the US could serve as a useful facilitating platform for joint analysis of the factors affecting oil market developments and the search for win-win solutions.

Environmental debate

Understanding the energy challenges posed by multilateral governance in sustainable development in general, and climate change in particular, were the core of environment-related activities in the RD work programme for 2016.

In this context, work focused on United Nations Framework Convention on Climate Change (UNFCCC) negotiation processes held in 2016. These included the Bonn Climate Change Conference and the Climate Change Conference in Marrakesh (COP22). Given that Intergovernmental Panel on Climate Change (IPCC) products are expected to be used as an important scientific source for UNFCCC Parties' decision-making, the Secretariat also participated in the IPCC meeting, namely the 43rd Session of the IPCC. In the run-up to these multilateral fora, several reports/studies were prepared in 2016 to provide technical support and assist Member Countries in their effective participation.

In addition, one Member Countries' Coordination Meeting was also organized at the Secretariat, aiming to assist Member Countries in coordinating amongst themselves and agreeing upon collective 'common positions'. Following this coordination meeting, a respective report was produced: *Report of OPEC Member Countries' Coordination Meeting in the Run-up to COP22/CMP12*.

OPEC Publications

Now in its tenth edition, the World Oil Outlook (*WOO)* aimed to highlight possible future developments in the oil and energy scene, as well as identifying the main challenges and opportunities facing the oil industry in the years to come. The 2016 version of the *WOO* presented a comprehensive outlook for oil demand, supply and downstream for the medium- (2015–2021) and long-term (2021–2040).

The launching of the publication for the first time in an OPEC Member Country — at the ADIPEC 2016 Exhibition and Conference in Abu Dhabi — can be seen as a landmark event and a way to further increase readership and public attention.

Driven by demographic and productivity trends, the 2016 *WOO* estimated world GDP growth at 3.5% per annum (p.a.) for the period 2015–2040. Growth is mainly driven by developing countries, which have an estimated average growth rate of 4.6% p.a. over the forecast period. Within developing countries, GDP growth in India and China is especially noteworthy, with rates estimated at 6.9% p.a. and 4.9% p.a., respectively, over the forecast period.

The 2016 *WOO* projected on a global level that total primary energy demand will increase by 40% in the period to 2040 to reach 382 million barrels of oil equivalent per day (mboe/d). On a regional basis, energy demand in developing countries is expected to grow at an average rate of 2.1% p.a. over the forecast period 2014–2040. This is in sharp contrast with the average 0.1% p.a. growth projected for OECD regions and 0.6% for Eurasia.

The Reference Case sees oil demand reaching 109.4 mb/d by 2040. This corresponds to a marginal downward revision of 0.4 mb/d with respect to the 2015 *WOO*. This downward revision is on the back of a further tightening of energy policies and additional technology developments that foster the penetration of alternative fuel vehicles. Developing countries will continue to lead demand growth by close to 25 mb/d over the period, to reach 66.1 mb/d by 2040. Eurasia also expands to 6 mb/d by 2040. Demand in the OECD region, however, is expected to fall to 37.3 mb/d by the end of the forecast period, a drop of almost 9 mb/d.

Non-OPEC liquids output is seen rising to a high of 61.4 mb/d in 2027 and then slowly dropping to 58.9 mb/d in 2040. The OECD reaches a maximum of 27.5 mb/d in 2027 (mainly from the US and Canada), while developing countries (particularly Latin America) reach a high of 17.3 mb/d in 2024. Only Eurasia continues to grow over the long-term, reaching 14.7 mb/d in 2040.

Demand for OPEC crude rises from 32 mb/d in 2015 to 33.4 mb/d in 2018. It then stays generally constant for several years — hovering in a range of 33.6–33.8 mb/d between 2019 and 2025. From that point forward, OPEC crude exhibits steady growth until the end of the projection period when it is anticipated to reach 41 mb/d.

In the downstream sector, assessed project additions to 2021 total 7.3 mb/d, with further capacity requirements of 12.2 mb/d by 2040, for a total of 19.5 mb/d of new capacity projected as needed by the end of the timeframe. Of this, only a bit more than 2 mb/d is in the US and Canada, Europe, and Russia and the Caspian combined. In contrast, 9.5 mb/d is projected for the Asia-Pacific region, 3.4 mb/d for the Middle East and the remaining 4.6 mb/d is split between Africa and Latin America.

As product demand and crude runs decline in industrialized regions, so too do their crude oil imports. Combined crude oil imports into the US and Canada, Europe, Japan and Australasia drop by 3 mb/d between 2015 and 2040. In marked contrast, imports into the Asia-Pacific region grow by nearly 9 mb/d during the same period, as this region remains the primary focus of demand growth. Of this increase, over 6.5 mb/d comprises growth in exports from the Middle East.

The implementation of Intended Nationally Determined Contributions (INDCs) will likely lead to reduced energy demand and a further shift in the energy mix toward renewable energy. Modelling results demonstrate a progressive decline in total energy demand when moving towards more carbon-restricted scenarios. Furthermore, the demand for all fossil fuels at the global level in alternative scenarios is projected to decline relative to the Reference Case. In addition to the demand decline for fossil fuels, the share of renewable energy sources, as well as nuclear energy, will increase, thereby partially compensating/substituting for the energy demand loss from fossil fuels.

