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Session I OPEC's World Oil Outlook 2014

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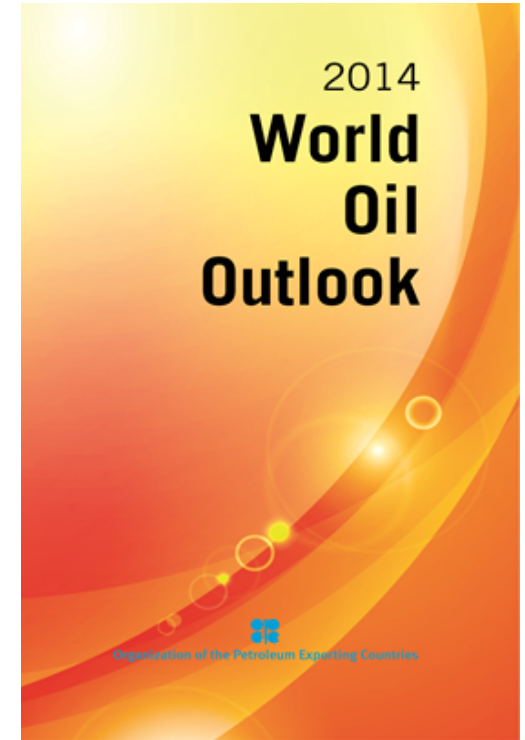
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- Key assumptions
- Reference case projections
- Oil demand to 2040
- Liquid supply to 2040
- Downstream issues
- Main takeaways



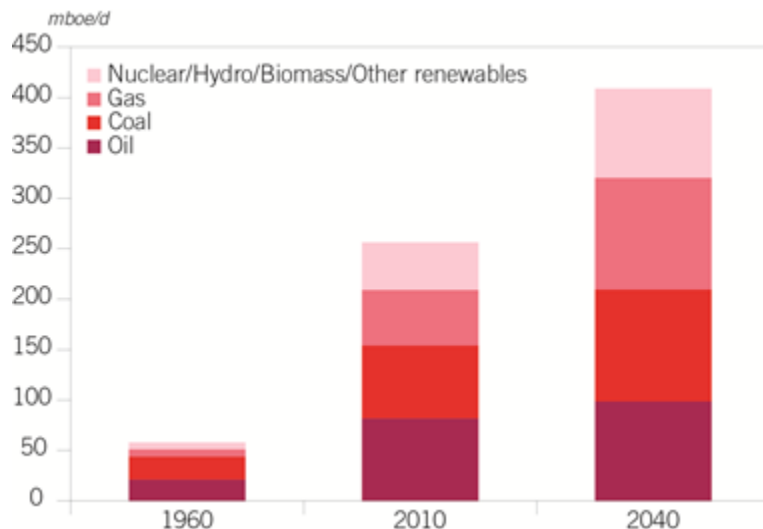


- Oil prices
 - \$110/b medium-term rising to \$177/b by 2040 in nominal terms
 - In 2040, real price is \$102/b in today's prices
 - Cost of marginal barrel a key factor
- Economic growth
 - *Medium-term*
 - Rebound from recession, but medium-term deceleration in emerging economies
 - By 2018, global growth reaches 3.8%
 - *Long-term*
 - Demographics and productivity trends
 - Long-term growth of 3.5% p.a. (2014–2040)
- Energy policies also shape the Reference Case

Energy use will continue to rise, oil will remain the leading fuel for some time, gas use rises strongest



World supply of primary energy by fuel type



- Shale gas increasingly important as a source of energy...
- ...but many potential barriers to rise in supply

- Energy use rises by 60% to 2040
- Fossil fuels remain key
- Oil initially retains largest share
- After 2030s, fossil fuel shares tend to converge, while coal share initially rises, gas will be the dominant fuel post-2040

