

8th IEA-IEF-OPEC Outlook Symposium

Comparative Analysis Findings

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Flow

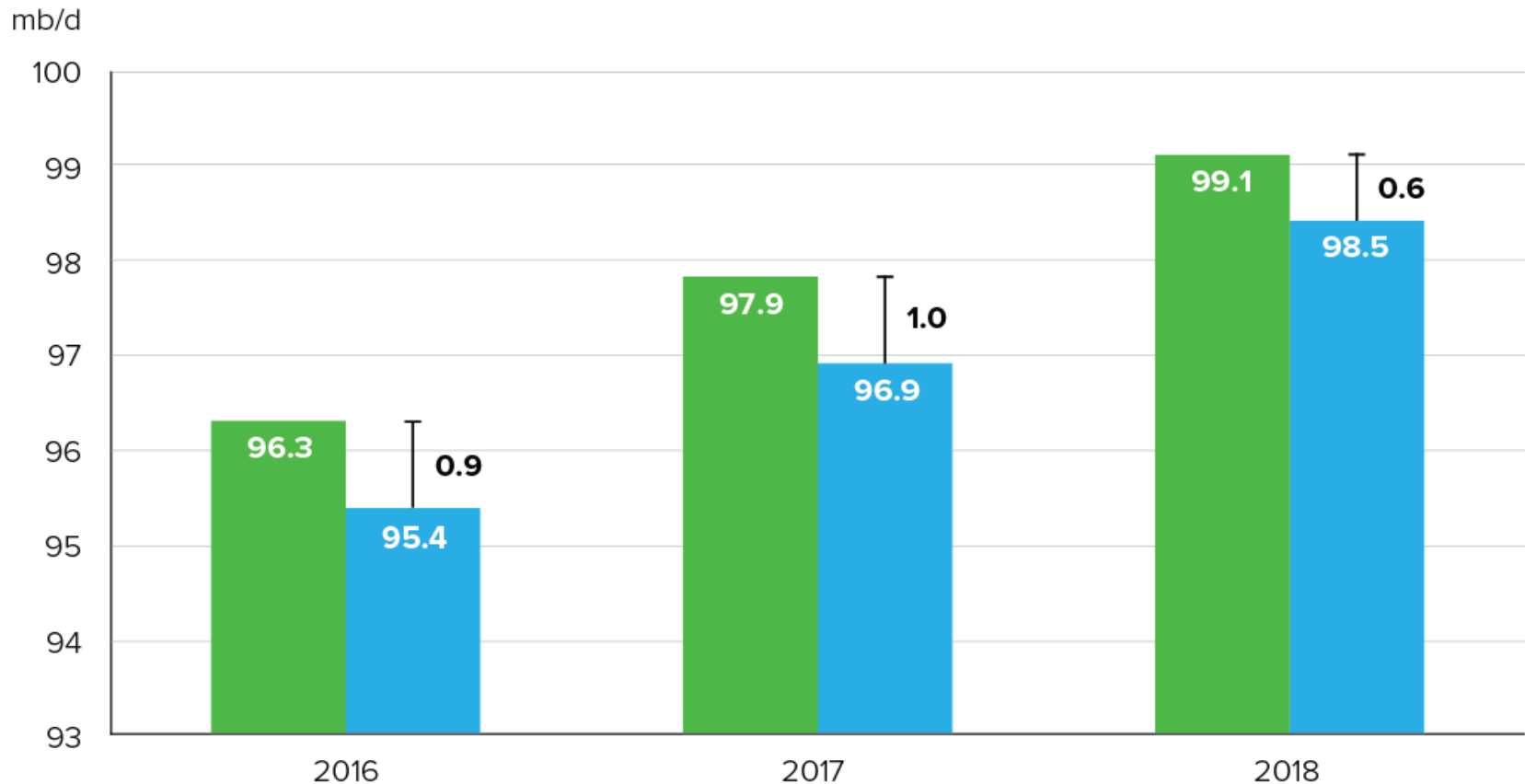
1. IEA and OPEC outlook for liquids
2. Remarks on outlook comparability
3. IEA and OPEC outlooks in the context of other outlooks: RFF's Global Energy Outlook

