SUMMARY FINDINGS FROM A COMPARISON OF DATA AND FORECASTS ON THE OIL MARKET BY THE INTERNATIONAL ENERGY AGENCY (IEA) AND ORGANIZATION OF THE PETROLEUM EXPORTING COUNTRIES (OPEC).

FEATUREING A COMPARATIVE ANALYSIS OF OIL INVENTORY DATA REPORTED BY JODI, THE IEA, OPEC AND SECONDARY SOURCES IN COLLABORATION WITH THE RAPIDAN ENERGY GROUP.

1. NOTE BY THE SECRETARY GENERAL

2. KEY POINTS
   2.1 DEMAND
   2.2 SUPPLY
   2.3 STOCKS
   2.4 SNAPSHOT (mb/d)

3. GLOBAL ANALYSIS
   3.1 DEMAND DATA
   3.2 SUPPLY DATA
   3.3 STOCK DATA
   3.3.1. GLOBAL STOCK ANALYSIS
1. NOTE BY THE SECRETARY GENERAL

The IEF conducts a comprehensive comparative analysis of the short-, medium-, and long-term energy outlooks of the IEA and OPEC, to inform the IEA-IEF-OPEC Symposium on Energy Outlooks that the IEF hosts in Riyadh as part of the trilateral work programme on a yearly basis.

To inform IEF stakeholders on how perspectives on the oil market of both organisations evolve over time more regularly, this monthly summary provides:

- Key findings and a snapshot overview of data points gained from comparing basic historical data and short-term forecasts of the IEA Oil Market Report and the OPEC Monthly Oil Market Report
- Features a comparative analysis of oil inventory data reported by JODI, the IEA, OPEC, and secondary sources in collaboration with the Rapidan Energy Group

Moreover, international developments this month that will have an impact oil market balances are as follows:

Venezuela Production

- The US imposed sanctions on Venezuela’s oil industry. Political instability in Venezuela has caused crude oil production to fall to near 1 mb/d – a 70-year low.

US - China Trade Conflict

- China has offered to go on a six-year buying spree to ramp up imports from the United States in order to reduce the trade imbalance amongst the two countries.

World Economic Forum Meeting

- Energy experts indicted that global geopolitical instability and potential supply issues could create more volatility for 2019.

I trust this month’s analysis helps to sharpen focus on evolving short-term market perspectives.

Dr Sun Xiansheng
Secretary General
International Energy Forum
2. KEY POINTS

2.1 DEMAND

- For the first time since 2017, OPEC’s reported demand growth is lower than the IEA. OPEC revised down its growth figure by 210 kb/d to reach 1.29 mb/d in 2019 while IEA growth projections rose by 150 kb/d to reach 1.42 mb/d leading to a 130 kb/d difference between the two organisations. The IEA and OPEC estimates for absolute world demand for December are 100.65 mb/d and 100.08 mb/d, respectively.

- The IEA observes an increase in world oil demand growth while OPEC sees world oil demand fall. The IEA’s demand growth forecast for non-OECD countries rises in 2019. The rise is attributable to the IEA’s revision in non-OECD Middle East demand growth of 0.12 mb/d in 2019 that compares to -0.12 mb/d in 2018. This has brought the IEA’s non-OECD growth assessment for January up to 1.15 mb/d. OPEC’s non-OECD demand growth projection remains steady at 1.04 mb/d down only 20 kb/d from last month. The IEA reports OECD growth at 0.28 mb/d down by 100 kb/d. OPEC’s OECD demand growth projection decreases 190 kb/d to reach 0.25 mb/d. The IEA and OPEC now differ in their assessments on OECD demand growth by 30 kb/d.

2.2 SUPPLY

- Both the IEA and OPEC have lowered their non-OPEC supply growth for 2019. The IEA’s January 2019 assessment for non-OPEC growth is down by 81 kb/d for a total growth of 1.64 mb/d. OPEC’s growth assessment is more optimistic at 2.10 mb/d down by 40 kb/d from December. In absolute values, OPEC and the IEA estimate non-OPEC supply at 64.16 mb/d and 62.11 mb/d respectively for 2019.

- The IEA and OPEC report an increase in non-OECD supply growth for 2019. The IEA revised its growth up by 190 kb/d for 2019 from the month before to reach total supply growth of 0.29 mb/d. OPEC also revised its assessment by 310 kb/d to reach total growth of 0.49 mb/d. The supply growth this year is largely due to forecasted growth in Russia and Brazil. The difference between the IEA and OPEC non-OECD supply grew to 200 kb/d in January 2019.

