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).

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

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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:

Growing LNG Market
- The international LNG market is becoming more flexible, thus strengthening energy security throughout the world. The approval of Canada’s $40 billion LNG export terminal makes it a source of supply for Asian markets.

Oil Price Factors
- Oil prices are being affected by a combination of geopolitical issues, changes in demand growth sentiment and US/OPEC production.

Iran Sanctions
- As sanctions against Iranian oil exports are set to take effect on Monday 5 November 2018, a number of countries are looking for exemptions that will allow them to purchase Iranian crude.

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

- Both the IEA and OPEC have revised their demand growth numbers down for October. The IEA revised down its growth figure by 110 kb/d while OPEC growth is lowered by 80 kb/d from last month’s assessment leading to a 260 kb/d difference in growth between the two organisations. The IEA world demand growth projection amounts to 1.28 mb/d in 2018. OPEC’s demand growth stands at 1.54 mb/d. Both growth numbers are closer to what they were at the beginning of the year. The IEA and OPEC estimates for absolute world demand for October are 99.16 mb/d and 98.79 mb/d, respectively.

- The IEA and OPEC October demand growth forecasts for Non-OECD countries are at their lowest point this year. The decline is attributable to the IEA’s revision in Non-OECD Asian demand growth to 0.91 mb/d that compares to 1.05 mb/d last month. This has brought the IEA’s Non-OECD growth assessment for October down to 0.99 mb/d. OPEC Non-OECD demand growth projection is also revised down slightly by 40 kb/d for a total growth of 1.15 mb/d. The IEA reports OECD growth at 0.30 mb/d up by 50 kb/d. OPEC’s OECD demand growth projection slightly decreases to 0.39 mb/d and marks the end of gradual increases in growth since January. The IEA and OPEC now differ in their assessments on OECD demand growth by 90 kb/d.

2.2 SUPPLY

- The IEA and OPEC report highest growth in Non-OPEC supply this year mostly due to robust US production. The IEA’s October assessment for Non-OPEC growth is up by 180 kb/d for a total growth of 2.19 mb/d. OPEC’s assessment for Non-OPEC growth is not far off and up by 200 kb/d for total growth of 2.22 mb/d. In absolute values OPEC and the IEA estimate non-OPEC supply at 60.15 mb/d and 59.77 mb/d respectively. OPEC revised Non-OPEC supply growth projections for 2019 down by 30 kb/d to reach 2.12 mb/d but notes that the many uncertainties underlying these assessments may imply further downward revisions in future. The IEA projects Non-OPEC supply growth to fall to 1.8 mb/d in 2019 in contrast to the stellar non-OECD supply growth it estimates at 2.6 mb/d year-on-year in 2018.

- The IEA and OPEC see Non-OECD supply grow after last month’s drop. Both the IEA and OPEC growth figures increased 40 kb/d to reach 0.12 mb/d and 0.09 mb/d, respectively.

2.3 STOCKS

- The IEA and OPEC continue to report strong alignment on stock figures. The IEA reports 2854 mb in OECD stock that is 34 mb below the five-year average. OPEC’s assessment is not far off with 2841 mb in OECD stock that is 47 mb below the five-year average. The divergence between OPEC and the IEA stands at 13 mb for October. Total US crude inventories (excluding SPR) in October stand at about 423 mb, down 35 mb year-on-year according to the US Energy Information Administration (EIA). EIA reports U.S. crude oil inventories are about 2 percent above the five year average for this time of year. OPEC reports US stock below the five-year average by about 5 mb based on September data.
### 2.4 SNAPSHOT (mb/d)

<table>
<thead>
<tr>
<th>Demand</th>
<th>IEA</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>
<th>Δ m/m</th>
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<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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<th>US to 5-Year Average</th>
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<td>OPEC</td>
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<td>EIA</td>
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<td>-</td>
<td>2% above</td>
<td>-</td>
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Data obtained from IEA Oil Market Report, 12 October 2018; OPEC Monthly Oil Market Report, 11 October 2018 and Energy Information Administration, Weekly Petroleum Status Report, 19 October, 2018