World supply of primary energy in the Reference Case

	Levels mboe/d				Growth % p.a. 2010–40	Fuel shares %			
	2010	2020	2030	2040		2010	2020	2030	2040
Oil	81.8	88.8	95.4	99.6	0.7	31.9	29.6	27.2	24.3
Coal	72.4	87.4	100.0	111.2	1.4	28.2	29.1	28.4	27.1
Gas	55.2	69.4	87.6	110.9	2.4	21.5	23.1	25.0	27.0
Nuclear	14.4	13.9	17.4	23.2	1.6	5.6	4.6	5.0	5.7
Hydro	5.9	7.4	8.8	10.0	1.8	2.3	2.5	2.5	2.4
Biomass	24.9	29.2	33.9	38.6	1.5	9.7	9.7	9.7	9.4
Other renewables	1.8	4.2	8.3	16.6	7.7	0.7	1.4	2.4	4.0
Total	256.4	300.3	351.4	410.2	1.6	100.0	100.0	100.0	100.0

World oil demand outlook in the Reference Case



Medium-term oil demand outlook in the Reference Case

mb/d

	2013	2014	2015	2016	2017	2018	2019
OECD	45.9	45.8	45.8	45.7	45.5	45.3	45.2
Developing countries	39.0	40.1	41.2	42.2	43.2	44.3	45.4
Eurasia	5.1	5.2	5.2	5.3	5.3	5.4	5.4
World	90.0	91.1	92.3	93.2	94.1	95.0	96.0

- Long-term oil demand reaches 111 mb/d by 2040
- Upward revisions to oil use in petrochemicals, aviation
- But limits to growth include marine bunkers (IMO regulations), hybrid technologies, efficiency improvements
- Developing countries key: 71% of increase in their demand is in developing Asia
- Transportation sector is focus of demand growth

- Medium-term oil demand rises 1 mb/d p.a.
- By 2019, oil demand is 96 mb/d
- Aggregate OECD demand peaked in 2005
- Developing countries key to growth
- Demand in developing countries already greater than in the OECD by 2019

Long-term oil demand in the Reference Case

mb/d

	2013	2015	2020	2025	2030	2035	2040
OECD	45.9	45.8	45.0	43.8	42.0	40.0	38.2
Developing countries	39.0	41.2	46.5	51.9	57.1	62.2	67.0
Eurasia	5.1	5.2	5.5	5.6	5.7	5.8	5.9
World	90.0	92.3	96.9	101.3	104.8	108.0	111.1

World oil supply outlook in the Reference Case



- Primary recent driver: tight crude and unconventional NGLs...
- ...but they peak and decline in time (costs are rising, environmental concerns, decline rates, well productivity, sweet spots)
- Non-OPEC rises to 62–63 mb/d: Brazil, Caspian, biofuels, oil sands
- OPEC crude share at 36% in 2040

Long-term liquids supply outlook in the Reference Case

mb/d

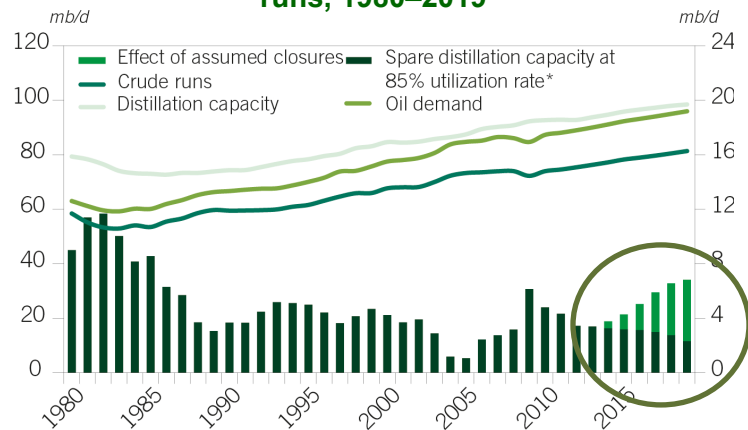
	2013	2015	2020	2025	2030	2035	2040
US & Canada	15.2	17.7	19.6	20.4	20.8	20.6	20.2
<i>of which: tight crude</i>	2.8	3.8	4.4	4.1	3.8	3.5	3.3
OECD	22.1	24.5	26.1	26.6	26.8	26.4	25.9
Latin America	4.8	5.1	6.9	7.5	7.4	7.2	7.1
DCs, excl. OPEC	16.4	16.7	18.8	19.2	18.6	17.9	17.3
Eurasia	13.6	13.5	13.8	15.0	15.7	16.1	16.4
Non-OPEC	54.2	57.1	61.2	63.1	63.3	62.8	61.9
<i>of which: crude</i>	41.3	43.0	45.1	45.3	43.9	42.2	40.4
<i>NGLs</i>	6.3	6.8	7.4	7.5	7.7	7.8	8.0
<i>of which: unconventional NGLs</i>	1.6	2.0	2.5	2.7	2.6	2.5	2.4
<i>Other liquids</i>	4.5	4.9	6.2	7.6	9.0	9.8	10.5
OPEC (incl. NGLs)	35.8	35.5	36.0	38.5	41.7	45.4	49.3
<i>OPEC NGLs</i>	5.4	5.7	6.6	7.4	8.3	8.8	9.3
<i>OPEC crude</i>	30.2	29.5	29.0	30.7	33.0	36.2	39.7
Stock change	0.0	0.3	0.2	0.2	0.2	0.2	0.2
World supply	90.0	92.6	97.1	101.5	105.0	108.2	111.3

