

OPEC Energy Market Outlook: Short-, Medium- and Long-term

12th IEA-IEF-OPEC Symposium on Energy Outlooks

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Outline

- **Short-term market outlook**
 - Economy, demand, supply and stock assessments

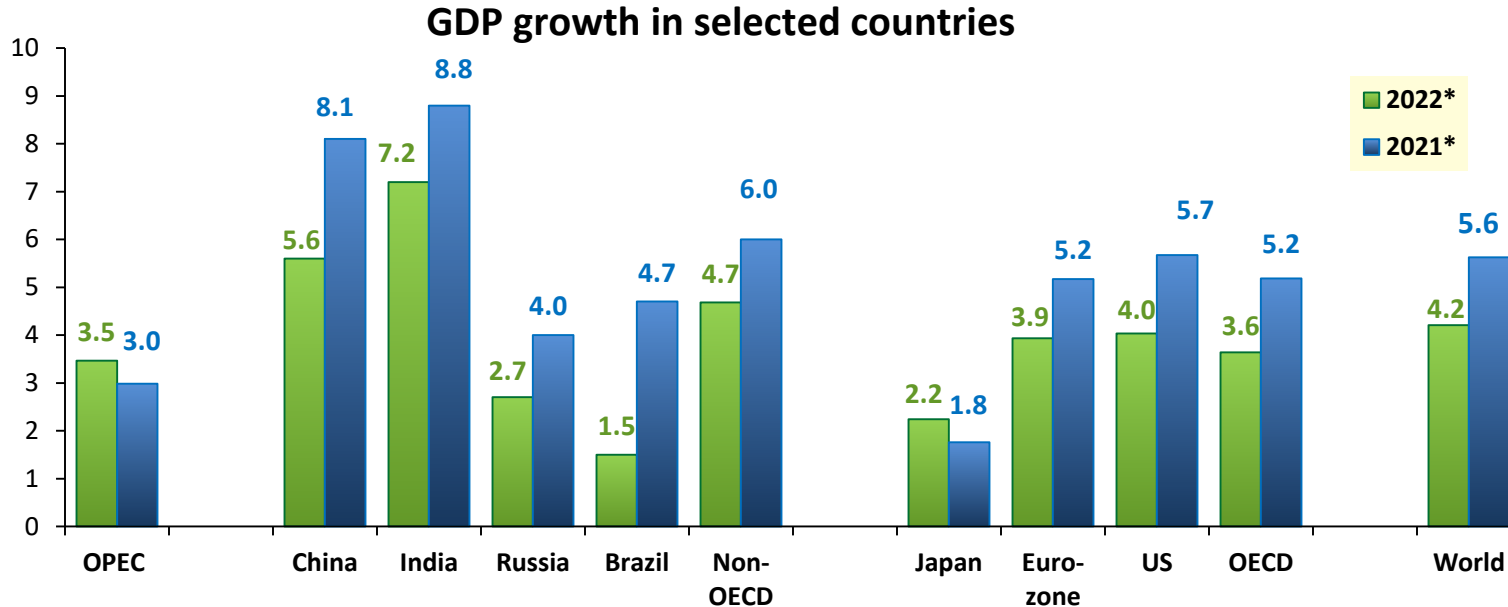
- **Medium- and Long-term Market Outlook**
 - Energy outlook
 - Oil outlook
 - Key takeaways

World economic growth at 5.6% for 2021 & 4.2% for 2022

GDP percentage change from the previous year, %



'Successful past, sustainable future'



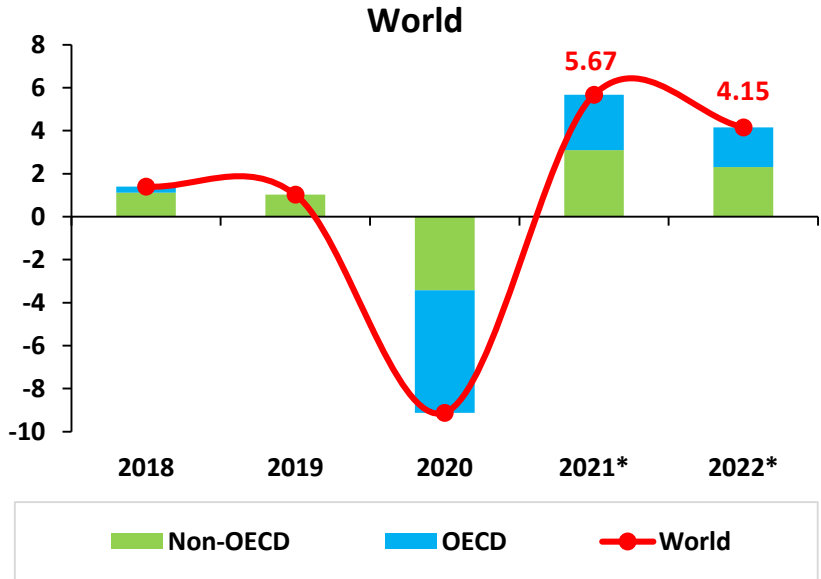
- The **global economy** is forecast at **5.6%** in **2021** and at **4.2%** in **2022**, however, uncertainties such as COVID-19, etc. remain.

Note: 2021 = Estimation and 2022 = Forecast.

