



2018

Annual Report



Organization of the Petroleum Exporting Countries



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Table *of* Contents

1	Foreword
4	The world economy
14	Oil market developments
34	7 th OPEC International Seminar
44	Declaration of Cooperation
50	Activities of the Secretariat
84	Heads of Delegation
86	Board of Governors
88	Economic Commission Board
90	Officials of the Secretariat
92	Secretary General's diary
96	Calendar



4



14



34



44



50

Foreword



Mohammad Sanusi Barkindo
OPEC Secretary General

The OPEC Secretariat was a beehive of activity once again in 2018, as staff managed the many extra meetings and events related to the ‘Declaration of Cooperation’ (DoC) throughout its second year, while the 7th OPEC International Seminar in June added to the flurry of action.

The second year of the landmark DoC proved to the world once again that cooperation is the best way forward in dealing with contentious issues, and tangibly demonstrated to the world that OPEC is an institution that can be counted on. From its humble beginnings back in 2016, including the lead-up to and signing of the document on 10 December 2016, it is no exaggeration to say that the DoC process has changed the world.

Not only has it helped correct a severe market imbalance, which caused a massive loss of jobs and dangerous plunge in investment, negatively affecting both producing and consuming countries, the world economy rebounded as a result. With the market coming back into balance after the implementation of the DoC, market sentiment shifted from a ‘gloom and doom’ perspective to one of optimism and cautious regeneration.

In 2018, participating countries proved that this hearty mechanism is both stable and flexible. They were able to both take oil off the market and put it on as required.

When it seemed the market had too little oil in mid-2018, and participants of the DoC were reaching unheard of conformity levels of 147% (in May 2018), the 4th OPEC and non-OPEC Ministerial Meeting in June decided that countries will strive to adhere to the overall conformity level, voluntarily adjusted to 100%, as of 1 July 2018. In effect, this added around 600,000 to 800,000 b/d to the market within a short time.

When it appeared later in the year that a glut could form, the 5th OPEC and non-OPEC Ministerial Meeting accordingly decided to adjust overall production by 1.2 mb/d, effective as of January 2019 for an initial period of six months.

All of this success was strongly underpinned by the two hard-working bodies created under the DoC, the Joint Technical Committee, which logged 13 meetings in 2018 and the Joint Ministerial Monitoring Committee (JMMC), which met six times. The JMMC meetings were often hosted by OPEC and non-OPEC participants of the DoC, which proved to be wonderful opportunities to deepen the bonds of friendship and learn more about these fascinating countries and their oil industries. The 7th meeting was held in Muscat, Oman; the 8th in Jeddah, Saudi Arabia; the 10th in Algiers, Algeria; and the 11th in Abu Dhabi, United Arab Emirates.

I want to thank all the participants of the DoC for their dedication and hard work over a long period of time to keep the Declaration strong and well-functioning. It is easy to lose focus, but this committed and faithful group kept honoring its commitments, which strengthened the international community’s well-placed faith in us.

Our next step includes further institutionalizing a framework for regular and lasting cooperation to build on the successes achieved so far. To this end, the 5th OPEC and non-OPEC Ministerial Meeting, held on 7 December 2018, endorsed this goal in principle. This is meant to be finalized and ratified by participating countries in 2019.

The Declaration has also helped to usher in a focus on international cooperation, which remains an essential value of the Organization. Instead of looking at each other as adversaries or competition, the DoC has helped stakeholders increasingly view each other as allies in a battle to ensure stability in the international oil market and provide fair energy for all.

The need to keep the culture of dialogue alive and growing was also expressed by many speakers at the 7th OPEC International Seminar, held on 20–21 June 2018.

Helima Croft, Global Head of Commodity Strategy, RBC Capital Markets, stated that the DoC has been absolutely fundamental in improving the situation of the market. “But I think what is also really important is that it has changed the perception of OPEC within the financial community.

“I would say three years ago today, when we had the last Seminar, if you would have asked people if they would have thought they would see 24 countries join together to help stabilize the oil market, I think an absolute majority would have said no.”

Also at the Seminar, Edward L. Morse, Managing Director and Global Head, Commodities Research, Citigroup, said that the leadership of the OPEC and non-OPEC countries in the DoC have done a remarkable job when it comes to the positive elements of cooperation.

Li Ye, Executive Director General for Regulation, National Energy Administration, China, stated at the Seminar that “we should build a community of common destiny for mankind, through extensive consultations, joint contributions and shared benefits.”

Meanwhile, the Secretary General of the International Energy Forum, Sun Xiansheng, added: “the value of dialogue and cooperation has never been higher. No single stakeholder or technology can go it alone.”

Cooperation is and will continue to be the basis of the work that we do at OPEC, for the future prosperity not only of the oil market, but of mankind.

Regarding the market in 2018, although world economic growth was seen to be slowing marginally in the March *Monthly Oil Market Report*, it was still appreciable at 3.6% in 2018. The negative change was due in no small part to trade tensions. However, it was noted that the recovery in oil prices since the beginning of the year was an important stabilizing factor, which had a positive impact on both producer and consumer economies, including major OECD economies.

In the emerging economies, India picked up significantly to 6.6% in 2018, while Russia and Brazil fared somewhat better at 2.3% and 1.1%, respectively, for the year. China, however, continued its deceleration, with GDP growing by 6.6% in 2018 – a 0.3 percentage point drop from 2017.

Despite some economic softening, world oil demand increased in 2018 by 1.43 mb/d, to reach an average total oil demand of 98.72 mb/d. Meanwhile, non-OPEC supply growth in 2018 was estimated to be 2.74 mb/d to average 62.19 mb/d. This is expected to rise to 64.43 mb/d in 2019.

All this points to the necessity to continue to closely and diligently monitor the oil market and connected factors and to always be alert to changes and ready to act. OPEC promises to do its utmost to address market imbalances, building on the very successful mechanisms which have been created and developed since late 2016. We are confident, with the help of this newfound brotherhood in the industry, that the best years are yet to come!

A handwritten signature in black ink, consisting of several loops and a long horizontal stroke at the end, followed by a period.

Mohammad Sanusi Barkindo
OPEC Secretary General

The world economy



Global economic growth remained solid in 2018, but faced additional headwinds. Following a period of relatively synchronized growth, economic growth trends between – and within – major regions were increasingly divergent in 2018. After a strong pick up in 2017, last year’s gross domestic product (GDP) growth remained high, but slowed slightly to stand at 3.6%, after growth of 3.7% was seen in 2017. A slowdown was visible in major OECD economies, particularly the Euro-zone and Japan, but not the US. In the emerging economies, India showed a strong pick up, while Russia and Brazil fared slightly better. China, however, continued its deceleration. An OPEC-led recovery in the oil-market played a vital role in global economic growth momentum. Oil-producing economies –

including large oil producers in the OECD, such as the US and Canada – account for more than a third of the global economy. Hence, stabilizing market forces in the oil sector have supported output in these economies. As major exporters, the economies of Russia, other non-OPEC countries, as well as OPEC Member Countries, benefitted considerably from these developments.

Global issues that shaped economic growth in 2018 were mostly politically driven. This includes trade tensions between the US and its various trading counterparts, most importantly China, as well as Brexit developments and various geopolitical tensions across the globe. At the same time, US economic growth in 2018 was supported by major fiscal stimulus. Major central banks

Table 1

World economic growth rates, 2017–2018 (% change over previous period)

Grouping/country	2017	2018
OECD	2.5	2.3
Other Europe	4.9	3.8
Developing countries	3.6	3.9
Africa	3.7	3.4
Latin America and Caribbean	0.8	0.6
Asia and Oceania	4.5	4.9
Asia-Pacific	4.7	4.5
OPEC	0.5	1.1
China	6.9	6.6
FSU	2.3	2.3
Total world	3.7	3.6

Sources

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

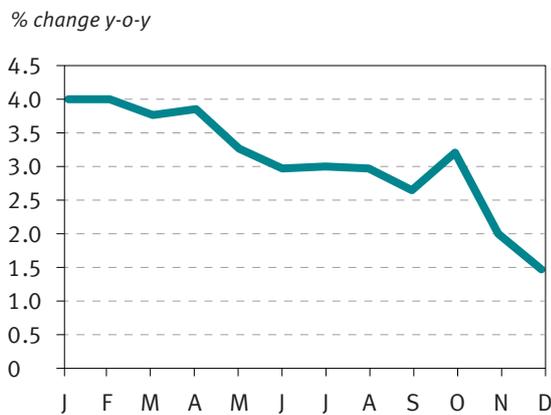
Note: Figures based on March 2019 Monthly Oil Market Report.

– mainly the US Federal Reserve (the Fed) – continued to tighten their monetary policies over the course of the year, which may also have led to some dampening effects in global growth.

Global trade remained an important subject throughout the year. The introduction of steel and aluminum tariffs – together with re-

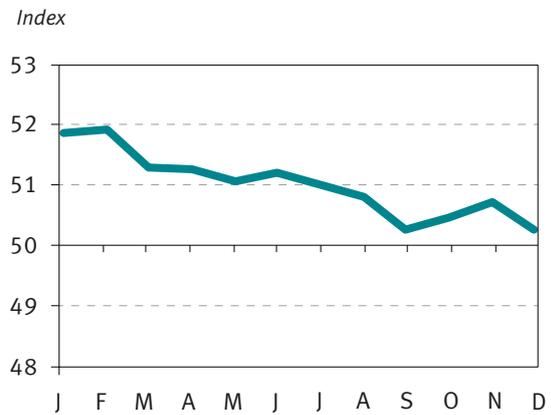
negotiation of the North American Free Trade Agreement (NAFTA) and other trade agreements – added some concern at the beginning of the year. World trade had a significant positive impact on economic development in previous years, and rising uncertainties appeared to start to negatively impact global economic growth in 2018.

Figure 1
Global industrial production, 2018



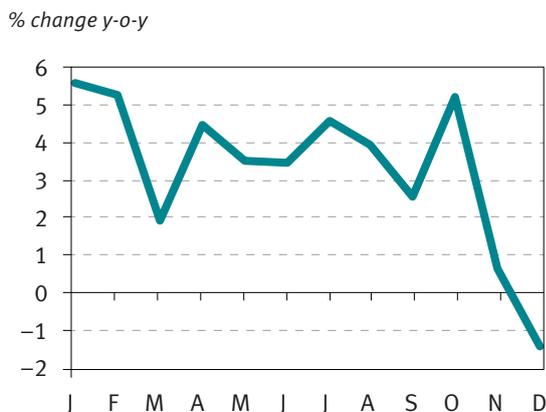
Source
Netherlands Bureau for Economic Policy Analysis and Haver Analytics.

Figure 2
Global manufacturing PMI, 2018



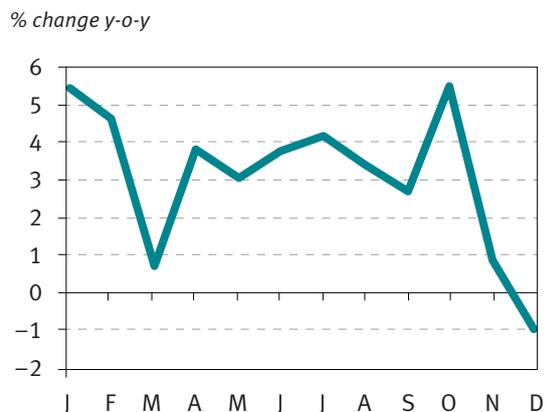
Source
IHS Markit and Haver Analytics.

Figure 3
World trade volume, 2018



Source
Netherlands Bureau for Economic Policy Analysis and Haver Analytics.

Figure 4
World exports volume, 2018



Source
Netherlands Bureau for Economic Policy Analysis and Haver Analytics.

Table 2
Comparison: OPEC and non-OPEC developing countries

	2017		2018*	
	OPEC	Non-OPEC	OPEC	Non-OPEC
Real GDP growth rate (%)	0.5	3.7	1.1	3.6
Petroleum export value (\$ bn)	578.3	1,500.8	726.8	–
Value of non-petroleum exports (\$ bn)	484.6	15,770.2	–	–
Oil exports as percentage of total exports (%)	54.4	8.7	–	–
Value of imports (\$ bn)	836.6	17,392.4	795.9	19,261.4
Current account balance (\$ bn)	46.8	466.9	185.4	551.3
Crude oil production (mb/d)	32.51	74.6	31.77	75.7
Reserves, excluding gold (\$ bn)	1,084.2	11,394.2	1,082.8	11,301.9

*2018 data are preliminary estimates.

Note

Figures are partly estimated. Non-OPEC developing countries 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; Economist Intelligence Unit (EIU) country reports; World Bank Development Indicators; OPEC Annual Statistical Bulletin; OPEC database; OPEC Secretariat estimates.

Table 3
OPEC Member Countries' real GDP growth rates, 2017–2018 (% change over previous period)

Member Country	2016	2017
Algeria	1.4	1.9
Angola	0.7	–1.0
Ecuador	–3.1	1.5
Congo, Republic of the	2.4	1.2
Equatorial Guinea	–3.2	–5.9
Gabon	0.5	2.0
IR Iran	3.7	1.0
Iraq	1.0	2.0
Kuwait	–3.3	1.4
Libya	64.0	16.0
Nigeria	0.8	1.9
Qatar	–0.9	2.3
Saudi Arabia	0.8	2.8
United Arab Emirates	–14.0	–13.0
Venezuela	0.5	1.1
Average OPEC	2.4	2.4

Sources

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

Negotiations in connection with NAFTA concluded, and NAFTA was replaced by the United States-Mexico-Canada Agreement in October. A more intractable issue became trade negotiations between the US and China. In 2018, the US imposed a 25% tariff on \$50 billion (bn) of imports from China, and 10% on another \$200 bn, in addition to a range of goods-specific duties. Tariffs on \$200 bn of imports were to be raised to 25% at a later stage in 2019. In addition, there was a threat to introduce a 10% tariff on remaining Chinese imports of \$267 bn in 2019. In response, China retaliated with a 25% tariff on \$50 bn of imported US goods and a 5-to-10% tariff on an additional \$60 bn.

Central bank policies pointed at some normalization in 2018. The Fed raised its key policy rate four times, while the European Central Bank pointed toward monetary policy normalization, as it stopped expanding the monetary stimulus programme in December and from September to December halved its original €30 bn bond buying programme. The deposit rate, at -0.4%, as well as the other core rates, remained on hold until the end of 2018. The Bank of Japan (BoJ) pursued a more accommodative approach, driven by the ongoing lackluster performance of the Japanese economy, in combination with still-low inflation rates. It continued its monetary stimulus using quantitative and qualitative monetary easing measures with yield curve control and kept the short-term interest rate at -0.1%. It also capped 10-year bond yields at “around zero” and continued to buy assets at a pace of ¥80 trillion a year. The BoJ intends to pursue this policy until the observed consumer price index – all items less fresh food – exceeds 2%, and then remains above this target in a stable manner.

OECD

OECD growth stood at 2.3% in 2018, compared with 2.5% in 2017. However, growth trends within the OECD varied considerably. US growth was reported at 2.9%, compared with 2.2% in 2017. The Euro-zone showed less dynamic growth of 1.8%, compared with 2.5% in 2017. This was a higher growth level than experienced by Japan, which reported growth of 0.7% in 2018, after seeing strong growth of 1.9% in 2017. Fiscal and monetary policy issues were important drivers of growth. The large fiscal stimulus in the US pushed that country’s growth to high levels in 2018 and allowed the Fed to normalize monetary policy. However, debt levels also rose to new highs. The Euro-zone remains challenged by high sovereign debt levels in several economies and ongoing weakness in some areas of the banking system. Particularly Italy’s sovereign debt-related issues contributed to increased risk in the Euro-zone. In Japan, fiscal stimulus faded and monetary policies remained unchanged.

OECD Americas

US

The US unemployment rate fell to a record low of 3.7% in September, the lowest rate since 1969. Average hourly earnings growth for the private sector stood at almost 3.0% in 2018 and constituted the highest earnings growth rate since 2008. The improving labor market supported both consumer spending and sentiment. Private household consumption increased by 2.6%, even slightly better than the 2017 level of 2.5%. Gross private domestic investment expanded by 6.0% year-on-year (y-o-y), compared with 4.8% in 2017, again a positive sign of improving business

sentiment, which was supported by revived investment in the energy sector. This positive momentum also led to rising inflation, which stood at 2.4% in 2018, compared with 2.1% in 2017.

OECD Asia-Pacific

Japan

Japan grew at only 0.7% in 2018, representing a considerable slowdown. Negative growth was registered in 1Q18 and 3Q18, while adverse weather conditions weighed on growth in 3Q18. Overall, Japan continued to grow at a slow pace of just below 1% on average. This broadly represents its growth potential, given that it is already enjoying very low unemployment and high industrial utilization rates. Wage pressure, stemming from the tight labor market, appears to be filtering through in terms of somewhat higher inflation, but this remains a gradual process. Inflation has also been supported by developments in the oil market. Although a slight increase helped move the inflation rate closer to the 2% target, the BoJ will likely continue its accommodative monetary policy.

OECD Europe

Euro-zone

The Euro-zone reported growth of only 1.8% in 2018, the lowest growth seen in four years. Growth risks in Italy have become apparent, but weakening growth was felt in Germany and France. A review of available data makes it clear that the slowing trend in the Euro-zone gained momentum since it started at the beginning of 2017. Germany and France had the weakest y-o-y growth in 4Q18 at 0.6% and 0.9%, respectively. Italy – clearly the weakest of the three largest economies –

even recorded zero growth in the last quarter of the year. Developments in the Euro-zone appear to have been driven by a variety of factors, including weakening external demand, uncertainty regarding domestic political issues (Brexit, Italy), and a slide in domestic consumption.

Emerging countries

Brazil

Brazil's GDP posted growth of 1.1% y-o-y in 4Q18, down from 1.3% in the previous quarter. Thus, annual growth stood at 1.1% y-o-y in 2018, similar to the economic growth registered in 2017. Private consumption grew by 1.5% y-o-y in 4Q18, from 1.4% in 3Q18. Government consumption dropped by 0.7% y-o-y in 4Q18, from growth of 0.3% in the previous quarter. Gross Fixed Capital Formation (GFCF) posted growth of 3.0% y-o-y in 4Q18, from a 7.8% acceleration in 3Q18. Exports rose by 12.0% y-o-y in 4Q18, from a 2.6% increase in 3Q18, and growth in imports slowed from 13.5% y-o-y in 3Q18 to 6.0% in 4Q18.

The pace of growth in Brazil's economy slowed in 1Q18 to 1.2% y-o-y, after registering growth of 2.1% and 1.4% in 4Q17 and 3Q17, respectively. Private consumption growth accelerated in 1Q18, up by 2.8% y-o-y, over 2Q18's 2.6%. However, growth in the GFCF decelerated to 3.5% y-o-y in 1Q18, down from 3.8% in the previous quarter. In addition, exports posted slower growth of 6.0% y-o-y in 1Q18, down from 9.1% in 4Q17. The slowdown in exports was more than the minor drop seen in the growth of imports, which climbed by 7.7% y-o-y in 1Q18 vs 8.1% in 4Q17. Moreover, government consumption in 1Q18 contracted by 0.8% y-o-y *versus* a 0.4% drop in the

previous quarter. The GDP posted growth of 1.0% y-o-y in 2Q18, the second-weakest growth rate since the economy came out of recession in 2Q17. This was mainly due to slower growth in private consumption and a decline in exports amid firm imports. Private consumption grew by 1.7% y-o-y in 2Q18, down from 2.8% the previous quarter. Exports declined by 2.9% y-o-y in 2Q18, after registering a 6.0% increase in 1Q18. Government consumption slightly increased in 2Q18 for the first time since 4Q16, by 0.1% y-o-y. The GFCF accelerated by 3.7% y-o-y in 2Q18, slightly faster than the first quarter's 3.5%. Imports grew for the fourth consecutive quarter in 2Q18, by 6.8% y-o-y. The GDP posted growth of 1.3% y-o-y in 3Q18, up from 0.9% in the previous quarter. The increase in private consumption decelerated from 1.8% y-o-y in 2Q18 to 1.4% in 3Q18. Government consumption, on the other hand, increased by 0.3% y-o-y in 3Q18, after a 0.3% contraction was seen in the previous quarter. The GFCF witnessed a notable improvement in 3Q18, growing by 7.8%

y-o-y, its highest rate since 2Q13. Exports rose by 2.6% y-o-y in 3Q18, after declining by 2.9% in 2Q18, whereas imports jumped by 13.5% y-o-y in 3Q18, up from 6.5% in 2Q18.

Russia

Russia's GDP grew by 1.5% y-o-y in 3Q18, up from a preliminary estimate of 1.3% and following a 1.9% expansion reported in 2Q18. Household consumption grew by 2.2% y-o-y in 3Q18, from 2.6% in 2Q18. Government consumption declined by 0.3% y-o-y in 2Q18, from 0.6% in the previous quarter. The GFCF accelerated in 3Q18 by 2.8% y-o-y, compared with a 1.0% increase in 2Q18. Exports rose by 4.3% y-o-y in 3Q18, down from 7.3% in 2Q18, whereas imports were largely unchanged in 3Q18 after growing by 4.8% y-o-y in 2Q18. The GDP posted growth of 1.0% y-o-y in 2Q18, which is the second-weakest growth rate since the economy came out of recession in 2Q17. This was mainly due to slower growth in private consumption and a decline in exports amid firm imports. Private consumption grew by 1.7% y-o-y in 2Q18,

Table 4

Summary of macroeconomic performance of the 'BRIC' countries in 2018

	GDP growth rates	Consumer price index	Current account balance	Governmental fiscal balance	Net public debt
	% y-o-y change		\$ bn	% of GDP	% of GDP
Brazil	1.1	3.7	-15.7	-7.1	80.5
Russia	1.6	2.9	106.9	2.7	9.5
India	7.3	4.0	-71.1	-3.6	50.2
China	6.6	1.9	43.5	-3.9	19.2

Sources

Source: OPEC Secretariat, Consensus, EIU.

Table 5
Average quarterly and yearly spot prices for selected crudes, 2017–2018

	2017	1Q18	2Q18	3Q18	4Q18	2018	% Change 2018/17
OPEC Reference Basket	52.43	64.75	71.99	74.11	68.07	69.78	33.1
OPEC Basket crudes							
Arab Light	52.59	65.34	72.68	75.11	69.03	70.59	34.2
Basrah Light	51.87	63.62	70.67	72.98	67.00	68.62	32.3
Bonny Light	54.55	67.72	75.19	75.79	69.50	72.11	32.2
Es Sider	52.77	64.89	71.32	72.09	65.87	68.59	30.0
Djeno	52.82	65.89	72.73	73.27	67.01	69.78	32.1
Girassol	54.47	67.64	74.11	75.54	69.39	71.72	31.7
Iran Heavy	51.71	63.48	70.20	72.28	65.73	67.97	31.4
Kuwait Export	51.60	63.43	70.70	73.53	67.74	68.90	33.5
Marine	47.63	57.94	66.00	68.99	64.73	64.47	35.4
Merey	54.82	67.04	74.68	76.46	70.39	72.20	31.7
Murban	50.00	61.71	68.66	70.75	63.07	66.10	32.2
Oriente	52.80	64.35	71.38	73.89	68.19	69.50	31.6
Rabi Light	53.16	65.82	73.28	74.17	67.72	70.30	32.2
Saharan Blend	54.12	67.60	74.34	75.20	68.42	71.44	32.0
Zafiro	54.04	66.84	74.07	75.14	69.17	71.36	32.1
Other OPEC crudes							
Arab Heavy	50.96	62.83	70.40	73.87	67.84	68.79	35.0
Dubai	53.08	63.92	72.10	74.14	68.33	69.68	31.3
Dukhan	54.12	66.45	73.58	75.48	69.30	71.22	31.6
Forcados	54.58	68.31	75.26	76.48	70.12	72.56	32.9
Iran Light	52.36	64.89	72.02	72.84	66.59	69.10	32.0
Other non-OPEC crudes							
Zuetina	53.64	65.95	73.18	74.07	67.47	70.22	30.9
Brent Dated	54.17	66.79	74.28	75.11	68.47	71.22	31.5
Isthmus	54.60	65.98	70.75	70.20	67.94	68.74	25.9
Oman	53.32	64.30	72.21	74.74	68.93	70.10	31.5
Suez Mix	51.56	63.50	71.10	72.57	66.66	68.47	32.8
Tapis	56.29	68.80	76.33	77.24	72.20	73.69	30.9
Urals	53.27	65.20	72.73	74.27	68.09	70.13	31.7
West Texas Intermediate (WTI)	50.82	62.90	68.03	69.70	59.79	65.16	28.2
West Texas Sour	49.85	61.48	59.52	55.36	53.15	57.38	15.1
Differentials							
Bonny Light–Arab Heavy	3.59	4.89	4.79	1.92	1.66	3.32	
Bonny Light–Saharan Blend	0.43	0.12	0.85	0.59	1.08	0.67	
Brent – WTI	3.35	3.89	6.25	5.41	8.68	6.06	
Brent – Dubai	1.09	2.87	2.18	0.97	0.14	1.54	

Notes

Quarterly and yearly averages based on daily quotations.
As of June 2018, the basket price includes the Congolese crude 'Djeno'.

Source

Platts, Argus and direct communication, OPEC Secretariat assessments.

down from 2.8% in the previous quarter. Exports declined by 2.9% y-o-y in 2Q18, after registering a 6.0% increase in 1Q18. Government consumption slightly increased in 2Q18 for the first time since 4Q16, by 0.1% y-o-y. The GFCF accelerated by 3.7% y-o-y in 2Q18, slightly faster than the first quarter's 3.5%. Imports grew for the fourth consecutive quarter in 2Q18, by 6.8% y-o-y.

