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 on oil market balances are as follows:

Global Crude Outages

- Recent outages in the Middle East, North America and Europe combined with geopolitical considerations and possibility of additional supply is creating an unpredictable price environment.

Europe

- European powers and the US are continuing to discuss the role of Russian gas vis-à-vis Europe's increasing natural gas import dependency.

US

- Initially indicating the goal was to reduce Iranian exports to zero, the US government now seems to be tempering its expectations and may offer a waiver to certain countries to import Iranian oil on a case-by-case basis.

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

- **IEA and OPEC demand growth assessments differ slightly.** Both IEA and OPEC growth remains consistent from last month’s assessment but a difference of 260,000 kb/d still exists. The IEA shows a slight upward revision of world demand growth by about 30 kb/d that now amounts to **1.39 mb/d** in 2018. OPEC’s demand growth remains at **1.65 mb/d** in July and has been the same for the past three months. However, the IEA and OPEC estimates for absolute world demand for July remain unchanged from last month at **99.13 mb/d** and **98.85 mb/d** respectively.

- **Both OPEC and the IEA cite risks to the economy that may decrease demand in non-OECD countries.** The IEA, however, continues to report the same **1.05 mb/d** in non-OECD growth as last month. OPEC reports a slight downward revision to non-OECD growth that stands at **1.25 mb/d** compared to 1.26 mb/d last month. Differences in OPEC and IEA estimates of non-OECD demand growth remains consistent. Both the IEA and OPEC see similar OECD growth which diverges by only 0.07 mb/d.

2.2 SUPPLY

- **Non-OPEC supply growth assessments converge for the first time in 2018.** For the first time since January 2018 the IEA reported a slight decrease in non-OPEC supply by 0.08 mb/d to reach **1.97 mb/d** year-on-year growth. OPEC, meanwhile, continues to report growth of **2.00 mb/d**. In absolute values this leads to values of **60.18 mb/d** and **59.54 mb/d** respectively.

- **OECD supply growth assessments head in opposite directions.** The IEA forecasts a growth of **1.76 mb/d** which represents a decrease of 0.08 mb/d from last month. OPEC, however, reports a growth of **1.88 mb/d** which is a 0.07 mb/d increase from June. The IEA’s decrease can be attributed to recent outages in the North Sea and Canada.

2.3 STOCKS

- **Both OPEC and the IEA report OECD stocks trending up in May.** For the first time this year, OECD stock sees a slight boost. The IEA reports **2840 mb** in OECD stock that is 23 mb below the five-year average. OPEC’s assessment is not far off with **2823 mb** in OECD stock that is 40 mb below the five-year average. The divergence between OPEC and the IEA stands at 17 mb for July. Total US crude inventories in July stand at about 411 mb, down close to 80 mb year-on-year according to the US Energy Information Administration (EIA). EIA reports US stocks below the US five-year moving average by 4 percent in July, and OPEC reports US stock below the five-year moving average by 11 mb based on May data.
### 2.4 SNAPSHOT (mb/d)

<table>
<thead>
<tr>
<th></th>
<th>OECD</th>
<th>Growth</th>
<th>Δ m/m</th>
<th>Non-OPEC</th>
<th>Growth</th>
<th>Δ m/m</th>
<th>World</th>
<th>Growth</th>
<th>Δ m/m</th>
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<tr>
<td>IEA</td>
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<td>0.34</td>
<td>+0.03</td>
<td>51.45</td>
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<td>0</td>
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<td>0.01</td>
<td>0.28</td>
<td>0.26</td>
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<table>
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<tr>
<th></th>
<th>OECD</th>
<th>Growth</th>
<th>Δ m/m</th>
<th>Non-OPEC</th>
<th>Growth</th>
<th>Δ m/m</th>
<th>NOPEC</th>
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<th>OPEC</th>
<th>Growth</th>
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<tr>
<td>IEA</td>
<td>25.94</td>
<td>1.76</td>
<td>-0.08</td>
<td>29.41</td>
<td>0.13</td>
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<td>60.18</td>
<td>1.97</td>
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<td>0.22</td>
<td>0.46</td>
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**Stocks (mb)**

