



Long-term oil and energy outlook

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2016 World Oil Outlook



Organization of the Petroleum Exporting Countries



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Outline

- Economic growth assumptions
- Energy demand outlook
- Oil demand outlook
- Liquids supply outlook
- Downstream outlook



World GDP more than doubles up to 2040

Long-term real GDP growth rates in the Reference Case

% p.a.

	2015–2021	2021–2030	2030–2040	2015–2040
OECD	2.0	2.1	2.0	2.0
Developing countries	4.8	4.7	4.2	4.6
Eurasia	1.7	2.5	2.3	2.2
World	3.4	3.6	3.4	3.5

- Global GDP growth is assumed to gradually recover to then accelerate to average 3.4% p.a. in the medium-term
- In the long-term average global GDP growth is assumed at 3.5% p.a.
- By 2040 China's GDP will be 1.5 times that of OECD America
- China and India together will account for 40% of the global GDP

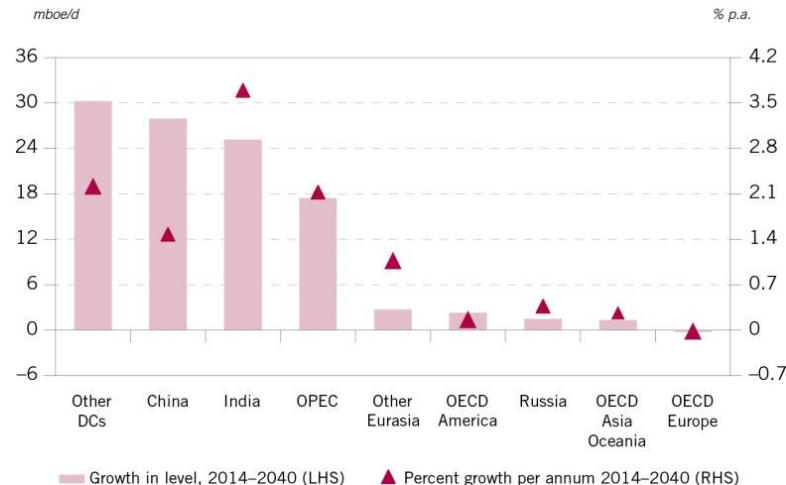


Energy demand will increase by 40%

Total primary energy demand by region

	Levels <i>mboe/d</i>				Growth <i>% p.a.</i>
	2014	2020	2030	2040	2014–40
OECD	110.6	113.9	114.8	113.9	0.1
DCs	139.8	162.0	202.5	240.5	2.1
Eurasia	23.5	24.0	26.3	27.8	0.6
Total world	273.9	299.9	343.6	382.1	1.3

Growth in primary energy demand by region, 2014–2040

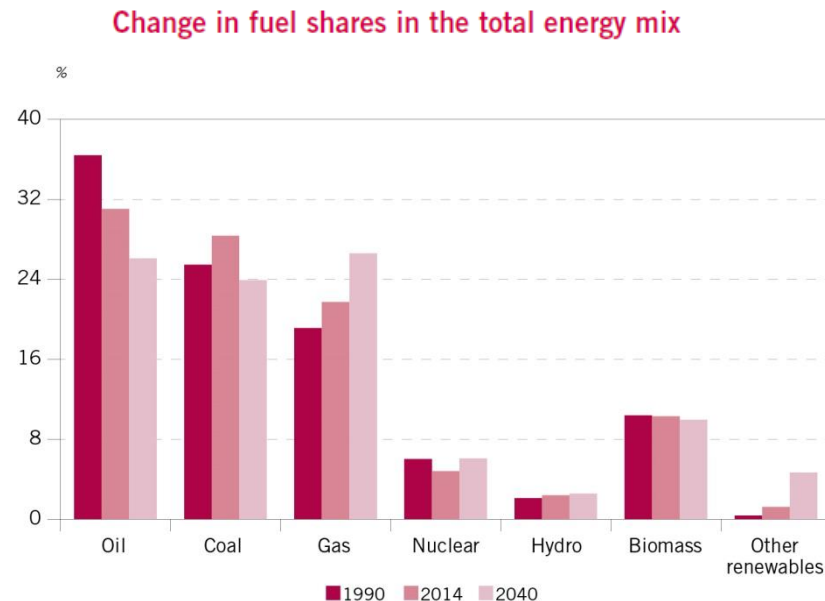


- Energy demand to reach **382 mboe/d** by 2040. The bulk of the increase to come from Developing countries
- Energy demand in **OECD** regions peaking around 2030