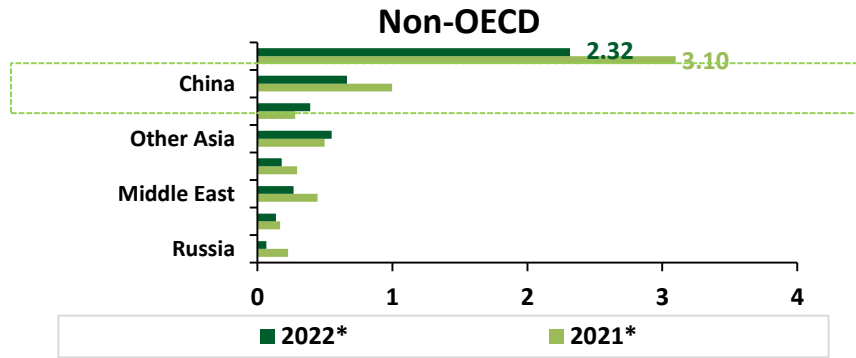
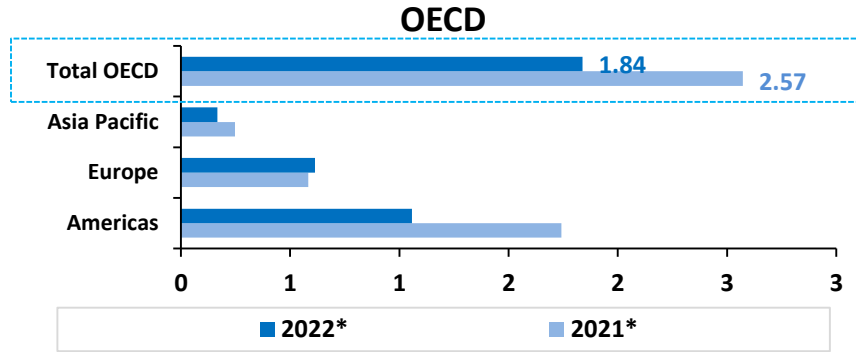
Sources: OPEC, IMF, IHS Markit and Haver Analytics.

World oil demand growth expected higher in 2021 & 2022

y-o-y change, mb/d



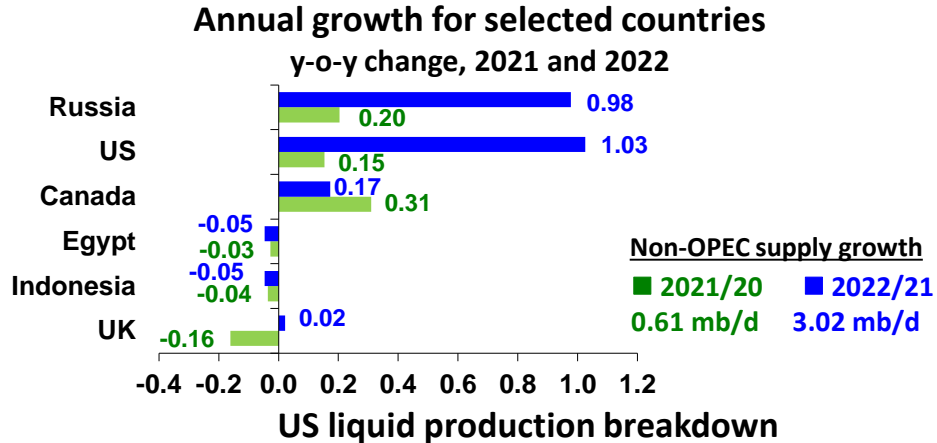
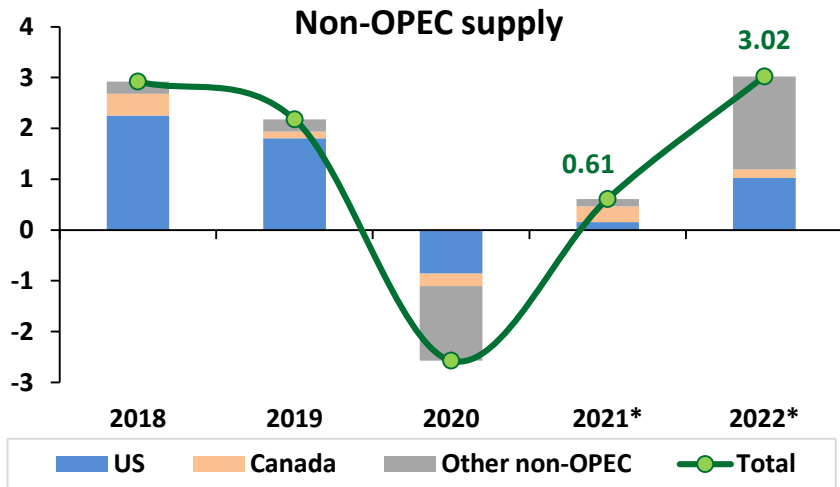
- World oil demand is forecast to increase by **5.7 mb/d** in **2021** and **2 mb/d** in **2022**.



Note: * 2021 = Estimation and 2022 = Forecast. Source: OPEC.