2.3 STOCKS

- The IEA and OPEC continue to report strong alignment on stock figures that have returned above five year averages. The IEA reports 2857 mb in OECD stock that is 9 mb above the five-year average. OPEC’s assessment is not far off with 2871 mb in OECD stock that is 23 mb above the five-year average. The divergence between OPEC and the IEA stands at 14 mb for December. Total US crude inventories (excluding SPR) in December amount to about 445 mb according to the US Energy Information Administration (EIA). The EIA reports U.S. crude oil inventories are about 6 percent above the five-year average for this time of year. OPEC reports US stock above the five-year average by about 33 mb.
### 2.4 SNAPSHOT (mb/d)

<table>
<thead>
<tr>
<th>Demand</th>
<th>OECD</th>
<th>Growth</th>
<th>Δ m/m</th>
<th>Non-OECD</th>
<th>Growth</th>
<th>Δ m/m</th>
<th>World</th>
<th>Growth</th>
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<td>0.27</td>
<td>0.57</td>
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<th>Growth</th>
<th>Δ m/m</th>
<th>Non-OECD</th>
<th>Growth</th>
<th>Δ m/m</th>
<th>NOPEC</th>
<th>Growth</th>
<th>Δ m/m</th>
<th>OPEC</th>
<th>Growth</th>
<th>Δ m/m</th>
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<td>0.29</td>
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<table>
<thead>
<tr>
<th>Stocks (mb)</th>
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<th>US</th>
<th>OECD to 5-Year Average</th>
<th>US to 5-Year Average</th>
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<td>2857</td>
<td>-</td>
<td>9 mb</td>
<td>-</td>
</tr>
<tr>
<td>OPEC</td>
<td>2871</td>
<td>441</td>
<td>23 mb</td>
<td>33 mb</td>
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<tr>
<td>EIA</td>
<td>445</td>
<td>-</td>
<td>6% above</td>
<td>-</td>
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*Totals in table may not exactly reflect content due to independent rounding.*
3. GLOBAL ANALYSIS

According to the IEA, a slow-down in the global economy results in world GDP growth of 3.7 percent. Uncertainties about the impact of trade tensions, the effectiveness of a stimulus in China, the fallout from Brexit and OECD interest rate policies remain the key issues behind the economic slowdown. OPEC’s forecast for world economic growth remains lower and unchanged at 3.5 percent given similar considerations but presents cautious optimism about a potential recovery in oil prices and progress on the US-China trade conflict.

3.1 DEMAND DATA

Absolute Demand

The IEA’s estimate for global demand growth in January is **1.42 mb/d**, up by 150 kb/d from 1.27 mb/d in last month’s report for an absolute demand of **100.65 mb/d** in 2019. The outlook for global oil demand growth is largely unchanged since last month’s report. The higher demand growth for 2019 is likely due to growth in non-OECD Asia and OECD Americas even though world economic growth is expected to slow.

OPEC’s global demand outlook slows and is forecast to grow by **1.29 mb/d** in 2019 reaching absolute demand of **100.08 mb/d**. Although growth in China will slow compared to 2018, this will in part be offset by growth in OECD-, and non-OECD Americas, and the Middle East. OPEC-IEA divergence in overall world demand stands at **0.57 mb/d** up from 0.36 mb/d in November.

OECD Demand

The IEA continues to see OECD oil demand growth at **0.28 mb/d**, down slightly from last month’s figure of 0.38 mb/d, anticipating total OECD consumption for 2019 at **48.09 mb/d**. OPEC growth projection for the OECD region is revised downwards at **0.25 mb/d** for 2019 compared to 0.44 mb/d last year. OPEC total OECD demand for 2019 is **48.12 mb/d**. The divergence of OECD oil demand growth between the IEA and OPEC is now **0.03 mb/d**. The IEA reports a 0.04 mb/d upward revision in OECD Americas demand growth from 0.48 mb/d to 0.28 mb/d, while OPEC’s revises downward demand for OECD Americas by 0.25 mb/d to 0.40 mb/d in 2019 compared to last month’s report. OECD Europe demand growth moves slightly upwards to 0.09 mb/d from 0 mb/d according to IEA data. OPEC’s OECD Europe growth figure is slightly less at 0.02 mb/d. The IEA’s and OPEC’s assessments for demand growth and absolute demand each differ by **0.13 mb/d** and **0.57 mb/d** respectively.

Non-OECD Demand

Both the IEA and OPEC anticipate continued growth in non-OECD demand for this year at **1.15 mb/d** and **1.04 mb/d** respectively, with total non-OECD demand forecasts average **52.57 mb/d** and **51.95 mb/d**, respectively. The IEA’s and OPEC’s assessments for 2019 non-OECD demand growth and absolute demand now differs by **0.11 mb/d** and **0.62 mb/d**, respectively.