India

The government's latest economic survey projects put India's growth at 7.3% for 2018, implying a 6.5% increase y-o-y in 4Q18. India's inflation generally rose only modestly and remained within central bank comfort zones. The Indian rupee continued to depreciate through 1H18. India remained particularly vulnerable to ongoing strengthening of the US dollar and foreign capital outflows, owing to its widening current account and fiscal deficits, driven in part by rising global oil prices. Moreover, India's business expectations dropped to their lowest point, as firms became more guarded in the face of growing uncertainty. Towards the end of the year, the decline in oil and commodity prices helped dampen inflationary pressure.

India's purchasing managers' index (PMI) significantly improved in 2018 compared with 2017. India's composite PMI averaged 52.3 in 2018, compared with 50.8 in 2017, with the manufacturing PMI at 52.3

compared with 51.4, and the services PMI at 51.6 compared with 50.1 in 2017.

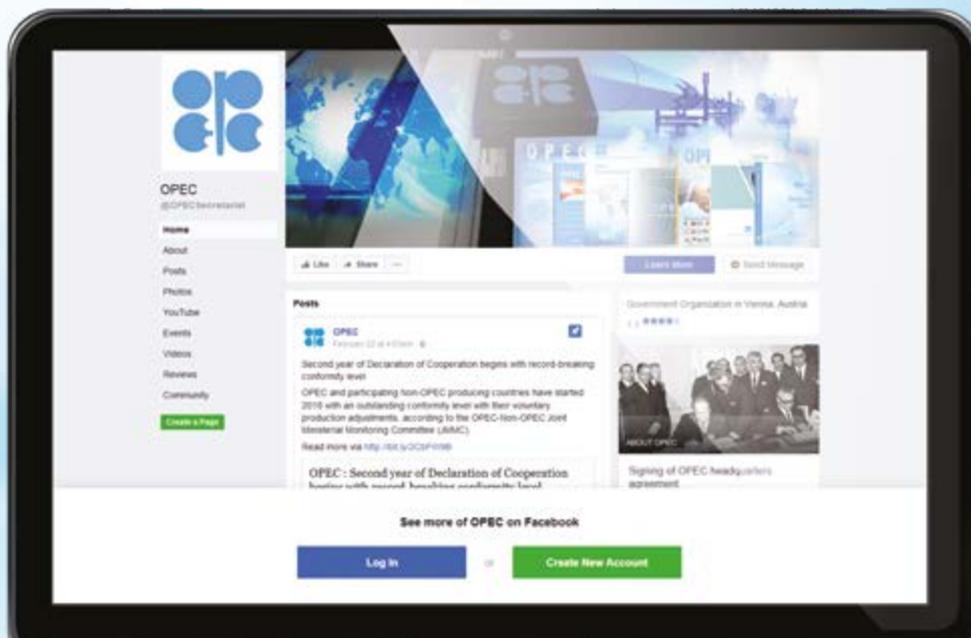
China

China's GDP grew by 6.6% in 2018, a 0.3 percentage point (pp) deceleration from 2017, as a result of strong overseas demand and services growth. It was the lowest growth rate since the global financial crisis amid an intense trade dispute with the US, weakening domestic demand and considerable off-balance sheet borrowing by local governments. The Chinese government set a 2018 growth target of around 6.5%. In 4Q18, the primary sector expanded by 3.5%; the secondary by 5.8%; and the tertiary by 7.4%. Agriculture also increased by 3.5%, down from 3.9% in 2017. In 2018, a solid global economy, healthy consumer demand, more aggressive economic reforms and reduced manufacturing overcapacity supported China's economy. However, trade tension with the US, tight monetary policy, real estate market challenges, occasional liquidity crunches, shadow banking concerns, and slow reform of the state-owned industrial and banking area had a negative impact. China's yearly average composite PMI stood at 52.3 in 2018 compared with 51.8 in 2017. China's yearly average manufacturing PMI was 50.7 in 2018 compared with 51.0 in 2017. Meanwhile, China's average services PMI was 53.1 in 2018 compared with 52.1 in 2017.



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Oil market developments



Crude oil price movements

Crude oil prices increased notably in 2018, continuing the recovery witnessed in 2017 amid a more balanced global oil market and healthy global economic conditions, even though oil prices declined at the end of the year, following an eventful fourth quarter.

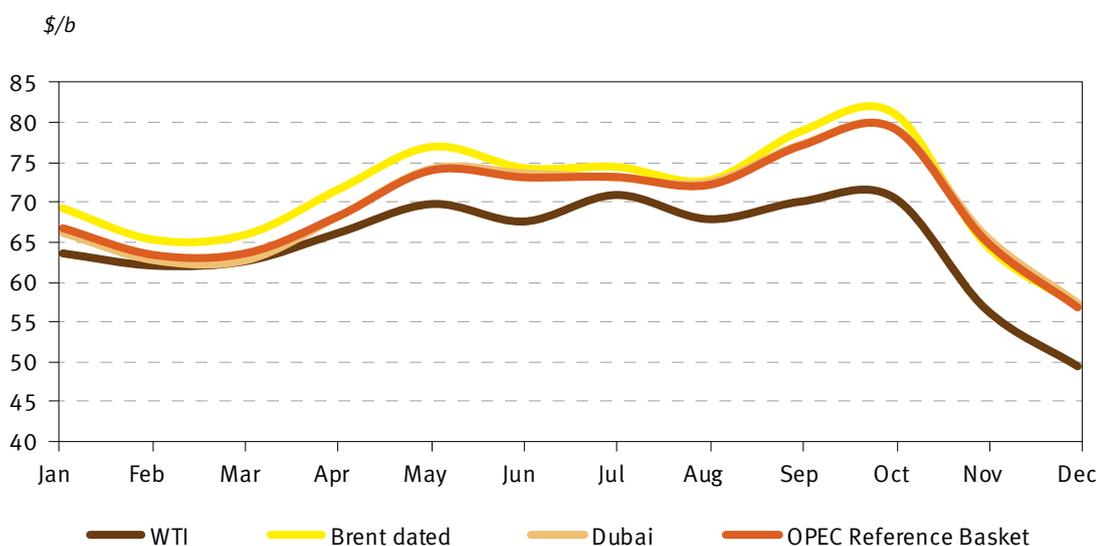
OPEC Reference Basket

The OPEC Reference Basket (ORB) rose remarkably in 2018 achieving a 33.1% or \$17.35 per barrel (\$/b) year-on-year (y-o-y) gain to stand at \$69.78/b, the highest yearly average since 2011. The ORB value increased for the second consecutive year, supported by positive market sentiment and fueled by the extended efforts of OPEC and participating non-OPEC countries in accordance with voluntary production adjustments under the ‘Declaration of Cooperation’ (DoC) to restore market stability, as well as robust global oil

demand, which grew by around 1.43 million barrels per day (mb/d). These factors widely contributed to the global oil market rebalancing process, and brought global oil stocks to their lowest point since 2014, while OECD oil stocks fell below their five-year average.

The ORB value ended the first half of 2018 significantly higher at \$68.43/b, up 36.3%, or \$18.21, compared with 1H17. The ORB continued its upward trend in 3Q18 and settled at \$74.11/b on a quarterly basis, an increase of \$2.12 or 2.9% compared with 2Q18. In October, the ORB value averaged \$79.39/b, its highest monthly value since October 2014, supported by worries about tightening global oil supply amid high geopolitical tensions in the Middle East and other regions. However, the upward trend reversed in late October and prices continued to decline sharply through 4Q18, after concerns about supply disruptions eased and market sentiment focused on the oil supply overhang and expectations of lower global oil demand

Figure 1
Monthly oil price movements, 2018



growth amid a high level of uncertainty surrounding global economic growth forecasts, intensified by the potential negative impact of the US-China trade dispute on the global economy. These bearish factors triggered a sharp selloff and consequent drops in global equity markets, which weighed further on oil prices.

All ORB component values rose significantly in 2018, with each improving by more than 30%, underpinned by higher international crude oil benchmarks and positive changes in their respective official selling prices (OSPs) and crude differentials, which were supported by strong physical crude oil demand and sustained backwardation for most of the year, particularly for the Dubai benchmark. Crude oil physical benchmarks Dated Brent, WTI and Dubai spot prices increased by \$17.05, \$14.34 and \$16.60/b, respectively. The value of light sweet Basket components from West and North Africa jumped to almost \$71/b. Saharan Blend, Es Sider, Girassol, Bonny Light, Equatorial Guinea's Zafiro, Gabon's Rabi and Gabon's Djeno values increased by \$17.05, or 31.8%, on average to \$70.76/b. Despite higher US crude oil exports in 2018, West and North African basket components increased firmly, supported by solid crude demand from Europe and Asia and healthy refining margins. Latin American ORB components, Venezuelan Merey and Ecuador's Oriente, edged up to \$64.47/b and \$66.10/b in 2018, gaining \$16.84, or 35.4%, and \$16.10, or 32.2%, respectively. Support came from strong demand for Latin American crudes, particularly for heavier crudes, from Asia and from the US, amid a lower supply of similar grades from the Middle East and Latin America. Multiple-region destination grades were supported by tighter supplies, strong demand – particularly in the Asia-Pacific re-

gion – and higher OSP offsets. The value of multiple-region destination grades – Arab Light, Basrah Light, Iran Heavy and Kuwait Export – improved over the year. On average, these grades' values expanded by \$17.08, or 32.9%, for the year to stand at \$69.02/b. Further help came from the wider Brent/Dubai spread, which supported demand for Dubai-linked grades from the Middle East and Russia at the expense of those priced on Brent from the Atlantic Basin. Similarly, Middle Eastern spot components Murban and Qatar Marine saw their values improve greatly by \$17.38, or 31.7%, to \$72.20/b and \$16.70, or 31.6%, to \$69.50/b, respectively.

Premiums for light sweet grades over heavy sour rose globally in 2018, largely supported by sharp increases in outright sweet crude prices, particularly the Brent benchmark, as market balance improved, while demand for light sweet crude remained strong and some refiners maximized their lighter crude intake in order to optimize refining margins. The sweet/sour spread widened, despite an easing supply of medium and heavy sour crudes amid voluntary production adjustments by OPEC and participating non-OPEC producing countries, and a higher light sweet crude supply, particularly from the US. The sweet/sour differential widened significantly in 1H18, and the Brent/Dubai exchange of futures for swaps rose to its highest point since 2014, giving more support to Brent-linked light sweet grades. These combined factors limited the upside potential for sweet/sour crude premiums. Nonetheless, the spread narrowed in 2H18 amid worries over tightening crude supplies from Middle East due to geopolitical tensions. In Europe, the differential between Brent and Urals widened further in 2018, and the spread soared to a high not seen since June 2014, amid

increased availability of alternative medium sour crudes in Europe, high Urals availability and refinery maintenance. For the year, the Brent/Ural spread widened by 19¢ to average \$1.09/b. In Asia, the Tapis premium over Dubai increased by a hefty 80¢ to \$4.01/b, supported by strong demand for Asian Pacific light sweet grades from local refiners amid healthy refining margins, while the supply of heavier grades remained high. Reduced west-east arbitrage and a higher Brent price added support. However, on the US Gulf Coast (USGC), the Light Louisiana Sweet premium over Mars narrowed slightly in 2018, by 8¢ to \$3.34/b, due to a lower supply of sour grades from the Middle East and Latin America, and a higher supply of US tight oil to the USGC.

Crude oil futures

Crude oil futures prices continued to increase in 2018, recording a second consecutive annual gain, with international benchmark ICE Brent crude futures rising by a hefty \$16.96, or 31.0%, y-o-y to average at \$71.69/b, while the US WTI benchmark gained \$14.05, or 27.6%, y-o-y to average at \$64.90/b.

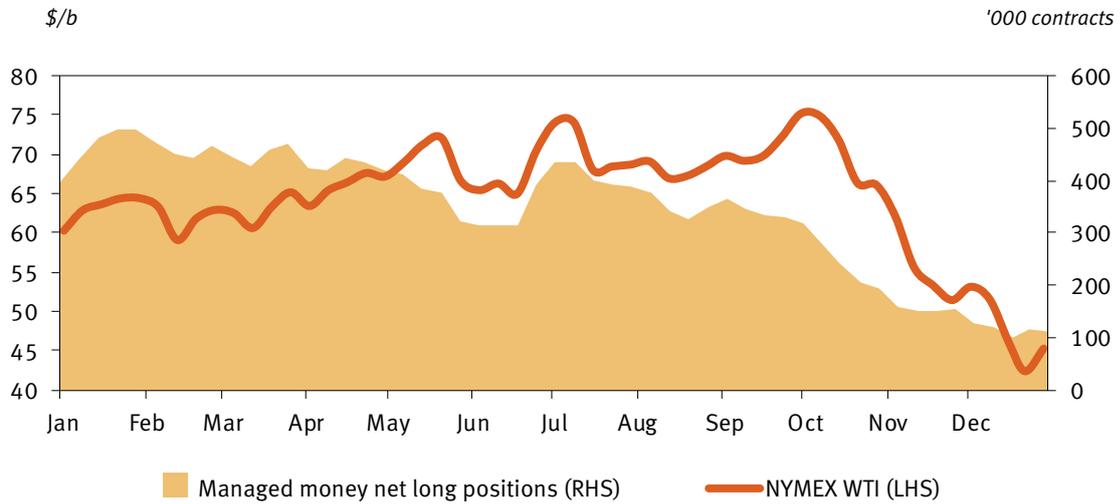
Futures oil prices were supported by solid oil market fundamentals and a more balanced global oil market after elimination of the global oil inventory surplus, thanks to voluntary production adjustments by OPEC and non-OPEC participating countries under the DoC, as well as healthy global oil demand growth, which was underpinned by robust global economic growth, estimated at 3.6%. High conformity levels by OPEC and non-OPEC participating countries to the DoC registered through 2018 contributed to reducing OECD oil inventories to below the five-year average level, which supported market stability and sentiment, despite

higher non-OPEC oil supply growth, estimated at 2.74 mb/d for the year.

Oil prices rose substantially in the first half of 2018 and continued to strengthen through 3Q18, reaching their highest mark since 2014, and all key international crude oil benchmarks slipped into backwardation, reflecting a balanced market. In October, ICE Brent prices jumped briefly to more than \$86/b amid growing concerns about oil supply disruptions and tightening supply, along with high geopolitical risks. Nevertheless, concerns about an oil supply shortage reversed to worries about market oversupply, as many large producers increased crude output faster than expected, particularly in the US, which coincided with a weaker global economic outlook, especially in the Euro-zone, China and India, in addition to an alarming drop in the financial markets. All these factors triggered a sharp selloff and consequent decline in global equity indexes. This pushed oil prices sharply lower throughout 4Q18 amid deteriorating market confidence. In December, oil futures prices fell further, despite several unplanned outages in many producing countries, as investors remained concerned about oil market oversupply and rising trade tension between China and the US amid signs of slower economic growth, which could curb global oil demand growth in 2019. In late December, the ICE Brent price tumbled to \$50.47/b, its lowest point since August 2017, amid low market liquidity. Oil prices ended the year lower than at the start for the first time since 2015.

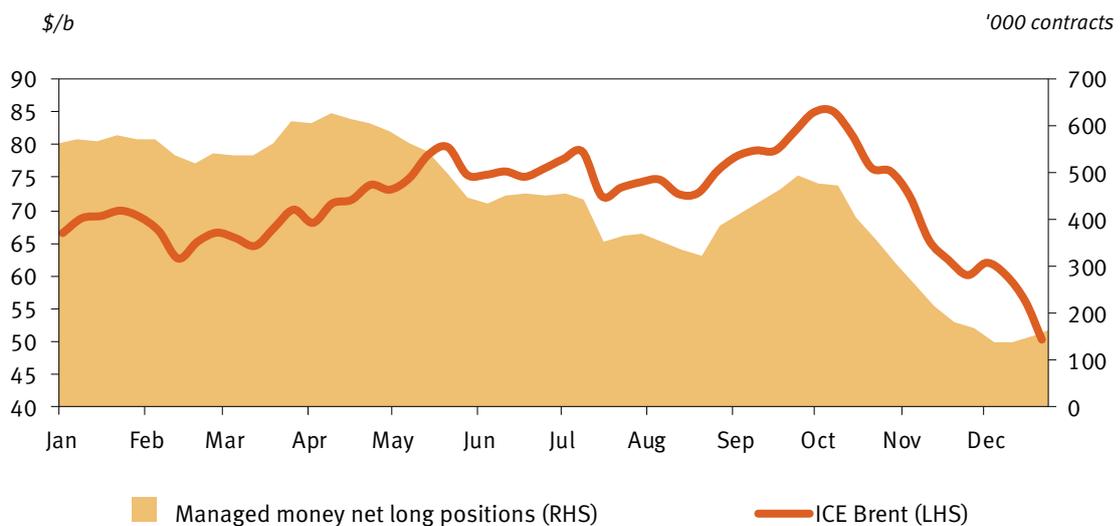
The transatlantic spread between the ICE Brent and NYMEX WTI benchmarks widened considerably over 2018, gaining \$2.91 to average \$6.79/b, as the Brent price rose more than WTI. ICE Brent was supported by strong oil market fundamentals and rising concerns

Figure 2
NYMEX WTI price versus managed money net long positions, 2018



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

Figure 3
ICE Brent price versus speculative activity, 2018



Source
 Intercontinental Exchange and OPEC Secretariat.

over potential supply disruptions due to geopolitical tension, while WTI was pressured by increasing US oil supply amid a lack of pipeline capacity to transport oil away from the Permian Basin, as well as high US crude oil inventory levels, particularly in 4Q18. The wide Brent/WTI spread helped incentivize US crude oil exports and boost coastal crude grades, in particular. US crude oil exports reached a historically high level of more than 2.0 mb/b in 2018.

In 2018, NYMEX WTI total traded volume was slightly lower at 309 million contracts, compared with 316 million in 2017, about 2.2% lower y-o-y. ICE Brent traded volumes stood at around 234 million lots, a decline of 6.8 million lots, or 2.8%, from 2107. Daily aggregate traded volume for both crude oil futures markets decreased by 51,607 contracts to 2.1 million lots, or about 2.1 billion barrels of crude per day (bn b/d).

Hedge fund and other money managers continued to boost their bullish wagers on both Brent and WTI crude throughout the first half of 2018, as investors gained confidence amid the oil market's move toward greater balance and the expectation of higher oil prices. In the second half of the year, speculators slashed their combined futures and options positions linked to both ICE Brent and NYMEX WTI to reach their lowest level in more than a year, as concerns about a potential global market oversupply in the following months led hedge fund and other money managers to massively liquidate their long positions.

In December, hedge funds and other money managers cut their combined net long positions in NYMEX WTI futures and options to their lowest level in 2018 to reach 100,733 lots, the US Commodity Futures Trading Commission said. In December, gross short positions surged to 115,975

contracts, while gross long positions fell to 216,708 contracts, data showed. During this period, US crude prices fell to their lowest level since 2016. Similarly, hedge funds and money managers cut their combined futures and options net length positions in ICE Brent to 136,466 lots, the lowest in more than a year. Gross short positions rose to 117,236 contracts, while gross long positions fell to 253,702 lots, data showed. The long-to-short ratio in ICE Brent speculative positions fell to an alarming 2.1:1, while the ratio in NYMEX WTI decreased to 1.9:1. Total futures and options open interest volume in the two exchanges was at 5.89 million lots.

Market structure

The market structure for all benchmarks was in backwardation in 1H18, as the global oil market continued to move toward greater balance amid reduced excess supply, strong crude oil demand, and lower global oil inventory levels. However, the Brent and WTI price structure flipped into contango in 4Q18 amid surging global oil supply and deteriorating market confidence, while the Dubai structure remained in backwardation.

WTI backwardation strengthened in 3Q18, supported by lower US crude oil stocks, particularly in Cushing, due to lower Canadian crude supply. The NYMEX WTI price structure flipped into contango in 4Q18 after US oil production continued to rise to historically high levels and US crude stocks started to increase.

The Brent structure also moved into contango in 3Q18, amid increasing light sweet crude supplies and US arbitrage flows to Europe. During November and December, the contango Brent price structure deepened, along with growing concerns about the oil

supply overhang and expectations of lower global oil demand growth amid a high level of uncertainty surrounding global economic growth forecasts.

The Dubai market structure remained largely in backwardation throughout 2018, as lower oil supply from the Middle East and strong demand for spot cargoes from Asia-Pacific kept prompt prices higher. Steep backwardation in the Dubai structure also pushed official selling prices higher for all Middle Eastern crudes. Nonetheless, the Dubai backwardation structure eased in 4Q18 due to higher crude oil supply, particularly from the Middle East and Russia. The sharp drop in oil prices recorded in November and December also weighed on the front months of the curve.

On average, the North Sea Brent M1/M3 13¢/b contango seen in 2017 flipped into a backwardation of 26¢/b in 2018, up 13¢. Similarly, the Dubai M1/M3 discount of 7¢/b flipped to a premium of 68¢/b, improving by 76¢. In the US, the WTI M1/M3 contango of 62¢/b in 2017 moved into a backwardation of 59¢/b in 2018, a gain of \$1.21.

The impact of the US dollar and inflation on oil prices

On the currency markets, the US dollar generally advanced with respect to its major currency counterparts, as the strength of the US economy supported relatively faster monetary tightening by the US Federal Reserve. The dollar advanced against the euro by 4.0% y-o-y, with a slowdown in 4Q18 casting doubt on the ability of the European Central Bank to engage in further monetary tightening after having ended the quantitative easing programme at the end of the year. Meanwhile, the dollar advanced by

0.5% against the Swiss franc and by 5.7% y-o-y to the pound sterling, with uncertainties related to Brexit generally weakening the currency, as well as the Bank of England's cautious approach; it increased interest rates just one time during the year. Against the yen, the dollar declined by 0.3% y-o-y, mainly due to safe haven demand at the end of the year in the midst of financial market turbulence in 4Q18.

The dollar experienced sharper advances against emerging market currencies, especially those facing relatively larger current account deficits. It advanced against the Chinese yuan by 4.4% y-o-y, by 10.1% against the Indian rupee, and by 18% y-o-y against the Brazilian real, with political uncertainty and strong currency depreciation in major trading partner Argentina adding to weakness in that country. The dollar advanced by 14.9% y-o-y against the Russian ruble, partly affected by the imposition of sanctions against some of the country's largest companies, amid the overall strength of the dollar.

World oil demand in 2018

Global oil demand experienced healthier-than-expected growth in 2018, increasing by 1.43 mb/d compared with an initial expectation of 1.26 mb/d. The largest contributors to growth were the US, followed by China and India. For the year, total oil consumption averaged around 98.72 mb/d.

From a regional perspective, the OECD experienced a solid increase, supported by strong demand from OECD Americas, particularly the US. OECD Americas was the largest contributor to overall growth in world oil demand in 2018, amid firm macroeconomic indicators and a prosperous petrochemical

sector. Growth was particularly strong for natural gas liquids/liquefied petroleum gas (NGL/LPG), diesel fuel and jet kerosene. In OECD Europe, oil demand remained in positive territory for the fourth consecutive year as oil requirements increased in 2018, albeit at a much slower pace than in previous years. OECD Asia-Pacific registered steady gains in 1H18, stimulated by stable oil requirements from South Korea and Australia. Demand growth eased substantially thereafter, particularly in South Korea, as a result of lower petrochemical feedstock demand, largely due to poor margins and heavy maintenance activities. As a result, oil demand growth in OECD Asia-Pacific declined y-o-y in 2018.

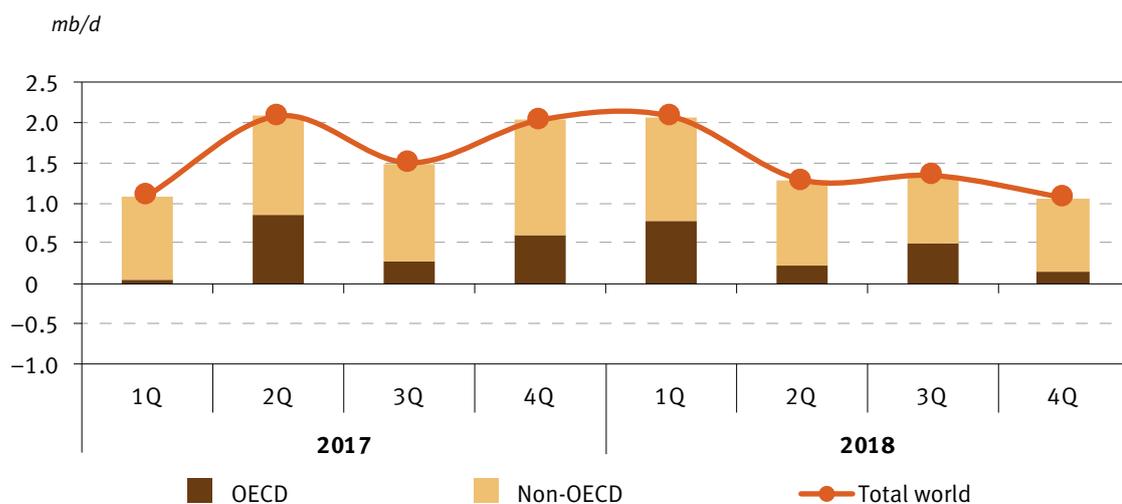
In the non-OECD, oil demand in China remained firm, despite signs of a slowdown in 2H18, as overall economic momentum eased in response to trade concerns. Declines in ve-

hicle sales further exacerbated softening oil demand growth. Other Asia enjoyed robust oil demand growth last year, following strong requirements in India, Indonesia, and Thailand. Oil demand in India recorded notable gains, supported by robust economic activity and solid sales for both passenger and commercial vehicles, as well as government expansion projects, particularly in road construction. In the Middle East, economic transformation policies, including subsidy reductions and an increase in tariffs, pushed oil demand growth into negative territory for the first time since 1989. Similarly, oil demand growth was lower than expected in Latin America, amid economic turmoil in Argentina and Brazil.

OECD America

In the US, oil demand increased by around 2.4% y-o-y, with most gains appearing in 1Q18, mainly as a result of a significant

Figure 4
World oil demand by main region, y-o-y growth, 2017–2018



Source
OPEC Secretariat.