Non-OPEC supply expected to recover in 2021 & in 2022

y-o-y change, mb/d



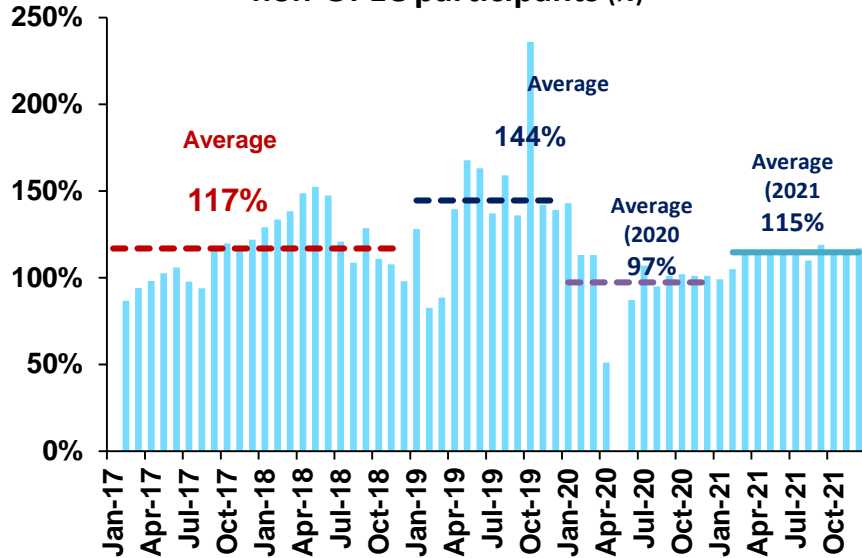
	2020	2021*	2021/20	2022*	2022/21
US liquids	7.39	7.28	-0.11	7.95	0.67
Tight crude	1.64	1.80	0.16	1.88	0.08
Gulf of Mexico crude	2.25	2.06	-0.19	1.96	-0.10
Conventional crude oil	11.28	11.14	-0.14	11.79	0.65
Total crude	4.09	4.35	0.26	4.71	0.36
Unconventional NGLs	1.09	1.10	0.01	1.08	-0.02
Conventional NGLs	5.17	5.45	0.28	5.79	0.34
Total NGLs	1.15	1.17	0.02	1.21	0.04
US total supply	17.61	17.76	0.15	18.79	1.03

- Non-OPEC liquids production is forecast to increase by 0.6 mb/d in 2021 and 3.0 mb/d in 2022. US total liquid supply is expected to increase by 0.15 mb/d in 2021 and 1.03 mb/d in 2022.

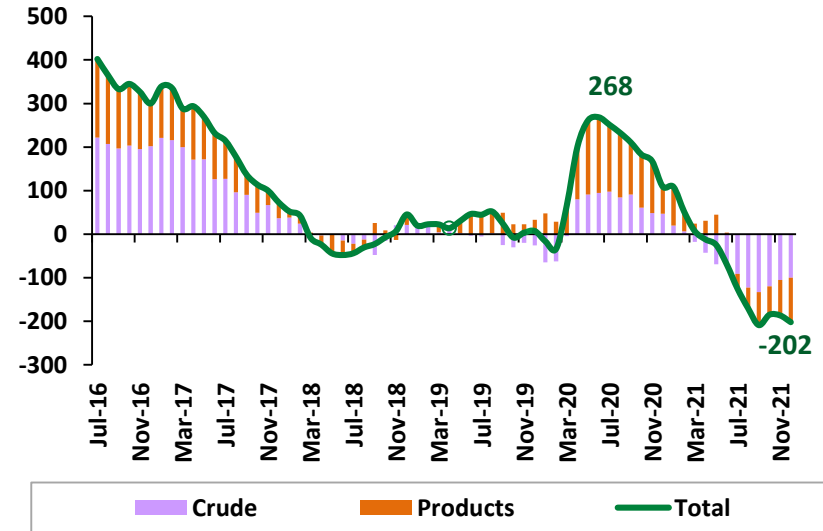
Note: * 2021 = Estimation and 2022 = Forecast. Source: OPEC.

Strong conformity led to a drop in OECD commercial oil stocks

Conformity by OPEC and non-OPEC participants (%)

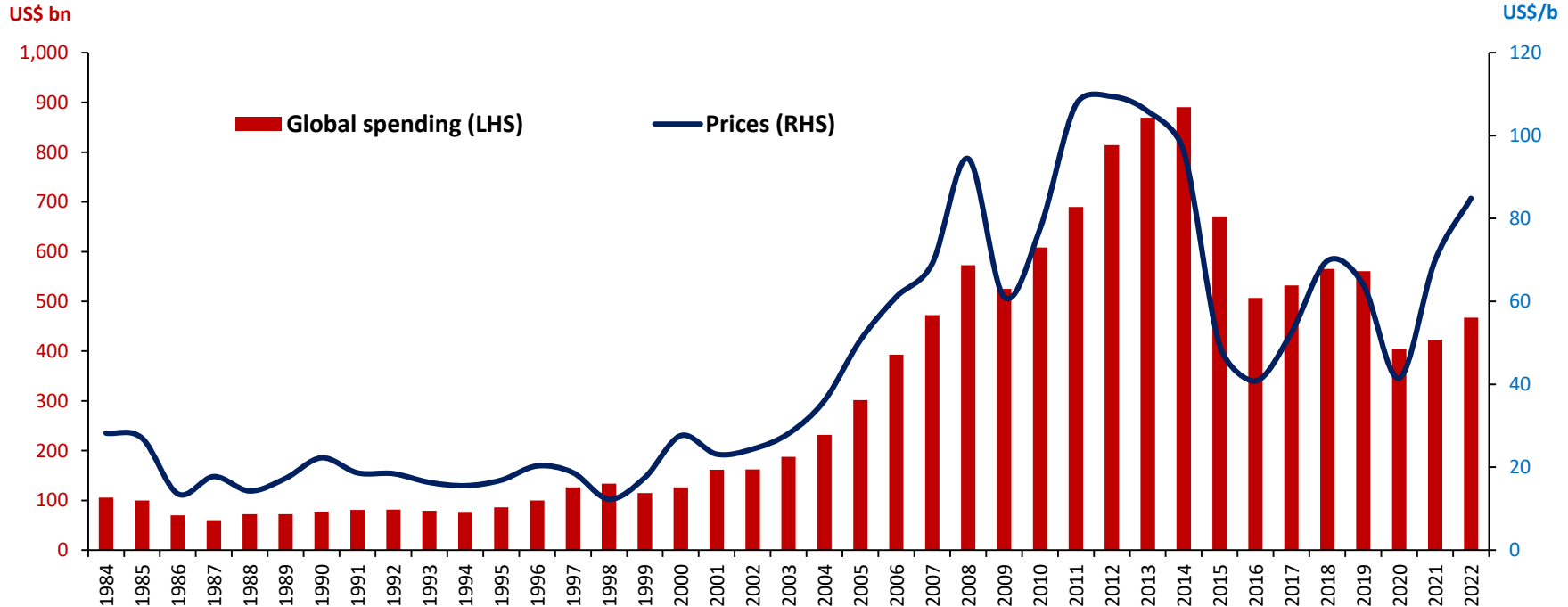


OECD commercial oil stocks (deviation from 2015-19 average, mb)



- **OECD commercial stocks declined** m-o-m in December to stand at 2,725 mb, standing **202 mb below the 2015-2019 average** – crude (-100 mb), products (-102 mb).