According to the IEA, China’s oil demand fell slightly by 70 kb/d in November. Declining gasoil demand is largely due to a slowing economy and diesel demand has been affected by stronger environmental policies. This decline is partly offset by strong kerosene demand from a booming aviation sector and an increase in gasoline demand. However, car sales declined due to a multitude of factors including government restrictions on peer-to-peer lending and increasing popularity of car-sharing services, ending of tax breaks on smaller engines, and popularity of improved public transport. Car sales in December posted their sixth consecutive month of year-on-year (y-o-y) decline, falling by 15.8 percent. Overall, the IEA estimates total oil demand growth in China to be 0.47 kb/d in 2019 but the economic
slowdown poses downward risks. OPEC reports a similar increase in gasoline demand and cites the same decline in car sales. Growth in 2019 will slow to 0.34 mb/d due to fuel quality programmes targeting fewer emissions as well as fuel substitution with natural gas and coal while growth in the petrochemical sector will see greater demand for LPG’s.

The IEA observes that Indian demand in November decreased by 40 kb/d, with gasoil demand down by 90 kb/d and gasoline up by 55 kb/d. Like China, India’s rising aviation sector has offset the decreasing demand for domestic kerosene. Unlike China however, India’s car fleet continues to grow. Overall, the IEA estimates Indian demand growth for 2019 at 0.24 mb/d to reach overall consumption of 5.02 mb/d. From OPEC’s perspective, Indian demand declined in November for the first time since March 2017 due to reduced diesel demand but overall demand grew by 0.21 mb/d in 2018. Demand growth of 0.20 mb/d is expected in 2019, driven by middle distillates and gasoline. Projections for non-OECD Asia as a whole show growth at 0.71 mb/d according to OPEC and 0.87 mb/d according to the IEA.

See the following graph for the monthly revisions of IEA and OPEC annual estimates for 2017, 2018 and new estimates for 2019 demand.

### OPEC and IEA disagree on world oil demand growth trends

**IEA Non-OECD demand growth rises, while OPEC OECD demand growth drops**

![IEA and OPEC Monthly Reports on the Oil Market January 2019](image)

**Monthly Revisions of Annual Estimates for Oil Demand Growth 2018/17 and 2019/18 from January 2019**

IEF comparative analysis of IEA and OPEC Monthly Reports on the Oil Market January 2019

*monthly estimates rounded to the nearest barrel.*

### 3.2 SUPPLY DATA

**Non-OPEC Supply**

OPEC’s January assessment of total non-OPEC supply for 2018 stands at **64.16 mb/d**. Supply growth has been revised down by 0.40 mb/d to **2.10 mb/d** driven by expected growth in the US (1.70 mb/d), Brazil (0.36 mb/d) and Russia (0.14 mb/d). Growing output from these countries is offset by declining production from Mexico (-0.14 mb/d), Canada (-0.05), Norway (-0.04 mb/d) and Vietnam (-0.03 mb/d). US tight crude for 2019 is forecast to grow at a slower yet still significant 1.17 mb/d y-o-y to average 7.40 mb/d. Tight crude production growth from the Permian basin is expected to reach 0.60 mb/d year-over-year for a total output averaging 3.41 mb/d. The Permian’s share of US tight crude growth in 2019 is around 45 percent. Total US liquids growth is expected to be 1.70 mb/d to reach total production of 18.31 mb/d in 2019.
The IEA forecasts 2018 non-OPEC supply at **62.11 mb/d** with a year-on-year growth of **1.64 mb/d** with supply increases in the US at 1.33 mb/d as the catalyst for non-OPEC supply growth. Non-OPEC production surged to an all-time high in 2018 reaching a record growth of 2.60 mb/d. However, supply growth in 2019 is expected to slow to 1.6 mb/d. This takes into account production cuts from Canada, and aligned OPEC and non-OPEC countries. While the largest part of this growth will come from the US Permian Basin, Brazilian and Russian growth increases to 0.37 mb/d and 0.10 mb/d respectively in 2019 due to production growth from new projects.

**OECD Supply**

OPEC and the IEA both forecast OECD growth at **1.58 mb/d** and **1.22 mb/d** with total supply reaching **29.61 mb/d** and **27.70 mb/d** respectively in 2019. The IEA's data shows OECD Americas liquids supply growth at 1.16 mb/d to reach 23.83 mb/d in total supply, while OPEC reports similar growth at 2.37 mb/d with total liquids supply reaching 23.86 mb/d in 2019. Growth within the region is led by the US for which OPEC revised its liquid supply forecast up to 1.70 mb/d to reach 18.31 mb/d in total, while the IEA projects less US growth of 1.33 mb/d to amount to 16.75 mb/d in total. OPEC reports a slight increase in OECD Europe supply growth at 0.01 mb/d for total production of 3.77 mb/d in 2019. The IEA's assessment for OECD Europe supply remains unchanged at 3.38 mb/d for a decline in yearly growth of -0.01 mb/d. For 2019, both the IEA and OPEC see the UK as the primary driver of OECD Europe supply with a growth figure of 0.07 mb/d.