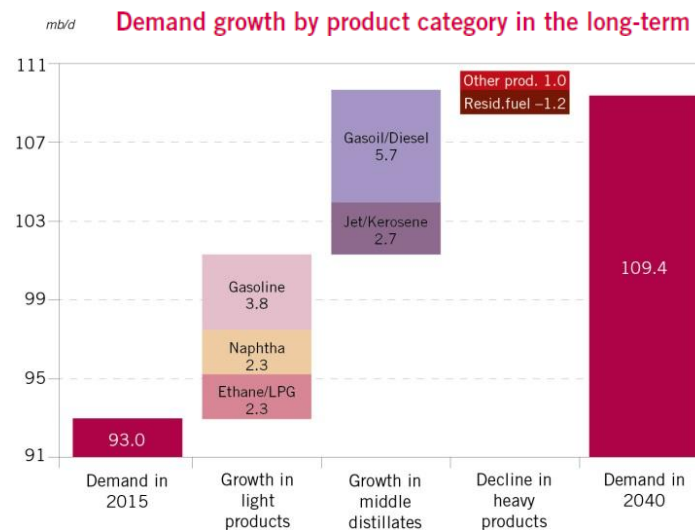
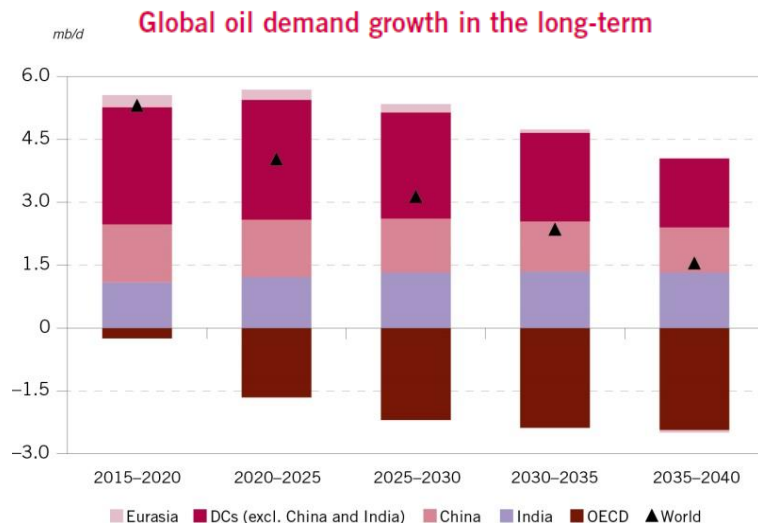
Energy mix to continue shifting from fossil fuels to renewable energy

- Fossil fuels continue to dominate global energy demand...
- ...but lose almost 5 percentage points in share (81% vs. 77%)
- Oil remains as the most important fuel until late 2030s
- Oil and gas continue to satisfy over half of world's energy needs
- Fastest growth for **other renewables**, albeit from very low base