Excessive stock surplus strongly impacted negatively oil market leading to a deep cut in global E&P spending



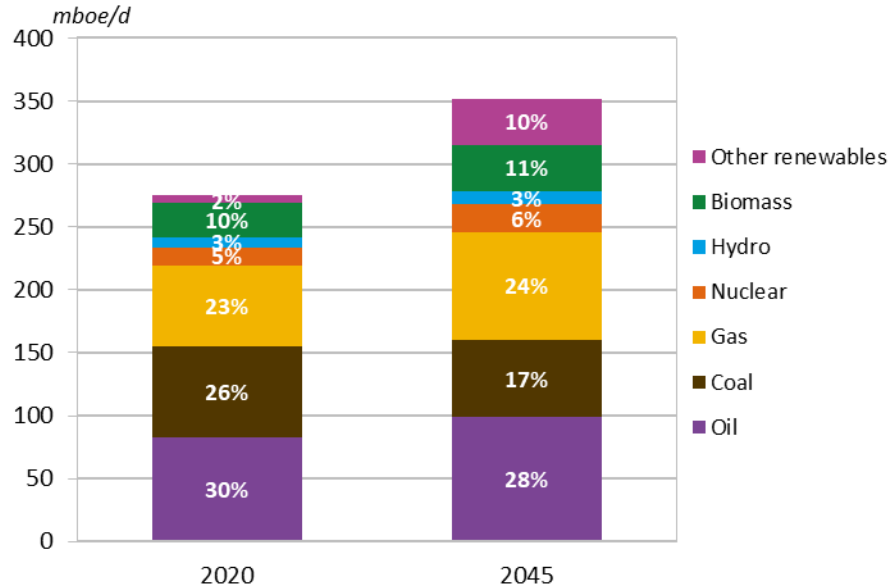
Note: 2022 = Forecast.

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 - Economy, demand, supply and stock assessments
- **Medium- and Long-term Market Outlook**
 - **Energy outlook**
 - **Oil outlook**
 - **Key takeaways**

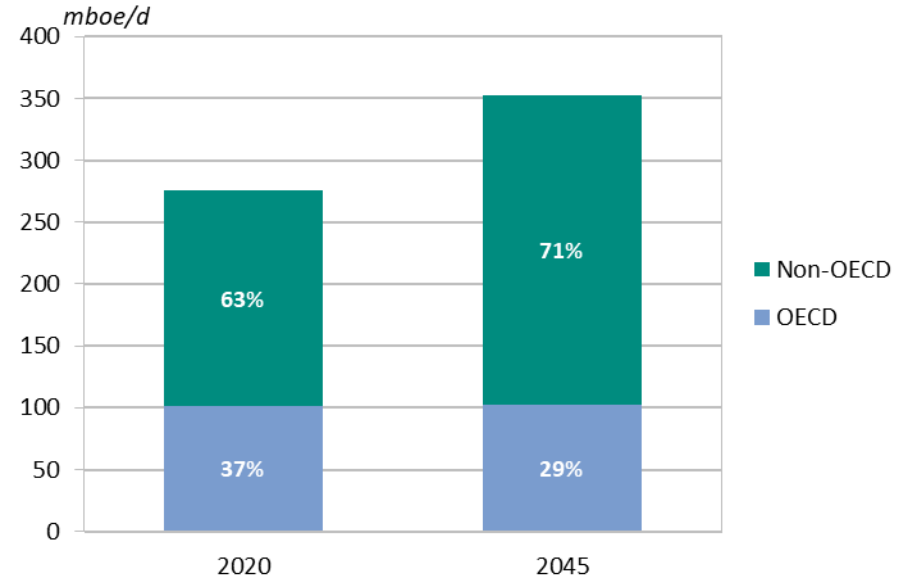
Global energy demand is set to increase by 28%, from 275.4 mboe/d in 2020 to 352 mboe/d in 2045