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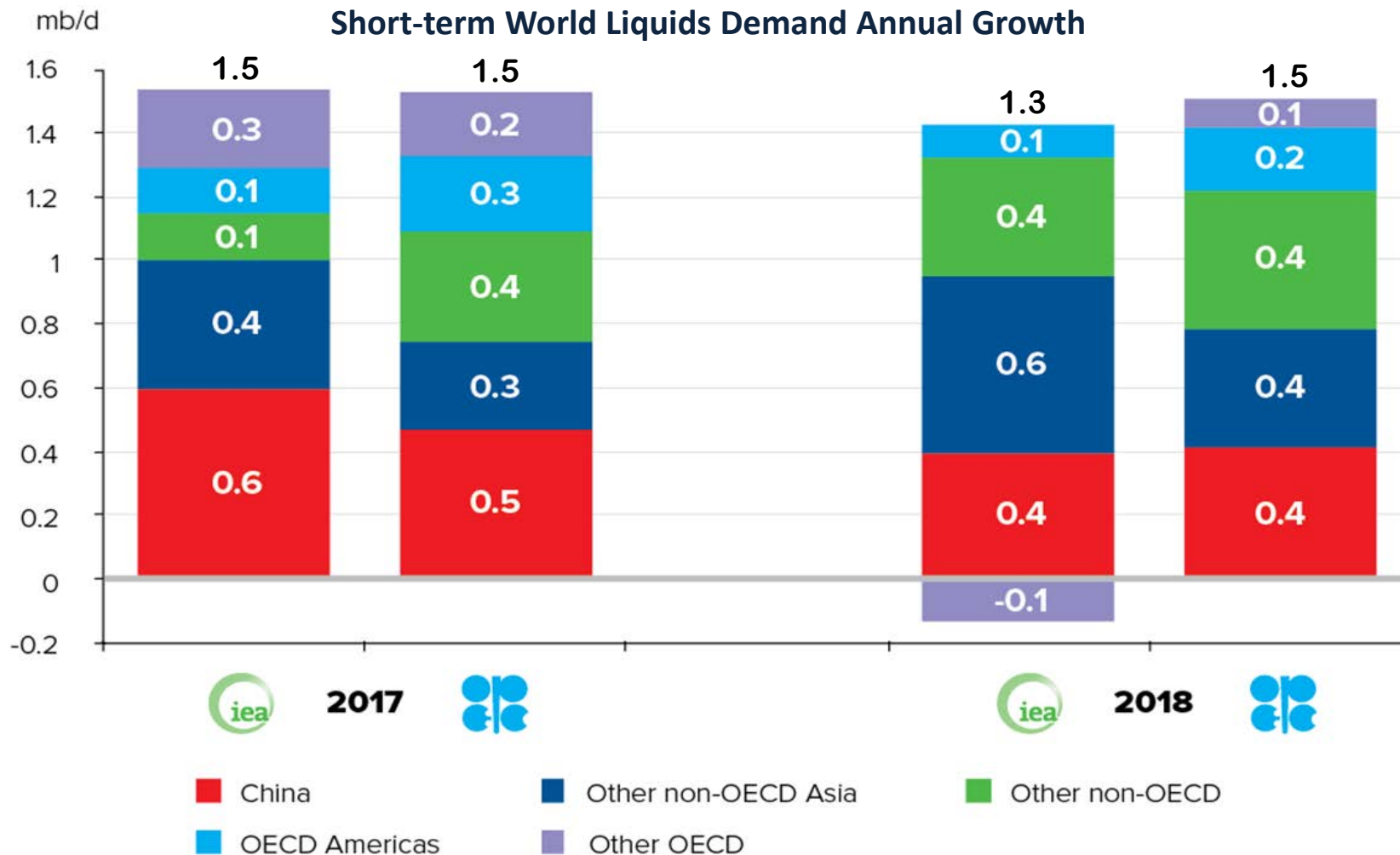
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Difference in baseline liquids demand is 0.8 mb/d smaller than last year; growth forecasts narrow this difference further