Oil demand reaching 109.4 mb/d by 2040



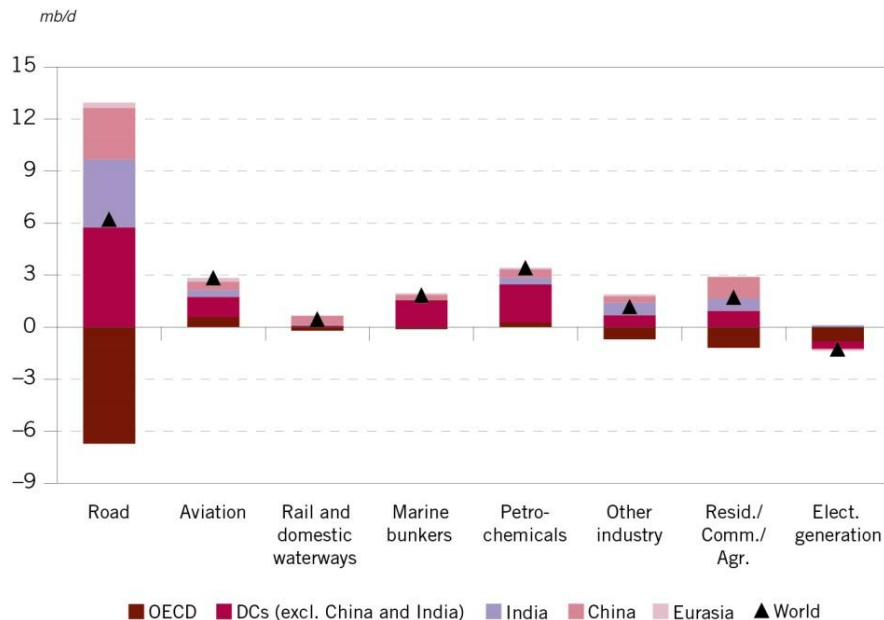
- Oil demand **increases 16.4 mb/d** up to 2040 with DCs leading (+24.5 mb/d)
- Strong demand growth is expected in the middle distillates category (8.4 mb/d) and light products (8.3 mb/d)



Road transportation (in DCs), petrochemicals and aviation key to demand growth

- One-third of total demand growth comes from the road transportation sector (6.2 mb/d)
- Strong growth is also foreseen in the petrochemicals sector and aviation sector
- DCs and Eurasia: growth in every sector except electricity generation
- OECD: growth only in the aviation and petrochemical sectors

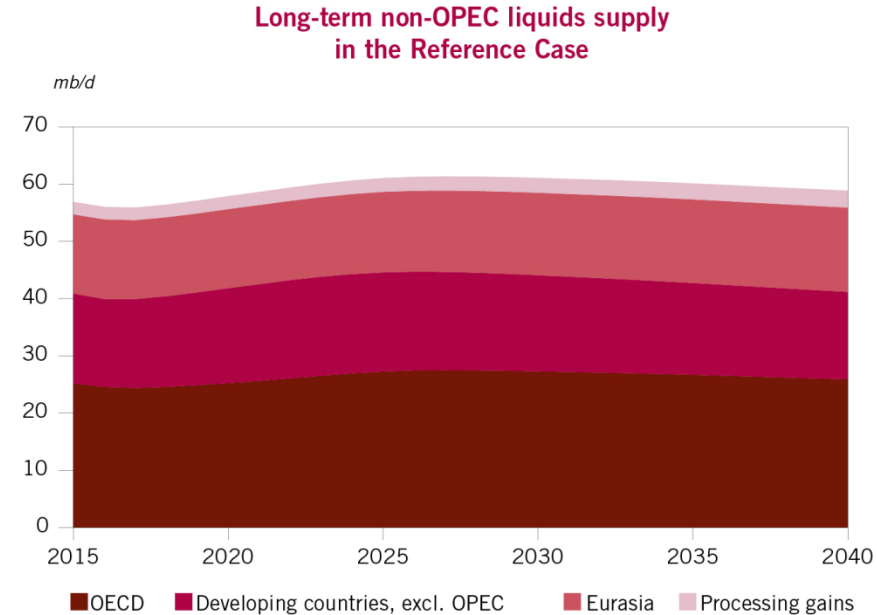
Oil demand growth by sector and region in the long-term