<table>
<thead>
<tr>
<th></th>
<th>OECD</th>
<th>US</th>
<th>OECD to 5-Year Average</th>
<th>US to 5-Year Average</th>
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<tbody>
<tr>
<td>IEA</td>
<td>2840</td>
<td>-</td>
<td>-23</td>
<td>-</td>
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<tr>
<td>OPEC</td>
<td>2823</td>
<td>418</td>
<td>-40</td>
<td>11</td>
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<tr>
<td>EIA</td>
<td>411</td>
<td>-</td>
<td>2 percent below</td>
<td>-</td>
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Data obtained from IEA Oil Market Report, 12 July 2018; OPEC Monthly Oil Market Report, 11 July 2018 and Energy Information Administration, Weekly Petroleum Status Report, 18 July 2018

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

Although both the IEA and OPEC forecast healthy economic growth in both OECD and emerging economies, some notable risks may have a negative impact. OPEC cites the consequences of monetary tightening in the US, Europe and Asia that may impact growth, but which could still amount to 3.6 percent growth in 2019. However, rising trade tensions with the outcome of mounting uncertainties to trade and investment add downside risks to a relatively positive outlook. The IEA forecasts a growth of 3.9 percent in 2019 and similarly mentions increasing trade tensions could have a direct negative impact on economic growth, notably bunker fuel demand and diesel used by trucks for the transportation of traded goods. The impacts are exacerbated by higher oil prices when combined with currency depreciation versus the US dollar.

3.1 DEMAND DATA

Absolute Demand

The IEA’s estimate for global demand growth in July stands at 1.39 mb/d up slightly from 1.36 mb/d last month for an absolute demand of 99.13 mb/d in 2018. Two factors are at play:

1. Supply side constraints due to sanctions geopolitical disruptions and bottle necks that reduce spare capacity, and

2. Downside risks to demand growth on reduced market confidence and higher crude prices.

Still, The IEA expects demand to grow by 1.4 mb/d in 2018 and 2019. OPEC’s global demand outlook also remains the same with world demand growth at 1.65 mb/d, leading to a projected total global consumption of around 98.85 mb/d. OPEC-IEA divergence in overall demand growth stands at 0.26 mb/d down slightly from 0.28 mb/d in June.

OECD Demand

The IEA continues to see robust OECD oil demand growth at 0.34 mb/d, up slightly from last month’s figure of 0.31, anticipating total OECD consumption of 47.67 mb/d in 2018. OPEC marginally revised up its growth projection for the OECD region to 0.41 mb/d from 0.40 mb/d with total OECD demand now standing at 47.82 mb/d. The divergence of OECD oil demand growth between the IEA and OPEC now stands at 0.15 mb/d. The IEA reports a 0.03 mb/d upward revision in OECD Americas demand growth from 0.31 mb/d in last month’s report to 0.34 mb/d, while OPEC’s estimate only rose slightly by 0.01 mb/d to 0.30 mb/d from 0.29 mb/d. OECD Europe demand growth remains the same at 0.07 mb/d according to IEA data. OPEC’s OECD Europe growth figure also remains the same as last month at 0.10 mb/d. The IEA’s and OPEC’s assessments for 2018 OECD demand growth differs by 0.07 mb/d.