*Totals in table may not exactly reflect content due to independent rounding.
3. GLOBAL ANALYSIS

According to the IEA, the outlook for global economic growth has been revised down, from 3.9 percent to 3.7 percent for both 2018 and 2019. Both the OECD and IMF noted that global trade growth has slowed and that several developing countries have been severely impacted by a decline in the value of their currency. OPEC reports decelerating trends have become visible in some emerging markets and developing countries. A combination of monetary tightening of the G4 central banks, weakening financial situations in some developing countries, rising trade tensions and ongoing geopolitical challenges in some parts of the world are thus challenging the growth trend. OPEC’s global economic growth forecast for 2018 and 2019 is 3.7 percent and 3.6 percent, respectively.

3.1 DEMAND DATA

Absolute Demand

The IEA’s estimate for global demand growth in October stands at 1.28 mb/d down by 110 kb/d from 1.39 mb/d in last month’s report for an absolute demand of 99.16 mb/d in 2018. The forecast for demand growth in 2018 has been reduced due to a weaker economic outlook, trade concerns, higher oil prices and a revision to Chinese data.

OPEC’s global demand outlook has also decreased to 1.54 mb/d down by 80 kb/d compared to last month’s projections, due to slower-than-expected data in OECD Europe and Asia Pacific and Non-OECD Latin America and Middle East. This leads to a projected total global consumption of around 98.79 mb/d for the month of October. OPEC-IEA divergence in overall world demand stands at 0.37 mb/d down from 0.47 mb/d in September.

OECD Demand

The IEA continues to see robust OECD oil demand growth at 0.30 mb/d, up slightly from last month’s figure of 0.25, anticipating total OECD consumption for 2018 at 47.72 mb/d. OPEC marginally revised down its growth projection for the OECD region to 0.39 mb/d from 0.43 mb/d ending eight months of consecutive growth. OPEC total OECD demand now stands at 47.77 mb/d. The divergence of OECD oil demand growth between the IEA and OPEC now stands at 0.05 mb/d. The IEA reports a 0.04 mb/d downward revision in OECD Americas demand growth from 0.33 mb/d in last month’s report to 0.37 mb/d, while OPEC’s estimate only rose slightly by 0.01 mb/d to 0.35 mb/d from 0.34 mb/d. OECD Europe demand growth increased to -0.01 mb/d from -0.05 according to IEA data. OPEC’s OECD Europe growth figure decreased to 0.05 mb/d from 0.07 mb/d. The IEA’s and OPEC’s assessments for 2018 OECD total demand differ by 0.05 mb/d.

Non-OECD Demand

Both, the IEA and OPEC anticipate continued growth in non-OECD demand for this year at 0.99 mb/d and 1.15 mb/d respectively, with total non-OECD demand forecasts averaging 51.45 mb/d and 51.02 mb/d respectively. The IEA’s and OPEC’s assessments for 2018 non-OECD demand growth now differ by 0.05 mb/d.

The IEA’s regional demand growth adjustments in 2018 reflect a decreased pace of demand growth for China reported at 0.53 mb/d year on year. The lower Chinese assessment compared to last month’s 0.64 mb/d is due to weakening economic indicators such as manufacturing PMI and higher gasoline prices that are hampering demand. OPEC’s Chinese demand growth remains unchanged at
0.42 mb/d. The IEA maintains that demand growth in India will continue to grow by around 0.26 mb/d compared to 0.27 mb/d last month to reach 4.82 mb/d in 2018. Meanwhile, OPEC’s Indian demand growth assessment remains unchanged at 0.22 mb/d for total consumption to reach 4.75 mb/d in 2018. Projections for non-OECD Asia, as a whole, show growth at 0.87 mb/d according to OPEC and 0.91 mb/d according to the IEA.