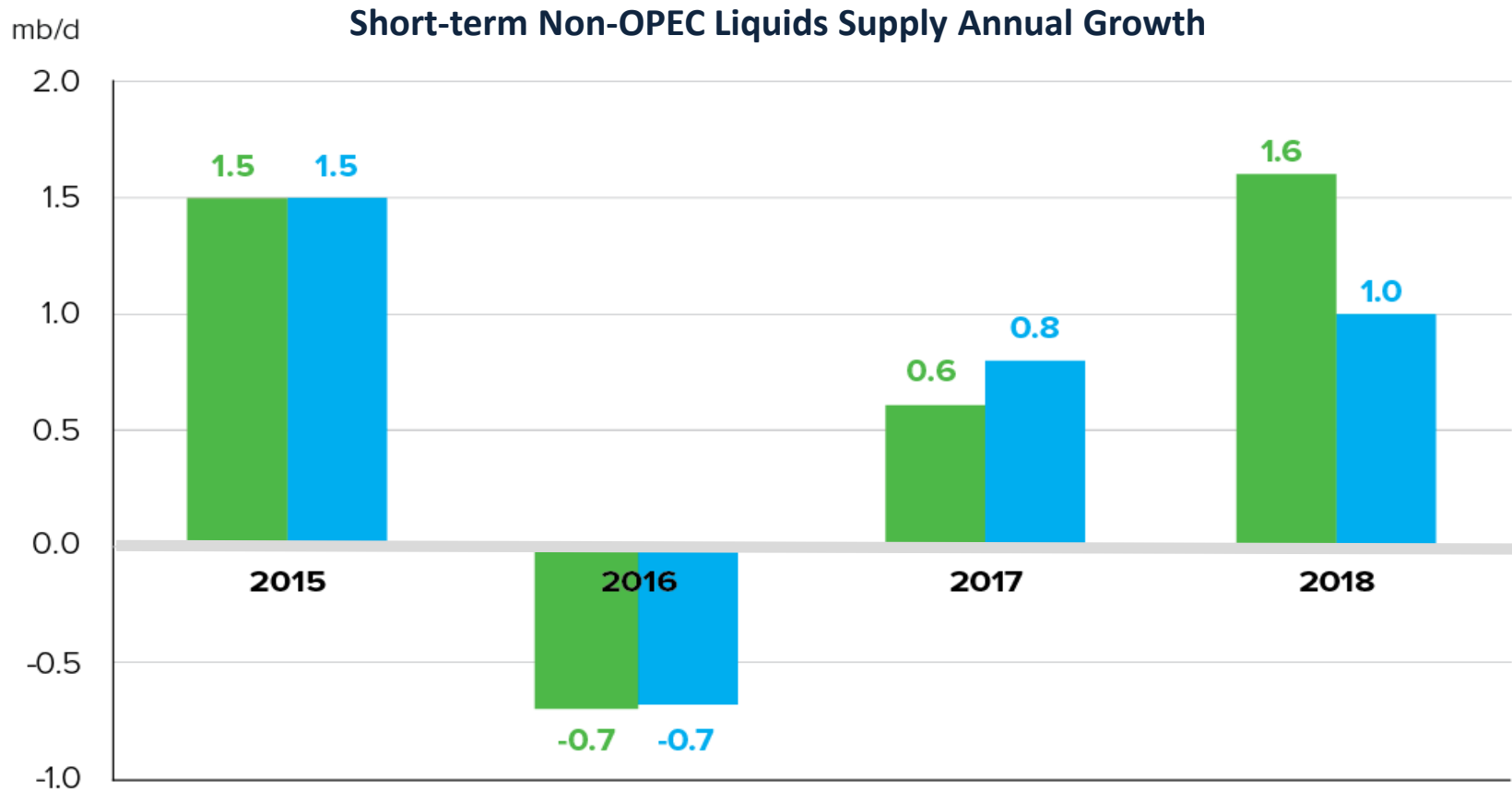
Short-term World Liquids Demand: 2016-2018



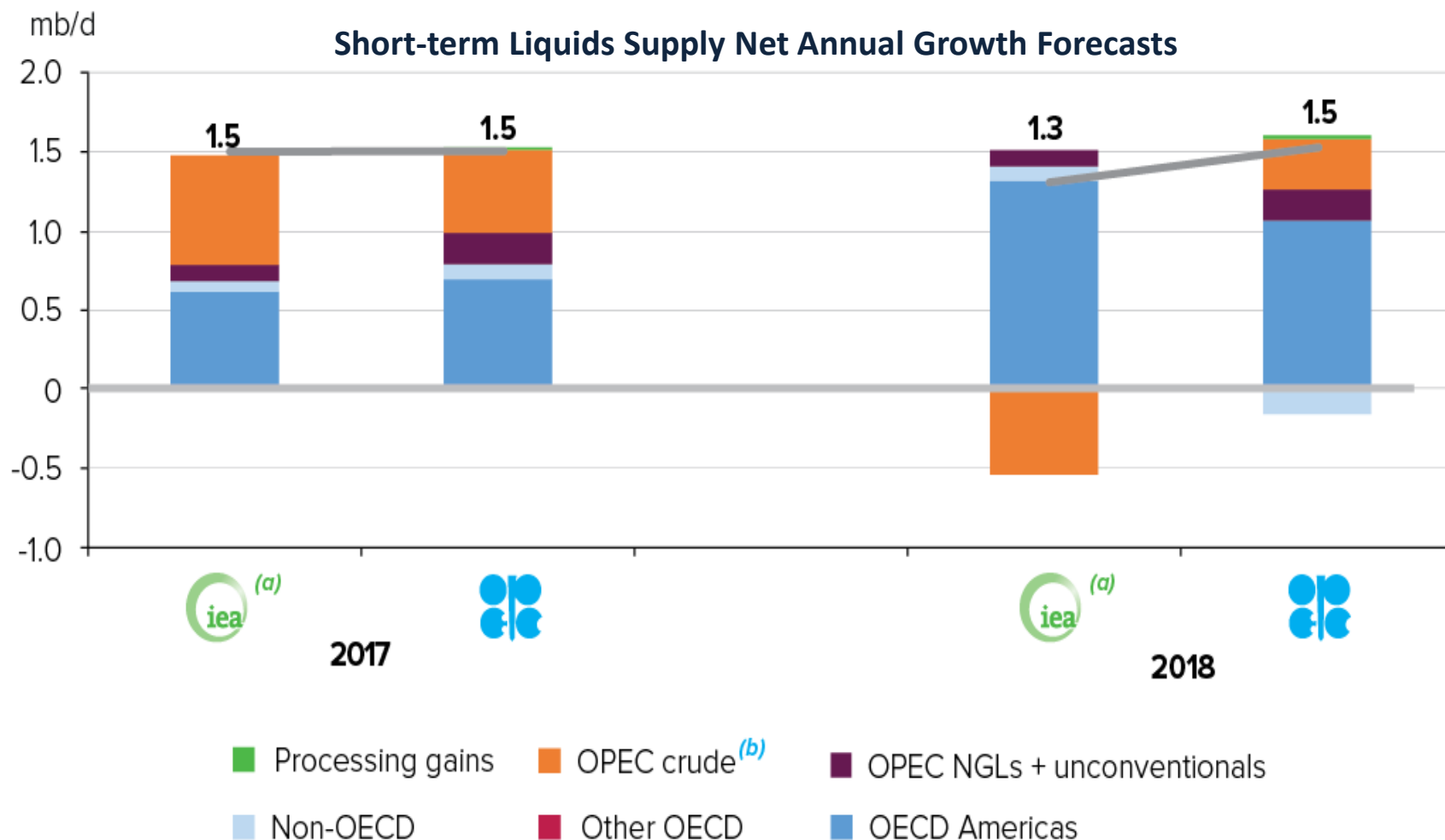
OPEC sees stronger demand growth in OECD than IEA; IEA projects stronger growth in non-OECD Asia outside China