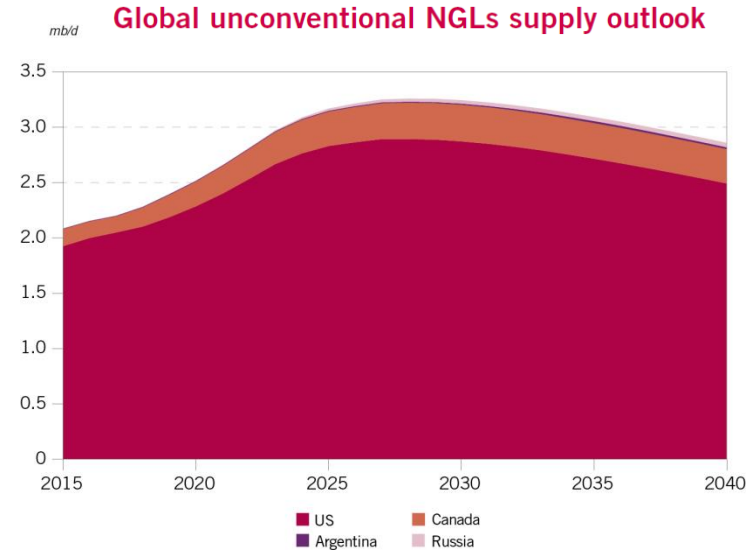
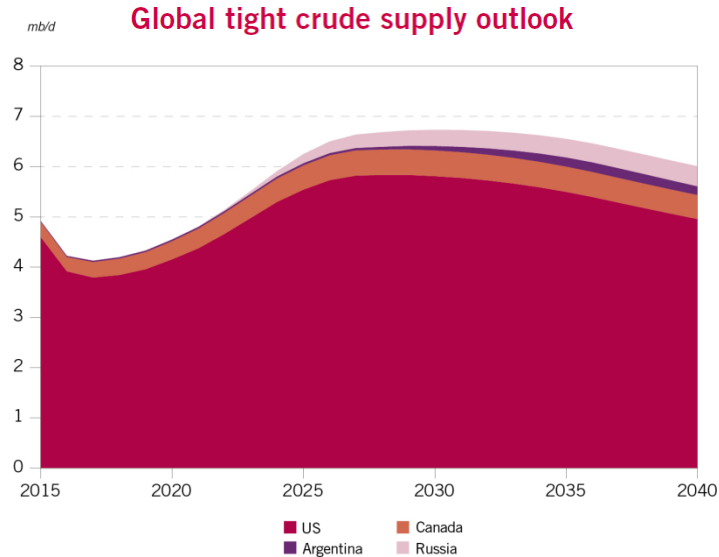
Liquids supply

- Slow road to **recovery** for non-OPEC supply in the medium-term
 - Growth coming mainly from Latin America and US & Canada
- Thereafter, non-OPEC supply remains fairly **flat** but **declines** post-2030 to 58.9 mb/d in 2040
 - Tight crude is the main source of growth initially. Oil sands and biofuels take over afterwards





Tight oil



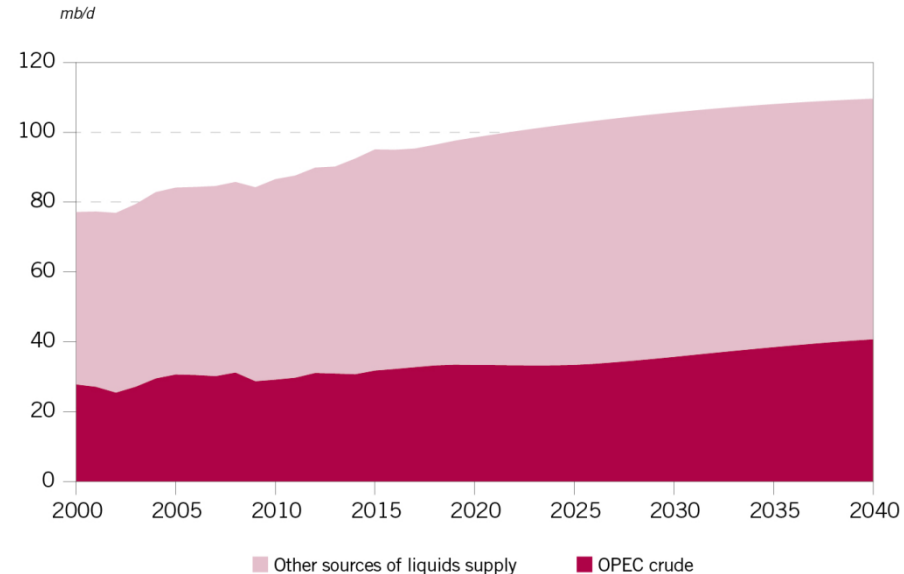
- Total **tight oil** reaches a high of 10 mb/d in 2029. It plateaus and then declines below 9 mb/d by 2040
- Some **long-term** tight oil supply is anticipated from **Argentina** and **Russia**