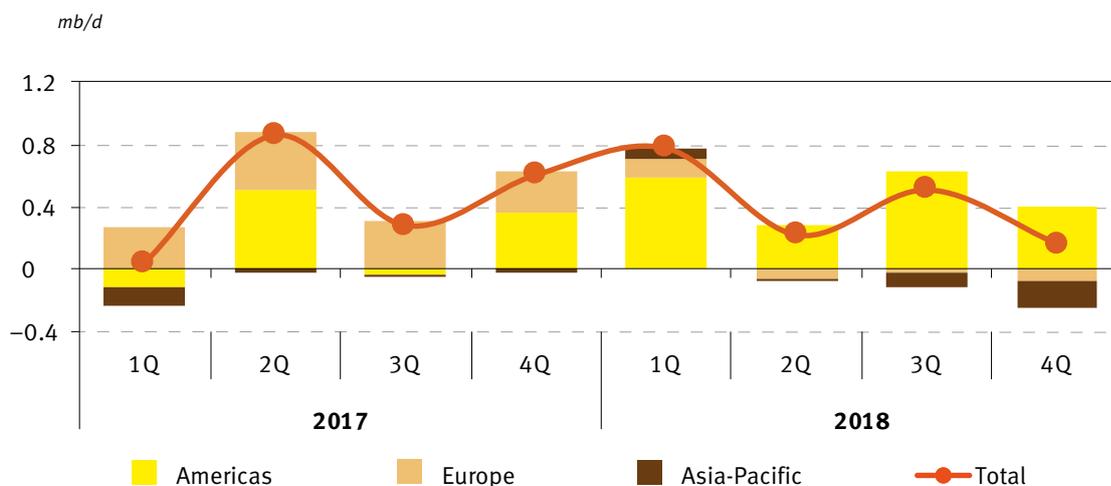
increase in demand for light and middle distillates, excluding gasoline. Diesel fuel demand continued its positive growth momentum, which started in early 2017. Strength in diesel fuel demand stemmed from improvements in the freight market, a steady rise in industrial production y-o-y, and solid housing starts data. Light ends, including NGLs, also recorded solid gains in the US, as a result of strong capacity additions, as well as expansion in the existing system. US gasoline demand was flat to slightly declining y-o-y in 1H18; steady growth in 1Q18 was later offset by declines in 2Q18. Higher y-o-y US retail price data, in addition to less miles travelled, eased gasoline demand growth in 2018.

OECD Europe

After steady performance during 1H18, oil demand in OECD Europe flipped into

the negative zone during 2H18. However, 2018 data indicate a minor decline y-o-y, far lower than the gains recorded during the same period in 2017. Diesel oil and naphtha demand, particularly in Germany and France, declined substantially in 2018. Both planned and unplanned outages weighed on naphtha requirements in Germany, exacerbated by outages in polymer downstream units. Diesel fuel demand was impacted on a number of fronts, affecting economic growth in some countries of the region. A strong shift towards gasoline-driven vehicles, delays in winter stocking due to higher oil prices and low water levels in the Rhine River limiting barge movements, all contributed negatively to diesel fuel growth in 2018. Additionally, countries such as Spain and Turkey, which drove oil demand growth in recent years, retreated to historically average levels due to economic concerns.

Figure 5
OECD oil consumption by quarter and region, y-o-y growth, 2017–2018



Source
 OPEC Secretariat.

OECD Asia-Pacific

In Japan, oil demand was determined by falling requirements in light distillates, particularly for naphtha and LPG. The entire product mix was flat y-o-y: gasoline and middle distillates increased marginally, while fuel oil and the other products category marginally decreased. Unlike previous years, the petrochemical industry impacted oil demand negatively in 2018, amid heavy naphtha cracker maintenance in 1H18. On the other hand, warm weather during 2Q18, with cooling requirements at a ten-year high, provided some support for utility fuels.

In South Korea, oil demand declined in 2018, while requirements in all main product categories decreased, with the exception of LPG and jet/kerosene. Oil demand was discouraged by slower naphtha demand, caused by weaker margins, while slower economic momentum in 2H18 impacted demand for diesel fuel.

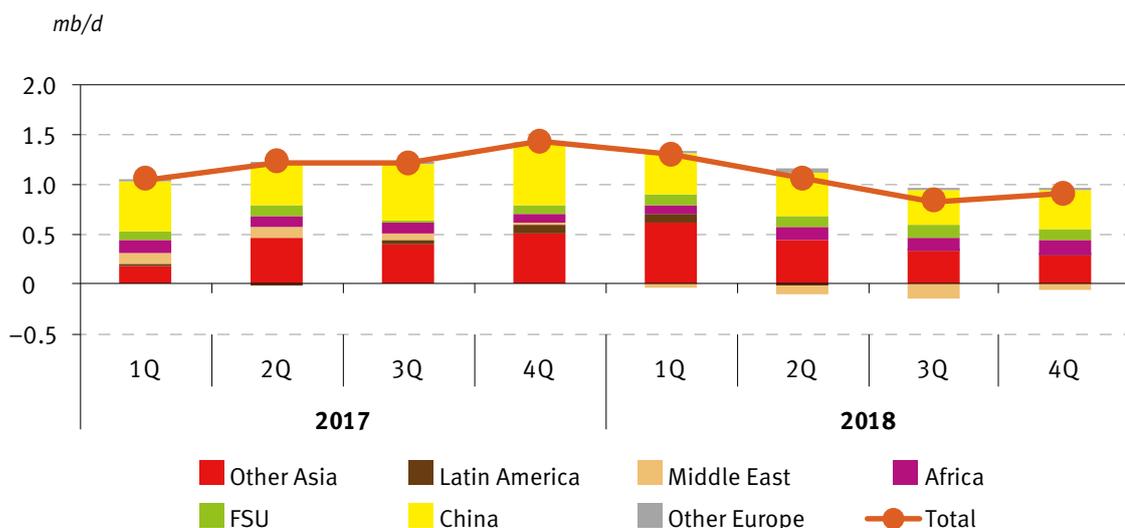
Non-OECD

China

In China, oil demand growth was steady in 2018, increasing by around 3.8% y-o-y, in line with economic developments and despite signs of slowing towards the end of the year. Petroleum product performance was positive in all categories. LPG, gasoline, jet/kerosene and diesel fuel grew the most. These developments were in line with improvements in major petroleum consuming sectors of the economy, namely the road and air transportation sectors, as well as the industrial – including petrochemicals – and residential sectors. However, a slowdown in demand growth was apparent in 2H18, with demand for diesel fuel softening, due to economic worries and trade concerns, which were further exacerbated by heavy rainfall and flooding. Passenger car sales provided

Figure 6

Non-OECD oil consumption by region and quarter, y-o-y growth, 2017–2018



Source
OPEC Secretariat.

a negative signal for transportation fuels, as they declined in 2018 for the first time in two decades.

India

In India, positive developments in oil demand for 2018 were supported by a number of healthy macroeconomic indicators, as the country's strong economic growth outpaced that of China's. Industrial production experienced a robust increase, new vehicle registrations rose sharply, and the petrochemical industry enjoyed fast growth. The country's historically low oil demand per capita also supported increased requirements in 2018. As such, LPG, gasoline and diesel fuel demand registered healthy gains for most of the year.

Other Asia

In Indonesia, oil demand saw solid growth in 2018. LPG, gasoline, and diesel fuel were the most prominent product growth categories. Similar to India, LPG is used predominantly in the residential sector, while increases in gasoline and gas diesel fuel were related to the road transportation sector. Fuel oil requirements fell, mainly as a result of fuel substitution with other primary energy commodities.

Oil demand grew in Thailand, as gains in LPG, gasoline and jet kerosene requirements more than offset declines in demand for diesel fuel and fuel oil.

Latin America

In 2018, Brazilian oil demand showed flat growth in oil requirements compared with 2017. The economic advantage of ethanol over gasoline played a significant part in decreasing gasoline demand growth in every single month of 2018. Most vehicles are

equipped with dual fuel engines that can be supplied by either ethanol or gasoline. Diesel fuel demand increased y-o-y, as diesel fuel demand from the industrial and transportation sectors improved. On the other hand, fuel oil demand declined in 2018, mainly as a result of fuel substitution.

Oil demand in Argentina was flat in 2018, with mixed performance within the quarters. The 1Q18 showed oil demand increasing y-o-y and decreasing thereafter. Demand for most petroleum products was in negative territory, with the exception of gasoline and jet/kerosene.

Middle East

Middle East oil demand was in negative territory in 2018 as oil demand declined by around 2.0% y-o-y in the whole region. Looking at the product mix, gasoline and light distillates grew the most, with naphtha and LPG being used as feedstock for the petrochemical industry. Gasoline for the transportation sector performed better than other fuels in 2018. In contrast, direct crude oil for usage in electricity generation declined most in 2018. The impact of subsidy reform is an important factor in declining demand growth over the past two years, as most countries in the region stepped up measures to reduce subsidies. Additionally, substitution by natural gas continued to be a factor curbing oil demand in the Middle East in 2018, hence reducing requirements for power generation fuels.

World oil supply in 2018

According to preliminary estimates, the world's liquids supply grew by 2.6 mb/d to average 99 mb/d in 2018, despite a decrease of 0.15 mb/d y-o-y in OPEC's crude oil production, which averaged 31.9 mb/d. Rising oil

Table 1
World oil demand and supply balance, 2015–2018

	2015	2016	2017	1Q18	2Q18	3Q18	4Q18	2018
World demand (mb/d)								
OECD	46.5	47.0	47.4	47.7	47.2	48.2	48.2	47.8
OECD Americas	24.6	24.9	25.1	25.2	25.4	25.8	25.7	25.5
OECD Europe	13.8	14.0	14.3	13.9	14.2	14.7	14.3	14.3
OECD Asia-Pacific	8.1	8.1	8.1	8.5	7.7	7.7	8.2	8.0
DCs	30.9	31.5	32.1	32.4	32.6	32.9	32.6	32.6
FSU	4.6	4.6	4.7	4.7	4.7	4.9	5.0	4.8
Other Europe	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.7
China	11.5	11.8	12.3	12.3	12.8	12.7	13.1	12.7
(a) Total world demand	94.2	95.6	97.3	97.8	98.0	99.3	99.7	98.7
Non-OPEC supply (mb/d)								
OECD	25.4	24.9	25.7	27.2	27.5	28.6	29.3	28.1
OECD Americas	21.1	20.6	21.5	22.9	23.4	24.5	25.1	24.0
OECD Europe	3.8	3.9	3.8	3.9	3.7	3.6	3.8	3.8
OECD Asia-Pacific	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4
DCs	13.8	13.5	13.4	13.4	13.5	13.3	13.4	13.4
FSU	13.7	13.9	14.1	14.1	14.1	14.3	14.6	14.3
Other Europe	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
China	4.4	4.1	4.0	3.9	4.0	3.9	4.0	4.0
Processing gains	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Total non-OPEC supply	59.5	58.7	59.5	61.1	61.4	62.5	63.7	62.2
OPEC NGLs + NCOs	4.7	4.8	4.9	4.9	5.0	5.0	5.1	5.0
(b) Total non-OPEC supply and OPEC NGLs + NCOs (mb/d)	64.2	63.5	64.4	66.0	66.4	67.5	68.7	67.2
OPEC crude oil production¹	31.2	32.2	32.0	31.8	31.6	32.0	32.1	31.9
Total supply (mb/d)	95.5	95.7	96.4	97.8	98.0	99.5	100.8	99.0
Balance (stock change and misc.)	1.3	0.1	-0.9	0.0	0.0	0.1	1.1	0.3
OECD closing stock level (outside FCPEs) (mb)								
Commercial	2,989	3,002	2,853	2,816	2,817	2,869	2,858	2,858
SPR	1,588	1,600	1,568	1,575	1,570	1,565	1,546	1,546
Total	4,577	4,602	4,421	4,391	4,386	4,434	4,403	4,403
Oil-on-water	1,017	1,102	1,025	1,036	1,014	1,041	1,062	1,062
Days of forward consumption in OECD								
Commercial onland stocks	64	63	60	60	58	59	60	59
SPR	34	34	33	33	33	32	32	32
Total	97	97	92	93	91	92	92	92
Memo items (mb/d)								
Difference (a – b)	29.9	32.1	32.9	31.8	31.6	31.8	30.9	31.5

Note
Totals may not add up due to independent rounding.

Source
OPEC Secretariat.
¹Secondary sources

prices supported growth in liquids output from non-OPEC producers, particularly US tight oil, but Canada, Russia, Kazakhstan, Qatar, Ghana and the UK also benefitted. OPEC NGLs and unconventional liquids output averaged 4.98 mb/d, following the departure of Qatar from OPEC, representing y-o-y growth of 0.04 mb/d.

Non-OPEC countries produced 62.21 mb/d of liquids on average, indicating growth of 2.74 mb/d in 2018. In terms of breakdown, non-OPEC countries produced 43.94 mb/d of crude oil (+1.54 mb/d, y-o-y), 9.88 mb/d of NGLs (+0.84 mb/d, y-o-y) and 6.14 mb/d of unconventional liquids (+0.54 mb/d, y-o-y). Processing gains grew by 0.04 mb/d to average 2.25 mb/d in 2018.

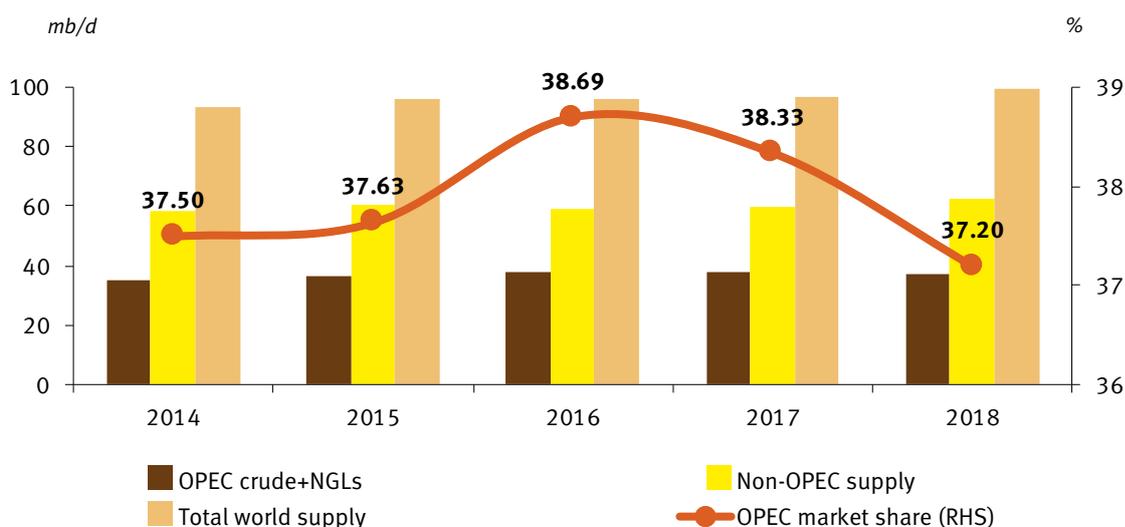
Non-OPEC supply

Non-OPEC liquids supply averaged 62.19 mb/d in 2018, an increase of 2.74 mb/d

over the previous year. Growth was driven by OECD Americas, with the US being the main contributor, followed by Canada. Growth was also seen in other regions, including former Soviet Union (FSU) (+0.24 mb/d), the Middle East (+0.07 mb/d), Africa (+0.03 mb/d), Latin America (+0.02 mb/d) and OECD Asia-Pacific (0.02 mb/d). In contrast, oil supply decreased in Asia (-0.08 mb/d), OECD Europe (-0.06 mb/d) and other Europe (-0.01 mb/d). Oil supply in China remained unchanged at 3.97 mb/d in 2018.

OECD Americas liquids supply experienced the greatest growth among all non-OPEC regions in 2018 at 2.44 mb/d. The US supply increased by 2.25 mb/d, followed by Canada. In terms of crude oil production, US output rose by more than three times at 1.60 mb/d y-o-y in 2018, in contrast with growth of 0.52 mb/d in 2017. US tight crude output was the main component of this growth at

Figure 7
OPEC¹, non-OPEC² and total world supply, as well as OPEC market share, 2014–2018



Notes

¹ Including OPEC NGLs+non-conventional oils.

² Including processing gains.

Source

OPEC Secretariat.

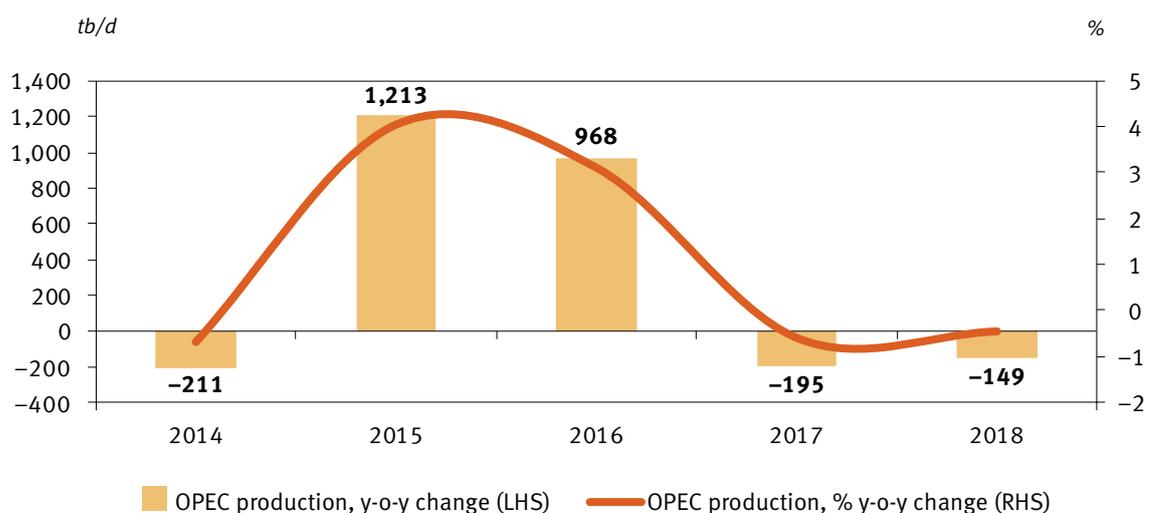
1.57 mb/d, followed by production from the Gulf of Mexico, with y-o-y growth of 0.05 mb/d. US NGLs production also rose by 0.58 mb/d, with about 0.57 mb/d produced from unconventional sources of shale and tight formations through fracking and horizontal drilling. The preliminary US liquids supply in 2018 averaged 16.65 mb/d, excluding processing gains. Canada's oil supply saw robust growth of 0.39 mb/d y-o-y in 2018 to average 5.24 mb/d. Mexico encountered an annual decline of 0.16 mb/d y-o-y to average 2.07 mb/d, following a heavy decline of 0.23 mb/d in 2017.

In OECD Europe, the annual oil supply is estimated to drop by 0.06 mb/d y-o-y to average 3.77 mb/d. Oil production in the North Sea decreased mainly in Norway by 0.12 mb/d, or 6%, y-o-y to average 1.85 mb/d, mainly due to limited new field startups and steep natural declines. In the UK, oil supply is estimated to have risen by 0.03 mb/d y-o-y to

average 1.05 mb/d in 2018, which was lower than expected in the original forecast, as production from new projects was mostly offset by heavy decline in mature fields, as well as consecutive field shutdowns. Other Europe's production rose by 0.06 mb/d to average 0.74 mb/d, with growth coming mainly from Italy. OECD Asia-Pacific saw an increase in condensate output from the Ichthys offshore gas field in Australia, where y-o-y growth of 0.02 mb/d was experienced in 2018 to average 0.41 mb/d.

Oil production in developing countries saw minor growth of 0.04 mb/d y-o-y, to average 13.41 mb/d in 2018. Liquids production mainly grew in the Middle East to average 3.21 mb/d, representing growth of 0.07 mb/d y-o-y. Oil production increased by 0.03 mb/d to average 1.51 mb/d in Africa, mainly from Ghana, and also in Latin America by 0.02 mb/d to average 5.17 mb/d. However,

Figure 8
Year-on-year percentage change in OPEC production, 2014–2018



Source
OPEC Secretariat.

oil supply in the other Asia region experienced a contraction of 0.08 mb/d to average 3.53 mb/d, with the deepest decline seen in Indonesia, Vietnam and Asia others.

FSU's oil supply experienced remarkable growth of 0.24 mb/d y-o-y in 2018, to average 14.29 mb/d. Russia's robust growth of 0.17 mb/d averaged 11.35 mb/d for the year. With the continuation of a production ramp up from Kashagan offshore field, oil supply in Kazakhstan rose by 0.08 mb/d y-o-y to average 1.81 mb/d. Azerbaijan's output remained unchanged y-o-y at 0.80 mb/d. In FSU others, production declined by 0.02 mb/d to average 0.32 mb/d.

Oil production from countries in the other Europe region declined by 0.01 mb/d to average 0.12 mb/d y-o-y in 2018. China's oil pro-

duction in 2018 was steady compared with a year ago at 3.97 mb/d.

OPEC crude oil production

According to secondary sources, OPEC crude oil production averaged 31.86 mb/d in 2018, a decrease of 0.15 mb/d over the previous year. OPEC crude oil output averaged 31.70 mb/d in 1H18, some 0.31 mb/d lower than the average of 2017, while production in 2H18 rose by 0.32 mb/d compared with 1H18, to average 32.02 mb/d, with increases in the UAE, Iraq and Libya. OPEC crude's share of the global liquids supply in 2018 decreased by 1.03% to 32.17%, from 33.20% in the previous year. Production declines came mainly from Venezuela (-568

Table 2

OPEC crude oil production based on secondary sources, 2014–2018 (tb/d)

	2014	2015	2016	2017	1Q18	2Q18	3Q18	4Q18	2018	Change 2018/17
Algeria	1,118	1,113	1,105	1,047	1,023	1,031	1,059	1,055	1,042	-5
Angola	1,639	1,769	1,718	1,634	1,562	1,493	1,470	1,497	1,505	-129
Congo, Republic of the	241	232	216	252	306	324	320	320	318	65
Ecuador	553	543	545	530	515	519	526	517	519	-11
Equatorial Guinea	200	185	160	133	134	127	124	116	125	-9
Gabon	211	214	221	200	194	183	184	185	186	-14
IR Iran	2,773	2,836	3,515	3,813	3,817	3,818	3,603	2,982	3,553	-260
Iraq	3,303	3,974	4,392	4,446	4,441	4,481	4,606	4,668	4,550	104
Kuwait	2,768	2,764	2,853	2,708	2,704	2,707	2,797	2,774	2,746	38
Libya	470	404	389	811	972	883	892	1,059	952	141
Nigeria	1,921	1,838	1,556	1,658	1,778	1,653	1,704	1,741	1,719	61
Saudi Arabia	9,686	10,142	10,406	9,954	9,949	10,114	10,422	10,749	10,311	357
United Arab Emirates	2,812	2,908	2,979	2,915	2,850	2,873	2,982	3,234	2,986	71
Venezuela	2,334	2,319	2,154	1,911	1,551	1,406	1,272	1,191	1,354	-557
Total OPEC	30,028	31,240	32,209	32,013	31,793	31,613	31,961	32,087	31,865	-149

Note

Totals may not add up due to independent rounding.

Source

OPEC Secretariat assessment of selected secondary sources.

Table 3

OPEC crude oil production based on direct communication, 2014–2018 (tb/d)

	2014	2015	2016	2017	1Q18	2Q18	3Q18	4Q18	2018	Change 2018/17
Algeria	1,193	1,157	1,146	1,059	1,004	1,025	1,066	1,067	1,041	-18
Angola	1,654	1,767	1,722	1,632	1,519	1,477	1,475	1,440	1,478	-155
Congo, Republic of the	n/a	n/a	225	263	320	328	329	330	327	64
Ecuador	557	543	549	531	512	516	524	516	517	-14
Equatorial Guinea	n/a	n/a	n/a	129	127	124	118	112	120	-8
Gabon	n/a	n/a	229	210	192	185	192	206	194	-16
IR Iran	3,117	3,152	3,651	3,867	3,811	3,804	3,789	n/a	n/a	n/a
Iraq	3,110	3,504	4,648	4,469	4,360	4,360	4,460	4,460	4,410	-58
Kuwait	2,867	2,859	2,954	2,704	2,702	2,704	2,784	2,755	2,737	32
Libya	480	n/a								
Nigeria	1,807	1,748	1,427	1,536	1,611	1,526	1,611	1,671	1,605	70
Saudi Arabia	9,713	10,193	10,460	9,959	9,942	10,128	10,399	10,790	10,317	358
United Arab Emirates	2,794	2,989	3,088	2,967	2,841	2,876	2,998	3,285	3,001	35
Venezuela	2,683	2,654	2,373	2,035	1,623	1,523	1,451	1,469	1,516	-519
Total OPEC	n/a									

Note

Totals may not add up due to independent rounding.

thousand barrels per day (tb/d)), IR Iran (-233 tb/d) and Angola (-151 tb/d), while production increases were seen in Saudi Arabia (368 tb/d), Libya (144 tb/d), Iraq (91 tb/d), Nigeria (76 tb/d), the Republic of the Congo (66 tb/d), the United Arab Emirates (65 tb/d) and Kuwait (39 tb/d).

OPEC NGLs and non-conventional oil

OPEC NGLs and non-conventional oil are estimated to average 4.98 mb/d in 2018, including 4.85 mb/d of NGLs and 0.13 mb/d of non-conventional oil, representing annual growth of 0.04 mb/d. OPEC NGLs production increased in IR Iran (121 tb/d), Saudi Arabia (20 tb/d), and Libya (13 tb/d), while in other Member Countries figures declined or remained unchanged.

Transportation

Tanker market sentiment experienced a further drop in 2018, compared with the previous year. Tanker market performance was weak among most sectors. In an annual average, spot freight rates showed a decline from the previous year's levels on almost all reported routes, with very large crude carriers (VLCCs) showing the sharpest drop.