Outlook highlights the need for continued refining capacity rationalization



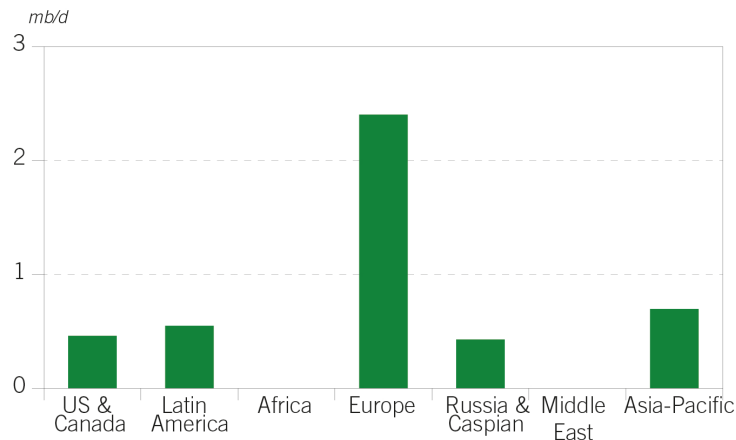
- At least 5 mb/d of closures are needed by 2020 to maintain a minimum refinery utilization of 80% in any sub-region
- Longer-term, the need for closures could potentially be in the order of 10 mb/d, and primarily in the industrialized regions
- However, it remains to be seen how much of the assumed closures actually takes place

Global oil demand, refining capacity and crude runs, 1980–2019



* Effective 'spare' capacity estimated based on assumed 85% utilization rate; accounted for already closed capacity.

Assumed crude distillation capacity closures in the medium-term (2014–2019)

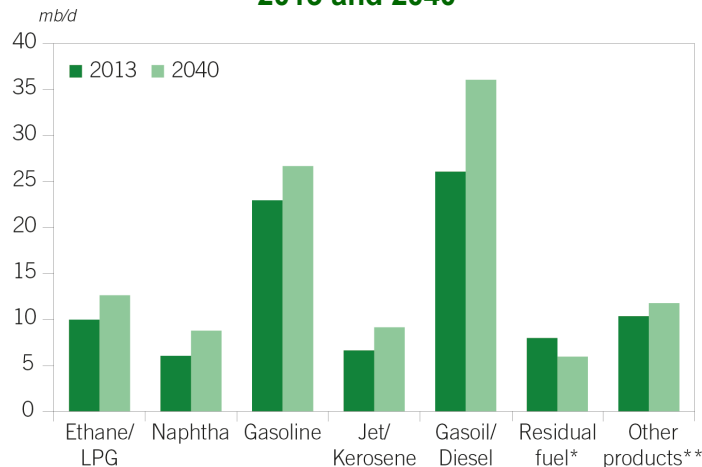


Middle distillates represent around 60% of overall demand growth for all liquid products



- Long-term demand driven by middle distillates – primarily diesel oil, but also jet kerosene – in the transport sector
- Demand for crude-based gasoline remains virtually flat over the last 10 years of the forecast period
- Demand growth also for other light products, but decline for residual fuel oil

