7th IEA-IEF-OPEC Outlook Symposium
Comparative Analysis Findings

Richard G. Newell, President, Resources for the Future
Flow

1. Short-term IEA and OPEC outlooks
2. Medium-term IEA and OPEC outlooks
3. Long-term IEA and OPEC outlooks
4. Key remaining differences
5. Remarks on outlook comparability
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A 1.7 mb/d difference in base year 2015 liquids demand creates significant demand forecast differences.
IEA and OPEC made modest adjustments to liquids demand growth forecasts during 2016, mostly in OECD countries.
Differences in annual demand growth estimates relate to both Non-OECD Asia and OECD Americas.
Non-OPEC liquids supply growth forecasts have been revised downwards during 2016.
Short-term forecasts of non-OPEC supplies show negative growth in 2016 followed by modest gains in 2017.
2016 and 2017 supply growth is led by OPEC, OECD Americas and non-OECD producers recover somewhat in 2017.
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Medium-term price assumptions diverge by $11 to $20/bbl through 2021.
IEA projects demand growth to be slightly faster and reach higher levels than OPEC
Medium-term demand projection difference mainly comes from Non-OECD regions.
Medium-term Non-OPEC liquids supply growth forecasts show growth after 2017 led by OECD Americas and Latin America.
Medium term Non-OPEC liquids supply growth forecasts show growth after 2017 led by OECD Americas and Latin America.
IEA and OPEC differ on US and Canadian supply growth outlooks
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Global GDP projections show significant differences for China, India, and Russia after 2030.
IEA’s long-term oil price assumptions are substantially higher than those of OPEC.

Long-Term Oil Price Assumptions (real 2015 US$/bbl)

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<th>Year</th>
<th>OPEC Reference</th>
<th>IEA CPS</th>
<th>IEA NPS</th>
<th>IEA 450</th>
<th>OPEC Reference</th>
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OPEC’s Reference Case is close to IEA’s Current Policies Scenario estimate of total primary demand.
The IEA’s New Policies Scenario shows lower fossil fuel consumption than OPEC projects.
Liquids demand projections vary widely, yet OPEC Reference and IEA New Policy scenarios are within 1 mb/d in 2040.
Outlooks for the share of OECD and Non-OECD demand are strikingly similar across all scenarios.
Non-OPEC conventional supply declines but unconventional supply grows
The share of OPEC crude grows in all scenarios.
Long-term oil supply scenarios vary strongly, yet similar projections for OPEC Reference and IEA New Policies scenarios.

2040 Liquids Supply Outlook in Different Scenarios (mb/d)

- **450 ppm Scenario**
  - Non-OPEC: 49 mb/d (incl. biofuels and processing gains)
  - OPEC Crude: 28 mb/d (incl. Venezuela extra heavy)
  - OPEC (NGLs + unconventional): 8 mb/d

- **New Policies Scenario**
  - Non-OPEC: 59 mb/d (incl. biofuels and processing gains)
  - OPEC Crude: 38 mb/d (incl. Venezuela extra heavy)
  - OPEC (NGLs + unconventional): 13 mb/d

- **Current Policies Scenario**
  - Non-OPEC: 59 mb/d (incl. biofuels and processing gains)
  - OPEC Crude: 38 mb/d (incl. Venezuela extra heavy)
  - OPEC (NGLs + unconventional): 14 mb/d

- **Scenario B**
  - Non-OPEC: 65 mb/d (incl. biofuels and processing gains)
  - OPEC Crude: 44 mb/d (incl. Venezuela extra heavy)
  - OPEC (NGLs + unconventional): 14 mb/d

- **Scenario A**
  - Non-OPEC: 59 mb/d (incl. biofuels and processing gains)
  - OPEC Crude: 38 mb/d (incl. Venezuela extra heavy)
  - OPEC (NGLs + unconventional): 14 mb/d

- **Reference Case**
  - Non-OPEC: 59 mb/d (incl. biofuels and processing gains)
  - OPEC Crude: 38 mb/d (incl. Venezuela extra heavy)
  - OPEC (NGLs + unconventional): 10 mb/d

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SEVENTH IEA IEF OPEC SYMPOSIUM ON ENERGY OUTLOOKS
A COMPARISON OF RECENT IEA AND OPEC OUTLOOKS
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Key remaining differences in IEA OPEC outlooks

- World liquids baseline demand and supply differ by 1.7 mb/d and 1.4 mb/d, respectively
- Different publication dates of medium-term outlooks make direct comparisons difficult
- Different units (mb/d, mboe/d, mtoe), and sometimes unclear conversion factors between units
- Different treatment of biofuels/bunkers within global versus regional liquids supply
- Different regional groupings, in particular separate OPEC treatment of member country demand in medium-term projections
- Different conception of “central” policy scenarios
- Oil price assumptions
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IEA and OPEC in the context of other long-term energy outlooks
Challenges in comparing IEA and OPEC projections to other energy outlooks

Some challenges similar to comparison of IEA and OPEC

- Different primary energy units and fuel-specific physical units
- Different categorization of biofuels and renewable power
- Different regional groupings
- Different assumptions for policy and about economic growth

Plus, several additional challenges

- Assumptions about energy content of fossil fuels can vary by 1-12%
- Different conversion factors for renewables and nuclear can alter primary energy estimates for these sources by -65% to +153%
- Omission of traditional non-marketed biomass by U.S. EIA and BP leads to primary energy consumption estimates that are 10-16% lower than other outlooks

Richard G. Newell, Feb. 15, 2017, Riyadh
Differences in baseline primary energy consumption data exist among various long-term outlooks.

* BP and U.S. EIA do not include non-marketed energy
Future energy consumption growth varies widely across energy outlook scenarios, depending largely on policy assumptions.

Global fuel shares: history and future scenarios

Liquids consumption growth shifts decisively to the East

Thank you

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