Clean tanker spot freight rates declined at a faster rate and dropped in both trading directions. The tanker market experienced an imbalance in 2018. New deliveries of tankers continued as a result of previous orders and expanding fleet capacity, while scrapping activities were not enough to create a balance in the market despite being at high levels in 2018. In general, freight rates varied

during the course of the year, registering some gains, but mostly losses due to a number of different elements, mainly weather delays at the Turkish straits, and delays and an ullage shortage in Asian ports.

Spot freight rates were supported by high Chinese crude imports, driven by demand from teapot refineries. Additionally, tanker market spot freight rates gained momentum as a result of an increase in ton-mile demand, which came as a result of greater shipments from US to Asian destinations, in turn leading to an increase in long-haul voyages. In contrast, China's crude imports dropped starting in July as a result of uncertainty concerning trade tariffs. During the course of the year, shipowner's margins were constantly kept under pressure. However, an occasional drop in bunker prices counterbalanced owners' losses to a certain extent, as operational costs dropped, corresponding to lower bunker fuel price. On average, spot freight rates for large dirty vessels VLCC and Suezmax declined by 8% and 4%, respectively, from a year earlier. VLCC average spot freight rates weakened by 8% in 2018 compared with the previous year. The decrease in rates was broadly spread across all reported routes, despite marginal gains occasionally seen in some months, mainly in the last quarter of the year. Spot freight rates for VLCCs operating on the Middle East-to-East, Middle East-to-West and West Africa-to-East routes declined by 4%, 17% and 8%, respectively, y-o-y in 2018. Suezmax spot freight rates followed the same trend as VLCC rates in 2018. Averaged annually, Suezmax spot freight rates decreased by 4% in 2018 compared with the previous year. Aframax spot freight rates were the only exception in 2018, showing positive returns of 6% over the previous year. Aframax

benefited from some increases in tonnage demand from the Mediterranean, as well as winter season demand for ice class ships.

Clean tanker spot freight rates also suffered from high idle capacity in 2018. As with dirty tanker rates, clean tanker rates dropped compared with the previous year. On an annual basis, average reported freight rates for clean tankers declined both East and West of Suez, exhibiting a loss of 9% and 6%, respectively. Clean tanker shipowners were occasionally seen to switch their vessels to dirty from clean to benefit from better performance in the dirty sector.

Refinery industry

US

US product markets gradually recovered in 2018 from the downturn witnessed towards the end of the previous year. In 1Q18, US refinery margins benefitted from lower product output due to spring maintenance season, which fueled bullish sentiment and supported prices. Refinery margins soared in 2Q18, peaking at an all-time high of \$18.50/b in May. This was the result of higher gasoline exports and a tighter gasoil market. In 3Q18, refinery margins declined, pressured by strong gasoil stock builds and record-breaking jet fuel refinery output, which reached an all-time high in July. Moreover, lower-than-expected overall gasoline demand during the driving season further contributed to the downturn. For the remainder of the year, refining margins remained nearly flat, as higher product output and rising gasoline inventory levels exerted pressure, while still remaining at healthy levels. During 2018, product markets in the US exhibited positive growth all year, except in September.

Europe

In Europe, a jump in product prices due to higher feedstock costs added pressure, which, along with a naphtha and fuel oil oversupply in the region, caused refinery margins to extend their downward trend in 1Q18. At the same time, despite some counter-seasonal support owing to a pick-up in gasoline demand in the following quarter, product markets gained momentum and showed a strong recovery from the downturn registered in the previous quarter. This positive performance was attributed to a switch to summer-grade gasoline, which supported prices, as well as higher transatlantic export opportunities for gasoline. Higher gasoil export opportunities, amid a tighter global gasoil market, provided further support. In 3Q18, product markets strengthened slightly on the back of refinery disruptions, some of which were attributed to a heat wave that hit Europe. However, refinery margins in 4Q18 were subdued due to rising inventory levels for Amsterdam-Rotterdam-Antwerp products and remained under pressure, despite an uptick in September due to peak maintenance season. On a y-o-y basis, refining margins in Europe remained in negative territory for all months except August, as weakening at the top of the barrel weighed on product markets.

Asia

In Asia, jet/kerosene markets were supported by higher heating requirements due to a colder winter and increased jet fuel demand from the aviation industry around the Chinese Lunar New Year holidays. However, this proved insufficient to offset losses, mainly from naphtha and fuel oil complexes, which caused refinery margins to weaken slightly in 1Q18.

In 2Q18, the market remained under pressure from increased product supplies due to additional output from Vietnam's new

200 tb/d Nghi Son refinery as it prepared for full commercial operations in August. At the same time, the new tax collection system implemented in China on 1 May 2018 incentivized independent refiners to reduce refinery runs. As a consequence, refining margins dropped drastically, pressured by higher after-tax costs for feedstock imports and product exports. In addition, high product retail prices witnessed in the region adversely affected product demand, contributing to losses. The onset of regional refinery maintenance season, as well as positive performance in the middle distillates complex, were insufficient to provide an uplift to refinery margins and offset supply-side pressure in the gasoline market. As a result, refining margins in 2Q18 lost some ground.

In 3Q18 and 4Q18, Asian refinery margins saw an extension of the downward trend as product markets were oversupplied and exports eased. Most of the pressure stemmed from the gasoline market, as cracks plummeted to a record low and gasoline prices followed suit. Product market performance was negative y-o-y in January and in the last seven months of the year on the back of high gasoline inventory levels and lower naphtha demand.

Stock movements

OECD

OECD stocks

Total OECD inventories – including commercial and government stocks – fell by 17 mb at the end of 2018 from the same time the previous year to stand at 4,403 mb. This stock-draw was attributed to a drop in Strategic Petroleum Reserves (SPR), which declined by 17 mb, while commercial oil inventories increased by 5.0 mb.

On a regional basis, OECD North America stocks rose by 20 mb, while OECD Asia-Pacific and OECD Europe stocks fell by 20 mb and 17 mb, respectively. On a quarterly basis, total OECD inventories experienced a stock draw of 30 mb and 5.0 mb in the first and second quarters, respectively, while the third quarter saw a massive stock build of 48 mb. The fourth quarter witnessed a stock draw of 31 mb.

The first and fourth quarters of 2018 saw a drop in total commercial stocks of 37 mb and 11 mb, while the third quarter experienced a stock build of 52 mb. The second quarter remained almost unchanged compared with the quarter before.

At the end of 2018, OECD commercial stocks finished the year 35 mb above the five-year average. However, it should be mentioned that OECD commercial stocks were below the five-year average from April through October, before switching to a surplus. At the same time, the overhang was reduced by more than 300 mb since the implementation of the DoC.

Within the OECD region, America experienced a surplus of 60 mb above the latest five-year average, while OECD Europe and OECD Asia-Pacific indicated a deficit of 8 mb and 17 mb below the seasonal norm.

Within components, OECD commercial crude witnessed a stock build of 12 mb, while product stocks saw a drop of 7.0 mb at the end of 2018, compared with the previous year at the same time. Crude stocks stood at 41 mb above the latest five-year average, while product stocks witnessed a deficit of around 5.4 mb, compared with the seasonal norm. Gasoline indicated a slight surplus of 3.0 mb above the seasonal norm, while middle distillates witnessed a deficit of around 30 mb below the latest five-year average.

Day of forward cover

In terms of days of forward cover, OECD commercial stocks stood at 59.6 days at the end of 2018, 0.2 days lower than was observed 12 months before, and 0.7 days below the latest five-year average. It should be noted that the overhang with the five-year average fell by 7.1 days since January 2017, after implementation of the Declaration of Cooperation. OECD Americas was 0.4 days above the historical average to stand at 60.8 days at the end of 2018, and OECD Asia-Pacific stood 1.6 days below the seasonal average to finish the year at 46.3 days. Meanwhile, OECD Europe indicated a deficit of 3.4 days, averaging 66.6 days.

Strategic Petroleum Reserves (SPR)

Total SPR in the OECD at the end of 2018 fell by 22.0 mb from the previous year to stand at 1,546 mb. This drop came mainly from OECD North America, which decreased by 14 mb to stand at 661 mb, followed by OECD Europe declining by 5 mb to 475 mb, while OECD Asia-Pacific fell by 3 mb to stand at 420 mb at the end of 2018.

Non-OECD

Non-OECD stocks

Estimated total non-OECD stocks – including commercial and SPR – stood at 2,150 mb at the end of 2018, up by 114 mb from the end of 2017. Crude and products experienced a build of 60 mb and 54 mb, respectively. China saw a build of around 70 mb to stand at 709 mb.

Balance of supply and demand

World oil demand grew quicker than initially expected by 1.43 mb/d in 2018, averag-

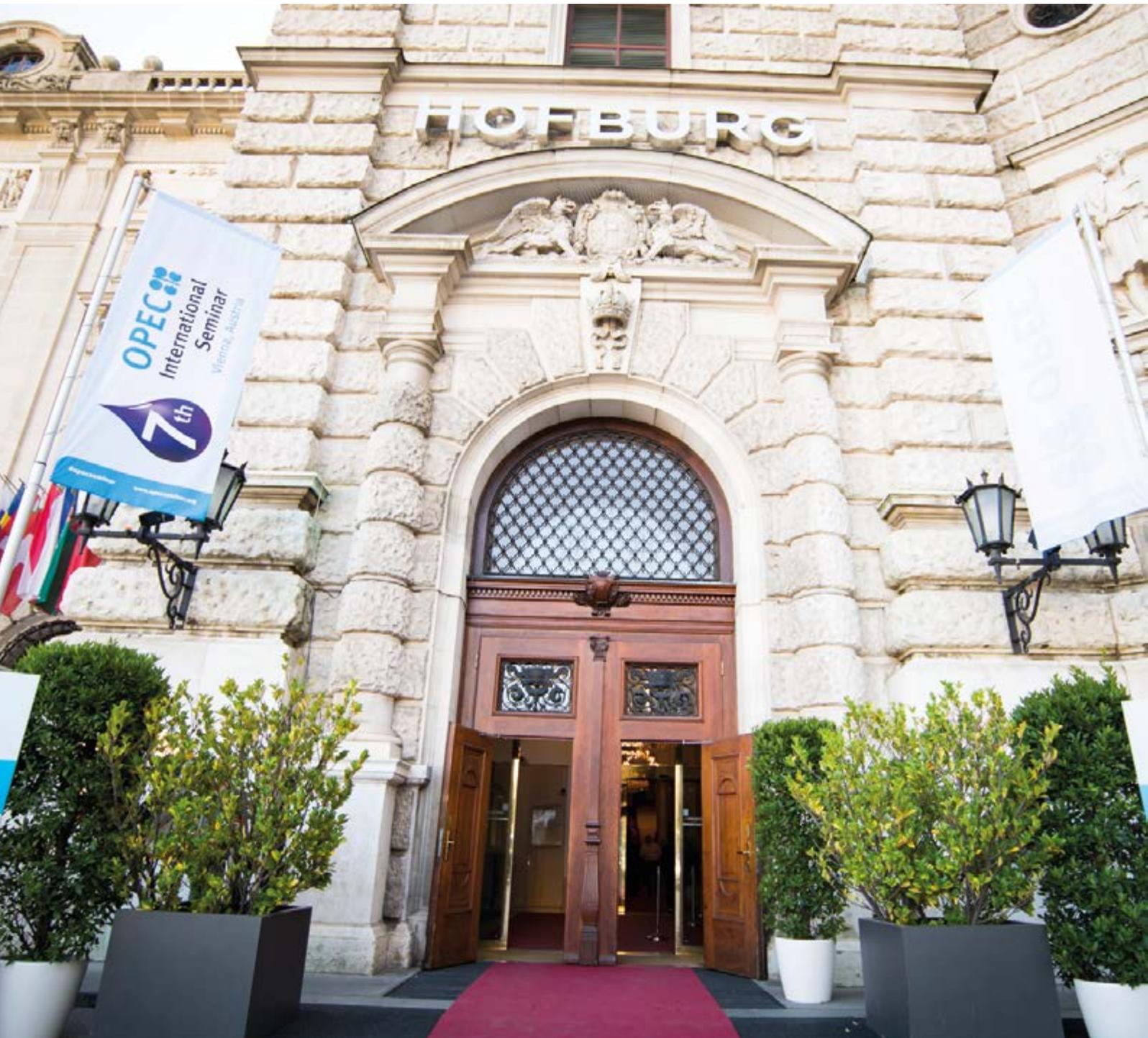
ing total demand of 98.7 mb/d. Both OECD and non-OECD countries contributed to this growth, with increases of 0.4 mb and 1.0 mb/d, respectively. Meanwhile, the forecast for non-OPEC supply growth in 2018 experienced an upward revision from initial projections. Non-OPEC supply registered growth of 2.74 mb/d to stand at 62.2 mb/d. The US oil supply saw the largest increase among all non-OPEC countries in 2016, followed by Canada and Brazil. Growth in OPEC NGLs and non-conventional oils in 2018 remained almost unchanged from the initial forecast to stand at 5.0 mb/d.

Based on these revisions, demand for OPEC crude in 2018 was revised down from

initial forecasts to stand at 31.5 mb/d. This represents a decline of 1.4 mb/d from 2017 levels. This downward revision reflects higher non-OPEC supply outpacing world oil demand. On a quarterly basis, required OPEC crude in 2018 stood at 31.8 mb/d and 31.6 mb/d in the first and second quarters, respectively, while it stood at 31.8 mb and 30.9 mb/d in the third and fourth quarters.

According to secondary sources, OPEC production in 2018 averaged 32.9 mb/d, indicating a yearly implied stock build of 0.4 mb/d. The first and second quarters saw a balanced market, while the third and fourth quarters experienced an implied stock build of 0.1 mb/d and 1.1 mb/d, respectively.

7th OPEC International Seminar reaches new records



The two-day 7th OPEC International Seminar, with its central theme: 'Petroleum – Cooperation for a sustainable future', held on 20–21 June at the magnificent Imperial Hofburg Palace in Vienna achieved new highs.

The Seminar is recognized as one of the most significant industry gatherings on the global energy calendar. In 2018, it brought together people from all over the world to listen to the wisdom and insights from a veritable who's who of global oil and energy industry leaders, who discussed and debated the industry's pressing challenges and future opportunities.

The 2018 Seminar broke new ground and set new records, with more than 1,000 participants from over 50 nations, around 80 speakers, 60 ministers and CEOs, 19 sponsors, 20 exhibitors and 170 journalists, analysts and photographers. It saw the Secretariat's audio-visual team take over 7,000 pictures and record more than 9 terabytes of video coverage, while the Organization received thousands of interactions on both Twitter and Facebook.

It was also an occasion to reflect on the industry's past, present and future, and it was evident among participants that the importance of dialogue between all industry stakeholders has never been greater in this increasingly interdependent world. The Seminar was an ideal opportunity to reinforce existing bonds and build new bridges.

This was also evident in discussion about the impact of the historic 'Declaration of Cooperation' (DoC), between 24 OPEC and non-OPEC producers, which had been in place for 18 months at the time of the Seminar. It has helped bring more balance to the oil market, more confidence to the industry and has had a positive impact on the global economy and trade worldwide.

The general sentiment at the Seminar was that the DoC now constitutes a fundamental

and essential feature of the 'new world of energy'. Moreover, it is clear it has caused a significant and positive shift in industry-wide and public perception of OPEC.

In looking to the future, there was near unanimous opinion that the industry should be optimistic. That is not to say that the industry does not face challenges and uncertainties, many of which were deliberated upon at the Seminar, but oil will remain a central part of the global energy mix for the foreseeable future.

The upbeat nature of the Seminar was reflected in the closing remarks from the OPEC Secretary General, Mohammad Sanusi Barkindo, who said that his interactions over the past two days, especially with the young students and leaders of tomorrow, "means I bound with optimism that even though we have achieved so much in the past, our industry's best days are ahead of us."

The setting of the event, at the spectacular Hofburg Palace in Vienna, is the historical home to many significant and important political events. The Congress of Vienna met in the palace in 1814 and 1815, a meeting of ambassadors of European states, which many credit with having created long-term stability across Europe. Thus the Seminar's emphasis on dialogue and stability found a perfect home in the Hofburg.

Opening ceremonies

It was a warm opening to the 7th OPEC International Seminar, not only in terms of the hot Viennese temperatures, with the dial touching 30°C plus, but also in the welcome given to delegates as they arrived at the historic palace.

Over a very busy two days, participants were treated to speeches, presentations and analysis covering all aspects of the energy

industry, including such issues as evolving a sustainable energy future; technology breakthroughs; the energy transition; the environment; oil industry challenges; investment; and the global economy.

Bringing together strategic players that have a bearing on the present and future direction of the international petroleum industry, the Seminar has developed a wide outreach across the energy sector. In attendance were OPEC oil and energy ministers, non-OPEC oil and energy ministers, heads of major oil companies, international organizations and energy institutions, captains of industry, as well as renowned academics and analysts.

Eithne Treanor, E Treanor Media, and John Defterios, CNN, the two moderators for the Seminar, welcomed everyone. Defterios underlined the improvements in the oil market since the last Seminar, with the long and

arduous road to recovery led by the cooperation between OPEC and non-OPEC producers.

Meghan O’Sullivan of Harvard University helped set the scene for the Seminar, highlighting various global inflection points. These include a shifting global world order, strains on globalization, and the role of technology, highlighting what “was only once imaginable is now possible.”

She also noted inflection points within the realm of energy. These included a number of issues related to OPEC, including the future of the DoC, the role of shale and technology, and the longer term energy transition.

Treanor also noted the unprecedented action taken by these producers in 2016, which led her to introduce the first speaker, a “man who has tirelessly championed unity”, the OPEC Secretary General, Mohammad Sannusi Barkindo.

L–r: Mohammad S. Barkindo, OPEC Secretary General, HRH Prince Abdulaziz Bin Salman al-Saud, Minister of State for Energy Affairs, Saudi Arabia, Karin Kneissl, Minister for Europe, Integration and Foreign Affairs, Republic of Austria, Suhail Mohamed Al Mazrouei, UAE Minister of Energy and Industry, and OPEC Conference President 2018 opened the exhibition during the 7th OPEC International Seminar.



Barkindo welcomed everyone to the Seminar and noted the Hofburg has in the past been the bastion of the House of Habsburg and a building where a great deal of European history has been written. “In fact, Austria has a rich legacy of uniting people,” he said, adding that “this has not only been through its great diplomacy, which continues today.”

He said that the impact of the DoC “has exceeded even the most optimistic of predictions. We have not only turned a historic page, but a glorious new chapter is being authored in the history of the industry by OPEC and its non-OPEC partners.”

He added that in the 18 months of the DoC to that point “this cooperation has helped return more balance to the oil market, more optimism to the industry and has had a positive impact on the global economy and trade worldwide.”

The Secretary General stressed the importance of cooperation to all of the topics to be discussed at the Seminar. He quoted English poet John Donne, who stated “No man is an island entire of itself; Every man is a piece of the continent, a part of the main.”

Karin Kneissl, Minister for Europe, Integration and Foreign Affairs, Republic of Austria, opened the Seminar’s exhibition area alongside HRH Prince Abdulaziz Bin Salman Bin Abdulaziz Al Saud, Saudi Arabia’s Minister of State for Energy affairs, and Suhail Mohamed Al Mazrouei, UAE Minister of Energy and Industry and the 2018 President of the OPEC Conference.

He remembered the previous OPEC Seminar in 2015 in his speech, discussing the challenges facing the industry at that time. “The world’s oil supply was significantly

Mohammad Sanusi Barkindo, OPEC Secretary General welcomed everyone to the Seminar.



outpacing demand, prices were on a downward trend and companies were slashing investments and jobs.”

For many in the industry, he said, “It felt that the circumstances surrounding the downturn had completely overtaken their day-to-day work. And there was more hardship to come ... The seriousness of these developments led OPEC to embark on extensive consultations among OPEC Member Countries and between OPEC and non-OPEC producing nations in 2016.

“It was clear that there was a need for broad cooperation to turn the industry around, by bringing forward the rebalancing of the global oil market and helping build longer-term sustainable market stability. No-one could act alone. This led eventually to the DoC at the end of 2016, he said, which reintroduced a long-absent element of stability to the oil market.

He added that “there is now global recognition that without this collaborative action, the market would have continued to exhibit extreme volatility and future uncertainty, with far-reaching negative consequences for the producers, consumers, investors, the industry and the global economy at large.

Al Mazrouei said that the OPEC Seminar is part of our ongoing effort to promote dialogue and cooperation with all industry stakeholders. He also highlighted that this includes working with the younger generation, with OPEC recognizing “the importance of developing new talent.”

For this reason, OPEC invited students from Member Countries and Austria to attend the Seminar, including young future leaders that have joined from the Abu Dhabi National Oil Company (ADNOC) and Mubadala in the UAE. “We welcome these individuals who will likely carry the industry’s torch into the future.”

Delegates observe a session.



Seminar sessions

The **introductory session** of the Seminar, moderated by Defterios, was entitled ‘**Sustainable global energy future**’ and included Keynote speakers: HRH Prince Abdulaziz Bin Salman Bin Abdulaziz Al Saud, Minister of state for Energy Affairs, Kingdom of Saudi Arabia; Alexey Texler, First Deputy Minister of Energy, the Russian Federation; Mohammed bin Hamad Al-Rumhy, Minister of Oil and Gas, Sultanate of Oman; Shri Dharmendra Pradhan, Minister of Petroleum and Natural Gas, India; and Sultan Ahmed Al Jaber, Minister of State, Group CEO of ADNOC, United Arab Emirates (UAE).

Other panelists included: Daniel Yergin, Vice Chairman, IHS Markit; Bob Dudley, Group Chief Executive, BP; Patrick Pouyanné, Chairman and CEO, Total; Claudio Descalzi, CEO, Eni; and Scott D Scheffield, Executive Chairman of the Board, Pioneer Natural Resources.

Session I, entitled ‘**Energy cooperation**’ was moderated by Treanor and included keynote speakers: Bijan Namdar Zanganeh, Minister of Petroleum, Islamic Republic of Iran; Emmanuel Ibe Kachikwu, Minister of State for Petroleum Resources, Nigeria; Li Ye, Executive Director General for Regulation, National Energy Administration, China; and Sun Xian-sheng, Secretary General, International Energy Forum.

Other panelists included: Mussabbeh Al Kaabi, CEO, Mubadala Petroleum and Petrochemicals; Edward L. Morse, Managing Director and Global Head, Commodities Research, Citigroup; Sarah Ladislav, Director and Senior Fellow, Energy and National Security Programme, CSIS; and Helima Croft, Global Head of Commodity Strategy, RBC Capital Markets.

A **lunch session** on that day saw Kachikwu, Minister of State for Petroleum Resources, Nigeria; and Fatih Birol, Executive Director

Panelists during the introductory session.



of the International Energy Agency discussing **'Global energy and sustainability: today and tomorrow'**, with John Deferios from CNN moderating.

In **Session II**, called **'Technology breakthroughs'**, Treanor held a panel discussion with: Daniel Yergin, Vice Chairman, IHS Markit; Lorenzo Simonelli, CEO Baker Hughes, a GE Company; Pacelli Zitha, Faculty of Civil Engineering and Geosciences, Delft University of Technology; Ihsan Ismaeel Al-Saade, Basrah Oil Company, Iraq; Al Cook, Executive Vice President of Equinor ASA; and Duco Drenth, Director New Technologies, Dietsman.

A **special session** was then held called **'Global oil market balance metrics'**, with Harry Tchilinguirian of Paribas moderating. The OPEC Secretary General made opening remarks and the topic was then discussed by the panelists, including: Aziz Yahyai, Research Division, OPEC; Adam Sieminski, President, King Abdullah Petroleum Studies and Research Centre (KAPSARC); Bassam Fattouh, Director, The Oxford Institute for Energy Studies; Amrita Sen, Chief Oil Analyst, Energy Aspects Ltd.; Edward L. Morse, Managing Director and Global Head, Commodities Research, Citigroup; Johannes Benigni, JBC Energy; Roger Diwan, Vice President, IHS Markit; and Douglas Thyne, Research Director for Oil Supply, Wood Mackenzie.

Treanor moderated **Session III**, which was called **'Energy transition'**. The keynote speakers included: Jabbar Ali Hussein Al-luiebi, Minister of Oil, Iraq; Karin Kneissl, Minister for Europe, Integration and Foreign Affairs, Republic of Austria; Carlos E. Pérez, Minister of Hydrocarbons, Ecuador; Pascal Houangni Ambouroué, Minister of Petroleum and Hydrocarbons, Gabon; Suleiman J. Al-Herbish, Director General, OPEC Fund for International Development; Gabriel Mbagha Obiang Lima,

Minister of Industry, Mines and Energy, Equatorial Guinea; UN represented by Patricia Espinosa, Executive Secretary, United Nations Framework Convention on Climate Change; Yury Sentyurin, Secretary General, Gas Exporting Countries Forum; and Václav Smil, Distinguished Professor Emeritus, University of Manitoba.

Other panelists included: Adnan Shihab-Eldin, General Director, Kuwait Foundation for Advancement of Sciences; Courtney Fingar, Editor-in-Chief, fDi Magazine, Financial Times; Amrita Sen, Chief Oil Analyst, Energy Aspects Ltd.; Carlos Saturnino, CEO, Sonangol; Megan Richards, Director of Energy Policy in DG Energy, European Commission; and Christian Malek, Head of EMEA Oil and Gas Equity Research, Global Energy, JP Morgan Ltd.

Day 2 started with a **panel session** on **'Global oil future challenges'**, moderated by Deferios and including panel members: Amin H. Nasser, President and CEO, Saudi Aramco; John Hess, CEO, Hess Corporation; Andrew Gould, Former CEO, Schlumberger; Sergey Vakulenko, Head of Strategy and Innovations, Gazprom Neft; Jay R. Pryor, Vice President, Business Development, Chevron; and Jubril Adewale Tinubu, Group Chief Executive, Oando PLC.