Short-term non-OPEC supplies returned to positive growth in 2017; IEA forecast is 0.6 mb/d greater for 2018

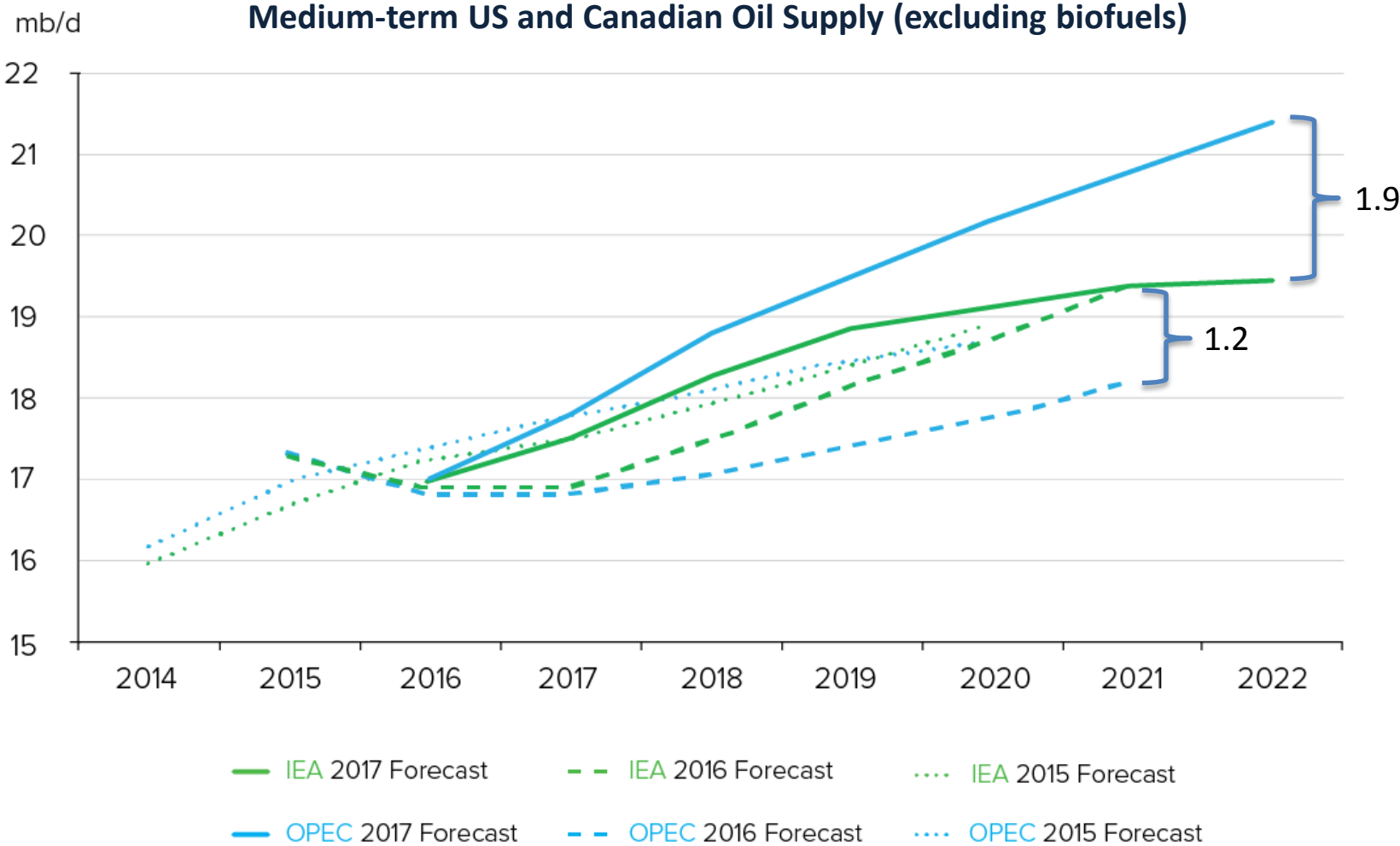


Different views on OECD Americas growth and OPEC supply adjustments underlie 2017 and 2018 supply

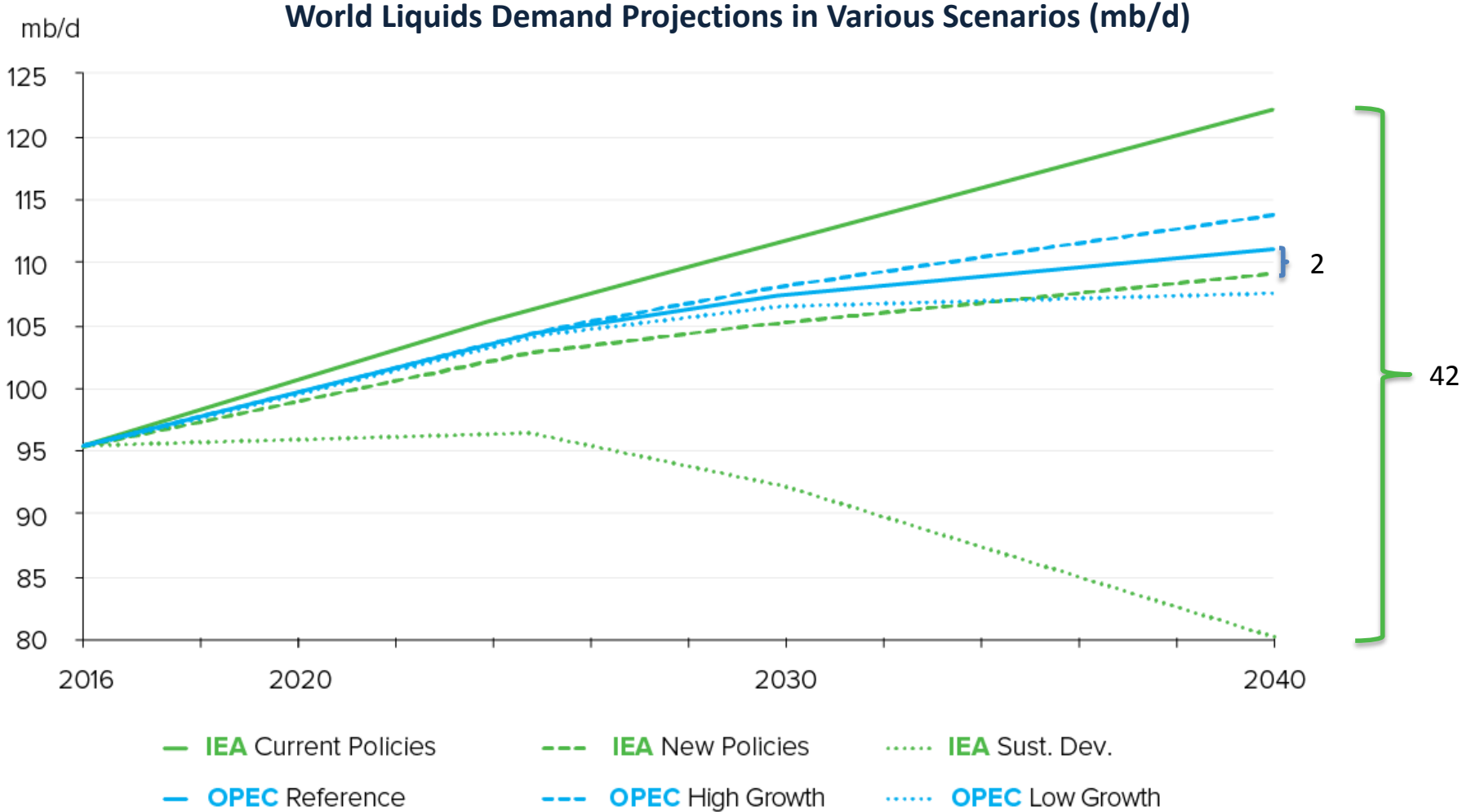


Notes: A: Biofuels from IEA Oil 2017 are added to IEA regional oil supply data for comparability with OPEC estimates. B: IEA and OPEC do not forecast OPEC crude; this estimate is constructed as the "call on OPEC crude" including "stock change and miscellaneous".