Non-OECD Demand

Both, the IEA and OPEC anticipate continued growth in non-OECD demand for this year at 1.05 mb/d and 1.25 mb/d respectively, with total demand forecasts averaging 51.45 mb/d and 51.03 mb/d respectively. OPEC’s growth projection remains largely unchanged from its June forecast with a revised growth estimate down by 0.01 mb/d to 1.25 mb/d. The IEA reported the same growth as last month at 1.05 mb/d. IEA’s and OPEC’s assessments for 2018 non-OECD demand growth now differs by 0.20 mb/d.
China and India continue to drive non-OECD demand. OPEC’s regional demand growth adjustments in 2018 reflect a solid pace of growth for China reported at 0.42 mb/d year on year. The IEA reports a higher assessment of 0.47 mb/d year over year given oil demand is estimated to have increased by 365 kb/d year-over-year in 2Q18. Chinese consumption is expected to reach around 12.74 mb/d and 12.87 mb/d in 2018, respectively. The IEA maintains that demand growth in India will continue to grow by around 0.28 mb/d to reach 4.97 mb/d in 2018. Meanwhile, OPEC reports demand growth at 0.21 mb/d and sees total consumption in India reach of 4.67 mb/d in 2018. Projections for non-OECD Asia, as a whole, show growth at 0.84 mb/d according to OPEC and 0.90 mb/d according to the IEA.

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

IEA sees slight increase in world demand growth in July
OPEC continues to show consistency in demand growth

3.2 SUPPLY DATA

Non-OPEC Supply

OPEC’s July assessment of total non-OPEC supply for 2018 reaches 59.54 mb/d, indicating robust year-on-year growth of 2.00 mb/d driven by the US (1.70 mb/d), Canada (0.27 mb/d) and Brazil (0.15 mb/d). Growing output from these countries is offset by declining production from Russia (0.10 mb/d), Mexico (0.12 mb/d), Norway (0.09) and China (0.08 mb/d).

The IEA reports that the estimate for 2018 non-OPEC supply has been revised 70 kb/d lower since last month’s report due to recent outages in the North Sea, Brazil, Canada and Kazakhstan. Higher Russian output ahead of the OPEC/non-OPEC producers’ meeting in Vienna in June provided a partial offset.
The IEA’s July assessment estimates non-OPEC supply at 60.18 mb/d for 2018 with a year-on-year growth of 1.97 mb/d. OPEC’s and the IEA’s non-OPEC growth forecast diverge by only 0.03 mb/d.

**OECD Supply**

Both OPEC and the IEA project solid OECD supply growth in 2018 at 1.88 mb/d and 1.76 mb/d respectively with total supply standing at 27.57 mb/d and 25.94 mb/d according to July estimates. The IEA’s data shows OECD Americas liquids supply growth at 1.83 mb/d to reach 22.13 mb/d total supply while OPEC reports slightly higher growth close at 1.85 mb/d with total liquids supply at 23.32 mb/d for 2018. Growth within the region is led by the US, for which OPEC revised its liquid supply forecast up to 1.70 mb/d to 16.06 mb/d while the IEA projects higher US growth by 1.72 mb/d to amount to 14.94 mb/d.

**OPEC Supply**

Total OPEC-15 (including The Republic of Congo that became a Full Member of OPEC on 22 June 2018) crude oil production averaged 32.33 mb/d in June 2018 which marked an increase of 173 kb/d over the previous month, according to OPEC secondary sources. Crude oil output increased mostly in Saudi Arabia, Iraq, Nigeria, Kuwait and UAE, while production showed declines in Libya, Venezuela and Angola. Similarly, the IEA estimates OPEC crude production up by 180 kb/d in June 2018 to 31.87 mb/d, with Saudi Arabia posting the biggest surge in more than three years which offset a sharp fall in Libyan supply and further losses in Venezuela and Angola.

See the following graph 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.

OPEC reports greater OECD supply growth compared to IEA
Non-OPEC and Non-OECD growth see strong convergence


IEF comparative analysis of IEA and OPEC Monthly Reports on the Oil Market July 2018

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

OECD commercial stocks rose by 13.9 mb month-on-month to **2840 mb** in May 2018 making it only the third monthly increase since July 2017 according to the IEA. At end-month, OECD stocks were 23 mb below the five-year average. According to OPEC, OECD commercial oil stocks rose by 8.6 mb month-on-month to stand at **2823 mb** and 40 mb below the latest five-year average. While both organisations report closely aligned data on OECD stocks due to a continuous and reliable data stream and data harmonisation efforts, comprehensive data on stock developments for non-OECD countries is still a work in progress.