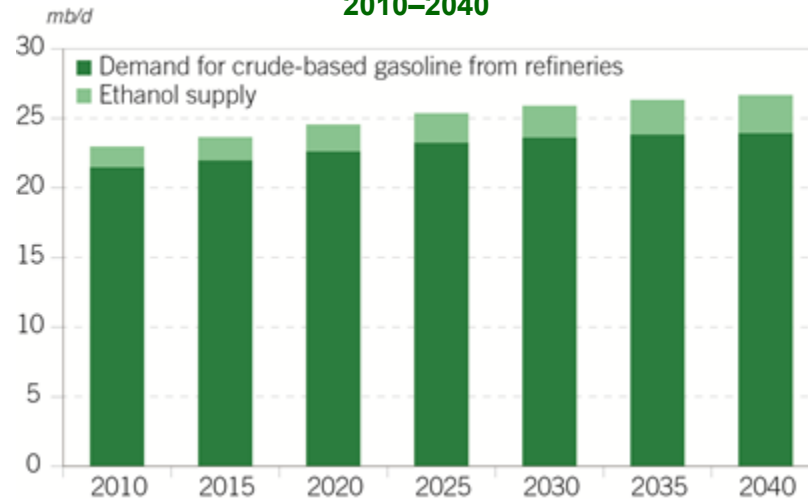
**Global product demand
2013 and 2040**



* Includes refinery fuel oil.

** Includes bitumen, lubricants, petroleum coke, waxes, still gas, sulphur, direct use of crude oil, etc.

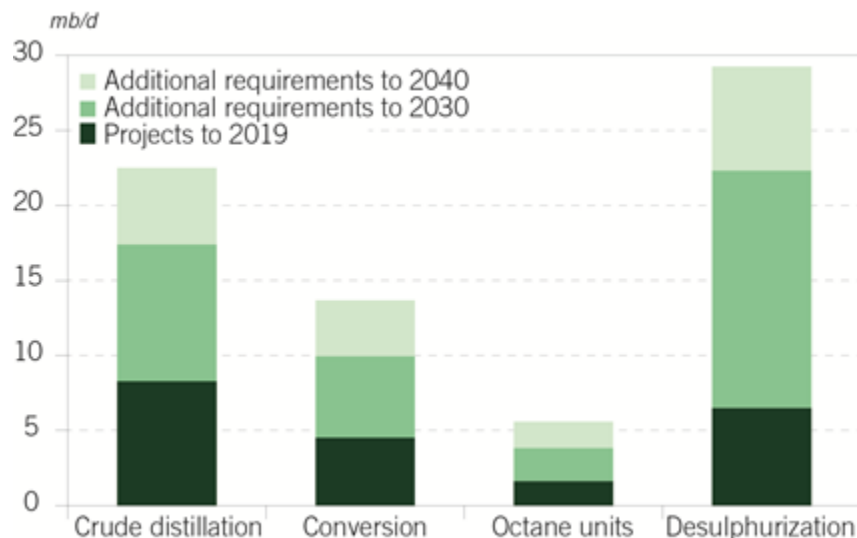
**Global gasoline demand and ethanol supply
2010–2040**



Out of 22.5 mb/d of total distillation capacity needed by 2040, more than 50% is for the Asia-Pacific



Global capacity requirements by process type, 2013–2040



- Asia-Pacific comprises the largest share of total additional crude distillation capacity required by 2040
- Beyond current projects, the remaining additions after 2020 will be fairly equally distributed among Latin America, the Middle East and Africa
- Complexity of the global refining system set to increase
 - 14 mb/d of conversion units
 - 29 mb/d of desulphurization capacity
 - almost 6 mb/d of octane units



- Oil remains a key energy source, helping to satisfy the world's energy, material and transport needs
- Large resource base, with a very diverse source of supply
- There remain massive uncertainties with regard to the amount of oil needed
- Security of demand and supply are two sides of the same coin
- Challenges exist in the downstream: closures versus expansion
- Oil trade will increasingly shift eastward



Thank you



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