In the medium-term, OPEC-IEA difference for US and Canadian supply reaches 1.9 mb/d in 2022



IEA 2040 demand projections vary by 42 mb/d, yet OPEC Reference and IEA New Policy scenarios differ only by 2 mb/d



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Remarks on comparability of IEA and OPEC outlooks

Key Achievements

1. IEA and OPEC use similar baselines and projection periods
2. Differences in non-OECD **historical baseline data** were reduced and are regularly reviewed to control for unexplained discrepancies
3. Progress was made in the categorization of regions and fuel types, and dialogue continues on a technical level

Remarks on comparability of IEA and OPEC outlooks

Key Challenges

1. IEA's WEO no-longer groups regions according to OECD, non-OECD status, OPEC aggregates Middle East with Africa; this complicates comparison
2. Different treatment of biofuels and bunker fuels in regional and global numbers, and fuel type classifications continue to require major adjustments
3. This year OPEC has not made its oil price assumptions public, preventing comparison with IEA estimates and making underlying forecast assumptions less transparent

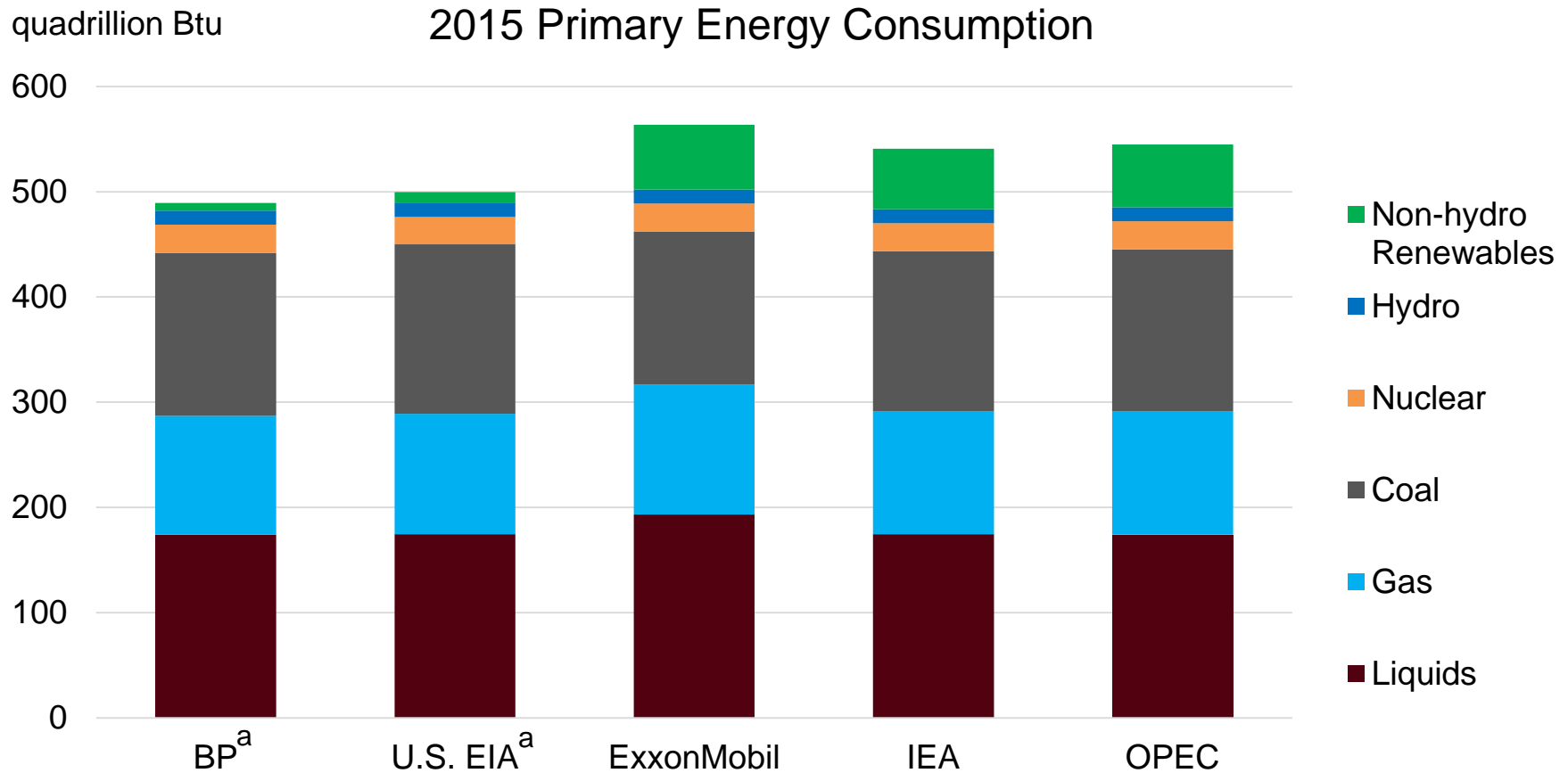
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RFF's Global Energy Outlook compares long term outlooks from a variety of organizations