A separate chapter, entitled “The Paris Agreement: guidance on future policies” is focusing on UNFCCC Parties’ INDCs, and includes a scenario-based analysis of policies guided by the INDCs, their implications for oil, and potential implications for CO_2 emissions reductions. There are also two boxes: one on carbon capture and storage deployment’s support of Paris Agreement implementation and the other on energy access for productive use supporting poverty alleviation.

The OPEC *Monthly Oil Market Report (MOMR)* is a Secretariat publication which focuses on short-term oil market developments. It is published both in hard copy and electronically on the OPEC website following a pre-determined schedule, which is distributed once a year in the December issue for the year to come. Following several revisions and restructurings over the years, it has evolved into the Organization’s most viewed report and is frequently quoted and referred to by highly renowned journalists and media (*The Financial Times*, *Wall Street Journal*, Reuters, Bloomberg, CNBC, to name but a few) and a wide range of respected industry analysts. The report is furthermore being subscribed to by universities and other learning centres and also used as a benchmark for market assessment by other institutions, such as investment banks.

The *MOMR* contains ten chapters covering a wide range of information pertaining to the oil market. These include oil prices and futures markets, 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, along with monthly end notes and timely and in-depth analyses, which are complemented by graphs and tables highlighting the most recent developments and trends in the oil market.

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 an assessment of timely economic issues. The July *MOMR* and its feature article present new forecasts for the economy, world oil demand and non-OPEC supply for the following year. In addition, feature articles review crude and product prices and provide an assessment of global oil inventories as a direct result of the difference between global oil supply and total world oil demand.

The *Annual Statistical Bulletin (ASB)* is one of OPEC's most important publications. It is a unique, useful and frequently cited reference tool for those working in the energy industry. The overall aim of the *ASB* is to make reliable and timely historical data on the global oil and gas industry readily available to the general public. It is an important source for different stakeholders in the oil industry. OPEC's efforts to seek to ensure stability in the world's oil market include gathering data about many different aspects of the oil industry. As part of these efforts, it collects statistical information about the upstream and downstream, which is available through the *ASB*. In addition to an earlier launch in June 2016, the *ASB* has been enhanced substantially in terms of quality, usability and timeliness. Five new tables have been added, while additional information has been incorporated into new graphs. Furthermore, the interactive version of the *ASB* has been extended by 275 interactive charts, and restructured and upgraded in terms of viewing and usability. Additionally, OPEC, in collaboration with the UAE Ministry of Energy, launched an *ASB* Smart App during the ADIPEC 2016 Exhibition and Conference in Abu Dhabi (November 2016), thus increasing the usability and accessibility of the ASB.

The *OPEC Energy Review*, OPEC's quarterly scientific journal, publishes original, peer-reviewed analytical papers on energy economics and related issues, such as economic development and the environment. The journal provides a forum for information exchange among academics worldwide and for the general enhancement of research, with a broad-based readership in industry and among scholars, consultants and policymakers. In 2016, the introduction of an online peer-review process marked a landmark in improving the interaction between authors and reviewers and thus the overall quality of the published papers.

Internal reports and studies

During 2016, 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.

"Petroleum Fiscal Regimes in View of Current Market Conditions: Canada, Mexico and Brazil" focused on different petroleum fiscal regimes in those countries. It targeted the impact of select fiscal policies with special emphasis on the effects of certain fiscal elements on long-term supply projections in those key producer countries.

Double-digit annual growth in upstream investment has been the trend since 2010. Yet with the drop in oil prices, even major companies are struggling to maintain their capital expenditures. In this context, the objective of the study *"Oil and Gas Upstream CAPEX Trends"* was to explore historical trends in oil and gas upstream CAPEX and assess possible scenarios over the medium-term.

"Oil Sands Outlook: Opportunities and Constraints for Future Development" assessed the challenges for future oil sands development, including environmental impact mitigation measures in response to global sensitivities arising from expanding oil sands projects. Quantitative projections, including scenarios, benefited from a detailed examination of relevant above and below ground characteristics associated with oil sands supply.

"Prospects for Renewables" presented a detailed analysis of the most recent developments in renewables by describing important aspects (e.g. technical, financial and environmental), as well as prospects for medium- and long-term developments of renewable energy projects. Global and regional trends, policies and projections for key market players were assessed.

"Canada and Mexico: Implications of the Changing US Energy Scene" assessed the strategies, decisions and future plans of Canada and Mexico and provided alternative scenarios for future developments, taking into account declining oil demand in the US, combined with additional sources of unconventional oil and gas supply.

"South Korea: Energy and Economic Prospects" analyzed the future economic and energy potential of South Korea and provided input regarding the future

expectations of the country's energy and economic profile as well as its impact on OPEC oil exports to that nation.