Demand for OPEC crude

- Between 2019 and 2025, demand for OPEC crude **remains even**, in range of 33.6–33.8 mb/d
- OPEC crude **rises to 41 mb/d in 2040**, accounting for 37% of world liquids
- By 2040, OPEC crude accounts for **37% of liquids supply**
 - Compared with 34% in 2015

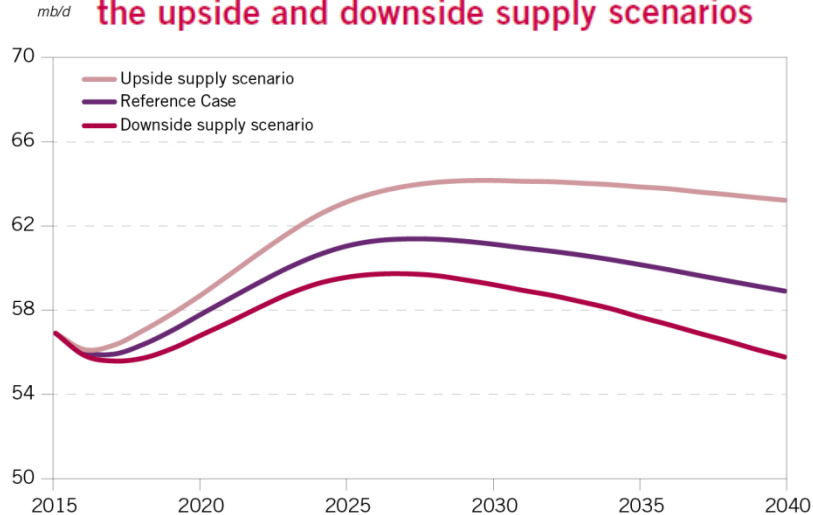
OPEC crude and other sources of liquids supply



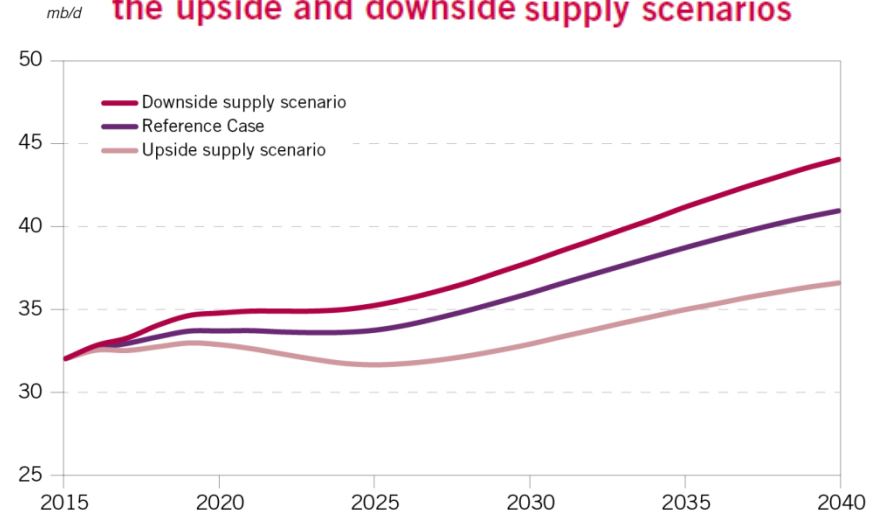


Supply scenarios

Non-OPEC supply in the Reference Case, the upside and downside supply scenarios



OPEC crude supply in the Reference Case, the upside and downside supply scenarios