- There are many challenges to directly comparing outlooks from the IEA and OPEC to others including U.S. EIA, ExxonMobil, BP, Shell
 - Different primary energy units and energy content assumptions
 - Energy content of fossil fuels can vary by 1-13%
 - Different conversion factors for renewables and nuclear can alter their primary energy values by -65% to +280%
 - Omission of non-marketed biomass by U.S. EIA and BP leads to primary energy consumption that is 8-15% lower than other outlooks
 - Different categorization of biofuels and renewable power
 - Different regional groupings
 - Different assumptions for policy and about economic growth
- The Global Energy Outlook harmonizes these outlooks to allow for comparison

Baseline estimates of primary energy consumption vary among long-term outlooks



Note: a: BP and U.S. EIA exclude non-marketed biomass

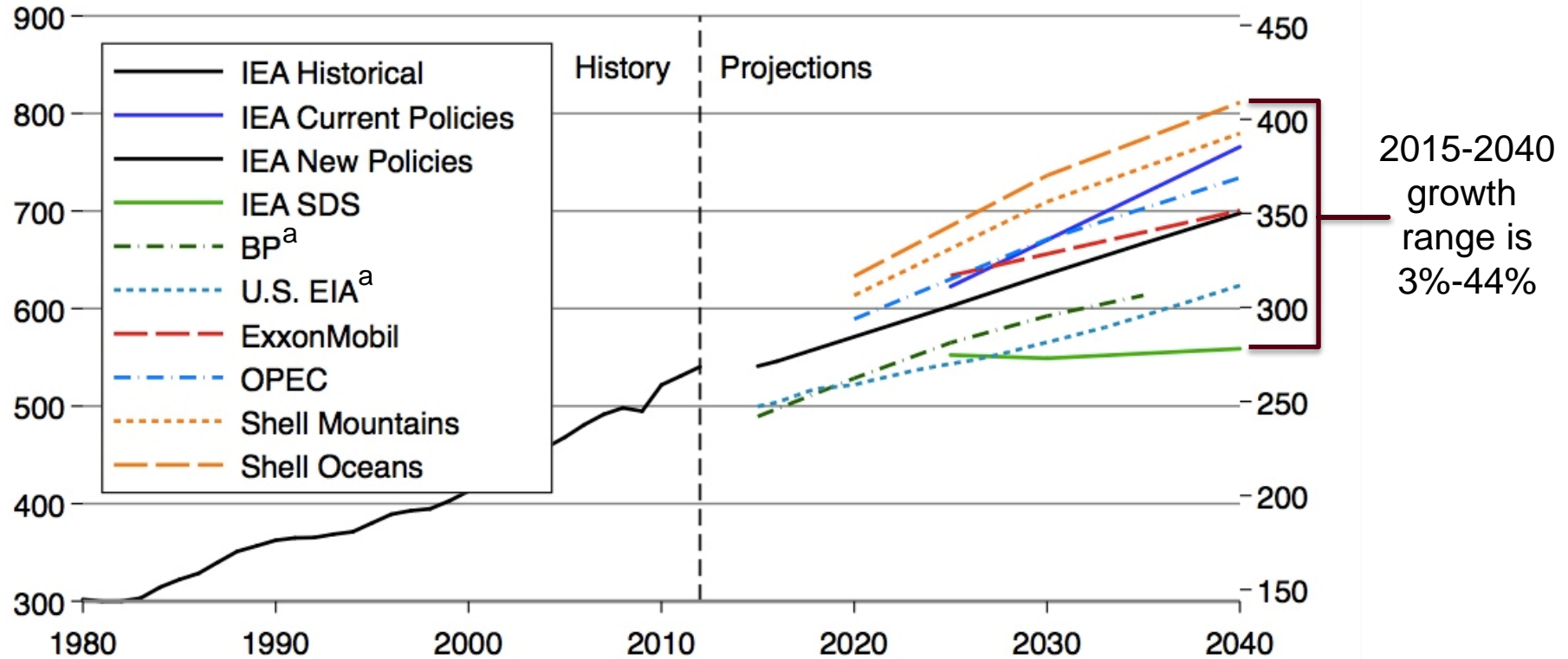
Sources: BP Energy Outlook to 2035 (2017), U.S. EIA International Energy Outlook (2017), ExxonMobil Outlook for Energy (2017), IEA World Energy Outlook (2017), OPEC World Oil Outlook (2017)