"Technology Developments in Transport and Power Generation" provided an overview of power engines using petroleum products as fuel. Past, current and future technology developments were presented and special attention was paid to the transport sector, including road, rail, marine and air. The power-generation sector was investigated in view of technical developments impacting the future primary energy mix.

"Outlook for the Road Transport Sector" explained how global oil consumption in road transportation is likely to change through to 2040 using the OPEC Road Transport Model, due to the impact of its primary determinants, the size and composition of the vehicle fleet, as well as oil consumption per vehicle, which is determined by fuel economy and average distance driven per vehicle.

"Oil Outlook to 2040: The OWEM Report" updated the reference case of global oil and energy supply, as well as demand prospects and developed a number of alternative scenarios.

The study was supplemented by addressing the most important issues pertinent to future refining capacity requirements, investment needs, oil trade pattern changes and price differentials in the report *"Oil Downstream Outlook to 2040: The WORLD Report"*. Preparation of the two reports serves dual objectives: internally they are used as a source of reference for the oil industry outlook and externally they are developed and revised to generate a version suitable for publication in the *WOO*.

The report *"The Impact of Renewable Energy Policies on Oil Demand"*, a modelling study, provides a quantitative understanding on how the renewable target of Sustainable Development Goal (SDG) 7 might impact oil demand and OPEC economies by using the E3ME model. The study was produced in collaboration with Cambridge Econometrics. The analysis provides alternative policies that, while leading to achievement of the SDG7 objective in renewables, have varying degrees of adverse impacts on OPEC economies.

The *"Analysis of Intended Nationally Determined Contributions (INDCs): Part 1 Future Scenarios"* incorporates the first part of results from research undertaken on the impact of INDCs on oil demand and OPEC economies as they gradually evolve into NDCs under the Paris Agreement. The ultimate purpose of the analytical and conceptual framework presented in the report is to be able to predict the future course of negotiations and understand the basis on which the negotiating Parties may present their negotiation arguments.

The report *"The Paris Agreement and Future Work Areas of the Environmental Matters Unit (EMU): A draft report produced in response to a decision by the 146th Meeting of the Board of Governors"* attempts to match the Secretariat's resources against specific challenges associated with the shift in focus of climate change negotiations. It concludes by developing a timeline for EMU activities over the period 2017–2022 and advising which resources are required to meet the challenges across a six-year span until 2022.

The study *"The Run-up to COP22/CMP12: Negotiation Issues in Marrakesh"* provides information about key developments in climate change negotiations in the year 2016 running up to COP22. In capturing these developments, this report largely focuses on negotiations under the Ad Hoc Working Group on the Paris Agreement, on Parties' submitted INDCs, and on their potential to achieve the temperature target of the Paris Agreement.

Following the views expressed by Member Country representatives during the Coordination Meeting held in October and ensuing discussions, a report entitled *"Report of OPEC Member Countries' Coordination Meeting in the Run-up to COP22/CMP12"* was produced. In this report the early enforcement of the Paris Agreement was discussed as well as how this development will contribute to the dynamics of negotiations. This was followed by a session on the analysis of INDCs and NDCs along with a focus on the 2030 Agenda for Sustainable Development and its target of enhancing the deployment of renewable energy sources.

The objective of the study *"Implications of recent oil price developments on the global economy, oil demand and non-OPEC oil supply"* was to analyse the implications of recent oil price developments on the global economy, world oil demand and non-OPEC supply, focusing on recent developments, starting from the third quarter of 2014. In addition, it provided an assessment of other factors that played a role in setting the links between oil prices and economy, demand and supply. The study focused on OECD Europe, the US, Japan, China, India, Brazil, Mexico and Russia as well as OPEC Member Countries.

For the economy, the study used a quantitative method, the unrestricted vector autoregression model, to analyse the impact of oil price shocks on macroeconomic variables. The results of the study showed that lower oil prices had a limited effect on global GDP, with varying short-term impacts among countries. Countries with sizable hard currencies were able to better handle the situation, whereas other countries were forced to severely cut public spending and investment, which coincided with a harmful spike in inflation due to devaluation of their currencies.

Regarding oil demand, lower oil prices had a positive effect on oil demand growth, with certain countries showing higher growth than others. On the supply side, lower oil prices had a limited effect on non-OPEC supply, at least up to the end of 2015, with differing impacts among countries. With regard to investments, it is the first time since the 1980s that the world saw two consecutive years of decline in global E&P investments, by approximately 20% annually. As for price risk management activities, the study showed that hedging provided significant support to independent US oil producers during 2015 and 1Q16. This helped secure larger cash flows, especially for medium and small producers, which are generally more vulnerable to price fluctuations.

Database and communications

Data services — such as updating, processing and validating statistical databases, as well as developing software applications and operating existing ones — had an intensive year in 2016. IT development adapted its database to accommodate new formats for data received from different price reporting agencies. New applications were launched both for internal and external usage. A migration of existing digital documents was performed in order to reorganise the archive within a modern content management system. All databases were upgraded to the latest stable and recommended version. Improved reporting tools were developed in order to enhance Member Countries' communication channels with the Secretariat.