Primary energy demand by fuel



Primary energy demand by region



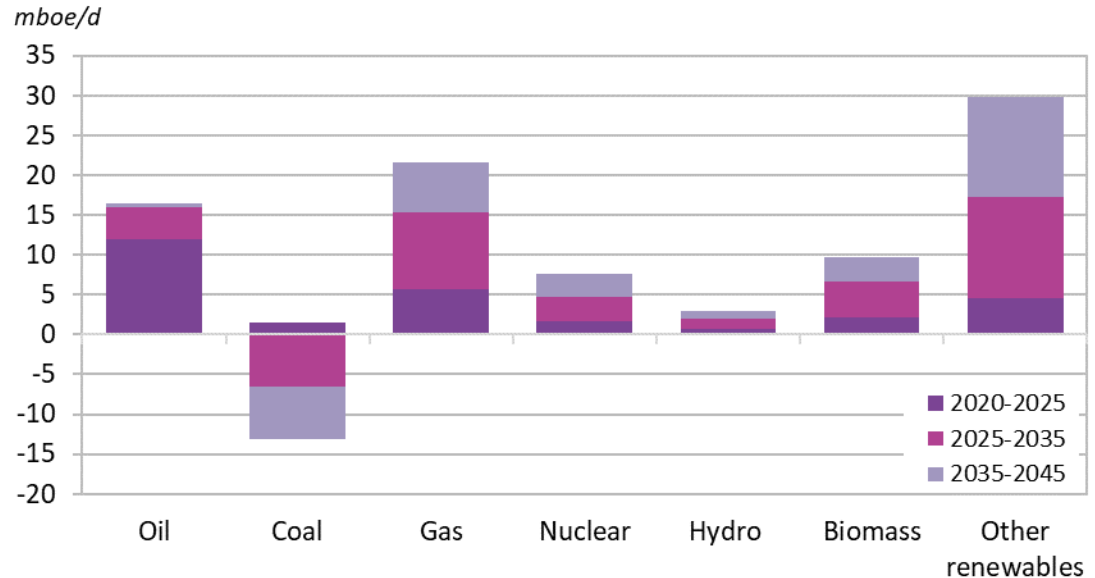
- Oil will **maintain its largest share** in the energy mix in the period to 2045
- Entire growth in energy demand will come from **non-OECD**

Other renewables and natural gas continue playing a significant role in the evolving energy mix



- Supported by energy policies, **other renewables** continue to expand adding almost **30 mboe/d** in the long-term
- Gas** continues growing to provide the second largest addition, increasing by almost **22 mboe/d**
- Oil** grows **strongly** in the short- and medium-term
- Declining **coal** demand

Growth in primary energy demand by fuel, 2020-2045

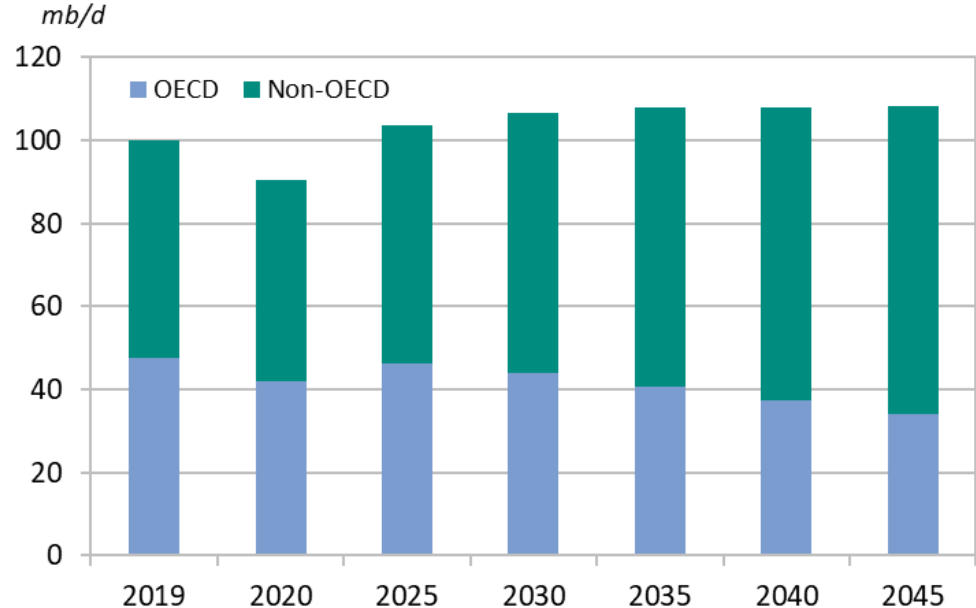


Global oil demand is expected to increase by 17.6 mb/d between 2020 and 2045



- Oil demand by 2026 is almost **14 mb/d** higher than in 2020 but **only around 4.4 mb/d higher than in 2019**
- Oil **demand growth** will slow significantly after the **medium-term period**
- Oil demand projected to **reach around 108 mb/d** in the long-term
- Growth in non-OECD** region (+25.5 mb/d) will be partly offset by **declines in the OECD** (-7.9 mb/d)
- Largest incremental demand in India (6.5 mb/d), Other Asia (4.8 mb/d), OPEC (3.9 mb/d) and China (3.8 mb/d)

Oil demand by region

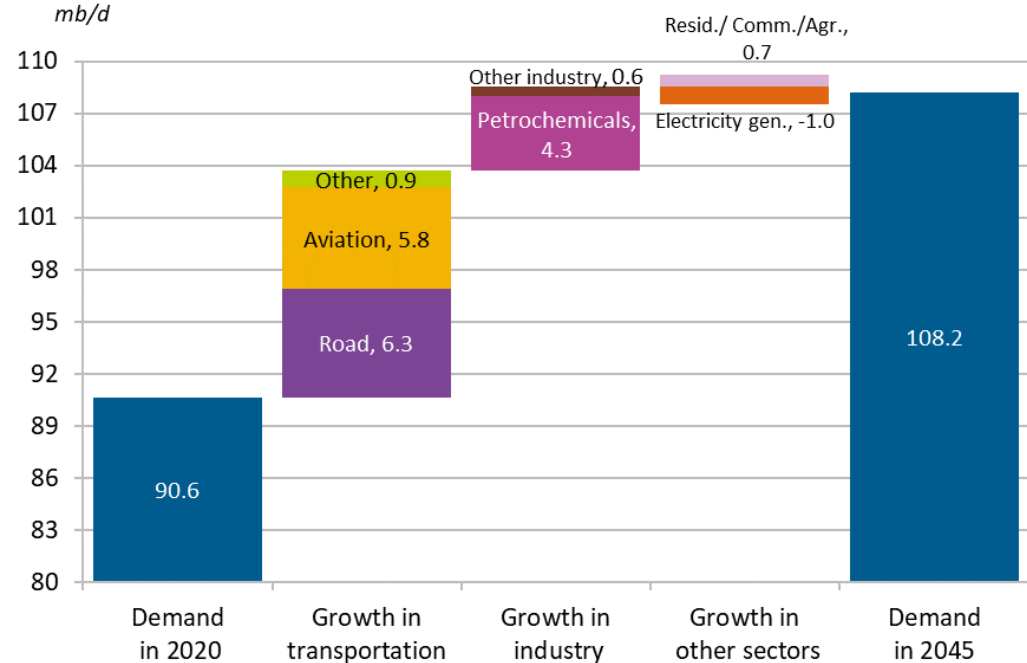


Significant demand increase projected from road transportation, aviation and petrochemicals sectors