Future energy consumption growth varies widely, driven largely by different policy assumptions

primary energy consumption

(quadrillion Btu per year, left axis)

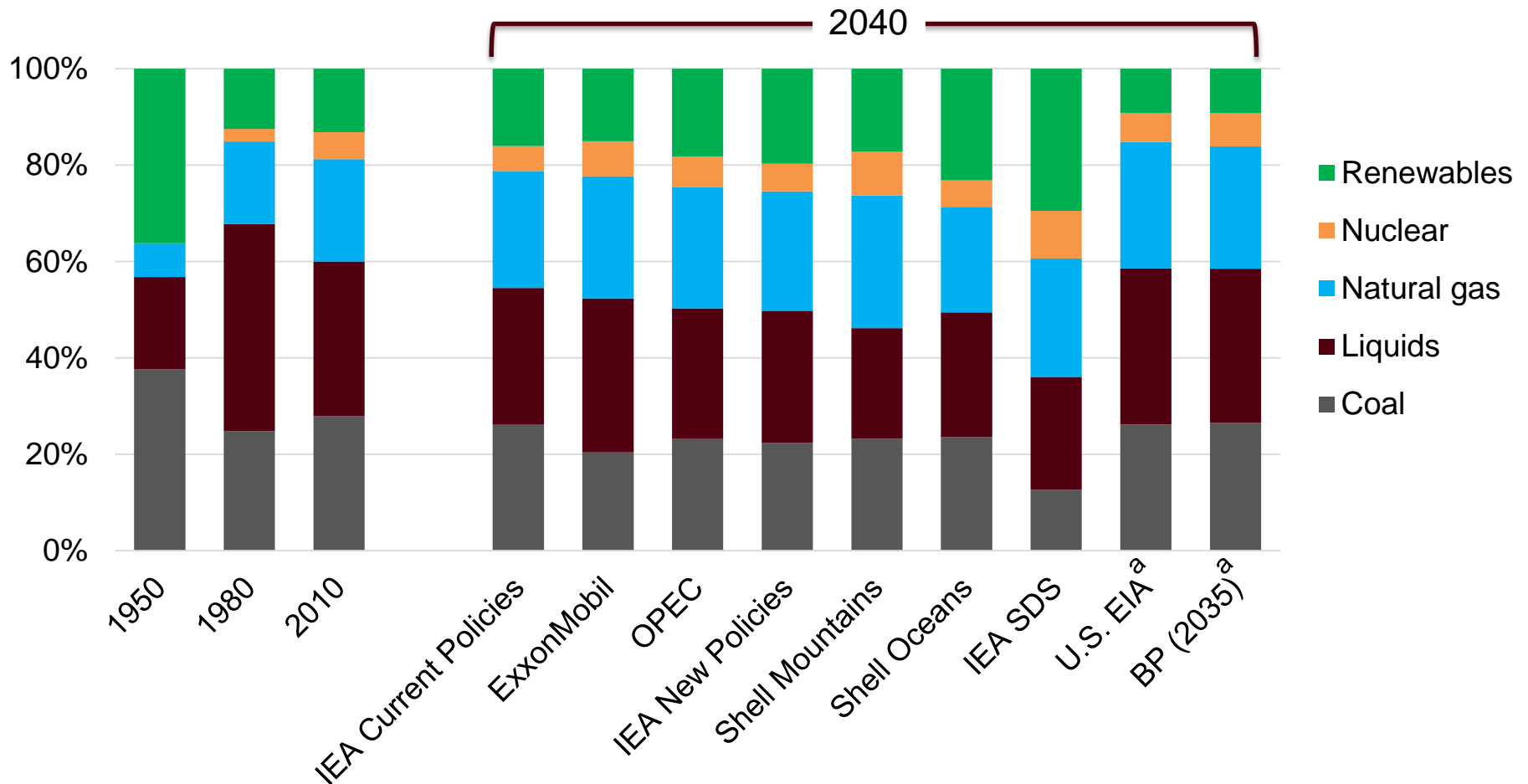
(million barrels per day of oil equivalent, right axis)



Note: a: BP and U.S. EIA exclude non-marketed biomass

Sources: BP Energy Outlook to 2035 (2017), U.S. EIA International Energy Outlook (2017), ExxonMobil Outlook for Energy (2017), IEA World Energy Outlook (2017), OPEC World Oil Outlook (2017), Shell New Lens Scenarios (2013)

Global fuel shares also vary substantially by outlook



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