The delivery of key and up-to-date information to end-users was facilitated through regular dissemination of electronic reports, as well as publications such as the *ASB*, the *Annual Report (AR)* and the Research Results Activities of the Secretariat.

Data provided for the Online Statistical Reports on the OPEC Intranet was continuously improved to better address end-user requirements. These improvements served as input required for the achievement of the Secretariat's short- and long-term strategies. Furthermore, in June 2016, the Secretariat published the *"Annual Statistical Bulletin — pocket version"*, which represents an abridgement of OPEC's latest edition of the *ASB*.

The *15th OPEC Annual Statistical Meeting* was held at the OPEC Secretariat on 12–13 May and aimed to further improve the flow of regular oil and energy statistics from Member Countries, through an exchange of experiences with energy databank management, as well as utilization of OPEC's statistical databases.

DSD has enriched the Secretariat's crude oil database by including additional data sources and conducting comprehensive statistical analysis. The Secretariat's databases also accommodated information on Indonesia and Gabon.

In 2016, the Data Services Department improved existing software solutions to its internal support services. New functionalities were added to already existing solutions. Interactivity was a new feature brought to the *ASB* and the *WOO*, which resulted in increased consultation and visibility. Communication channels with Member Countries were modernized for timely, transparent and reliable data reporting.

In 2016, the Information Centre supported staff members and other users by offering electronic delivery of selected information, providing research assistance, as well as fulfilling reference and help-desk requests. The Centre continued developing its collection during the year, through the purchase of books and reports, as well as through its management of subscriptions to electronic and non-electronic journals and newspapers. New technologies were sought to improve the Centre's services and make information retrieval easier for its users.

Toward the end of the year, the Centre launched a new interactive page on the OPEC intranet, offering more valuable content and digital resources to its users. The Centre also provided support to delegates and analysts from Member Countries, researchers from academic institutions, international organizations and students in their research endeavours throughout the year.

Training and knowledge transfer

The *16th Multi-Disciplinary Training Course* was held on 22–26 February at the Secretariat, with participants from OPEC Member Countries attending the course. Participants learned about the latest developments in many areas essential to the oil industry, including short-term fundamentals, energy modelling, as well as long-term and multilateral issues related to the market.

The *OPEC Summer Fellowship Programme* accommodated seven participants from five Member Countries in 2016. Through the programme, young professionals from OPEC Member Countries improved their technical skills and increased their professional knowledge of energy-related research themes.

The 2016 summer fellows worked on a broad array of research subject areas, including income and price elasticities of oil demand, the principles of the UNFCCC process and UN system in light of international law, data mining techniques and quality, the evolution of the refinery sector in OPEC Member Countries and drivers of economic growth in general, as well as the causal relationship between energy consumption and economic growth.

PR and Information Department

The year 2016 was a very busy one for the Public Relations and Information Department (PRID). There was a remarkable increase in activities in the second half of the year as discussions and visits increased due to OPEC's efforts to address oil market imbalances. 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 Third Long-Term Strategy. 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 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 2016.

Although PRID was primarily responsible for editing, designing, producing, printing and distributing materials, the content of this output varied greatly, depending on the publication type. There was also an especially close cooperation between PRID and the Secretariat's Research Division (RD) in the area of publications. In addition, the work of PRID also required close cooperation with other Departments and Units. These included the Secretary General's Office, the Legal Office, the Environmental Matters Unit, the Data Services Department, the Petroleum Studies Department and the Energy Studies Department, as well as Member Countries themselves. In 2016, 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

Publications

The Editorial Unit spent a great deal of time and effort in 2016 editing, revising and proofreading research documents, presentations and reports. These 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 also 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 also 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, and then approved by the Secretariat. 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)* celebrated its 10th anniversary in 2016 and was, for the first time, launched in an OPEC Member Country in 2016 — during the 2016 Abu Dhabi International Petroleum Exhibition and Conference (ADIPEC) held 13–16 November. The document has become a useful reference tool for people in the industry, particularly following the successful launch of interactive versions of the WOO in 2014 and 2015.

The *OPEC Energy Review (OER)*, OPEC's academic quarterly, celebrated its 40th year of publication in 2016. It marked this milestone in part by implementing several important changes, beginning with a re-organization and re-composition of its Editorial Board. The *OER* has also sought new ways to reach audiences and prospective contributors, in addition to expanding its online presence through the use of specific social media networks. In collaboration with Wiley-Blackwell, one of the world's leading online academic publishers, the *OER* has also begun to use the 'ScholarOne' portal in order to facilitate the process of submitting and reviewing manuscripts. In terms of content, the *OER* also started to produce an occasional 'special edition' with specific thematic content. Its first special edition was published in December 2015, with the theme of "oil demand in the transport sector", with the second special edition appearing in December 2016 with the theme, "the impact of the oil price on the global economy". These special editions, which have been well received, have been useful to bring together different perspectives from different fields and disciplines.

The monthly *OPEC Bulletin* continued to highlight the activities of the Secretariat and the Organization's Member Countries. Its coverage is comprised of articles of interest on various topical issues, as well as informative analytical features. In 2016, the Bulletin included a total of 236 articles and features, the majority of which were drafted by editorial staff for publication in the *OPEC Bulletin*, as well as for other outside publications.