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

**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 came down to -23 and -40 mb respectively in May

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IEF comparative analysis of IEA and OPEC Monthly Reports on the Oil Market July 2018

*monthly estimates rounded to the nearest barrel.*
OECD and JODI non-OECD inventory data show total crude and product stocks grew in May

- IEA revised April OECD commercial inventory data higher by 17.2 mb and, consequently, now sees a 10.4 m/m build for the month. OECD inventories built for a second consecutive month in May (by 13.9 mb) to 2,840 mb but remain 23 mb below the 5-year average. OPEC estimates OECD commercial inventories increased for a second consecutive month in May to 2,823 mb (+8.6 mb) but remain 40 mb below the 5-year average. Preliminary data in June’s report showing a 6.7 mb m/m decline in OECD commercial inventories in April were revised in this month’s report to show a marginal 3 mb m/m increase.

- Available JODI non-OECD* data for May show crude stocks grew by 14.6 mb (led by a 5.6 mb build in China), while product stocks drew by 6.0 mb (driven by a 5.4 mb decline in Nigeria). Together JODI non-OECD crude + product data shows an 8.6 mb build in May.

- Last month, available JODI non-OECD data for April showed crude + products drew 2.5 mb, but the current revised data shows a much larger 22.9 mb draw. Previously unreported stock changes for India now indicate a massive 15.7 mb product draw (led by diesel) and 4.6 mb crude draw during April. As it stands, India’s inventories of diesel, fuel oil, and total oil product aggregate in April were at their lowest level ever reported to JODI (since 2011).

- Updated inventory data (see table below) imply global crude and product inventories have drawn by 1.2 mb in April and May. While we do not have complete data for June, the April and May total is 17.4 mb above IEA’s estimated 2Q18 global supply deficit of 18.6 mb and 29.7 mb below OPEC’s estimate of 30.9 mb.

* 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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<th>April 2018</th>
<th>April + May 2018</th>
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<tbody>
<tr>
<td></td>
<td>Crude</td>
<td>Products</td>
<td>Total</td>
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<tr>
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<td>1.3</td>
<td>12.6</td>
<td>13.9</td>
</tr>
<tr>
<td>OECD SPR (IEA)</td>
<td>-3.2</td>
<td>-1.9</td>
<td>-5.1</td>
</tr>
<tr>
<td>Available JODI Non-OECD Data*</td>
<td>14.6</td>
<td>-6.0</td>
<td>8.6</td>
</tr>
<tr>
<td>Singapore</td>
<td>-</td>
<td>2.7</td>
<td>2.7</td>
</tr>
<tr>
<td>Fujairah</td>
<td>-</td>
<td>-1.5</td>
<td>-1.5</td>
</tr>
<tr>
<td>Total</td>
<td>12.7</td>
<td>5.9</td>
<td>18.6</td>
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<tr>
<td>IEA’s Implied Global Supply Surplus</td>
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<tr>
<td>OPEC’s Implied Global Supply Surplus</td>
<td></td>
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</tr>
</tbody>
</table>

* 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**

**RIYADH, SAUDI ARABIA**

**JULY 2018**

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**Monthly Change in OECD and Non-OECD* Crude + Product Inventories**

- **Chinese Products (JODI)**
- **Non-OECD* Crude (JODI)**
- **Non-OECD* (ex. China) Products (JODI)**
- **OECD Products**
- **OECD Crude**
- **Net Non-OECD* (JODI) and OECD Crude + Products**

* 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

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

- **Chinese Products (JODI)**
- **Non-OECD* (ex. China) Products (JODI)**
- **OECD Crude**
- **OECD Products**
- **Net Non-OECD* (JODI) and OECD Crude + Products**

* 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