**OPEC Supply**

OPEC reports that total OPEC-14 preliminary crude oil production averaged **31.58 mb/d** in December 2018 according to secondary sources. This is a decrease of 751 kb/d over the previous month. Crude oil output decreased mostly in Saudi Arabia, the UAE, Libya and Iran, while production rose in Iraq. The IEA reports that reductions by Saudi Arabia and unplanned losses in Iran and Libya cut production in December by 590 kb/d to **32.39 mb/d**, the lowest level since July 2018.

See the graph below for the monthly revisions of IEA and OPEC annual estimates for 2017, 2018 and new estimates for 2019 supply, and the tables for annual estimates for total supply.

**IEA and OPEC OECD supply estimates lower for 2019**

But IEA and OPEC see a modest upward trend on Non-OECD growth

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IEF comparative analysis of IEA and OPEC Monthly Reports on the Oil Market January 2019

*monthly estimates rounded to the nearest barrel.*
3.3 STOCK DATA

OECD commercial stocks declined 2.5 mb month-on-month (m-o-m) in November to 2857 mb with stocks 9 mb above the five-year average. According to OPEC, preliminary data for November showed that total OECD commercial oil stocks fell by 0.7 mb m-o-m to 2871 mb and are now 23 mb above the latest five-year average. While both organizations report closely aligned data on OECD stocks due to a continuous and reliable data stream and data harmonization efforts, comprehensive data on stock developments for non-OECD countries is still work in progress.

See the graphs below for monthly estimates of OECD total commercial oil stocks from 2017 to 2019.

IEA and OPEC data shows convergence on OECD stock draws
Comprehensive non-OECD stock data remains missing

IEA and OPEC report closely aligned OECD stock balances
Surplus stocks data rises to 9 mb and 23 mb

*monthly estimates rounded to the nearest barrel.
OECD and JODI non-OECD crude and product inventory data show a net 17.4 mb draw in November.

- IEA data shows OECD commercial inventories fell 2.5 mb m/m in November to 2,857 mb. OPEC estimates total OECD commercial stocks fell marginally by 0.7 mb in November to 2,871 mb. Both agencies now estimate that OECD stocks are back above the five-year average.

- JODI non-OECD* data for November imply crude stocks drew by 14.0 mb and product stocks built by 5.2 mb. The largest crude draws occurred in Saudi Arabia (9.2 mb) and India (6.3 mb), while the largest product build occurred also in Saudi Arabia (4.1 mb).

- Together, IEA’s OECD commercial and SPR inventory data and JODI’s non-OECD* data imply global crude and product stocks drew by 17.4 mb in November. The data also implies inventories have increased by a net 28.3 mb between January and October 2018.

- While available data suggests global inventories built by 26.3 mb between 1Q18 and 3Q18, IEA’s balance implies inventories rose by a massive 135.1 mb and OPEC implies a modest 10.2 mb build. While data transparency efforts have progressed in recent years, some data in key regions remain opaque and unreliable. IEA’s Oil Market Report noted that Chinese custom data, as well as estimates for crude production and refinery throughput, imply crude stocks built by 45 mb during November and as much as 247 mb during 2018. However, statistics from China Oil, Gas and Petrochemicals have not been published since May and Chinese data has not been published in JODI since August.

* Non-OECD data is the aggregate of country-level data through JODI. Not all non-OECD countries report inventory data and the countries in the aggregate may vary monthly depending on regularity of individual country reporting.

### Global Inventory Changes

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<td>(mb)</td>
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<td>Products</td>
<td>Total</td>
<td>Crude</td>
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<tr>
<td>(IEA)</td>
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* Aggregate of all non-OECD data available through JODI. Not all non-OECD countries report inventory data and the countries in the aggregate may vary monthly depending on regularity of individual country reporting.

Source: IEA, JODI, OPEC, Platts, Rapidan Energy Group
COMPARATIVE ANALYSIS OF MONTHLY REPORTS ON THE OIL MARKET

MONTHLY CHANGE IN OECD AND NON-OECD* CRUDE + PRODUCT

Accumulative OECD and Non-OECD* Crude + Product Builds Since End-2014

*Aggregate of all non-OECD data available through JODI. Not all non-OECD countries report inventory data and the countries in the aggregate may vary monthly depending on the regularity of individual country reporting.

Source: IEA, JODI, Rapidan Energy Group