Of note in 2016 were articles on the following topics: the 21st Iran Oil Show in May; the 169th OPEC Conference in June; HE Mohammad Sanusi Barkindo taking office in August; the historic decisions taken at the 170th (Extraordinary) Meeting of the OPEC Conference in September and at the 171st OPEC Meeting of the Conference in November; and the OPEC-non-OPEC meeting in December, which led to the Declaration of Cooperation.

There were various other special features in the *Bulletin* over the year. These included articles on 40 years of Angolan independence and 60 years of Chevron in Angola; a UAE energy renaissance and a focus on Kashagan oil; shale oil and the future; a consideration of international support for Ecuador after its earthquake; and tribute to Iraqi architect Zaha Hadid; a profile of the King Abdullah Bin Abdulaziz International Centre for Interreligious and Intercultural Dialogue; Gabon's return to OPEC; a country profile of Algeria; a look at the UAE's Masdar solar power potential; an examination of JODI data transparency; a look at Vienna's 100-year-old Naschmarkt; and a road map to the Nigerian oil sector. In addition to these special features, various meetings and events were also covered and reported on throughout the year.

Speeches and statements

In 2016, more than 75 speeches were written for the Secretary General, the Director of the Research Division and other OPEC officials.

The Secretary General attended numerous major industry events throughout the year and delivered keynote speeches, statements and interventions at, *inter alia*, the Chatham House Conference: Middle East and North Africa Energy 2016 (London, UK); the 17th International Oil Summit (Paris, France); The European House/Ambrosetti Forum (Rome, Italy); the 15th International Energy Forum (Algiers, Algeria); the G24 Ministerial Meeting (Washington, DC); the 5th High-level Meeting of the OPEC-Russia Energy Dialogue (Vienna, Austria); Meetings of the High-level Committee of the decision taken at the 170th (Extraordinary) Meeting of the OPEC Conference held in Algeria; the Abu Dhabi International Petroleum Exhibition and Conference (Abu Dhabi, UAE); the UN Climate Change Conference (COP22/CMP12) (Marrakesh, Morocco); Petrotech 2016 (New Delhi, India); events at the Centre for Strategic and International Studies (Washington, DC) and Columbia University's Centre on Global Energy Policy (New York, NY); and remarks to the International Monetary Fund (Washington, DC).

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.

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.

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 Member Country delegations, and representatives from all sectors of the energy industry, as well as government, academia and the media.

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 proactive seeking of further networking opportunities among media outlets and journalists. This approach to media attention and coverage has helped to 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 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, UAE local media, Turkish local media, Indian local media, the BBC Persia (TV), Argus, *Financial Times*, Marketwatch, the *Petroleum Economist* and *La Repubblica*.

The editorial staff also provided background information upon request to 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 during the Chatham House Middle East and North Africa Conference in London; in a session with journalists after the 169th Meeting of the Conference; in contributions to a commemorative book for former Secretary General Dr Purnomo Yusgiantoro; in Q&As for *The Business Year Qatar*; for the press conference following the EU-OPEC Energy Dialogue in Vienna; a press briefing during the 17th International Oil Summit in Paris; an article for the G7 Ise-Shima Summit, Japan entitled "Investment and low oil prices"; press interviews at the 169th Meeting of the OPEC Conference; in the Q&A on Gulf Affairs for the Oxford Gulf and Arabian Peninsula Studies Forum (OxGAPS); in the Q&A with the Resource Global Network; in the Q&A for the *Business Year* of Iran; a guest article for *World Oil Magazine*'s 100th anniversary edition in July 2016; an article on "Building a Sustainable Global Energy System" for the G7 Summit in Hangzhou, China; an article for the 15th IEF Ministerial Meeting publication; the Q&A for the Oxford Business Group in Nigeria; an article entitled "Keeping an eye on all time frames in the oil market" for the World Petroleum Council's publication; a press briefing during the Oil & Money Conference in London; press interviews during ADIPEC in Abu Dhabi, UAE; a key interview for *Pipeline Magazine* under the title of "Restoration of Oil Market Stability"; interviews at the World Energy Council in Istanbul, Turkey; and interviews at the Ambrosetti Forum on the Future of Energy.

The editorial section continued in 2016 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, as well as news coverage regarding Member Countries. It aims to help Secretariat staff stay informed through coverage by Reuters and other wire services.

Public Relations Unit

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 Member Countries. A special area on the OPEC webpage has been designed for accreditation requests with an application form. After this is received, 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, permissions and badges.

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; raising awareness about the objectives and goals of the Organization and promoting the Organization's publications.

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 then 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. The briefing programme normally lasts between 1.5 to 2 hours.

In 2016, a total number of 1,684 visitors were received, compared with 1,581 in 2015, including joint presentations with other Departments — primarily the Research Division, Human Resources and the Legal Office.