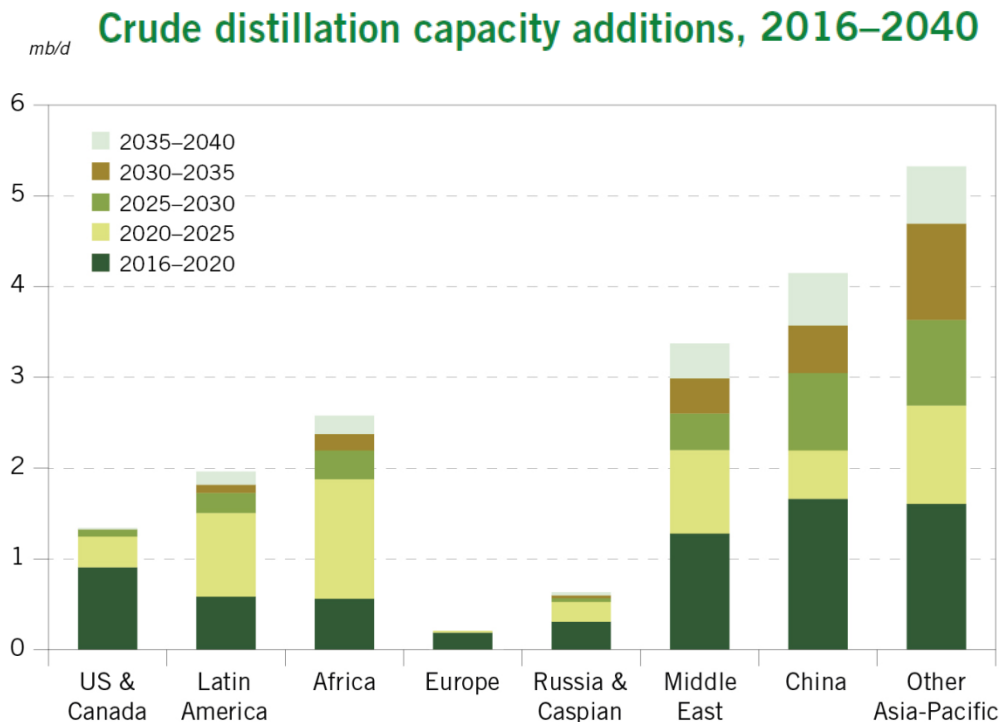


- In 2040, non-OPEC liquids reach 58.9 mb/d in Reference Case, 63.2 mb/d in upside and 55.8 mb/d in downside
- Resulting range for OPEC crude between 36.6 mb/d and 44.1 mb/d in 2040



Downstream outlook – distillation capacity

- By 2040, **19.5 mb/d** of new global distillation capacity projected
- About 2 mb/d in US & Canada, Europe, and Russia & Caspian combined
- By contrast, **9.5 mb/d for Asia-Pacific**; 3.4 mb/d for Middle East; and 4.6 mb/d split between Africa and Latin America
- Considerable closures in developed countries required if reasonable utilization rates to be maintained