A **special session** added on short notice and hosted by Deferios included Khalid A. Al-Falih, Saudi Arabia's Minister of Energy, Industry and Mineral Resources and Daniel Yergin, Vice Chairman, IHS Markit.

Session IV on **'Investment in the oil industry'** was hosted by Treanor and included as keynote speakers: Al-luiebi, Minister of Oil, Iraq; Mustapha Guitouni, Minister of Energy, Algeria; Bakheet S. Al-Rashidi, Minister of Oil and Minister of Electricity and Water, Kuwait; Shaikh Mohammed bin Khalifa Al

Khalifa, Minister of Oil, Kingdom of Bahrain; Aldo Flores-Quiroga, Deputy Secretary of Energy for Hydrocarbons, Mexico; and Mustafa Sanalla, Chairman of the Board of Directors National Oil Corporation, Libya.

Additional panelists included: Maikanti K. Baru, Group Managing Director, Nigerian National Petroleum Corporation; Rainer Seele, CEO, OMV; Majid Jafar, CEO, Crescent Petroleum; Croft; and Christof Rühl, Global Head of Research, Abu Dhabi Investment Authority.

The final session, **Session V**, was entitled **'World economy and the future of oil'**. It was moderated by both Deferios and Treanor and included as keynote speakers: Mohammed Bin Saleh Al Sada, Minister of Energy and Industry, Qatar; Manuel Salvador Quevedo Fernández, Minister of Petroleum, Venezuela; Emmanuel Ibe Kachikwu, Minister of State for Petroleum Resources, Nigeria; And Parviz Shahbazov, Minister of Energy Azerbaijan.

Panelists included: Ayed S. Al-Qahtani, Director, Research Division, OPEC; Urban Rusnák, Secretary General, Energy Charter Secretariat; Darcy Spady, 2018 Society of Petroleum Engineers President; Pratima Rangarajan, CEO, Oil and Gas Climate Initiatives – Climate Investments; Adam Sieminski, President, King Abdullah Petroleum Studies and Research Centre; Bassam Fattouh, Director, The Oxford Institute for Energy Studies; and Tope Shonubi, Executive Director, Sahara Group.

Closing session

O'Sullivan delivered some parting words and thoughts at the closing session, providing a neat bookend to her scene-setting remarks from the previous day. She said that “one of the most important things underscored by our deliberations has been something that

Session V, 'World economy and the future of oil'.



we all know deep down, and that is to understand what is happening in the world today requires that we understand the complex interaction of three things. The first is technology and markets; the second is policy; and the third is geopolitics.”

She added that “certainly if we look at the last five to ten years and some of the major developments on the global landscape we can recognize that they are the product of these three things and their intersection.”

In reviewing the main takeaways, O’Sullivan said that she believed it flowed from two fundamental assumptions. “The first is that we are in an energy transition, and secondly, and most importantly, that transition will be long, uncertain and have some setbacks.”

In thinking about OPEC she highlighted a number of issues, including: there is clearly a place for oil in the future energy mix for the foreseeable future; how the production and growth arc of shale might evolve in the coming years; and the importance of cooperation, even beyond the DoC.

On the last point, she talked about great communication with consumers, which she emphasized had featured prominently in discussions over the past two days, as well as communicating to other producers and financial markets, “this is vital for OPEC,” she said.

She praised the Seminar, saying it had been an event of real exchange. There has been “a lot of food, and a lot of thought put on the table.”



The floor was then passed to Barkindo, who began by thanking O’Sullivan, who he said had not only set the scene for the Seminar the previous day, “she had also set the tone.”

In turning to what he had witnessed throughout the Seminar, the OPEC Secretary General began by quoting the English philosopher and Noble Prize winner Bertrand Russell, who once said: “The only thing that will redeem mankind is cooperation.”

He added, “one cannot help, but conclude that the future success of this industry indeed lies in the 3 c’s: cooperation, cooperation and cooperation.”

He stressed that this is reflected in values that OPEC truly believes in. “Openness, transparency and respect for all nations and

stakeholders. These core principles, which lie at the heart of international relations and multilateralism, can help guide our Organization and the petroleum industry to a bright, sustainable future.”

Barkindo emphasized that while OPEC means many things to different people, “this Seminar has once again shown that, above all, OPEC is about people; OPEC is a community; and, most importantly, OPEC is a family.

“Building trust and fostering dialogue between all stakeholders in the energy community is intrinsic to OPEC’s DNA,” said Barkindo. He thanked everyone that had played a role in the Seminar “for reciprocating our desire to promote knowledge exchange and mutual respect.”

Speakers and panelists took time for a group photograph.



Declaration of Cooperation: Two watershed years



The 2nd anniversary of the landmark ‘Declaration of Cooperation’ (DoC) – which continued to blaze a path of stability and help revitalize and transform the international oil industry in its second year – was celebrated at the end of 2018.

After the first year of the ‘Declaration’, a special *OPEC Bulletin* was published entitled ‘Forging history’.

Indeed, one year into the DoC, history had already been made on several fronts: the first production adjustment since Oran in 2008; the first time participating non-OPEC countries committed to join OPEC in its efforts to re-establish stability in the market through voluntary adjustments to production; the first time a joint OPEC-non-OPEC Ministerial Monitoring Committee (JMMC) had ever been created to monitor implementation of a joint decision; and finally, the first time that a framework for sustained, structured and transparent cooperation between OPEC and non-OPEC nations had ever been established.

The December 2018 issue of the *OPEC Bulletin* celebrated the two-year mark of the DoC, under the title ‘Two watershed years’, and chronicled the JMMC’s crucial role in ensuring the successful implementation of the ‘Declaration’, as well as an in-depth look at how the landmark OPEC and non-OPEC cooperation has impacted the global oil market over its first two years.

At the end of year two, the global economy continued to generally enjoy the calm after the storm of the severe market downturn of 2014–2016. The oil industry, and by extension, the global economy, benefitted from a renewed sense of optimism and stability.

When the chips were down, it was OPEC, along with ten non-OPEC participating countries, that rose to the occasion and had the

courage and willpower to take action and come to the rescue of an oil market that in mid-2014 had suffered one of its most severe oil price cycle downturns in history. The OPEC Reference Basket had plummeted by a drastic 80% between June 2014 and January 2016, paralyzing the industry with frozen and cancelled projects, hundreds of thousands of lost jobs and drastic drops in investment. The mood pervading the industry was at an all-time low.

Stakeholders across the entire value chain, in the end, were won over by the DoC and overwhelmingly lauded the proactive efforts that brought the industry back to life.

The events of the first two years centred on meeting an immediate and urgent need involving the nuts and bolts of market fundamentals – the balance of supply and demand – and of course, restoring the stability that is so crucial to future growth.

However, when one steps back for a moment and observes these developments from a wider perspective, it becomes clear that this is about a lot more than just market dynamics and outlooks.

The historic DoC has virtually changed the way business is done, ushering in a new era of international dialogue and cooperation in the global energy industry.

What was before a go-it-alone, winner-takes-all mentality has now evolved into an approach more akin to ‘how can we work together to achieve our common goals’. And this has made all the difference. It has helped knock down barriers and build new bridges of understanding, paving the way for new avenues of dialogue and collaboration.

Thus, what started as a rescue operation for an oil market under siege has evolved into much, much more. The ‘Declaration’s’ 24

signatories never imagined in December 2016 how far and wide the impact of their joint decision would reach.

The Joint Ministerial Monitoring Committee and Ministerial Meetings

The 7th Meeting of the JMMC, and the first one in 2018 was held in Muscat, Sultanate of Oman on 21 January; the 8th was then in Jeddah, Saudi Arabia on 20 April; the 9th was back home at the Vienna OPEC Headquarters on 21 June; the 10th in Algiers, Algeria on 23 September, where the 2nd Anniversary of the 170th Extraordinary Meeting of the OPEC Conference, which took place in Algiers in September of 2016 and culminated in the landmark DoC the following December, was also celebrated. The 11th Meeting was held in Abu Dhabi, the United Arab Emirates (UAE) on 11 November, in conjunction with the 21st edition of the Abu

Dhabi International Petroleum Exhibition and Conference and wrapping up the JMMC meetings for the second year of the DoC.

The JMMC meetings, backed by monthly Joint Technical Committee (JTC) meetings, have proven to be vital. They have undertaken ongoing market monitoring and analysis, providing the DoC ministers with information essential to their decision-making process. The two mechanisms, formed under the umbrella of the DoC, oversee conformity and provide regular and transparent information to the oil market, building the overall sense of trust in the DoC process.

Thus it was that the 4th OPEC and non-OPEC Ministerial Meeting was held in Vienna, Austria, on Saturday, 23 June 2018, under the Co-Chairmanship of OPEC's President, Suhail Mohamed Al Mazrouei, Minister of Energy & Industry of the UAE and Head of its Delegation, and Alexander Novak, Minister of Energy of the Russian Federation.

Joint Press Conference following the 4th OPEC and non-OPEC Ministerial Meeting.



The meeting reaffirmed the continued commitment of participating producing countries in the DoC to a stable market, the mutual interest of producing nations, the efficient, economic, and secure supply to consumers, and a fair return on invested capital, and noted the overall improvement in market conditions and sentiment, and the return of confidence and investment to the oil industry.

The meeting recalled the 171st OPEC Conference Resolution reached on 30 November 2016 for a production adjustment of 1.2 million barrels a day (mb/d) for OPEC Member Countries, with the understanding reached with key non-OPEC participating countries, including The Russian Federation, to contribute a production adjustment of 0.6 mb/d.

It noted that countries participating in the DoC had exceeded the required level of conformity, which had reached 147% in May 2018.

Accordingly, the 4th OPEC and non-OPEC Ministerial Meeting decided that countries will strive to adhere to the overall conformity level, voluntarily adjusted to 100%, as of 1 July 2018, for the remaining duration of the year and that the JMMC should continue to monitor the overall conformity levels and report back to the OPEC and non-OPEC Ministerial Meeting.

The 175th OPEC Meeting of the Conference and 5th Meeting of the OPEC and non-OPEC Ministerial Conference took place on 6–7 December 2018, in Vienna. Without doubt, it was a pivotal week for OPEC and the ongoing success of the DoC.

The 5th OPEC and non-OPEC Ministerial Meeting was held once again under the Co-Chairmanship of OPEC's President, Al Mazrouei and Novak.

A broad consensus had become evident during the fourth quarter of 2018 that prospects for 2019 pointed to higher

A group picture of ministers and delegates attending the 5th OPEC and non-OPEC Ministerial Meeting.



supply growth than expected for global requirements, and there was also signs of a potential slowdown in demand, taking into account prevailing uncertainties.

Thus, it was vital for OPEC and its non-OPEC partners in the DoC to thoroughly examine the potential gap between supply and demand in 2019, and to see how this might impact inventory levels, overall market and industry sentiment and the extremely ‘hard won’ market balance that had been achieved over the past two years.

Once again, OPEC proved up to the task, with the December OPEC Conference’s communiqué announcing that “in view of the current fundamentals and the consensus view of a growing imbalance in 2019, the Conference decided to adjust OPEC overall production by 800,000 b/d from October 2018 levels, effective as of January 2019, for an initial period of six months, with a review in April 2019.”

This was then followed by a *communiqué* from the 5th OPEC and non-OPEC Ministerial Meeting that included voluntary adjustment contributions from non-OPEC participating countries in the DoC of 400,000 b/d over the same period.

Through compromise and collaboration, participants in the DoC reached a unanimous decision: one that continues the efforts of the past two years to pursue a balanced, stable and sustainable global oil market, which serves the interests of consumers, producers, the industry and the global economy at large.

In speaking at the joint press conference at the end of the two ministerial meetings, Kahlid A. Al-Falih, Saudi Arabia’s Minister



of Energy, Industry and Mineral Resources, noted that while the negotiations were extended, “the spirit was very cordial, the level was extremely high, that the relationships between all ministers was friendly, business-like, very conducive to building trust and we are confident we are going to deliver.”

In looking to the longer term, given the increasingly complex and interdependent world that we live in, OPEC believes that the core tenets of collaboration and fraternity among nations is the best way forward to overcoming challenges. Therefore, the two meetings also discussed ways and means to build on the success of DoC market stabilizing efforts in the years ahead.

Both meetings pledged to further strengthen the historic cooperation within

a framework under the draft Charter of Cooperation between oil producing countries, which was endorsed in principle and is set to be finalized and ratified by the participating countries in 2019.

Over the year, OPEC and non-OPEC participants of the DoC proved that the mechanism can be used to adapt to any kind of market conditions, quickly able to adjust production both up and down. Thus, the year strengthened the joint belief in the power of the DoC to stabilize the oil market.

Experience has repeatedly shown us that the enduring principle of cooperation and bravery to try something new, such as the DoC, can bring about great success. It is OPEC’s aspiration that the cooperation with non-OPEC countries continues to go from strength-to-strength.

Delegates received a special token on the occasion of the 2nd Anniversary of the ‘Declaration of Cooperation’.



Activities of the Secretariat



Office of the Secretary General

Mohammad Sanusi Barkindo, Secretary General of OPEC, participated as a keynote speaker and panellist in a number of important global industry conferences and events throughout the year, many of which took place in OPEC Member Countries (MCs). He continued to strengthen and consolidate the relationship between the Organization and non-OPEC producing countries of the 'Declaration of Cooperation' (DoC), participating in internationally renowned conferences and exhibitions in non-OPEC participating countries and holding meetings with high-level representatives. The SG also participated in a number of important energy dialogues, attending meetings in the latter half of the year in New Delhi, India for the 3rd OPEC-India Dialogue and Brussels for the 13th EU-OPEC Dialogue.

Two major events occurred in 2018, namely the 7th International OPEC Seminar in June in the Hofburg Palace, Vienna, and the second anniversary of the historic DoC, which was celebrated in MC Algeria, where this historic process began with the Algiers Accord in September 2016. Both events were extremely successful and widely commended. The Secretariat also warmly welcomed back an important and prominent member of the OPEC family, Ali bin Ibrahim Al-Naimi who presented his book *Out of the Desert: My Journey from Nomadic Bedouin to the Heart of Global Oil*.

In 2018, the Secretary General received two prestigious awards on behalf of the Organization. In May he was conferred the *Lifetime Achievement Award for the Advancement of OPEC* as part of the Abdullah Bin Hamad Al-Attiyah International Energy Awards and in September he was named *Africa Oil Man of the Year 2018* in Cape Town, South Africa.

The Office of the Secretary General (SGO) was strongly involved in organizing the SG's participation in all of these events, coordinating his busy schedule and arranging courtesy visits at the Secretariat. It was also actively involved in organizing and supporting OPEC and non-OPEC Ministerial Conferences, Board of Governors (BoG) meetings, as well as meetings of the OPEC and non-OPEC Joint Ministerial Monitoring Committee (JMMC). The SGO documented these meetings, drafted and edited formal minutes, writing *précis* of the discussions that took place, and prepared summaries of the decisions taken 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 legal issues, reverting, as relevant, to the Secretary General and through him to the governing bodies, thus protecting and advancing the interests of the Organization and its MCs.

With regard to the *Proposed Framework for Regular & Sustainable Cooperation between OPEC and non-OPEC producing countries*, the LO provided legal advice, as well as reports and presentations to the Secretary General and the Secretariat's governing bodies, and supported the discussion and decision-making process on this issue.

On internal issues, the LO provided legal advice to the Secretary General on various procedural matters regarding the Board of Governors and the Meeting of the Conference and, upon request, prepared briefs on various subjects.

With regard to the implementation of the General Data Protection Regulation, the LO studied its application within the Organization, and designed a Data Protection Policy, in application of international best practices.

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.
- Legal support for the implementation of the DoC.
- Drafting and review of contracts and agreements with external entities and individuals.
- Drafting, roll out and review of inter-

nal policies, guidelines, manuals and procedures.

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

In addition, the LO participated in the 18th Multi-Disciplinary Training Course (MDTC), organized by the Secretariat, delivered presentations on the role of the LO in the Secretariat to visiting students, and participated in the Secretariat's Induction Programme for new staff members at diverse levels.

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

- Seminar Steering Committee
- Academic Committee
- Personnel Committee
- Contracts Committee
- Medical Contingency Committee

Research Division

The Secretariat's Research Division carried out its 2018 activities according to its Work Programme 2018, derived from the objectives set out in OPEC's fourth Medium-Term Programme (MTP-IV) and third Long-Term Strategy. The Research Division (RD) undertakes a continuous and intensive research programme tailored to specifically meet the requirements of the Organization and its

MCs, with particular emphasis on energy and related matters.

The RD consists of the following:

- **Petroleum Studies Department (PSD):** responsible for the continuous monitoring of oil and product market developments in the short term.
- **Energy Studies Department (ESD):** monitors, analyses and forecasts world energy developments in the medium and long term.
- **Data Services Department (DSD):** responsible for the identification, collection and processing of energy-related information in support of the research activities of the OPEC Secretariat and its MCs. DSD also includes OPEC's Information Centre.
- **Environmental Matters Unit (EMU):** focuses on energy-related matters arising from the Paris Agreement (PA) and the UN 2030 Agenda for Sustainable Development.

Activities of the RD during 2018 included the following:

- Monitoring of short-term energy market developments and prospects, particularly related to oil markets (PSD, DSD).
- Conducting comprehensive energy market analysis and forecasts for the medium and long term, with an emphasis on the outlook for demand and supply, as well as developing long-term oil market scenarios, and updating the models required for performing such analysis (ESD, DSD).
- Gathering, compiling and dispensing of pertinent up-to-date statistical data

and information, to provide a reliable basis for the analysis of relevant energy developments (DSD).

- Development of information technology (IT) applications, in addition to relevant specialized information and reference services (DSD).
- Monitoring of energy policies, important technological developments, and dynamic structures in the international energy industry (ESD, EMU).
- Following relevant negotiations and policy developments in international fora, multilateral discussions, and multidisciplinary taskforces, in order to assist MCs in formulating their common positions, with the aim to defend their interests and to play a key role in multilateral fora and dialogues (EMU).
- Providing focused insight on the relationship between climate change actions and oil demand, the energy mix, and understanding the energy and environmental policies of key international players (ESD, EMU).
- Preparation of up-to-date and reliable analysis for the Ministerial Conference, the BoG, the Economic Commission Board (ECB) and similar bodies, as the basis for energy policy-related decision-making, including identification of the key driving forces behind global, regional, and national oil and energy markets (PSD, ESD, DSD, EMU).

Within the framework of the OPEC and non-OPEC DoC, there have been six JMMC Meetings and thirteen 13 Joint Technical Committee (JTC) meetings during 2018.

Additionally, two technical meetings of for OPEC and non-OPEC producing countries were held in 2018 under the umbrella of the

DoC. The 3rd Technical Meeting of OPEC and non-OPEC producing countries took place on 19 June 2018 at the OPEC Secretariat. The event was dedicated to a comprehensive review of oil market fundamentals and focussed on oil demand issues as well as developments in non-OPEC oil supply. A third session was dedicated to identifying metrics to assess the oil market balance. The 4th Technical Meeting of OPEC and non-OPEC producing countries was held on 28 November 2018 at the OPEC Secretariat. The main theme of this meeting was to explore the history of oil price cycles going back to the 1960's, with a view to identifying the drivers behind each cycle and the role OPEC has played in stabilizing the market. The latest oil market developments were also scrutinized, along with prospects and associated uncertainties for the year ahead.

The 7th OPEC International Seminar was held at the Imperial Hofburg Palace in Vienna, Austria, on 20–21 June 2018. The two-day Seminar, under the theme of *Petroleum – Cooperation for a sustainable future*, brought together a record-breaking 1,006 attendees representing over 50 nations. The 81 high-level speakers included more than 30 energy ministers from around the world and about 30 CEOs from across the oil industry. Additionally, the Seminar hosted 19 sponsors, 20 exhibitors, and 170 journalists, analysts and photographers. The Seminar provided fresh insights into key petroleum industry issues and challenges, and enhanced existing avenues of dialogue and cooperation, while stimulating new ones. The Seminar also sought to highlight the importance of continuing such efforts with all industry stakeholders – including producers and consumers, energy and oil ministries, and executives and representatives from oil

companies, financial firms and international organizations.

The OPEC Seminar included a Special Session on *Global Oil Market Balance Metrics*. The focus of the session was to explore the possibility of using further metrics to help monitor and measure market stability, in addition to the widely used standard of the overhang in OECD commercial oil inventories in terms of the five-year average. The session originated from initial talks at the 8th Meeting of the OPEC and non-OPEC JMMC in Jeddah, Saudi Arabia, and follow-up discussions at the 16th Meeting of the JTC, also held in Jeddah. The Seminar provided the opportunity to discuss the issue.

International dialogues

OPEC has long been aware of the importance of dialogues between energy stakeholders. The interconnectedness of global markets, as well as the global impact of critical energy issues such as security of supply, security of demand, economic prospects and environmental issues make such dialogues necessary to preserve balance in the oil and gas industry.

Taking this into consideration, OPEC strives to enhance its current partnerships and develop future opportunities for cooperation. The Secretariat is proactive in organising and participating in international dialogues via many high-level meetings, technical meetings, joint studies, workshops and memberships. The following provides a summary of the key developments in 2018 regarding OPEC's international dialogues and collaboration.

IEA-IEF-OPEC

OPEC has been instrumental in organizing events with the International Energy Agency (IEA) and the International Energy

Forum (IEF) under the framework of regular joint activities. The 8th IEA-IEF-OPEC Symposium on Energy Outlooks, which took place on 14 February 2018 focused on the latest OPEC and IEA energy outlooks and a comparative analysis of short-, medium-, and long-term energy outlooks released by the IEA and OPEC in 2017. It was complemented by industry views on short-, medium-, and long-term energy outlooks, including perspectives on the post-PA landscape.

The 6th IEA-IEF-OPEC Workshop on Interactions between Physical and Financial Energy Markets was held in Vienna on 15 March 2018. The joint IEA-IEF-OPEC meetings cover the evolving inter-linkages between physical and financial energy markets and have developed into a unique, high-level technical event, bringing together a diverse range of market participants to discuss issues that are not addressed in other high-level fora. The 2018 workshop covered the following topics: recent oil market volatility; developments in oil market financing; price formation for small crude streams; financial market regulation and technology; and evolving crude trade flows.

The 4th IEA-IEF-OPEC Gas and Coal Market Outlook Symposium was held in Paris, France on 6 November 2018. The Symposium was attended by the Executive Director of the IEA and the Secretary General of the IEF, as well as the Head of the Energy Studies Department at OPEC. Consensus among participants was that coal demand would stagnate over the medium to long term, whereas demand for natural gas would continue to grow at a rapid pace over the same period. Furthermore, LNG was highlighted for its potential to meet growing demand, particularly in Asia.

The Director of the Research Division (DRD) participated as OPEC's representative in meetings of the IEF Executive Board held in

Beijing, China, on 30 July 2018, and in Vienna, Austria, on 4 December 2018, as well as a meeting of the IEF Industry Advisory Committee held in Beijing, China, on 31 July 2018.

Additionally, a Technical Meeting was held among experts of the IEA, the IEF, OPEC and the US Energy Information Administration (EIA) on 13 February 2018 in Riyadh, Saudi Arabia, to discuss specific issues pertaining to data and projections. It was acknowledged that significant progress has been made with regard to ironing out definitional and baseline differences, and that there is a renewed spirit of goodwill to continue and deepen the technical collaboration between these key agencies. Specifically, a number of areas were identified where work will continue to bridge gaps and reconcile differences, as well as more generally enhancing communication between the Agencies and relevant analysts. In this regard, a follow-up meeting with representatives of the IEA was held at the OPEC Secretariat on 16 March 2018 among experts of the IEA, OPEC and the EIA (via telephone conference) on Historical Baseline Data and the Comparability of Energy Outlooks. Participants agreed to strengthen their cooperation under the IEF platform and improve on enhancing the comparability of their historical baseline data, as well as outlooks, noting that market confidence will be boosted when dialogue is conducted on the basis of comparable data and transparent methodologies. Bimonthly conference calls took place thereafter to discuss different issues related to data and market developments.

IMF/World Bank

An OPEC delegation regularly participates in both bi-annual International Monetary Fund (IMF)/World Bank meetings – the spring meetings in April in Washington DC, and the

annual meetings in October, held in Bali, Indonesia in 2018. This included particularly participation in meetings of the International Monetary and Financial Committee (IMFC) and G24 meetings. As a regular feature, on the occasion of the IMFC Meetings, the Secretariat provided written statements to distinguished delegates, highlighting OPEC's efforts on stabilizing the oil market and emphasizing its positive effect on the global economy.

Joint Organisations Data Initiative

As in previous years, the Secretariat continued its active stance in promoting data transparency through the Joint Organizations Data Initiative (JODI) by significantly contributing to the activities of both JODI-Oil and JODI-Gas. In line with the spirit of international dialogue and cooperation, OPEC hosted a JODI Inter-Secretariat Meeting in February 2018 and attended a subsequent meeting in Luxemburg in July 2018. Furthermore, the Secretariat attended the JODI Information Seminar and Energy Data Transparency Exhibition in Kiev in November 2018.

The main activities in JODI-Oil and JODI-Gas relate to the improvement of overall data quality and focus on specific fundamental data points, as well as general technical issues. Both, the JODI-Oil and JODI-Gas databases face some challenges concerning overall quality (coverage and timeliness) of data for some major non-OPEC oil and gas producing and consuming countries, despite significant improvement in recent years.

Moreover, and for the task of developing and enhancing specialized national skills through the exchange of expertise and knowledge, Nigeria and Equatorial Guinea hosted the first technical workshops conducted by the OPEC Secretariat in both MCs (February and October 2018). These technical work-

shops were very successful, especially in view of the fact that they allowed the OPEC Secretariat to focus on each MC's unique challenges in terms of data submission. Based on corresponding feedback survey evaluations, the participating delegates considered the workshops to be very useful and effective, as they benefited strongly through enhancement of their understanding and knowledge in relation to technical matters.