- Pattern in the sectoral growth strongly depends on the base year due to different **impact of COVID-19**
- Compared to 2020, demand growth is dominated by **transport sector**
 - Road transport +6.3 mb/d
 - Aviation +5.8 mb/d
- Significant demand growth also in **petrochemicals (+4.3 mb/d)**
- **Electricity generation**: oil demand decline of 1 mb/d

Oil demand growth by sector between 2020 and 2045

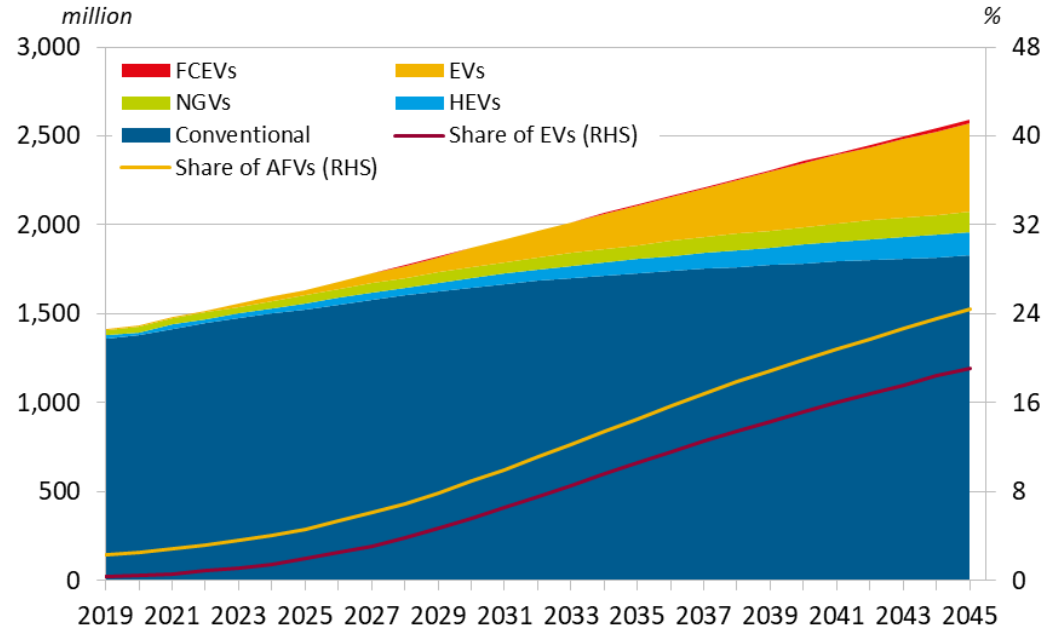


Long-term oil demand growth will be limited by growing penetration of electric vehicles



- Total vehicle fleet: **2.6 billion** by 2045
- **EV fleet** will approach **500 million vehicles** by 2045 (almost 20% of the global fleet)
- Some growth is also projected for **NGVs** (+80 million between 2020 and 2045)
- By 2045: **76% ICE** vehicles vs **24% of alternative vehicles**
- Oil demand in the road transportation sector projected to stay in a **narrow range of 46 mb/d to 46.5 mb/d** after 2025