Visitors came to the Secretariat from both the public and private sectors, as well as from government ministries, universities, schools and research institutes, other organizations and Member Countries' national oil companies. The age of visitors ranged from 8–78, and they came from a variety of backgrounds.

News monitoring and What the Papers Say

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 Member Countries, 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 even more. 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.

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 Member Countries.

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

Website

In 2016, 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 Member Countries and employment opportunities, etc.

The content of the website increased tremendously over 2015. Growth was most notable within the 'Press Releases' section, where 37 releases were published in 2016 compared with 11 press releases in 2015, and within the 'News' section, where 36 news items were published in 2016. In addition, a significant 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 94,515 views in 2016 compared with 75,100 views in 2015.

New modules and applications were also introduced to enhance the usability, functionality, and the 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 visits 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 2016 over 2015, with the number of views to all website pages reaching 6,522,897 in 2016.

PRID continued to maintain and update its email lists, which consist mainly of journalists, news agencies, investment banks and analysts. 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 such as e-mails. These e-mails generally provided positive feedback to PRID on various issues and were attended to by the Secretariat.

Design and Production

The *WOO* design was adapted and a special cover was designed to highlight the 10th edition in 2016. Layout and readability were also further enhanced. In addition to the printed version of the *WOO*, a special PowerPoint presentation was designed in collaboration with the Energy Studies Department. The launch of the publication in Abu Dhabi in 2016 was flanked by rollups, which were designed specifically for the event and printed in Abu Dhabi. The Design and Production Unit 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. The Design and Production Unit was responsible for designing, typesetting, producing and overseeing the printing of this publication.

The *Annual Report* was put together in cooperation with other Departments at the Secretariat. For 2016, the design and layout of the document was adapted and the size of the publication streamlined. The Design and Production Unit was responsible for designing, typesetting, producing and overseeing the printing of this publication.

The *OPEC Bulletin* continues to be designed and typeset in-house on a monthly basis. The Design and Production Unit was responsible for laying out, typesetting and producing the document, and 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.

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 also been designed and produced.

Additionally, the Design and Production Unit 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 Member Countries and to highlight the Organization's key messages.

Other activities

PRID staff undertook some 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.

Administration & IT Services Department

The primary objective of the work of 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 of activity to meet their targets.

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

Highlights:

- Extensive administrative and logistical arrangements for the incoming, as well as the outgoing Secretary General were taken care of by Administration.
- Administration commenced with the planning and implementation of renovation works at the Secretary General's residence, including technical/professional inspections of the property, a complete clearing out of the residence, taking full inventory, as well as the start of tender calls.
- Increased demand of various services including travel/mission arrangements and driver services required team spirit, flexibility and work re-organization efforts with a view to maintaining high-quality services despite steady staff strength.
- In addition to the organization of traditional conferences and meetings throughout the year, the Administration was also involved in the organization and implementation of the Extraordinary Ministerial Meeting in Algiers, as well as the OPEC-Non-OPEC Ministerial Meeting in Vienna. Furthermore, preparations for the next OPEC International Seminar in 2018 commenced.

IT Services Section

The IT Services Section is responsible for providing the Secretariat with secure and reliable IT services. It 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 at the OPEC Secretariat.

Apart from its routine activities, the Section carried out the following projects in 2016:

- Expansion of the current storage system;
- Review and enhancement of IT security controls to IT systems;

- Change of the Cisco switching infrastructure;
- Deployment of new server infrastructure for the virtual environment and for the Oracle environment;
- Upgrade of the telephone infrastructure (call manager, voice mail and switchboard software);
- Implementation of a log correlation system;
- Deployment of virtual desktop infrastructure for temporary staff and guests.

Finance & Human Resources Department

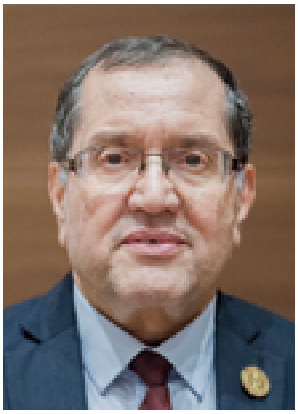
The Finance and Human Resources Department continued to focus on delivering innovative human resources and financial strategies by ensuring the efficiency of each business process and service quality, as well as through providing world-class management of the Organization's human and financial assets in 2016.

In particular, the Finance Office prepared and presented the 2015 Financial Report, 2016 Provisional Financial Statements and 2017 Draft Budget to the 146th Meeting of the Board of Governors. Furthermore, the office kicked off redesigning the International Business Accounting Software and continued to streamline its business processes in conjunction with external auditors for greater 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 services and accuracy of data provided by the section, by applying modern technology whenever possible. The section also continued in its efforts to utilize the Secretariat's available manpower to the maximum extent possible to ensure efficiency and proficiency.