G20 energy initiatives

OPEC has continued to build on its proactive engagement in G20 Energy Initiatives to arrive at broader and more inclusive outcomes. An OPEC delegation attended the First Meeting of the G20 Energy Transformations (ETWG) Working Group held in Buenos Aires, Argentina on 22–23 February 2018. The second and final meeting of the ETWG was held in San Carlos de Bariloche, Argentina, on 12–14 June 2018, followed by the G20 Energy Ministerial on 15 June 2018. OPEC provided input on three of the initiatives pursued this year, namely Energy Transitions, Energy Access and Energy Data Transparency.

Country/regions

OPEC's continued active participation in bilateral dialogues with different countries and groups, whether producers or consumers, continues to expand and flourish. The 3rd High-Level meeting of the OPEC-India Energy Dialogue took place in New Delhi on 17 October 2018 on the sidelines of the CER-AWeek India Energy Forum. This successful meeting addressed the state of affairs of the oil and energy markets, as well as other important issues such as trade between India and OPEC MCs. This meeting was preceded by a technical meeting, which continued discussion of the country's energy policies,

growth potential and resulting significant energy demand.

The Secretariat was also successful in maintaining the momentum of the energy dialogue with another major consumer, China. The Secretariat proactively invited a Chinese delegation to participate in the 7th International OPEC Seminar, which took place in Vienna on 20–21 June 2018.

Furthermore, on 24 October 2018, the Secretariat hosted the 4th Technical Meeting on Asian Energy and Oil Outlooks in Vienna. The meeting was an invaluable opportunity to have an Asian-wide focused discussion on current energy developments and prospects, including related policy milestones. As part of the OPEC-Asia Energy Dialogue initiative, the meeting allowed for informal technical interactions among experts from major Asian countries, as well as the Economic Research Institute for ASEAN and East Asia. Discussions focused on their energy and oil outlook, regional energy and policy market analysis.

The 6th High-level Meeting of the OPEC-Russia Energy Dialogue was held on 31 May 2017 in Moscow. A draft agenda has already been circulated for the next meeting, proposed to take place in 1H19. In the meantime, the Secretariat hosted two interns from the Russian Energy Ministry over the course of 2018.

The 13th High-level meeting of the EU-OPEC Energy Dialogue took place on 22 November 2018 in Brussels. The meeting included keynote addresses from both heads of the delegations, followed by a session on oil market developments, including the long-term outlook and the latest energy outlook developments in EU energy and economic policies. It was agreed to exchange notes during the COP24 meeting in Katowice, Poland, and to enhance cooperation at the technical level. Moreover, the EU requested that OPEC

consider the use of the Euro as a currency for energy and sent a formal letter to that effect. Plans to work on a joint study are currently on hold, after the 2017 and 2018 studies were postponed.

Further to the Secretariat's interest in pursuing dialogue with producers, the engagement of the Secretariat with several government agencies and think tanks in the US, which started in December 2016, continued in 2018. These included active participation in CERAWEEK in March in Houston. The Secretary General participated in various high-level panels and press conferences, this time including some OPEC Ministers and high-level delegations from other producing countries participating in the DoC. A private invitation-only ministerial programme with a select group of ministers and invitees convened for an off-the-record interactive discussion, which was instrumental in promoting dialogue and gaining insight into a series of critical energy issues. In this regard, three ministerial-level private sessions were held: a climate and sustainability roundtable; a financial roundtable; and a reception and dinner dialogue with North American oil and gas independents.

Additionally, private briefings by IHS experts on the future of mobility, e-vehicles and implications for global oil and digital technology proved to be very informative. The ministerial plenary, including energy ministers and OPEC Secretary General, Mohammad Sanusi Barkindo, as well as the public plenary dialogue with Barkindo and Fatih Birol of the IEA, provided another valuable opportunity to share and emphasize OPEC's perspectives among a broader and well-established US and international community of experts, academia, government officials, financial actors and industry stakeholders. These

interactions also provided a unique opportunity to participate in bilateral meetings with attendees and attracted significant media interest and coverage.

The OPEC Secretariat has also conducted a long-standing lecture series with leading analysts, researchers and company officials to allow for an active and timely exchange of views. In 2018, participants included the CEO of Rystad Energy, Jarand Rystad; the Chairman and CEO of Centennial Resource Development, Mark Papa; the President of EnSys Energy, Martin Tallett; the CEO of Platts, Martin Fraenkel; the Vice President and Head of Data Science at Equinor, Ahmed Khamassi; the Head of Enterprise Sales and Business Development at Kpler, Stephane Guy; a project manager from Wintershall, Patrick von Pattay; and Nebojsa Nakicenovic and Keywan Riahi from the International Institute for Applied Systems Analysis.

Environmental debate

In 2015, the world adopted the historic PA to limit the global temperature rise to well below 2°C, as well as the UN 2030 Agenda for Sustainable Development, aiming to put the world on a sustainable pathway. Three years later, United Nations Framework Convention on Climate Change (UNFCCC) Parties set the PA implementation guidelines, and countries have completed the first progress review on achieving universal energy access under Sustainable Development Goal 7 (SDG 7).

In this context, challenges and opportunities are created by climate change actions and aspirations for sustainable development, with significant impacts on the future global energy mix and oil demand.

In light of the above, the OPEC Secretariat followed the latest challenges arising from international climate change negotiations and

actions implemented in the context of sustainable development. The Secretariat generated policy-relevant research outcomes, and submitted them to relevant OPEC bodies and officials, with the objective to provide a better understanding on issues of importance to the collective interest of OPEC MCs and allow adoption of common positions on matters of concern.

Besides research, the Secretariat also provided a platform for coordination among OPEC MCs in multilateral fora, as well as technical advice and support to MC experts and negotiators. To facilitate this process, the Secretariat organised a number of *ad hoc* coordination meetings, as well as *ad hoc* advice and support in the course of relevant talks.

In particular, the work of the Secretariat in 2018 focused on the UNFCCC negotiation processes, mainly on negotiations related to finalising and adopting the Paris Agreement Work Programme, which contains the modalities, procedures and guidelines for the implementation of the PA. These include the Bonn Climate Change Conference held in May 2018, the additional negotiation session of the subsidiary bodies that was held in September 2018, in Bangkok, and the UN Climate Change Conference convened in December 2018 in Katowice (COP24).

Prior to the May session in Bonn, the Secretariat produced a report on climate finance, and thoroughly reviewed the IPCC Special Report on Global Warming of 1.5°C – which proved to have an influential role in climate negotiations. In addition, the Secretariat actively participated in the climate change negotiations and was involved in the in-depth discussions of the May sessions of the Talanoa Dialogue, including submitting OPEC's first input to this process. At the UN campus,

the Secretariat also organised an Ad Hoc OPEC MCs' Coordination Meeting to discuss the latest developments in regards to climate change talks, with a focus on matters of interest to OPEC MCs.

In regards to the additional negotiation session in Bangkok, the Secretariat developed a report entitled *The run-up to COP24/CMP14/CMA1.3 – Bangkok Negotiation Round*, to facilitate the participation of OPEC MC negotiators in this session. The Secretariat also actively participated in subject negotiations, convening an *ad hoc* coordination meeting in this case as well. In a similar manner, the Secretariat developed a report entitled *The run-up to the COP24/CMP14/CMA1.3 – Katowice Negotiation Round*, with the aim of addressing major issues in the agenda of the Katowice Climate Change Conference and to assist MC negotiators in their participation.

The Secretariat proactively attended negotiations at the COP, and organised two Ad Hoc OPEC MC Coordination Meetings during the UN Climate Change Conference. The OPEC Secretariat additionally participated in the High-level Ministerial Roundtables on the Talanoa Dialogue, and presented OPEC positions on various aspects of this dialogue, especially on energy transition. Prior to this high-level event, the Secretariat had also submitted its second input to the process of the Talanoa Dialogue. Following COP24, the Secretariat developed a summary report on the key outcomes of the Katowice climate talks.

Owing to the influential role of the Intergovernmental Panel on Climate Change (IPCC) reports on climate negotiation processes, the Secretariat developed a report on the IPCC Special Report on Global Warming of 1.5°C to provide technical assistance to OPEC MC

negotiators in the run-up to the 48th IPCC session, which focused on the consideration and eventual adoption of the Summary for Policymakers of the Special Report. Moreover, the Secretariat attended both the 47th and 48th sessions of the IPCC to provide technical support to MC representatives.

Finally, the Secretariat produced a report on energy issues in the context of sustainable development, along with a brief note on the challenges and opportunities in achieving SDG 7 on energy. This research output provided the main background documents for the Secretariat's participation in the High-level Political Forum 2018, which convened under the auspices of the United Nations Economic and Social Council in July 2018, at the UN headquarters in New York.

In total, the Secretariat produced five studies, two *ad hoc* reports, and a number of brief notes in the course of 2018. It also organized four *ad hoc* coordination meetings, and delivered reports and presentations for the Ministerial Conferences, the BoG and the Special ECB in 2018.

OPEC publications

The *OPEC Monthly Oil Market Report (MOMR)* is a Secretariat publication focusing on short-term oil market developments. It is the Organization's most viewed report and is frequently quoted and referred to by major media outlets, as well as wide range of respected industry analysts. The *MOMR* contains ten chapters covering a wide range of information pertaining to the oil market, including 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.

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

The highest number of views on the OPEC website came with the January 2018 *MOMR* issue, at 37,213 views. For the year, website views averaged around 31,500 per monthly issue, which is around a 10% drop from the year before.

Additionally, 2018 saw the introduction of the *MOMR* video, which has been uploaded to the OPEC website at the time of report publication and which highlights key changes from the previous month's forecasts. The *MOMR* App was also created and launched. It is a concise and comprehensive overview of key messages from the report, enhanced and supported by graphs and tables containing the latest relevant data sets. The *MOMR* App can be downloaded free of charge from any play store.

The 12th edition of the *World Oil Outlook (WOO)* highlights future developments in the oil and energy scene, identifying the main challenges and opportunities facing the oil industry in the years to come. The 2018 version of the *WOO* presented a comprehensive outlook for oil demand, supply and the downstream sector for the medium (2017–2023) and long term (2024–2040).

Future developments in energy and oil markets will be driven by number of factors,

including population growth, changing demographics, the assumed path of economic growth, policy changes, technology advancements and energy and oil prices. The global population is estimated to increase from 7.6 bn in 2017 to 9.2 bn in 2040, with the majority of this growth coming from developing countries. Against this background, global gross domestic product between 2017 and 2040 is expected to increase at an average annual rate of 3.4% in the Reference Case. Most of the global growth will be driven by developing countries, which on average are expected to grow by 4.5% per annum (p.a.)

The evolution of energy markets is significantly impacted by government policies, which are used as mechanisms to stimulate change beyond purely market-driven forces. The current trend is expected to lead toward the increased adoption of clean modes of energy, including renewables, at the expense of coal. Road transportation is also expected to come under increased scrutiny. It can be expected that technical advancements will continue to evolve and broaden the future energy panorama.

Reflecting the underlying assumed developments of key drivers, total primary energy demand is forecast to increase by 91 million barrels of oil equivalent per day (mboe/d) between 2015 and 2040, rising from 274 mboe/d to 365 mboe/d. In relative terms, this represents an average annual growth rate of 1.2% during the forecast period. India and China are the two nations with the largest additional energy demand. At the global level, the largest contribution to future energy demand is projected to come from natural gas, which will increase by almost 32 mboe/d, at a pace of 1.7% p.a. during the forecast period.

The majority of energy demand growth in the 2015–2040 period comes from

non-OECD countries. The OECD is estimated to witness only a small increase of less than 1 mboe/d, as its markets become increasingly saturated.

The category of other renewables – consisting mainly of wind, photovoltaic, solar and geothermal energy – is projected to be by far the fastest-growing energy type, with an average annual growth rate of 7.4%. However, given that its current base in the global energy demand mix is rather low, the increase in absolute terms is estimated at around 19 mboe/d between 2015 and 2040.

Oil and coal are projected to grow at much lower rates of 0.6% and 0.2% p.a., respectively. Nevertheless, fossil fuels will retain a dominant role in the global energy mix, although with a declining overall share from 81% in 2015 to 75% by 2040.

The medium-term oil demand outlook for the period 2017–2023 shows an increase of 7.3 million barrels per day (mb/d), rising to 104.5 mb/d. This corresponds to a healthy average annual increase of almost 1.2 mb/d.

One of the most important impacts on medium-term oil demand growth patterns will be the introduction of new International Maritime Organization (IMO) regulations. The need for additional refinery runs to provide required fuels leads to a surplus of high sulphur fuel oil volumes priced at a discount, which it is assumed will be absorbed by the power generation sector. Higher demand growth is also a direct consequence of volumetric processing gains related to switching from fuel oil to diesel.

Long-term oil demand is expected to increase by 14.5 mb/d, rising from 97.2 mb/d in 2017 to 111.7 mb/d in 2040. Demand in the OECD region is anticipated to show a significant decline of 8.7 mb/d over the forecast period, while developing countries' oil de-

mand is expected to increase by slightly over 22 mb/d. China is anticipated to remain the largest oil consumer over the forecast period, however, India will be the region with the largest overall demand growth, adding 5.8 mb/d between 2017 and 2040. Light products (ethane/liquefied petroleum gas (LPG), naphtha and gasoline) are expected to satisfy more than 50% of global demand growth in the period to 2040. Ethane/LPG is the fastest growing major product segment in the *WOO* projection horizon but diesel/gasoil will remain the most important product category.

Most oil demand comes from the transportation sector (road, aviation, marine, rail and domestic waterways). It is the sector where oil continues to face the weakest competition from alternative fuels. Oil use for industrial purposes (petrochemicals and other industry) is expected to increase by 4.5 mb/d from 2017–2040. Demand in the road transportation sector is anticipated to increase by 4.2 mb/d over the forecast period. However, there is uncertainty of more than 4 mb/d in the long-term forecast, depending on assumptions regarding the market penetration of electric vehicles.

Non-OPEC supply is projected to grow by 8.6 mb/d from 2017 to 2023. Of this, 5.6 mb/d stems from US oil production alone, with the tight oil sector expected to continue its strong performance. Brazil and Canada are the other significant contributors to supply growth, meaning incremental non-OPEC production is heavily focused on the Americas. The long-term forecast for non-OPEC crude oil supply is projected to decline by 1.1 mb/d in the 2017–2040 period, with US tight oil production estimated to peak in the latter half of the 2020s.

In the Reference Case, the implied demand for OPEC crude is estimated to decline from 32.6 mb/d in 2017 to 31.8 mb/d

in 2023. However, it is seen rising again to current levels in the latter half of the 2020s and to continue to rise over the longer term, reaching nearly 40 mb/d in 2040.

Around 7.8 mb/d of new refining capacity is likely to come online between 2018 and 2023, while 17.8 mb/d of new refining capacity is expected between 2018 and 2040. The majority of the new capacity is anticipated to be located in developing countries, supported by growing oil demand. The shift in global demand from industrialized regions to developing regions, along with more refining capacity in growing demand centres, is likely to result in utilization rates in some industrialized regions coming under pressure, and closures can be expected in the medium and long term.

All major projects for new refineries and large expansions comprise complex facilities with high levels of upgrading, desulphurization and related secondary processing. At the global level, projections indicate the need to add some 10.4 mb/d of conversion unit capacity, 20.2 mb/d of desulphurization capacity and 5.5 mb/d of octane unit capacity in the period to 2040. The majority of these additions are expected to materialize before 2030, in line with demand growth and the implementation of stricter product specifications.

Since its launch at the JMMC and JTC meetings in Algiers, Algeria, on 23 September 2018, the interactive edition of the 2018 *WOO* was viewed more than 60,000 times through to the end of December 2018. The *WOO* App was downloaded more than 1,000 times across both platforms (iOS and Android) by the end of December 2018.

The roll-out programme included presentations at Sonatrach, Russia's Energy Week, CERAWEEK in India, the Abu Dhabi International Petroleum Exhibition & Conference in

Abu Dhabi, the IEA, Total, the Institut Français du Pétrole, the 4th IEA-IEF-OPEC Symposium on Gas and Coal Market Outlooks in Paris, the EU in Brussels, the 4th Technical Meeting on Asian Energy and Oil Outlook at the OPEC Secretariat in Vienna, the International Atomic Energy Agency (IAEA), and the Vienna University of Economics and Business in Vienna.

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

The 2018 *ASB* provides key statistical data for all of OPEC's 14 MCs – Algeria, Angola, Ecuador, Equatorial Guinea, Gabon, Islamic Republic of Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates (UAE) and Venezuela (the 54th edition of the *ASB* will include data for the Republic of the Congo) – as well as their national oil companies. In addition, it provides useful information about other non-OPEC oil producing countries, bringing together important data on the upstream and the downstream, on exports, imports, production, refineries, pipelines and shipping. In regularly publishing the *ASB* and making such data publicly available, OPEC seeks to ensure greater data transparency and increased sharing of information about the oil and gas industry between its many stakeholders. The 2018 edition of the *ASB* includes a separate interactive online version, which is freely available on the OPEC website, and which includes historical time-series data going back to 1960. The *ASB* is also available in a pocket

version, as well as a Smart App version, with many advanced features. It is worth mentioning that the 2018 *ASB* release was the earliest in the history of the publication, as well as the first statistical year-book published in the industry. Furthermore, along with many other improvements, a new chapter on ‘Taxes on Oil’ was included in the publication.

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

Additionally, regular daily and weekly reports were prepared, providing a concise and timely summary of oil market trading news and other relevant headlines directly related to short-term market developments.

Internal reports, studies and workshops

During 2018, 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.

Oil price cycles: Causes and lessons learned

The paper identified and analysed a total of six price cycles over the past five decades. In each of these six periods, the decline in oil price was driven by varying factors, some of which were demand driven, while other cycles were more due to developments in global oil supply, with geopolitical events leading to supply outages also having a substantial impact. Over the years, OPEC has been working to lessen the volatility observed in these

price cycles in an effort to provide stability to the market. The paper concluded that the price deterioration in mid-2014 warranted and justified the voluntary adjustment decisions arrived at by OPEC and participating non-OPEC producers at the end of 2016. The DoC has had a transformative impact on the global oil industry and a positive effect on the global economy, leading to stronger global oil demand growth, enabling a return of confidence to the oil industry and a gradual recovery in investment.

The role and impact of financial energy markets on commodity prices

Speculative activities in crude oil futures reached all-time highs during 1H18, coinciding with the rebound from the earlier downward oil price cycle. As a result, the role and impact of speculative activities on oil prices was being reviewed as the implementation of the DoC entered its second year. Granger causality test results conducted in 2018 show that for the period 2008–2018, changes in the net positions of physical participants have linear uni-directional causality with oil price volatility. Changes in money manager positions of also show uni-directional causality with oil price volatility. It seems that commodity market regulations have been sufficiently effective to reduce the impact of speculative activity on crude oil prices, specifically after 2016.

Potential of US tight oil: an update on technology, economics, fiscal policies and regulation, projections and sensitivity analysis focused on the critical factors underpinning growth in tight oil production. Technology gains continue to stimulate US tight oil production and future breakthroughs could unlock even more resources, particularly given the conducive regulatory framework in place. Fiscal policies vary from state to state,

but the federally mandated tax cut is likely to help oil companies active in US tight oil production. However, the most important factor behind production is economics, which hinge on breakeven costs, actual costs and price expectations. US tight oil is by nature more sensitive to price. However, despite two sensitivity exercises with sharply different outcomes, it is clear that US tight oil will overwhelmingly drive non-OPEC supply growth in the medium term.

Recent developments in climate change policies focused on a qualitative examination of recent changes to policy on the matter of climate change in major oil consuming countries and highlighted how the PA has set the tone for climate and energy policy agendas. The transportation sector was seen coming under increasing regulatory scrutiny, with a policy focus on tightening vehicle emissions and fuel quality standards. At the same time, however, electric vehicle incentives are under evaluation due to budgetary realities. The coal sector is also facing increasing regulatory pressure, giving way to greater use of natural gas and renewables in the global energy mix.

Electric vehicles (EV) and greenhouse gas (GHG) emissions: A right way to go from the technological perspective? found that revolutionary battery technology may give a considerable boost to EV purchases and use. However, the manufacturing of batteries may increase the lifetime emissions of EVs even beyond that of internal combustion engine (ICE)-powered vehicles, such that future ICEs may be a match in most regions. It was seen that the recycling of batteries will be essential, and that investment into batteries may devalue substantially and become an additional expense.

Potential technology breakthroughs and implications on the energy-mix identified and analysed potential technological devel-

opments which could profoundly affect the energy mix. In the road transportation sector, the potential for revolutionary batteries and the development of highly efficient ICEs were highlighted as disruption factors with both expected to lower global fuel consumption. On the production side, the potential to repressurize declining tight oil wells and fracturing more densely could see tight oil remain at a constant high level until 2040. More efficient and economic storage possibilities could see renewable power generation account for a larger share of the energy mix.

Promoting the use of oil: Power generation and other new uses explored technical options to increase oil consumption in downstream sectors, with particular emphasis given to power generation. It was clear that a carbon constrained pathway is unavoidable in any forward-looking analysis. Furthermore, 'green' or 'clean' oil will need to combine more than one technology or technical option, including renewables, and a concrete business case will need to be presented for this to be developed. It is suggested that future refineries could be designed to handle a flexible slate of fuels, power sources and chemicals.

The change in crude and product trade volumes and patterns provided medium- and long-term outlooks for crude and product flows and discussed the impact of changing trade patterns. Overall, oil trade is seen as set to gradually increase in the long term, driven by increasing demand largely from the Asia-Pacific region. Crude oil movements are projected to increase by some 4.5 mb/d between 2017 and 2040. In the medium term, exports from the US and Canada are seen rising significantly. Middle Eastern crude exports are seen declining in the medium term before recovering in the long term. Asia-

Pacific crude imports are projected to rise by almost 8 mb/d between 2017 and 2040, pulling in additional barrels from other producers. Refined product trade is expected to be dominated by increasing export from the Middle East, the US, and Canada, with Asia-Pacific increasing its imports.

The study *The impact of energy efficiency policies on oil demand and OPEC economies* focuses on the SDG 7 targets related to energy efficiency and renewable energy. The report provides a quantitative analysis of possible paths to achieve the subject targets by 2030. Due consideration is given to the increasing number of energy-related policies across the world, with the aim of understanding how achievements in renewable and energy efficiency targets under SDG 7 might impact the future energy mix, oil demand and OPEC MC economies. Key findings of this modelling study were considered for EMU's contribution to WOO 2018 – particularly for the analysis incorporated in Chapter 9 on energy and sustainable development.

The study *The run-up to COP24/CMP14/CMA1.3: Bangkok negotiation round* aims to undertake a comprehensive analysis of the most recent developments regarding international climate change negotiations under the UNFCCC. Its key objective is to assist OPEC MC negotiators in their preparations for SB 48-2 and increase awareness about issues of importance to the collective interest of OPEC MCs. The report provides background information and presents the negotiations held in Bonn 2018 on the occasion of SB 48 and further details on the key conclusions.

The study *The run-up to COP24/CMP14/CMA1.3: Katowice Negotiation Round*, provides background information and presents the outcome of negotiations of the resumed 48th session of subsidiary bodies (SB 48),

and the 6th part of first session of the Ad Hoc Working Group on the Paris Agreement (APA 1-6), held in Bangkok. Furthermore, the report focuses on the joint reflection notes developed by the presiding officers, with a focus on matter of interests to OPEC MCs. The report also addresses the priorities of the COP24 President to move the negotiation process forward and provides an overview of the Talanoa Dialogue process.

The study *The IPCC special report on global warming of 1.5°C* presents a critical analysis of the key findings of the subject report, with a focus on energy-related matters. The report provides background information on the special report's mandate and presents its structure and conceptual approach. Analysis focuses on the estimated carbon budget, followed by a brief presentation of recent and future trends of global GHG emissions. Analysis also focuses on different mitigation options considered in the special report to be compatible with a 1.5°C temperature target, outlining a number of issues in regards to expected impacts on the future energy mix and levels. An overview of issues related to adaptation and achievement of a 1.5°C temperature target in the context of sustainable development and efforts to eradicate poverty is also provided.

The report *Energy issues in the context of sustainable development* includes the most recent developments in various sustainable development fields and prevailing trends in each major socio-economic area, seeking to address the contribution of energy to sustainable development goals and objectives. It highlights the interlinkages among energy access and other related SDGs and the need for an integrated approach and synergies to facilitate realization of the SDGs. The study also tackles the need for ensuring eradication of

energy poverty through enhancing sustainable, reliable and affordable energy access for all with positive spillovers for eradication of poverty in its various forms and dimensions.

Database and communications

In 2018, the statistical, development and the information centre teams provided data services to the Organization and its MCs. The statistical databases were updated and maintained to extend coverage. Data quality was also improved through continued automation of data processing and validation. The Secretariat's databases were expanded to include information on the Republic of the Congo, which joined OPEC on 22 June 2018.

A brand new in-house designed Intranet was deployed, featuring a modern design and improved content, in order to improve information categorization and retrieval. The OPEC procurement application has been improved from a functional point of view. All databases were maintained. Two new Mobile Apps were launched for the *WOO* and *MOMR* publications to extend mobile platforms and social media to the audience. As part of the information security programme, some information management policies were updated to regulate new processes introduced by the expansion of the OPEC archive to digital repositories. The statistical reports presentation was improved through the redesign of OPEC statistical reports. The redesign of OPEC financial applications continued to include new functionalities.

The OPEC Big Data project completed Phase 2 by creating a user-friendly interface, incorporating fundamental oil data such as demand, production and trade, and introducing basic analytical methods. Additionally, the visual and navigation aspects of the Big Data tool have been redesigned. All infor-

mation was made available on a monthly, quarterly and yearly basis, and the option to choose a timeframe for the map, as well as map animation was completed. Assuming all required resources are available for the project, Phase 3 (natural gas data, advanced analytical methods) will commence in 2019.