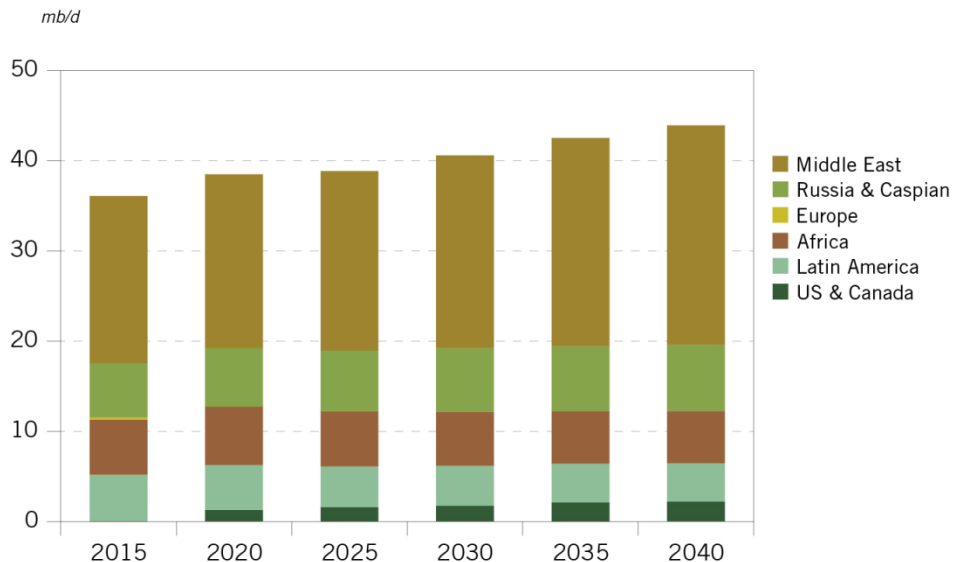




Downstream outlook – trade movements

- Global crude movements **increase by 8 mb/d** between 2015 and 2040
- Trade flow between Middle East and the Asia-Pacific will make up **almost 50%** of global trade movements in 2040
- US & Canada becomes new player** in global trade with over 2 mb/d of exports in 2040 from virtually nothing in 2015
- Crude trade patterns sensitive to development in logistics, especially from Russia & Caspian and out of Canada

Global crude oil exports by origin, 2015–2040





Takeaways

- Energy mix to continue shifting from fossil fuels to renewable energy
- Oil demand increases by 16.4 mb/d to reach 109.4 mb/d in 2040, driven by growth in road transportation in DCs
- Non-OPEC supply recovers in medium-term, then remains fairly flat and, post-2030, declines
- Demand for OPEC crude remains even in medium-term but rises significantly post-2025
- New refining capacity follows demand growth to developing regions, led by Asia-Pacific
- Crude trade flow between Middle East and Asia-Pacific will make up almost 50% of global trade movements in 2040



Thank you
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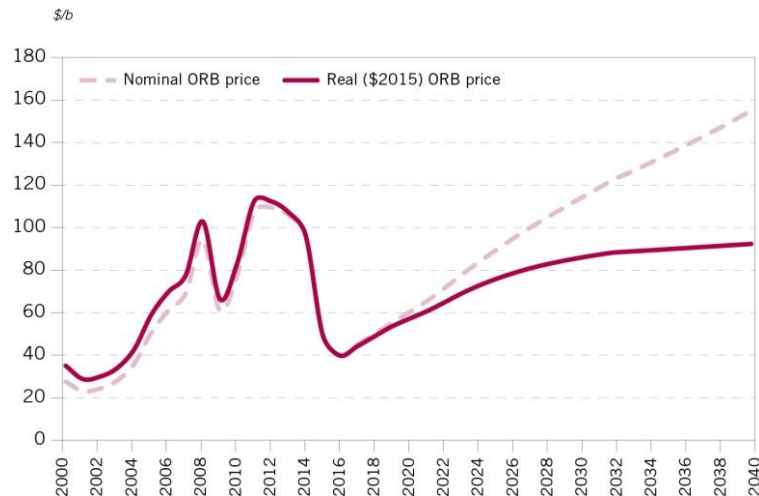


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Oil price (ORB) assumed at \$60/b in 2021 and \$92/b in 2040 (real 2015 prices)

- OPEC Reference Basket (ORB) price for 2016 assumed at \$40/b
- \$5/b increments during the medium-term (reflecting the expected gradual improvements in market conditions)
 - By 2021 it reaches \$65/b in nominal terms, slightly above \$60/b in real 2015 prices



- Towards the end of and after the medium-term, a moderate price recovery is assumed to continue as long-term factors start to prevail
- In real terms, prices are assumed to reach the level of \$92/b by 2040 in real (\$2015) prices, equivalent to \$155/b in nominal terms