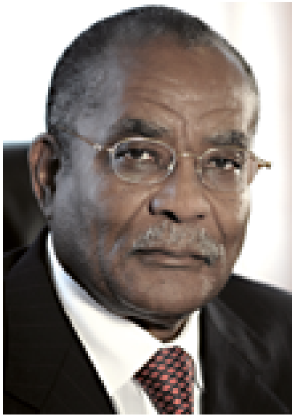
Heads of Delegation

Algeria



HE Noureddine Boutarfa

Angola



HE Eng. José Maria Botelho de Vasconcelos

Ecuador

HE Jose Icaza Romero

Gabon

HE Etienne Dieudonné Ngoubou

Indonesia

HE Sudirman Said

IR Iran

HE Eng. Bijan Namdar Zanganeh

Iraq

HE Jabbar Ali Hussain Al-Luiebi

Kuwait

HE Issam A. Almarzooq

Libya

HE Mossa Elkony

Nigeria

HE Dr Emmanuel Ibe Kachikwu

Qatar

HE Dr Mohammed Bin Saleh Al-Sada
President of the Conference in 2016

Saudi Arabia

HE Khalid A. Al-Falih
Alternate President of the Conference in 2016

UAE

HE Suhail Mohamed Al Mazrouei

Venezuela

HE Eng. Eulogio Del Pino

Outgoing Heads of Delegation by country

Algeria

HE Dr Salah Khebri (to June 2016)

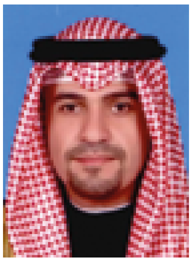
Ecuador

HE Eng. Carlos Pareja Yannuzzelli (to April 2016)

Iraq

HE Adil Abd Al-Mahdi (to August 2016)

Kuwait



HE Anas Khaled Al-Saleh (to December 2016)

Libya

HE Abdourhman A. Al-Ahirish (to June 2016)

Saudi Arabia

HE Ali I. Naimi (to May 2016)

Board of Governors

Algeria
Eng. Mohamed Hamel
Chairman of the Board in 2016

Angola
Estévâo Pedro

Ecuador
HE Wilson Pástor-Morris

Gabon
No Governor was officially nominated

Indonesia*
Dr Widhyawan Prawiraatmadja

IR Iran
Hossein Kazempour Ardebili

Iraq
Dr Falah J. Alamri

Kuwait
Nawal Al-Fezaia

Libya
Mohamed M. Oun

Nigeria
Dr Omar Farouk Ibrahim, MCIPR

Qatar
Issa Shahim Al Ghanim

Saudi Arabia
Dr Mohammed S Al-Madi

United Arab Emirates
Dr Ali Obaid Al-Yabhouni *(to 31.3.)*
Eng. Ahmed M. Alkaabi *(from 1.4.)*

Venezuela
Eng. Iván Orellana *(to 2.10.)*
Eng. Angel Gonzalez Saltron *(from 3.10.)*

Economic Commission Board

Algeria
Dr Achraf Benhassine

Angola
Kupessa Daniel *(from 12.2.)*

Ecuador
Dr Andrés Miño Ron *(to 18.5.)*
Eng. Alex Galárraga *(from 19.5.)*

Gabon
No National Representative was officially nominated

Indonesia*
Dr Widhyawan Prawiraatmadja

IR Iran
Dr Mehdi Asali *(to 28.6.)*
Bahrooz Baikalizadeh *(from 29.6)*

Iraq
Ali Nazar Faeq Al-Shatari

Kuwait
Mohammad Khuder Al-Shatti

Libya
Abdelkarim M. Omar Alhaderi

Nigeria
Olusegun Adeyemi Adekunle *(from 29.1.)*

Qatar
Sultan K. Al-Binali

Saudi Arabia
Dr Nasser A. Al-Dossary

United Arab Emirates
Salem Hareb Al Mehairi

Venezuela
Nélida Izarra

**Indonesia suspended its membership on 30 November 2016.*

Officials of the Secretariat

Secretary General
Abdalla Salem El-Badri *(left in July)*
Mohammad Sanusi Barkindo *(joined in August))*

Research Division
Dr Omar S. Abdul-Hamid *(left in July)*

Data Services Department
Dr Adedapo Odulaja
Mohamed Mekerba
Dr Hossein Hassani

Energy Studies Department
Oswaldo Tapia
Julio Arboleda
Amal Alawami
Mehrzad Zamani
Dr Jorge León
Hend Lutfi
Erfan Vafaiefard
Moufid Benmerabet

Petroleum Studies Department
Dr Hojatollah Ghanimi Fard
Elio Rodriguez Medina
Eissa Alzerma
Anisah Almadhayyan
Afshin Javan
Imad Alam Al-Khayyat
Hassan Balfakeih
Mohammad Ali Danesh
Hector Hurtado

Environmental Matters Unit
Dr Mohammad Taeb *(left in December)*

Legal Office
Asma Muttawa
Dr Taiwo Adebola Ogunleye *(joined in July)*

Finance & Human Resources Department
Jose Luis Mora
Kamal Al-Dihan *(left in March)*
Abiodun Ayeni