The 17th Annual Statistical Meeting (ASM) was held at the OPEC Secretariat in Vienna on 25–26 April 2018. The main aim of the ASM was to continue the ongoing process of improving the flow of regular oil, gas and other energy-related statistical data submitted directly by MCs to the Secretariat, and to exchange technical knowledge/experience with MCs regarding energy databank management practices and the utilization of the Secretariat's statistical database by MCs. The 17th ASM focused particularly on reviewing initial MC data submissions through the newly developed OPEC Annual Questionnaire (AQ) in combination further elaborations on all related data reporting methodologies.

The meeting underlined the vital role of timely and accurate data, as well as the importance of efficient cooperation and communication between the Secretariat and MCs in order to continuously improve the performance quality of data submission. It was agreed to further enhance data quality and data submission and continue with strong cooperation in form of training workshops in MCs in the near future.

In 2018, two technical workshop training sessions took place; one in Abuja, Nigeria, on 26–27 February, and one in Malabo, Equatorial Guinea on 1–4 October. The main objectives of these technical workshops were to acquaint participants with significant changes to the newly developed AQ, to further strengthen the understanding of global technical definitions relevant to oil, natural gas, energy balance, as

well as macroeconomic variables used in the AQ, and to enhance technical knowledge in relation to the peculiarities and challenges of energy data collection.

In 2018, the Information Centre assisted staff members, as well as other users by providing research support, offering electronic delivery of subscribed reports and fulfilling reference and helpdesk requests. The Information Centre continued developing its print and digital collection during the year, through the purchasing of books and reports, as well as its management of subscriptions to online databases, reports, journals and newspapers.

Through 2018, the Information Centre continued with a review process of subscriptions with a focus on centralization, cost and usage efficiency. Numerous titles were transformed from print to online format, in order to reduce costs and offer users easily accessible online content. As a result of an assessment process, some additional subscriptions (online databases and reports) were cancelled, as well as some journals, with low usage the previous year. This brought new cost savings for the upcoming year. In summer 2018, in close collaboration with the IT Development Team, the OPEC Digital Library was developed and established, as a part of the OPEC Digital Archive. The digital library collection is growing daily, and at the end of 2018 it contained 8,780 oil industry relevant documents and reports.

New technologies were sought to improve the Information Centre's services and make information retrieval more accessible to its users. Hence, the implementation process of the new library management software and knowledge discovery service started in 2018.

Collaboration with other libraries in terms of resource sharing and intensifying of Inter-library Loan was initiated. The Information Centre established the collaboration with the

University College of London Qatar, and organised a visit for IC fellows to the IAEA Library and Archives at the UN Headquarters in Vienna.

The Information Centre additionally provided research and reference support to delegates and analysts from MCs, researchers from academic institutions, international organizations and students in their research studies throughout the year.

Training and knowledge transfer

The annual MDTC is designed to provide MC participants with a thorough overview and first-hand information about OPEC's role in assessment of the energy demand and supply balance. It also informs participants about the Secretariat's wide range of activities as a service provider to MCs and its role as a representative for MCs in international relations. The 18th MDTC was held at the OPEC Secretariat from 12 to 16 February 2018.

The Summer Fellowship Programme (SFP) is designed to provide professionals from OPEC MCs with the opportunity to improve their expertise and technical skills through engaging in the Secretariat's research activities. Summer Fellows have the opportunity to participate in research and studies, as well as to perform other tasks undertaken by the Organization which could further enhance their knowledge and expertise in fields relevant to their professions and future careers. At the same time, OPEC benefits from the SFPs through increased networking with MCs. The RD hosted four Summer Fellows in 2018. The following studies were prepared under the 2018 SFP:

- *The impact of IMO sulphur regulation on the bunker fuel oil market* concluded that the reduction of sulphur in marine bunker fuel may be the most disruptive

product quality change in decades and will affect nearly all stakeholders in bunker trade. It further concluded that compliant bunker fuel oil appears to be the best solution to reducing sulphur content, although marine gas oil will remain an option where low sulphur bunker fuel oil is unavailable.

- *A statistical analysis of the relationship between oil price, rig count, oil productivity per rig, drilled but uncompleted wells, for the main tight oil plays in the US: Permian, Bakken, Eagle Ford, and Niobrara and reviewing tight oil market dynamics and its impact on OPEC policies in the short to long term* demonstrated a high correlation between the oil price and rig counts in the Permian and Niobrara Basins, whereas the relationship is insignificant in the Bakken and Eagle Ford production areas.

- *The Outlook for condensate and NGL supply* found that global NGLs and condensate supply is expected to continue growing, with growth in NGLs supply seen continuing to follow natural gas supply trends. Furthermore, North America is expected to maintain its position as the top NGLs supplier from a regional perspective over the long term.

- *New forms of urban mobility and their impact on future oil demand* are expected to be transformative. Norway and China were presented as two countries where current and future mobility plans and policies may shed light on potential transportation sector shifts.

The Internship Programme is intended to offer participants on-the-job practical training and to promote their understanding of the Organization's goals and objectives. Participants in the Internship Programme ("interns") primarily support and assist Secretariat staff within the framework of a specific subject within a limited period of time. The RD hosted seven in-

terns in 2018. The following studies were prepared under the 2018 Internship Programme:

- *The Russian tax primer* outlined the different taxes and duties on mineral extraction and duties on oil and product exports. It also delineated changes in the fiscal regime expected in the coming years, namely the end of the tax maneuver and the introduction of an additional profit tax, aimed at incentivizing investment in the oil sector while maintaining the government's revenue streams.

- In a separate study, the sensitivities and drivers behind the *Russian oil production outlook* in the medium and long term were examined using a bottom-up approach. This confirmed the approach taken for the *WOO* reports, with outlooks that were rather similar with relatively small differences.

- *Changes in the Russian oil tax regime and their influence on the oil industry* provided a detailed analysis of the existing Russian tax system and the expected changes in the coming years for both the upstream and downstream sectors. It also analyzed the impact of these changes on company accounts, government revenue, and refining incentives.

- *The report OPEC and non-OPEC cooperation: Lessons from the past for a better future* assessed the historical cooperation between OPEC and non-member countries, and emphasized the need for OPEC to continue engaging in dialogues and seek new pathways for cooperation with other producers and exporters.

PR and Information Department

In 2018, the Public Relations and Information Department (PRID) continued to be very busy. The heavy schedule which started in the

second half of 2016 and led up to the signing of the historical DoC on 10 December 2016 continued throughout 2017 and 2018, as the DoC navigated its second year. The OPEC Secretariat continued to work extensively, holding meetings associated with the DoC. These included regular meetings throughout the year of the JMMC, of which there were six, 13 JTC meetings, along with two technical meetings and two OPEC-non-OPEC Ministerial Meetings, all of which required extensive support by PRID staff.

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

Improving and enriching the image of the Organization is one of the key challenges identified in OPEC's most recent Long-Term Strategy. 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.

PRID contributed in an ongoing manner over the year to the development and fine-tuning of the Secretariat's message, while working towards the achievement of its departmental priorities, and in the pursuit of specific areas and the generation of high-quality output. It has helped to ensure that the themes of 'openness and transparency', 'dialogue and cooperation' and 'stability and security' were consistently included in the Organization's documents and publications, in presentations made to visitors and other

groups, as well as in speeches, statements and interventions delivered by the Secretary General and others. These 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 2018.

Although PRID was primarily responsible for editing, designing, producing, printing and distributing materials, the content of this output varied greatly, depending on publication type. There was especially close cooperation between PRID and the Secretariat's RD in the area of publications throughout the year. In addition, the work of PRID required close cooperation with other Departments and Units. These included the SGO, the LO, the EMU, the DSD, the PSD and the ESD, as well as MCs themselves. In 2018, 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 Unit

The Editorial Unit in 2018 primarily focussed its efforts on directly supporting the OPEC Secretary General and other Members of Management in carrying out their duties through the provision of speeches, press releases, news items, video scripts, background information for interviews and commentaries and managing the press. There were also many articles written for various magazines, as well as for the Organization's flagship magazine, the *OPEC Bulletin*. Additionally, a great deal of time and effort in 2018 was spent editing, revising and proofreading research documents, presentations and reports and offering support at various meetings.

Speeches and statements

In 2018, just over 100 speeches were written for the Secretary General, the DRD and other OPEC officials compared with about 75 in 2016 and 115 in 2017.

The Secretary General attended numerous major industry events throughout the year and delivered keynote speeches, statements and interventions at, *inter alia*, the Atlantic Council's Global Energy Forum 2018 in Abu Dhabi (Abu Dhabi, United Arab Emirates (UAE)); The World Economic Forum (Davos, Switzerland); 2018 Egypt Petroleum Show; the 1st Edition of the Nigeria International Petroleum Summit (Abuja, Nigeria); CERAWeek 2018 (Houston, Texas); 4th Iraq Energy Forum (Baghdad, Iraq); 16th IEF Ministerial Meeting (New Delhi, India); 5th Kuwait Oil and Gas Summit (Kuwait City, Kuwait); Al Attiyah Awards Ceremony (Doha, Qatar); 22nd Uzbekistan International Global Oil & Gas Exhibition & Conference (Tashkent, Uzbekistan); St. Petersburg International Economic Forum (St. Petersburg, the Russian Federation); Caspian Oil and Gas Exhibition 2018 (Baku, Azerbaijan); 18th Nigeria Oil and Gas Conference and Exhibition (Abuja, Nigeria); Africa Oil and Power 2018 (Cape Town, South Africa); Brooge Petroleum & Gas Project Launch (Dubai, UAE); Gulf Intelligence Energy Markets Forum (Fujairah, UAE); CECME Annual General Meeting (Madrid, Spain); Russian Energy Week (Moscow, the Russian Federation); Oil and Money Conference (London, UK); CERAWeek India (New Dehli, India); Algeria Future Energy Summit (Algiers, Algeria); Abu Dhabi International Petroleum Exhibition and Conference (Abu Dhabi, UAE); UNFCC COP24, including the High-level segment (Katowice, Poland).

Speeches, statements and interventions delivered at all the events were well received by participants and the media. They were re-

ported upon, analyzed and quoted, reflecting the high level of interest in OPEC's activities and message. 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.

In 2018, guest editorials, articles and Q&As were provided for the following publications: Q&A Platts (Special report on electric vehicles and changes to mobility); Oil Gas European Magazine (special 50th anniversary 'Forecasts, Outlooks and Insights – and the Importance of Lasting Partnerships'); article for the official publication to mark the 16th IEF Ministerial, New Delhi ('Dialogue is making a difference'); Q&A Africa Oil & Power; Article for World Petroleum Congress 2018 Strategic Review ('The Future of the Oil Market'); G20 Buenos Aires Summit Article for special publication; Q&A ADIPEC; Q&A Foreign Investment Network Magazine; Q&A SHANA; Article for The Energy Forum ('India takes its place of prominence on the energy stage'); Q&A for Trend News Agency, Azerbaijan; Q&A with Xiaoyang, China; Q&A Africa Oil and Power'; Op-Ed for IP Week; and testimonial for Algeria Future Energy Summit 2018.

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

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

JMMC and JTC

Over the course of the 13 JTC and six JMMC meetings which took place in 2018, the number of assigned tasks to provide necessary editorial and speechwriting support was once again very high. Speeches were prepared by the editorial team for the Secretary General, the Chairman of the JMMC and the President of the Conference; drafted press releases were written for each monthly meeting; and editorial assistance was provided for the finalization of committee reports. Furthermore, special features on all JMMC meetings were prepared for the *OPEC Bulletin* throughout the year, as well as an in-depth special *OPEC Bulletin* celebrating the second anniversary of the Algiers Accord and coverage of the second anniversary of the DoC.

Videos

In addition to the editorial section's regular activities, it began in 2017 to produce a large number of scripts and voice-overs for videos. This activity increased significantly over 2018, with 23 scripts/videos being undertaken over the year. Additionally, videos were made each month for the *Monthly Oil Market Report (MOMR)* for the website.

Special events

The OPEC Seminar was held on 20–21 June 2018 with the Head, PRID, as Chairman of the Seminar Organizing Committee. The event was larger than ever before, breaking new records and attracting more than 1,000 participants from over 50 nations, around 80 speakers, 60 ministers and CEOs, 19 sponsors, 20 exhibitors and 170 journalists, analysts and photographers. The Editorial Unit generated speeches and video scripts, conducted interviews, created a daily hand-

out, and undertook extensive coverage in the *OPEC Bulletin* of this event.

Publications

OPEC publications in 2018 included the regularly produced *MOMR*, which is closely followed by the oil industry, as well as many other external and internal documents. Editorial staff also attended various meetings and assisted in drafting internal write-ups and reports. They produced articles, as needed, based on these meetings for OPEC's monthly magazine, the *OPEC Bulletin*. In addition, staff produced content for the OPEC website, including press releases and news items, and assisted in providing editorial advice and input of various kinds for other Departments within the Secretariat upon request throughout the year. Editorial staff travelled to various industry events, generating articles and providing coverage for both the website and the *OPEC Bulletin*.

Another regular feature of PRID's Annual Work Programme is the annual OPEC Diary. 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)* came out in record time in 2018; it was launched in September rather than November for the first time, beating world analysis reports by similar peer organizations. First published in 2007, the *WOO* offers a thorough review and assessment of the medium- and long-term prospects to 2040 for the global oil industry, as well as analysis of various sensitivities that have the potential to impact the petroleum industry in the years ahead. The 2018 *WOO*

launch took place on 23 September alongside the 10th Meeting of the JMMC as part of the celebrations of the 2nd Anniversary of the seminal Algiers meeting (the 170th (Extraordinary) Meeting of the OPEC Conference). The document has become a useful reference tool for people in the industry, and interactive versions of the *WOO* have been available for a few years.

The *OPEC Energy Review (OER)*, OPEC's academic quarterly, celebrated its 42nd year of publication in 2018. The academic publication marked its 40th anniversary in 2016 in part by re-organizing and re-composing its Editorial Board, and expanding its online presence through the use of social media. Moreover, the publication has recently been significantly enhanced (including improved academic paper selection criteria and reduced reviewer time) and brought in line with international scientific journal standards. The *OER* continues to use the 'ScholarOne' portal, in collaboration with academic publisher Wiley-Blackwell, in order to facilitate the processing of manuscript submissions and reviews. There are currently plans to redesign the *OER* webpage, with the help of the publisher company and to introduce special issues on relevant and focus-point topics. The *OER* Board continues to seek new ways to reach audiences and prospective contributors, as well as increasing its impact factor.

Large parts of the *Annual Report (AR)* are produced by the editorial section, and its editing and production are undertaken in house.

The monthly *OPEC Bulletin* continued to highlight the activities of the Secretariat and the Organization's MCs. Its coverage is comprised of articles of interest on various topical issues, as well as informative analytical features. In 2018, editorial staff wrote a total of around 200 articles and features for the *OPEC Bulletin*.

Of note in 2018 were special articles on the following topics: in January, celebrating one year of the DoC, ADIPEC, energy transition in a global perspective, Bolivia's gas tri-recta, as well as a focus on Abu Dhabi, and polo in Nigeria. In February, stories were written on special visits by the Secretary General to Kuwait, Venezuela and Ecuador, on EGYPS 2018, guest speaker Nebojsa Nakicenovic. March saw a special edition on Nigeria and its heritage, as well as a special feature on the death of OPEC icon Alirio Parra. In April, the 16th IEF forum in India was featured, as well as the Secretary General's visit to Digboi, the country's oldest refinery. The 4th Iraq Energy Forum was also featured, and was accompanied by a story on Iraq and the Tigris-Euphrates river valley. The visit of Ali I. Al-Naimi, former Minister of Petroleum and Natural Resources, Saudi Arabia was featured in May, along with the 2018 Iran Oil Show; the Secretary General's visits to Azerbaijan and St. Petersburg; and the Abdullah Bin Hamad Al Attiyah Award. The June-July special Seminar edition was jam-packed with coverage of the 7th International Seminar, as well as the 174th OPEC Conference, and 4th OPEC and non-OPEC Ministerial Meeting. A visit by industry legend Mana Saeed Otaiba was also featured. The September *OPEC Bulletin* was a special edition on the 2nd Anniversary of the Algiers Accord, including the reflections of many dignitaries on the event which led to the birth of the DoC. Algeria and its role in OPEC over the years was also highlighted. The October edition covered the 10th JMMC and launch of the *OPEC WOO*, which was held in Algiers, the Africa oil and power conference, including the Secretary General being elected 'Africa oil man of the year'; a mission to the UAE; and parts of an autobiography of Saadallah Al Fathi. The November edition featured the

UAE, with several articles on the country. Finally, the December *OPEC Bulletin* featured the 2nd anniversary of the DoC, including special coverage of the JMMC and the effects of the DoC on the global oil market.

In addition to this, there was regular coverage of the Meetings of the Conference, OPEC and non-OPEC Ministerial meetings, JMMC meetings, and a series called '*Focus on Cities*' which explored Shiraz, IR Iran; Qiddiya, Saudi Arabia; Abuja, Nigeria; Baghdad, Iraq; Jeddah, Saudi Arabia; Brazzaville, the Republic of the Congo; Algiers, Algeria; Abu Dhabi, UAE; Kuwait City, Kuwait. External meetings and events attended by the Secretary General and/or OPEC – including symposiums, energy dialogues, summits, exhibitions and so on – were also extensively covered.

Media relations and news monitoring

Another tool used to help improve and enhance the image of the Organization was media relations, which includes the coordination of media coverage through one-on-one interviews with the Secretary General, press conferences and briefings, speeches and statements, as well as the pro-active seeking of further networking opportunities among media outlets and journalists. This approach to media attention and coverage has helped 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 such as: Al Jazeera, CNBC, Platts, Wall Street Journal and Dow Jones newswires,

Energy Intelligence, Handelsblatt, the Middle East Economic Survey, PRESS TV, Ria Novosti, Russia Today, Russia 24, Sky News Arabia, Sputnik News, Tass news agency, Vedmosti, Al Arabiya, Bloomberg, Bloomberg TV, CNN, Reuters, The National, Gulf News, UAE local media, Turkish local media, Indian local media, the BBC Persia (TV), Argus, Financial Times, Marketwatch, the Petroleum Economist, Trend News Agency, Kuwait local media, Iraqi local media, Chinese local media, Energy Voice, Oil Review Africa, Gulf Energy News, AFP, Andalou Agency, BBC Hausa, Foreign Investment Network magazine, SHANA news agency, Agencia EFE, Al-Hayat, Asahi Shimbun, Associated Press, NHK, Nikkei, Telesur and Yomiuri Shimbun.

The editorial staff also provided background information upon request to many journalists from various media outlets, as well as contextual information for the Secretary General for various interviews and bilateral meetings. Media briefings and exclusive interviews were provided for international press at various events throughout the year.

The editorial section continued in 2018 to produce the *Daily News Summary*. This mailing/publication, which is distributed internally by e-mail, serves to provide a quick overview every weekday morning of the latest energy-related news. It aims to help Secretariat staff stay informed about coverage of MCs by Reuters and other wire services as well as any other relevant topics.

Public Relations Unit

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

addressing any misconceptions about the Organization.

Conference preparations

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

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

Outreach programme

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

Organization's mission, enhancing perception and creating support within the host country, Austria.

The programme has so far focused on the following areas:

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

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

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. They also provide an opportunity to disseminate the Organization's key messages and create a better understanding of the Organization's decisions and actions.

The briefing programme identifies the target groups for a particular year. The PR team then sends invitations to different audiences with various backgrounds and knowledge. Upon receiving an online request, the team identifies the goals and messages to be disseminated on a particular visit, depending on a group's background and knowledge of both the industry and OPEC. Briefings start with an introduction and brainstorming session, followed by a general presentation about OPEC, the screening of various films produced by the PR Unit and conclude with a Q&A ses-

sion. A group picture is usually taken during such visits and a guided tour through the Main Conference Room is offered, depending on availability and time. A survey is also conducted and filled out by the group to enable PRID to improve and address any other expectations. The briefing programme normally lasts between 1.5 to 2 hours.

In 2018, the request for visits and briefings increased by almost 20%. Due to the heavy schedule of the Secretariat, it was not possible to accommodate all requests. Despite this, a total number of 2,500 visitors were received, including joint presentations with other Departments – primarily, the RD, Human Resources and the Legal Office. The PR team conducted more than 90 briefings (including one online with the university of Kuwait) and visitors came to the Secretariat from more than 28 different countries and from both the public and private sector, as well as from government ministries, universities, schools and research institutes, other organizations and MCs' national oil companies. Individuals were also received. The age of visitors ranged from 8–78 and they came from a variety of backgrounds.

Visits

During 2018, a visit was undertaken to the University of Montan as part of the outreach programme and in support of youth in general and future petroleum engineers in particular. The University is considered one of the top-ranking mining and petroleum engineering universities in Europe and has around 3,700 students.

The relation with the Montan University goes back to some years ago, when the Organization paid the University a visit and established the regular group visits of the university's students to the OPEC Secretariat.

Moreover, in recognition to the important role of Austria's future petroleum engineers, OPEC has sponsored talented students from Montan University to attend and benefit from its industrial event, the 7th OPEC International Seminar, which was held on the 20–21 June 2018, at the Imperial Hofburg Palace in Vienna, Austria.

Recently, OPEC received an invitation from Montan University Leoben student chapter of the Society of Petroleum Engineers, to participate at their annual conference 'SCOPE 2018 innovation and new technology'. The Conference was held at the University's campus between 15–17 October 2018.

A representative from the RD, ESD, represented the OPEC Secretariat in this Conference, taking part as a panelist in the session 'The 4th industrial revolution in the oil and gas industry'.

Workshops, seminars and exhibitions

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

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

From January to December, the Organization was actively present at various international exhibitions and notable conferences

that took place in different regions and continents. These included:

- Algiers (Algeria) for the 10th JMMC.
- Tehran (IR Iran) for the Iran Oil Show 2018.
- Baghdad (Iraq) for the 4th Iraq Energy Forum.
- Abuja (Nigeria) for the Nigeria International Petroleum Summit.
- Riyadh (Saudi Arabia) for the 8th edition of the IEA-IEF-OPEC Symposium on Energy Outlooks.
- Jeddah (Saudi Arabia) for the 8th JMMC.
- Abu Dhabi (UAE) for the Abu Dhabi International Exhibition & Conference.
- Vienna (Austria) for the 7th OPEC International Seminar.
- Muscat (Oman) for the 7th JMMC.
- Cairo (Egypt) for the Egypt Petroleum Show.
- Baku (Azerbaijan) for the 25th International Caspian Oil and Gas Exhibition and Conference.
- Tashkent (Uzbekistan) for the 22nd Oil and Gas Uzbekistan Exhibition and Conference.
- Cape Town (South Africa) for the Africa Oil and Power Conference.
- New Delhi (India) for the IEF's 16th Ministerial Meeting.

Through its active efforts, PRID was able to reach a broader public in an efficient and effective manner; promote its key messages, decisions and mission; enhance the presence of its prominent publications; and disseminate information in a precise and dynamic fashion. OPEC smart applications and social media platforms, as well as its official website, were also extensively promoted at these events.

By the end of the year, PRID had an exceptionally high number of stands at exhibi-

tions and international conferences, with 25 stands over 20 the previous year.

A few of the year's highlights and special events are noted below:

OPEC Seminar: The highlight of the year was the Seminar, for which the PR Unit contributed to: setting up a website, including providing and updating content; coordinating all activities related to the Seminar with the organizing company; coordinating student participation in the Seminar; taking care of all promotion and marketing activities, including advertisements and commercial videos; setting up a stand for OPEC with flagship publications and corporate presents; taking care of press accreditation and enquiries; taking care of live streaming and broadcasting; coordinating with sponsors regarding their participation and activities; coordinating with exhibitors regarding their participation and stands; and reaching out to sponsors.

DoC Anniversary: Another main event in 2018 was the celebration of the 2nd Anniversary of the DoC. PR staff contributed greatly to organizing celebrations, including various activities, such as a gala dinner.

Science and Engineering Fair: As part of the outreach programme, OPEC sponsored the Science and Engineering Fair as an exhibitor, displaying important publications and viewing the film 'Instrument of Change'. In an attempt to raise awareness and enhance knowledge about the Organization in general and the oil industry in particular, the PR team also conducted a short quiz about OPEC and the oil industry, inviting students to participate. Students used the film and OPEC publications to answer questions. OPEC's stand was well attended and visited by students, teachers, parents, judges and staff members from OPEC, the OPEC Fund for

International Development (OFID), the International Atomic Energy Agency (IAEA), and other local organizations.

United Nations Women’s Guild Bazaar:

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

Webster University Conference:

OPEC has participated as a platinum sponsor in this event, at which OPEC’s flagship publications, corporate presents and other related material were donated. Participation underlines OPEC’s role in supporting youth in particular and educational events in general.

Other special events involving the PR Unit included the visits of industry legend Mana Saeed Otaiba and Ali I. Al-Naimi, former Minister of Petroleum and Natural Resources of Saudi Arabia. The Unit also contributed to the successful launch of both Facebook and Twitter accounts in 2018 and continued to provide material to enrich these forums and support the social media team as needed.

Monitoring public perception of OPEC:

The PR Unit conducted a comprehensive survey with more than 2,000 participants to analyse and monitor general public perception about OPEC. The outcome of the analysis was used to enhance some of the current PR activities within the outreach programme.

OPEC Diary

The OPEC Desk Diary is an annual publi-

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

News monitoring

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

Distribution of publications

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

Distribution of publications is undertaken in coordination with related departments. PRID facilitates distribution of the

ASB and the WOO, in addition to the OPEC Bulletin and the AR, according to an updated mailing list supplied by the PR Unit.

Corporate gifts

Gifts are offered to visitors participating in briefing sessions and to general visitors to PRID, as well as to visitors from MCs. They facilitate the promotion of hospitality and help to maintain the good image of the Organization. It has also become a custom in all Departments to offer corporate gifts with the Organization's logo to almost all visitors. These gifts are provided by the PR Unit, which selects, negotiates and arranges with PRID's Design and Production Unit, as well as local vendors, in logo design, quality control, invoice approval and gift handling.