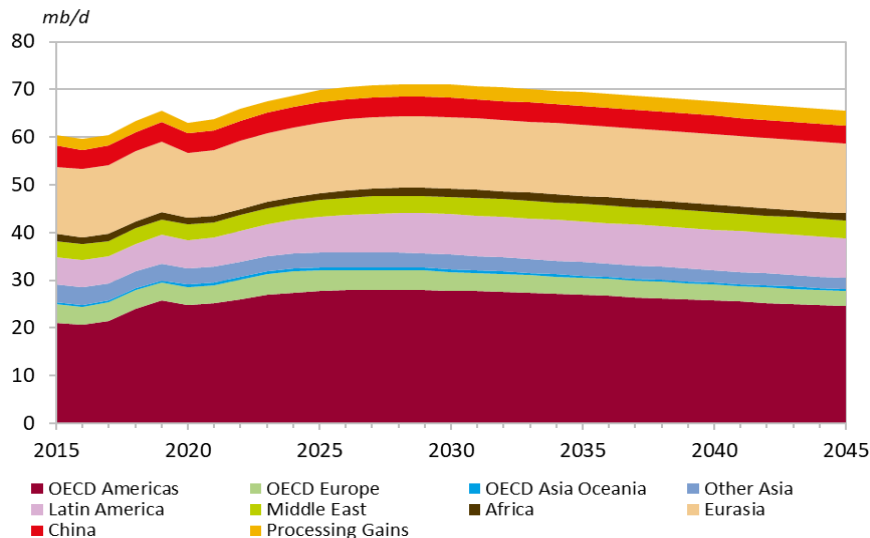
Global fleet composition, 2019–2045



Oil supply: non-OPEC peaks in late 2020s



Long-term non-OPEC liquids supply outlook by region



Long-term non-OPEC liquids supply outlook by type

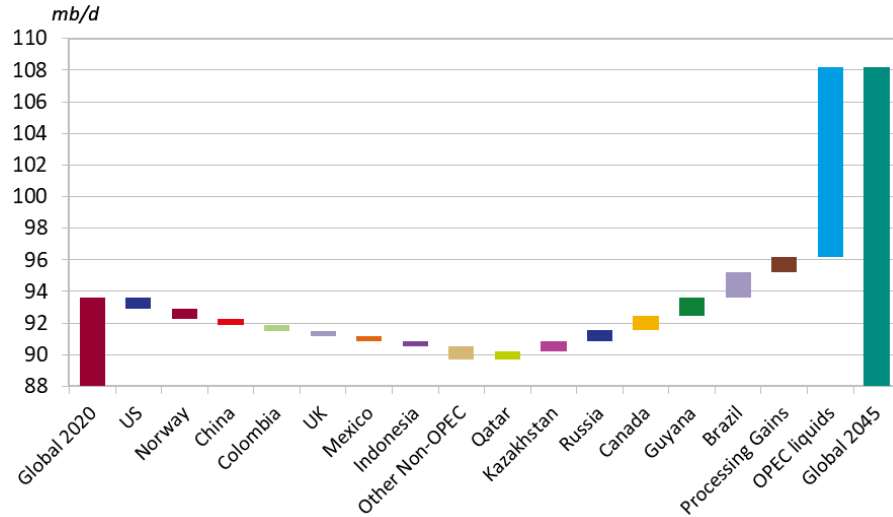
	2019	2020	2025	2030	2035	2040	2045	Change 2020-2045
Non-OPEC	65.5	62.9	69.8	71.0	69.4	67.5	65.5	2.5
Crude	45.8	43.5	48.0	47.5	44.7	41.9	39.3	-4.1
NGLs	11.0	11.2	12.3	13.3	13.8	14.0	14.1	2.8
Global biofuels	2.6	2.4	2.8	3.2	3.5	3.8	3.9	1.5
Other liquids	3.8	3.7	4.1	4.3	4.6	4.8	5.0	1.4
Total OPEC liquids	34.6	30.7	34.0	35.7	38.5	40.6	42.7	12.0
World	100.1	93.6	103.8	106.7	107.9	108.1	108.2	14.6

- **Non-OPEC liquids peak in late 2020s in line with US tight oil**, then slowly decline to 65.5 mb/d by 2045
- **Non-OPEC crude oil declines by 4.1 mb/d in LT**, due to US tight crude, but also mature base in other non-OPEC
- All other non-OPEC liquids increase, led by **NGLs**, which **grow by 2.8 mb/d**

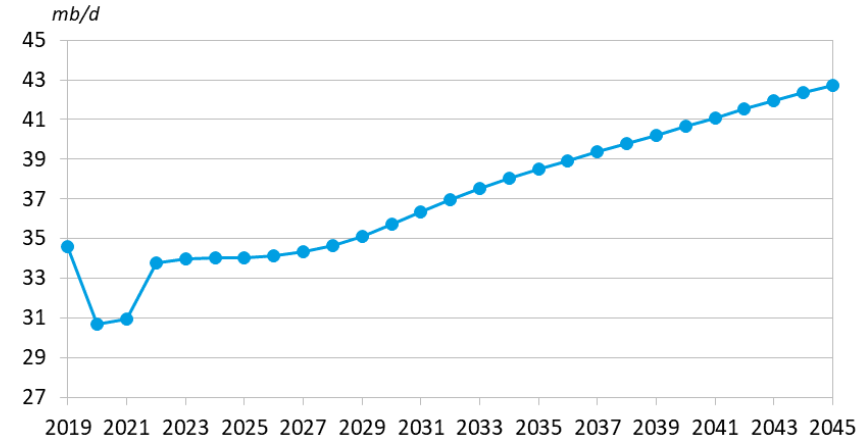
OPEC liquids to rebound and grow from late 2020s



Composition of long-term global liquids supply growth, 2020-2045



OPEC liquids supply

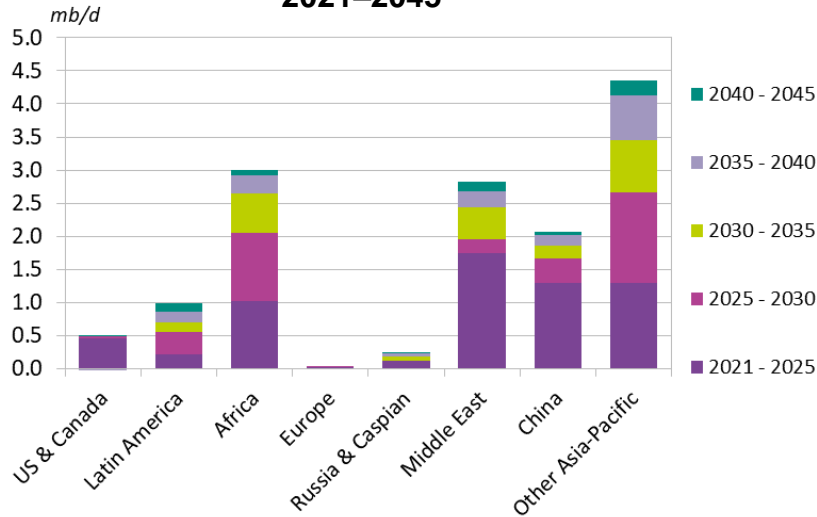


- As in previous WOOs, the **handful of LT sources of non-OPEC growth** (led by Brazil, Guyana, Canada et al) are largely **offset by decline in other non-OPEC** countries (e.g. US, Norway, China etc)
- **OPEC liquids rebound** after 2020 adjustments, settling at around 34 mb/d in the mid-2020s
- But after non-OPEC supply peaks in late 2020s, **OPEC liquids see potential to grow to 42.7 mb/d** by 2045