*monthly estimates rounded to the nearest barrel.*
OECD Supply

OPEC and the IEA both forecast OECD growth at \textbf{2.09 mb/d} and \textbf{1.95 mb/d} with total supply reaching \textbf{27.80 mb/d} and \textbf{26.15 mb/d} respectively. The IEA’s data shows OECD Americas liquids supply growth at 1.99 mb/d to reach 22.31 mb/d total supply while OPEC reports slightly higher growth at 2.05 mb/d with total liquids supply at 23.54 mb/d for 2018. Growth within the region is led by the US for which OPEC revised its liquid supply forecast up to 1.89 mb/d to 16.29 mb/d while the IEA projects a slightly lower US growth by 1.85 mb/d to amount to 15.12 mb/d. OECD Europe growth in 2018 is driven primarily by the UK for total production of 3.85 mb/d for a year-on-year growth of 0.02 mb/d. The IEA reports less OECD Europe supply at 3.44 mb/d for a decline in yearly growth of 0.05 mb/d.

OPEC Supply

According to OPEC secondary sources, total OPEC-15 crude oil production averaged \textbf{32.76 mb/d} in September, an increase of 132 tb/d over the previous month. Crude oil output increased mostly in Saudi Arabia, Libya and Angola, while production declined in Iran, Venezuela and Algeria. The IEA reports that OPEC crude output rose by 100 kb/d in September to \textbf{32.78 mb/d}, a one-year high, as Saudi Arabia, Libya, Nigeria and the UAE more than made up for further losses from Venezuela and Iran.

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

IEA and OPEC supply see similar Non-OPEC supply growth
IEA and OPEC continue to see strong convergence on Non-OECD growth

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

OECD commercial stocks rose 15.7 mb month-on-month (m-o-m) in August to **2854 mb**, their highest level since February, according to the IEA. Overall, inventories were around 34 mb below the average at the end of the month. According to OPEC, Preliminary data for August showed that total OECD commercial oil stocks rose by 14.2 mb m-o-m to stand at **2841 mb**. This was 165 mb lower than the same time one year ago and 47 mb below 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.

*monthly estimates rounded to the nearest barrel.

See the graphs below for monthly estimates of OECD total commercial oil stocks for 2017 and 2018.

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**IEA and OPEC data shows convergence on OECD stock draws**

**Comprehensive non-OECD stock data remains missing**

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**IEA and OPEC report closely aligned OECD stock balances**

**Surplus stocks data came down to -34 and -47 mb respectively in August**

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*monthly estimates rounded to the nearest barrel.*
OECD and JODI non-OECD crude and product inventory data show a 21.5 mb build in August

- IEA data show OECD commercial inventories rose by 15.7 mb in August to 2,854 mb, remaining 34 mb below the 5-year average. Additionally, IEA revised up its estimate of OECD inventory builds in July by 6.0 mb to 13.9 mb. The agency’s preliminary figures for September suggests OECD stocks increased by 43 mb in 3Q18, the largest quarterly increase since 1Q16. Similarly, OPEC estimates OECD commercial stocks grew to 2,841 mb in August (+14.2 mb) to 47 mb below the five-year average.

- JODI non-OECD* data for August imply crude stocks built by 0.3 mb and product stocks built by 7.0 mb. The largest non-OECD crude build and draw occurred in India (+2.8 mb) and Saudi Arabia (-2.8 mb). Notably, Saudi Arabia has reported crude draws for 20 of the past 24 months. Meanwhile, the largest non-OECD product build and draw occurred in Nigeria (+10.3 mb) and Brazil (-4.6 mb).

- Available global inventory data (see table below) imply global crude + product stocks built by 21.5 mb in August and were driven primarily by massive product builds in the US (+26.2 mb) and Japan (+9.7 mb). As we have mentioned in previous months, this assessment of the market is incomplete. While the JODI database has improved the accessibility of non-OECD data, only ~26% of participating non-OECD countries (~21 of 80) have submitted crude and product stock change figures for August. Chinese figures are missing from JODI this month.

* 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.

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<tr>
<th>Global Inventory Changes</th>
<th>August 2018</th>
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<td>Crude</td>
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<tr>
<td>OECD Commercial (IEA)</td>
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<td>OECD SPR (IEA)</td>
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<tr>
<td>Fujairah</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>-20.9</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