Website

In 2018, PRID continued to maintain and update the content of its website in a timely and accurate manner with press releases, news items, speeches, statements, publications and reports, data and graphs, videos on demand, information about its MCs, employment opportunities, etc.

Over the year, 31 press releases were published and within the 'News' section there were 25 news items. In addition, a huge amount of photographs accompanied much of this website content and were added to the online photo gallery. Live streaming of OPEC meetings and other events was provided through the OPEC website and attracted 68,163 views in 2018, somewhat down from 83,789 views in 2017.

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 views to the OPEC website's various pages and prepared monthly reports on this data. These reports are critical to website operations as the Department continues to ensure that visitors find the information they require in an easy and practical manner, and works on enhancements, as needed. In general, the number of views to all website pages reached 7,118,159 in 2018.

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

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

Social media

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

In a concrete attempt by OPEC to expand its reach and improve its information dissemination practices, the Organization inaugurated its official Facebook page in 2017. Facebook followers were over 33,000 from the launch until the beginning of 2019, showing a good start. The impressions (total number

of views and visits) were at 1,116,083 views, the reach size (total number of unique visitors) at 387,574.

In line with its plans to expand its social media outreach, OPEC officially launched a Twitter account in March 2018. From then until the beginning of 2019, there were 7,855 followers, impressions (total number of views including repeated visits) reached 6,237,714 views. Twitter has become the preferred social media platform for stakeholders in the energy and other related fields to exchange data and share ideas and views about the industry.

Press releases, speeches, news items, daily basket prices, interviews with the President of the Conference, the Secretary General, Heads of Delegations and Ministers of participating non-OPEC countries to the historic DoC, press conferences, meeting highlights and OPEC publications were posted in a consistent and continuous fashion on Facebook and Twitter for effective dissemination of information. An additional campaign for the *MOMR*, *ASB* and *WOO* was launched to promote and widen the distribution of vital information and data in these essential publications on Facebook and twitter. The content was specifically tailored and designed for social media messages in collaboration with respective departments within the Secretariat.

In furthering the promotion of OPEC and widening the Organization's presence on social media platforms, PRID, through the social media team, collaborated with organisers of ADIPEC 2018, CERAWEEK 2019 and the G20 summit in Buenos Aires to better coordinate and promote content during the events. This has further improved confidence among stakeholders in the various tools the Organization is incorporating in its public relations strategy.

Additional Facebook and twitter features were used to boost OPEC's presence

on social media platforms. Events for the Meetings of the OPEC Conference, OPEC and non-OPEC Ministerial Meetings, the 7th OPEC International Seminar and the 13th meeting of the JMMC in Baku, Azerbaijan were created to highlight these key events, as well as to promote them to the wider public, aiming to enhance their attendance.

Audio-visual/multimedia services

PRID's audio-visual (AV) services were in demand in 2018, and all requests were met. These included the production of 'Year-in-Review', highlights of the Ministerial Meetings and updating all official OPEC films. OPEC documentaries were also converted for YouTube and uploaded to OPEC's YouTube account, as well as being placed on the website.

The 174nd and 175th Meetings of the OPEC Conference as well as the 4th and 5th OPEC and non-OPEC Ministerial Meetings were live-streamed on the multimedia section of the OPEC website and immediately made available as on-demand videos. The traditional 'Oil Market Insight' sessions before the OPEC Ministerial Conferences were produced in-house. The opening session and press conferences of both ministerial meetings held in Vienna were broadcast live to international media and broadcasters via satellite. The launch of OPEC's *WOO* 2018 was also shown on the OPEC multimedia section of the website.

Intensive time was spent on media productions, including films, interviews, pictures, and post-production, for many events over the year, including the 7th, 8th, 9th and 10th JMMC meetings. Another main event in 2018 was the OPEC Seminar, with which the audio-visual team was heavily involved. Their work included multimedia video content production for the video wall (History of the OPEC Seminar film; DoC special

seminar video); video highlights day 1; video highlights day 2; all sessions available on video-on-demand; international press live broadcast feed; satellite, mobile and web livestream of the opening ceremony and all sessions; photo coverage of the seminar; filming of interviews; live interpreter service at the Hofburg.

Photo and video coverage was undertaken for archival purposes of all official visitors to the Secretary General, student visits, BoG and ECB meetings, JMMC meetings, JTC meetings, the MDTC and workshops and roundtables, while the AV team distributed photographs and videos to the international media and editors for publication purposes. It also assisted with, and provided video and photo coverage for, special historical stories as requested by international broadcasters and MC media organizations.

Over the course of 2018, the audiovisual team took a total of 104,880 photos and streamed 48 hours of live video content with over 50,000 total viewers per day.

Over the year live interviews with OPEC officials and other international figures were filmed, while further interviews with analysts and journalists were conducted during live streaming and published in the website's multimedia section.

The PR section arranged for AV facilities and accreditation for meetings, workshops, conferences and training courses.

Special audio-visual projects

PRID continued to update the photo gallery website projects and archive on a daily basis, including AV inventory. Technical upgrades and maintenance were performed throughout the year.

The AV Unit produced several documentary films throughout the year.

Design and Production Unit

The *WOO* design was further enhanced in 2018, focusing on a layout that best supports its messages. The *WOO* launch was flanked by materials which could visually communicate at a glance the most important facts and transfer the look and feel of the document to the audience in a memorable and easy to digest way for the main event in Algiers. For the *WOO* roadshow, supporting materials such as rollups were designed in collaboration with the ESD to highlight key takeaways. The Design and Production (D&P) 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 D&P Unit was responsible for designing, typesetting, producing and overseeing the printing of this publication. The overall number of pages increased.

The *AR* was put together in cooperation with other Departments at the Secretariat. For 2018, the design and layout of the document was adapted and the overall number of pages increased. The D&P Unit was responsible for designing, typesetting, producing and overseeing the printing of this publication.

The *OPEC Bulletin* continues to be laid out, typeset and produced by the team, which continues to coordinate and oversee its printing at an outside printing service. Throughout the year, the layout of the *OPEC Bulletin* is adapted to fit state-of-the art corporate publication trends in an international and multicultural environment in coordination with the Editorial Unit. There were Special Editions for

Nigeria, the OPEC International Seminar, Algiers, the UAE and the 2nd Anniversary of the DoC. The Seminar issue of the *OPEC Bulletin* had the biggest page count of all *OPEC Bulletins* ever, at 172 pages.

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

Additionally, the D&P Unit provided visuals for OPEC exhibition stands at various meetings and exhibitions, including the OPEC International Seminar, in order to disseminate the Secretariat's key messages. Posters and rollups for internal and external use were designed to display our MCs and highlight the Organization's key messages.

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

In order to set up a corporate design for all JMMC meetings, as well as other high-level meetings, the Unit collaborated with host countries to streamline and prepare designs.

To ensure a consistent appearance, the team was also involved in the preparations and implementation of the visual concept for the 7th OPEC International Seminar, starting with the logo design and key visuals to liaising with the consultants to ensure proper effectuation of designs. The designers also provided designs for and produced various gift items.

Training

PRID staff undertook missions and training programmes throughout the year, accordingly producing reports on these activities,

which were either published in the *OPEC Bulletin* or submitted to the Missions Committee. In addition, PRID staff participated in different organizational task forces and committees and worked closely on projects with other departments, including the Academic Committee, the Task Force on Confidentiality and the Task Force on Facebook.

Administration & IT Services Department

The primary objective of the work of the Administration staff is to ensure the provision of all necessary services in order to facilitate the smooth running of the day-to-day affairs of the Secretariat, and to allow the various specialized areas 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, legitimation/diplomatic ID cards, import declarations and diplomatic license plates, office stationary supply, upkeep of the premises and residence, security and safety.

Highlights:

- Administration and IT Services Department (AITSD) was intensively involved in the planning, organization and implementation of the 7th OPEC International Seminar, which took place in June 2018. To ensure the smooth operation of the event and its success, AITSD closely cooperated with other in-house departments, seminar consultants, the various service providers, as well as the local

- authorities, including ministries and police forces.
- AITSD was responsible for the organization of numerous extraordinary events in 2018, including:
 - City Hall Dinner event in close cooperation with the UAE during the OPEC Seminar, with approximately 800 participants.
 - 2nd Anniversary Dinner of the DoC with approximately 200 participants.
 - Media reception at the Boersesaal during the 175th Meeting of the Conference, with around 100 representatives from the media and press.
 - Appreciation Dinner for Ali I. Al-Naimi at the Grand Hotel/Le Ciel with approximately 100 participants.
 - Gala Dinner during BoG Meeting at Hotel Sacher with approximately 40 participants.
 - Dinner invitation for OPEC Seminar Award Panel at Steirereck/Meierei with approximately 30 participants.
 - Farewell Dinner for Suleiman Al-Herbish, outgoing Secretary General of the OPEC Fund for International Development at Elissar Restaurant with approximately 30 participants
 - Replacement of two official Mercedes cars (both E-class vehicles).
 - Replacement of defibrillator with a state-of-the-art model, including comprehensive training for OPEC's First Aid Team Members to familiarize them with the new device.
 - In close cooperation with the DSD and the FHRD, Administration was involved in the implementation and the continuous improvement of the electronic procurement system, with the objective of increasing overall efficiency of the entire OPEC Secretariat, while ensuring transparency and accountability of internal financial processes.
 - The high demand for various administrative and logistical services continued, which required team spirit, flexibility and work re-organization efforts, with a view to maintaining high quality services despite steady staff strength and limited payment of accumulated extra hours.
 - In addition to the organization of regular conferences and meetings throughout the year, Administration was involved in the planning and implementation of numerous extraordinary gatherings both at the Secretariat and abroad related to OPEC's DoC, *inter alia*:
 - OPEC and non-OPEC Ministerial Meetings.
 - Joint Ministerial Monitoring Committee Meetings.
 - Joint Technical Committee Meetings
 - Other technical meetings.
 - Missions and official visits.
 - The DoC has increased the administrative and financial involvement of the Section in preparatory and organisational services such as logistical and visa support services for non-OPEC member delegations of the Declaration. Furthermore, these additional meeting participants have redefined the scope of Administration's cooperation and planning with local authorities, including security and safety measures.

IT Services Section

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

It 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 2018:

- Deployment of new core infrastructure: Exchange Server, Email Archive Server and File Server, using the latest version of Microsoft software.
- Continuation of migration to Windows Server 2016 of the Microsoft Windows 2008R2 fleet (80% of the server fleet is migrated).
- Prototype deployment of Windows 10, Office 2016 on 10% of the computer fleet.
- Deployment of new storage infrastructure for PRID data.
- Migration of VMware infrastructure to latest version.
- Deployment of new Xerox print servers infrastructure under a leasing contract;

- Deployment of new laptops to ten new users in RD and SGO.

Finance & Human Resources Department

The Finance and Human Resources Department continued to focus on delivering innovative human resources and financial strategies by ensuring efficiency of each business process and quality of its services, as well as providing world class management of human and financial assets of the Organization in 2018.

The Finance Section continued to strengthen the existing financial controls of the Organization in accordance with the Financial Regulations and Financial Rules and Procedures, through outsourcing of the internal audit function.

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 its efforts to utilize the Secretariat's available manpower to the maximum extent possible to ensure efficiency and proficiency.

Heads of Delegation

ALGERIA



Mustapha Guitouni

ANGOLA



Eng Diamantino P. Azevedo

REPUBLIC OF THE CONGO



Jean-Marc Thystere Tchicaya

ECUADOR



Ing Carlos E. Pérez

EQUATORIAL GUINEA



Gabriel Mbaga Obiang Lima

GABON



Pascal Houangni Ambouroue

IR IRAN



Eng Bijan Namdar Zanganeh

IRAQ



Thamir A. Al-Ghadhban

KUWAIT



Dr Khaled A. Al-Fadhel

LIBYA



Mustafa Sanalla

NIGERIA



Dr Emmanuel Ibe Kachikwu

QATAR



Saad Sherida Al-Kaabi*

SAUDI ARABIA



Khalid A. Al-Falih

UNITED ARAB EMIRATES



Suhail Mohamed Al Mazrouei
President of the Conference in 2018

VENEZUELA



Manuel Salvador Quevedo Fernandez
Alternate President of the Conference in 2018

Outgoing Heads of Delegation by country

IRAQ



Jabbar Ali Hussein Al-luiebi
(to November 2018)

KUWAIT



Bakheet S. Al-Rashidi
(to December 2018)

QATAR



Dr Mohammed Bin Saleh Al-Sada
(to November 2018)

* from November 2018 to December 2018, when Qatar ceased to be a Member of OPEC.

Board of Governors



The OPEC Board of Governors at their 152nd Meeting in Vienna with Mohammad Sanusi Barkindo (centre), OPEC Secretary General, and Ayed S. Al-Qahtani (left), Director, Research Division.

Algeria

Eng Mohamed Hamel

Iraq

Alaa K. Alyasri

Angola

Estêvão Pedro

Kuwait

Haitham Al-Ghais *(from June)*

Republic of the Congo

Térésa Goma

Libya

Mohamed M. Oun

Ecuador

Eng Patricio Larrea *(Chairman of the Board in 2018)*

Nigeria

Dr Omar Farouk Ibrahim, MCIPR

Equatorial Guinea

Agustin Mba Okomo *(from August 2018)*

Julian May *(to August 2018)*

Justo Camilo Gopegui *(ad hoc Governor to April)*

Qatar

Issa Shahin Al Ghanim*

Gabon

Etienne Lepoukou

Saudi Arabia

Eng Adeeb Al-Aama

IR Iran

Hossein Kazempour Ardebili

United Arab Emirates

Eng Ahmed M. Alkaabi

Venezuela

Eng Ángel González Saltrón

* from February 2010 to December 2018, when Qatar ceased to be a Member of OPEC.

Economic Commission Board



National Representatives, Member Country delegates and Ayed S. Al-Qahtani, Director, Research Division, at the 130th Meeting of the Economic Commission Board.

Algeria

Dr Achraf Benhassine

Kuwait

Mohammad Khuder Al-Shatti

Angola

Kupessa Daniel

Libya

Abdelkarim M. Omar Alhaderi

Republic of the Congo

No appointment has been made

Nigeria

Mele Kyari *(from April)*

Olusegun Adeyemi Adekunle *(to April)*

Ecuador

Eng José Cepeda Altamirano

Qatar

Abdulla Al-Hussaini*

Equatorial Guinea

Florencio Oyono Eneme Obono *(from April)*

Saudi Arabia

Dr Nasser A. Al-Dossary

Gabon

André-Brice Boumbendje

United Arab Emirates

Salem Hareb Al Mehairi

IR Iran

Dr Mohamed Taeb

(ad hoc National Representative from April)

Mohammad S. Nowrozi *(to April)*

Venezuela

Eng Ronny Romero Rodriguez

Iraq

Ali Nazar Faeq Al-Shatari

* from January 2017 to December 2018, when Qatar ceased to be a Member of OPEC.

Officials of the Secretariat



Mohammad Sanusi Barkindo, officials and staff members of the OPEC Secretariat in May 2018.

Secretary General

Mohammad Sanusi Barkindo

Office of the Secretary General

Shakir M. A. Alrifaiy

Research Division

Dr Ayed S. Al Qahtani

Data Services Department

Dr Adedapo Odulaja

Mohamed Mekerba

Dr Hossein Hassani

Energy Studies Department

Dr Abderrezak Benyoucef

Mehrzaad Zamani

Dr Jorge León *(left in February)*

Hend Lutfi

Dr Erfan Vafaie Fard

Moufid Benmerabet

Dr Mohammad A. Alkazimi *(joined in March)*

Petroleum Studies Department

Behrooz Baikalizadeh

Eissa Alzerma *(completed tenure in September)*

Anisah Almadhayyan

Dr Afshin Javan

Imad Alam Al-Khayyat

Hassan Balfakeih

Mohammad Ali Danesh

Hector Hurtado

Tona Ndamba

Yacine Sariahmed *(joined in September)*

Environmental Matters Unit

Mohammad Ali Zarie Zare *(joined in April)*

Legal Office

Asma Muttawa *(completed tenure in August)*

Leopardo Sempértegui *(joined in August)*

Dr Taiwo Adebola Ogunleye

Finance & Human Resources Department

Jose Luis Mora

Patrick Bongotha *(joined in July)*

Abiodun Ayeni *(completed tenure in July)*

Administration & IT Services Department

Abdullah Alakhawand

Badreddine Benzida

Public Relations & Information Department

Hasan Hafidh

Tofol Al-Nasr

The Secretary General's diary

12–13 January	Atlantic Council Global Energy Forum 2018, Abu Dhabi, United Arab Emirates
16–17 January	Mission to Member Country: Kuwait
23–26 January	World Economic Forum, Davos, Switzerland
5–7 February	Mission to Member Countries: Venezuela and Ecuador
12–14 February	2018 Egypt Petroleum Show, Cairo, Egypt
19–23 February	First Edition Nigeria International Petroleum Summit, Abuja, Nigeria
5–9 March	CERAWEEK 2018, Houston, TX, United States
17–20 March	Mission to Azerbaijan
28–29 March	4 th Iraq Energy Forum, Baghdad, Iraq
10–12 April	16 th IEF Ministerial Meeting, New Delhi, India
16–17 April	5 th Kuwait Oil and Gas Summit, Kuwait City, Kuwait
7 May	Al Attiyah Awards Ceremony, Doha, Qatar
16–18 May	22 nd Uzbekistan International Global Oil & Gas Exhibition and Conference, Tashkent, Uzbekistan
24–26 May	St. Petersburg International Economic Forum, St. Petersburg, The Russian Federation
31 May–1 June	Caspian Oil and Gas Exhibition 2018, Baku, Azerbaijan
2–5 July	18 th Nigeria Oil and Gas Conference and Exhibition, Abuja, Nigeria
5–8 September	Africa Oil and Power 2018, Cape Town, South Africa
14–17 September	Brooge Petroleum and Gas Project Launch, Dubai, United Arab Emirates

Mohammad Sanusi Barkindo delivers his speech at the Nigeria International Petroleum Summit in Abuja, Nigeria.



OPEC Secretary General, Mohammad Sanusi Barkindo, during the 5th Kuwait Oil and Gas Summit in Kuwait.



OPEC Secretary General at the CERAWeek in Houston, TX, US.



Mohammad Sanusi Barkindo (l) pictured with Ilham Aliyev (r), President of the Republic of Azerbaijan.



Mohammad Sanusi Barkindo speaks at the 22nd Uzbekistan International Global Oil and Gas Exhibition in Tashkent, Uzbekistan.



18 September	Gulf Intelligence Energy Markets Forum, Fujairah, UAE
25 September	CECME Annual General Meeting, Madrid, Spain
3–6 October	Russian Energy Week, Moscow, The Russian Federation
9–11 October	Oil and Money Conference, London, United Kingdom
14–16 October	CERAWEEK India, New Delhi, India
29–30 October	Algeria Future Energy Summit, Algiers, Algeria
12–15 November	Abu Dhabi International Petroleum Exhibition and Conference, Abu Dhabi, UAE
3–14 December	UNFCCC COP24 – According to Conference Decision, the SG should attend the High-level segment (12–14), Katowice, Slaskie, Poland
17–19 December	Mission to Member Country: Angola

Mohammad Sanusi Barkindo (l), OPEC Secretary General, at the CECME Annual General Meeting in Madrid, Spain.



Mohammad Sanusi Barkindo (c) with Vladimir Putin (l), Russian President, on the sidelines of the Russian Energy Week in Moscow, The Russian Federation.



Mohammad Sanusi Barkindo, OPEC Secretary General, at the 2018 Oil & Money Conference in London, UK.



Mohammad Sanusi Barkindo (l), OPEC Secretary General, and Patricia Espinosa, Executive Secretary of the UNFCCC.



João Manuel Gonçalves (r), the President of Angola with Mohammad Sanusi Barkindo, OPEC Secretary General.



Calendar 2018

20 January	12 th Meeting of the Joint Technical Committee (JTC), Muscat, Sultanate of Oman
21 January	7 th Meeting of the Joint Ministerial Monitoring Committee (JMMC), Muscat, Sultanate of Oman
14 February	8 th IEA-IEF-OPEC Symposium on Energy Outlooks, Riyadh, Saudi Arabia
15 March	6 th Joint IEA-IEF-OPEC Workshop on Interactions between Physical and Financial Energy Markets, HQ, Vienna, Austria
19 April	15 th Meeting of the JTC, Jeddah, Saudi Arabia
20 April	8 th Meeting of the JMMC, Jeddah, Saudi Arabia
25–26 April	17 th Annual Statistical Meeting, HQ, Vienna, Austria
2 May	Lecture by HE Ali Al Naimi, HQ, Vienna, Austria
3–4 May	151 st Meeting of the Board of Governors (BoG), HQ, Vienna, Austria
22–23 May	16 th Meeting of the JTC, Jeddah, Saudi Arabia
18 June	129 th Meeting of the ECB, HQ, Vienna, Austria
19 June	‘Declaration of Cooperation’: 3 rd Technical Meeting of OPEC and non-OPEC, HQ, Vienna, Austria
19 June	17 th Meeting of the JTC, HQ, Vienna, Austria
20–21 June	7 th International OPEC Seminar, The Hofburg Palais, Vienna, Austria
21 June	9 th Meeting of the JMMC, HQ, Vienna, Austria
22 June	174 th (Ordinary) Meeting of the Conference, HQ, Vienna, Austria
23 June	4 th OPEC and non-OPEC Ministerial Meeting, HQ, Vienna, Austria

Dr Mohammad bin Hamad Al-Rumhy (r), Minister of Oil and Gas, Oman, with Mohammad Sanusi Barkindo, OPEC Secretary General.



Mohammad Sanusi Barkindo (l), with delegates to the IEA-IEF-OPEC Symposium.



Mohammad Sanusi Barkindo, OPEC Secretary General, at the 8th JMMC Meeting in Jeddah, Saudi Arabia.



OPEC Secretary General at the 174th Meeting of the OPEC Conference.



The 17th Meeting of the JTC was held at the OPEC Secretariat, in Vienna, Austria.



18 July	18 th Meeting of the JTC, HQ, Vienna, Austria
27 August	19 th Meeting of the JTC, Webinar, HQ, Vienna, Austria
30–31 August	18 th Special Meeting of the ECB, HQ, Vienna, Austria
22 September	20 th Meeting of the JTC, Algiers, Algeria
23 September	10 th Meeting of the JMMC and Launch of the <i>World Oil Outlook 2018</i> , Algiers, Algeria
17 October	OPEC–India Dialogue, New Delhi, India
19 October	21 st Meeting of the JTC, HQ, Vienna, Austria
22–23 October	152 nd Meeting of the BoG, HQ, Vienna
23 October	High-level Meeting on the Charter of Cooperation (OPEC), HQ, Vienna, Austria
7 November	High-level Meeting on the Charter of Cooperation, (non-OPEC) HQ, Vienna, Austria
10 November	22 nd Meeting of the JTC, Abu Dhabi, United Arab Emirates (UAE)
11 November	11 th Meeting of the JMMC, Abu Dhabi, UAE
22 November	EU-OPEC Dialogue, Brussels, Belgium
28 November	‘Declaration of Cooperation’: 4 th Technical Meeting of OPEC and non-OPEC, HQ, Vienna, Austria
29–30 November	130 th Meeting of the ECB, HQ Vienna, Austria
3 December	23 rd Meeting of the JTC, HQ, Vienna, Austria
5 December	12 th Meeting of the JMMC, HQ, Vienna, Austria
6–7 December	175 th (Ordinary) Meeting of the Conference, HQ, Vienna, Austria
6 December	Ministerial Dinner, Vienna, Austria
7 December	5 th OPEC and non-OPEC Ministerial Meeting, HQ, Vienna, Austria

Mohammad Sanusi Barkindo, OPEC Secretary General, officially launching the World Oil Outlook.



Mohammad Sanusi Barkindo (r), OPEC Secretary General, and Dharmendra Pradhan (l), India's Minister of Petroleum and Natural Gas.



L-r: Miguel A. Cañete, Commissioner for Climate Action & Energy, European Commission, Dr Karin Kneissl, Foreign Minister, Republic of Austria, and Mohammad Sanusi Barkindo, OPEC Secretary General.



Mohammad Sanusi Barkindo during the opening ceremony of the DoC 2nd Anniversary Dinner, held at the Liechtenstein Garden Palace in Vienna.



The 11th Meeting of the JMMC was held in Abu Dhabi, UAE.



OPEC

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

The three main objectives of the publication are to:

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

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

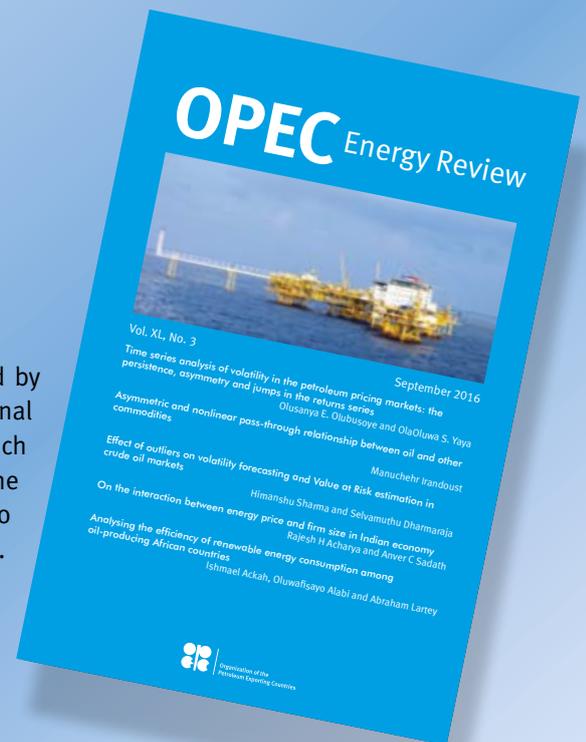
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Executive Editor: Hasan Hafidh



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