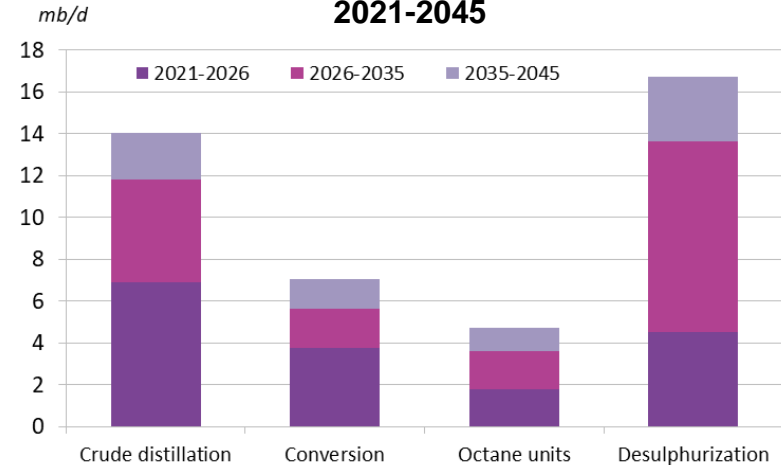
Crude distillation capacity additions at 14 mb/d accompanied by significant additions in secondary units



Distillation capacity additions, 2021–2045



Global capacity requirements by process type, 2021-2045

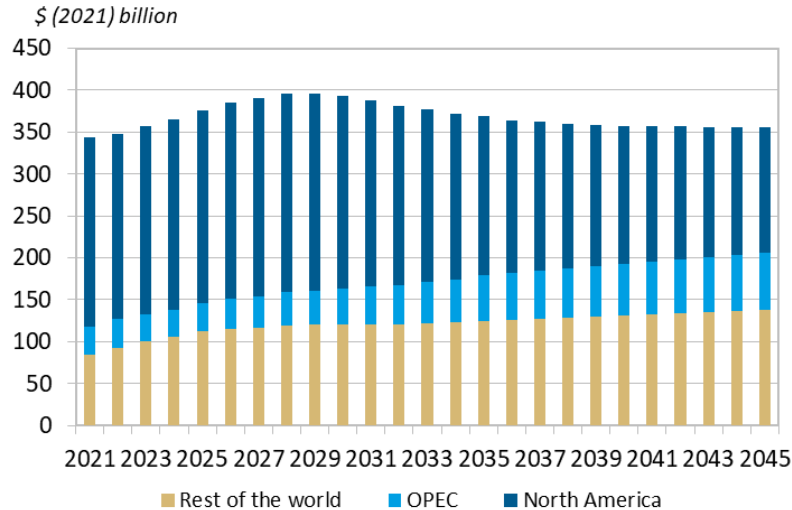


- Distillation capacity additions mostly in **developing countries** with a significant **slowdown** towards the end of the outlook period
- Product specifications and heavying of the crude slate in the long-term will drive secondary capacity additions

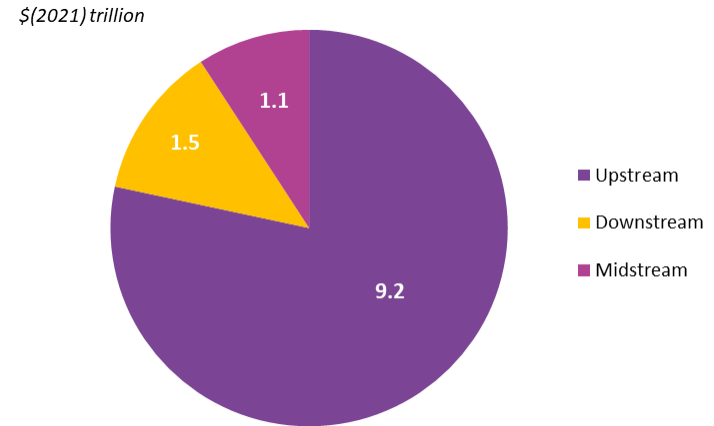
Cumulative long-term oil-related investment needs are \$11.8 trillion



Required annual upstream investment in oil



Cumulative oil-related investment requirements by sector, 2021-2045



- **Cumulatively, \$9.2 trillion (in 2021 dollars) will be required for long-term upstream investment** in order to meet demand needs
- Added to \$1.5 trillion required in the downstream, and \$1.1 trillion in the midstream, **total oil-related investment requirements over the long-term will be \$11.8 trillion**

Oil demand and supply uncertainties rise



- Considering **alternative GDP growth**: the range of demand uncertainty is **almost 13 mb/d in 2045**
- **Africa** could play an important role in supporting higher economic growth in the long-term; oil demand in Africa could be as high as 12 mb/d by 2045
- **Additional policy** measures supporting **faster fuel substitution** and penetration of more efficient **technology** could push global oil demand below 100 mb/d by 2045
- Supply risks are heavily skewed to the **downside**
- Current policy debate could further exacerbate demand uncertainty
- **Energy poverty** remains a global issue which **needs to be addressed**

Key takeaways



- **Oil will remain the no. 1 fuel in the long-term**, even as the energy mix evolves
- **Renewables are growing fastest**, thus making the energy mix more **diversified**, but face substantial economic, technological and infrastructural challenges to scaling up
- **Climate challenges are huge**, but need to be balanced with economic recovery, an equitable transition and eradicating energy poverty
- **Sustained and large investments are needed** to ensure ample oil supplies and avoid market volatility
- The evolution of **energy policies related to emissions reduction** remains key to understanding our energy future
- **Different possible trajectories** for policy, economic development and technology mean **significant uncertainties remain**



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