Administration & IT Services Department
Abdullah Alakhawand
Badreddine Benzida

Public Relations & Information Department
Hasan Hafidh

Secretary General's diary

25–26 January	Chatham House Conference on Middle East and North Africa Energy, London, UK
22–25 May	IHS Energy CERA Week, Houston, TX, US
21 April	17th International Oil Summit, Paris, France
3–5 September	Visit to the President of the Conference, Doha, Qatar
6–7 September	Visit to HE Bijan Namdar Zangeneh, Head of Delegation, IR Iran, Tehran
9 September	Visit to IEA HQ, Paris, France
20 September	Ambrosetti Forum, Rome, Italy
26–28 September	15th International Energy Forum Ministerial Meeting, Algiers, Algeria
7–9 October	International Monetary Fund/World Bank Meetings
9–13 October	23rd World Energy Congress, Istanbul, Turkey
14 October	Visit to United Nations Framework Convention on Climate Change (UNFCCC) HQ, Bonn, Germany
18–19 October	Oil & Money Conference, London, UK
24–27 October	Visit to Ministry of Oil, Baghdad, Iraq
4–6 November	Visit to Ministry of Oil, Kuwait
7–9 November	Abu Dhabi International Petroleum Exhibition and Conference, Abu Dhabi, UAE
11–13 November	Mission to London
14–16 November	UNFCCC COP22/CMP12, Marrakech, Morocco
15–19 November	Missions to Venezuela, Ecuador and IR Iran
5–6 December	Petrotech 2016, New Delhi, India
11–18 December	Mission to Washington and New York

26–28 September

Dr Sun Xiansheng (l), Secretary General of the IEF, with OPEC Secretary General, Mohammad Sanusi Barkindo at the 15th Ministerial Meeting of the International Energy Forum in Algiers, Algeria.

9–13 October

Mohammad Sanusi Barkindo, OPEC Secretary General speaks at the 23rd World Energy Congress in Istanbul, Turkey.

7–9 November

Mohammad Sanusi Barkindo, OPEC Secretary General makes keynote address at the Abu Dhabi International Petroleum Exhibition and Conference in Abu Dhabi, UAE.

11–18 December

Timothy Massad (l), Chairman of the US Commodity Futures Trading Commission with Mohammad Sanusi Barkindo, OPEC Secretary General.

Calendar 2016

16–17 February	6th IEA-IEF-OPEC Symposium on Energy Outlooks, Riyadh, Saudi Arabia
22–26 February	16th Multi-Disciplinary Training Course, HQ, Vienna, Austria
15 March	5th Joint IEA-IEF-OPEC Workshop on the Interactions between Physical & Financial Energy Markets, HQ, Vienna, Austria
21 March	12th EU-OPEC Energy Dialogue High-level Meeting, HQ Vienna, Austria
2 May	5th Meeting of Governors on the Second Review of OPEC's LTS, HQ, Vienna, Austria
3–4 May	146th Meeting of the Board of Governors (BOG), HQ, Vienna, Austria
10–11 May	OPEC R&D Forum, HQ, Vienna, Austria
12–13 May	15th Annual Statistical Meeting, HQ, Vienna, Austria
24–25 May	125th Meeting of the Economic Commission Board (ECB), HQ, Vienna, Austria
2 June	169th Meeting of the Conference, HQ, Vienna, Austria
13–15 July	JODI Inter-Secretariat Meeting, HQ, Vienna, Austria
15 July	5th IEA-IEF-OPEC Technical Meeting on Advancing the Comparability of Energy Outlooks, HQ, Vienna, Austria
18 July	2nd Technical Meeting on Asian Energy & Oil Outlook, HQ, Vienna, Austria
[26–27 September	*15th IEF Ministerial Meeting, Algiers, Algeria]*
28 September	170th Extraordinary Meeting of the Conference, Algiers, Algeria
14 October	EU-OPEC Roundtable on Non-Crude Liquids Prospects: Medium to Long-term Analysis, Brussels, Belgium

18–19 October	Member Countries' Coordination Meeting in the Run-up to COP22/ CMP12, HQ, Vienna, Austria
24 October	5th High-level Meeting of the OPEC-Russia Energy Dialogue, HQ, Vienna, Austria
28 October	1st MC High-level Committee Meeting, HQ, Vienna, Austria
29 October	OPEC and Non-OPEC Technical Meeting, HQ, Vienna, Austria
31 October	Meeting of Governors on the Second Review of OPEC's LTS, HQ, Vienna, Austria
1–2 November	147th Meeting of the BOG, HQ, Vienna, Austria
8 November	Press Conference on the Publication of WOO, Abu Dhabi, UAE
[7–18 November	*COP22/CMP12, Marrakesh, Morocco]*
21–22 November	2nd MC High-level Committee Meeting, HQ, Vienna, Austria
23–24 November	126th Meeting of the ECB, HQ, Vienna, Austria
28 November	Extraordinary Meeting of the High-level Committee of the Algiers Accord, HQ, Vienna, Austria
30 November	171st Meeting of the Conference, HQ,Vienna, Austria
10 December	OPEC and Non-OPEC Ministerial Meeting of the Algiers Accord, HQ Vienna, Austria
14 December	3rd IEA-IEF-OPEC Annual Symposium on Gas and Coal Market Outlook Paris, France

www.opec.org