

Hydrocarbons and Sustainability

Nayef A. AlMusehel

Deputy Minister of Policies and Strategic Planning

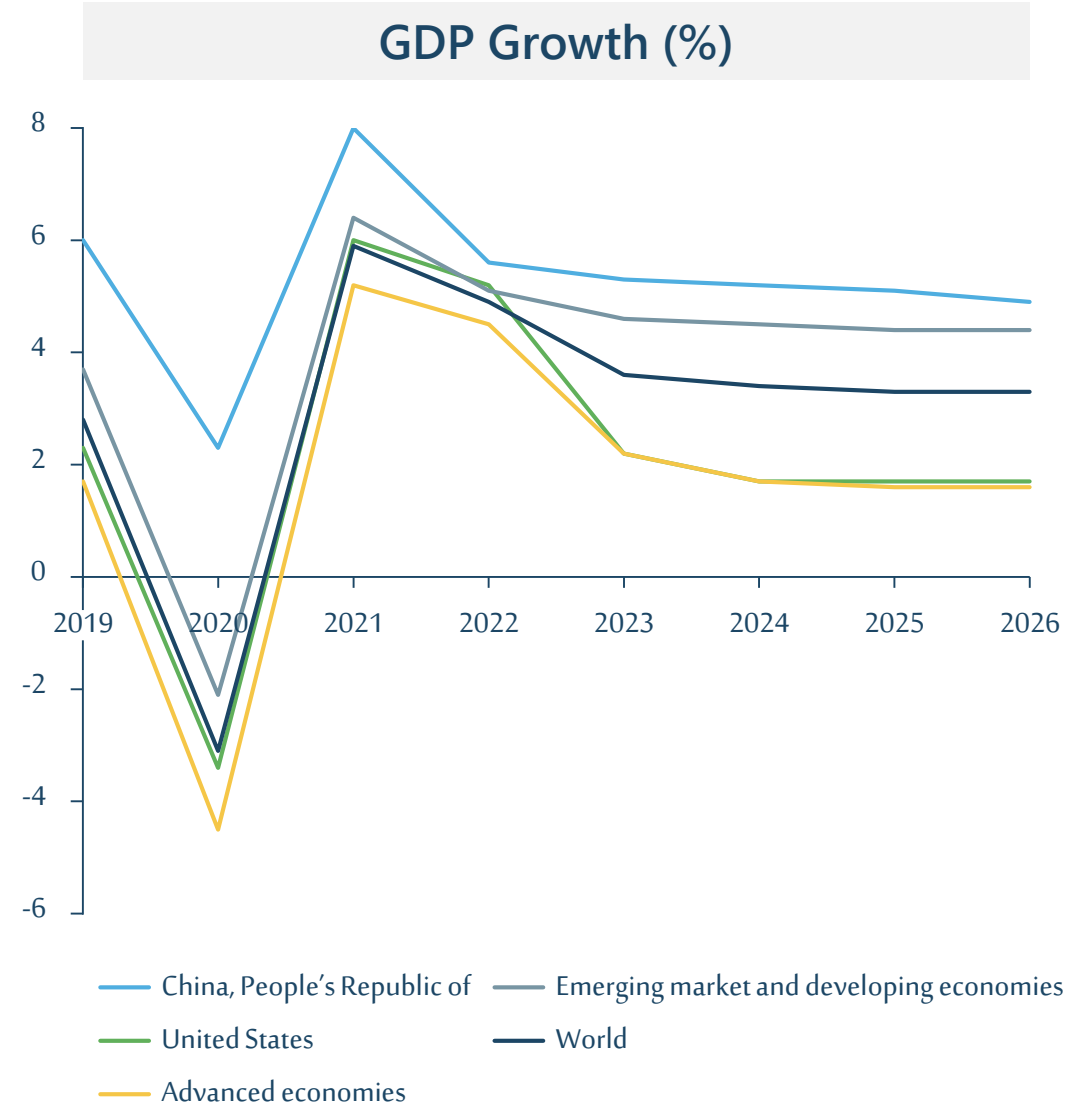
Ministry of Energy

Saudi Arabia

Economic Growth Post-COVID

What role would energy play in supporting global growth?

- Economic performance in the medium term is forecasted to be solid, exhibiting larger growth in China, India, and other emerging markets
- COVID-19 impacts may have dwindled following vaccination campaigns, booster shots, and we are returning, gradually, to the pre-covid activities. In the least, any subsequent impact of COVID is dwarfed in contrast to its peak
- The upcoming period of economic recovery is characterized by new and emerging sectors, greater focus on digital economies, and vertical integration in hydrocarbons and chemicals



Source: IMF

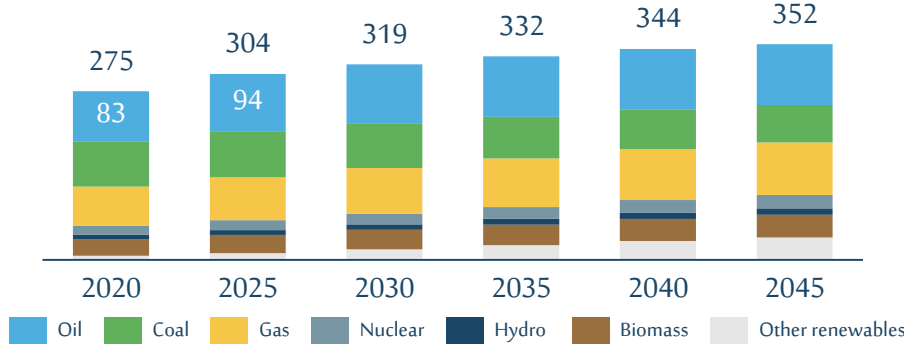


Global Energy Demand

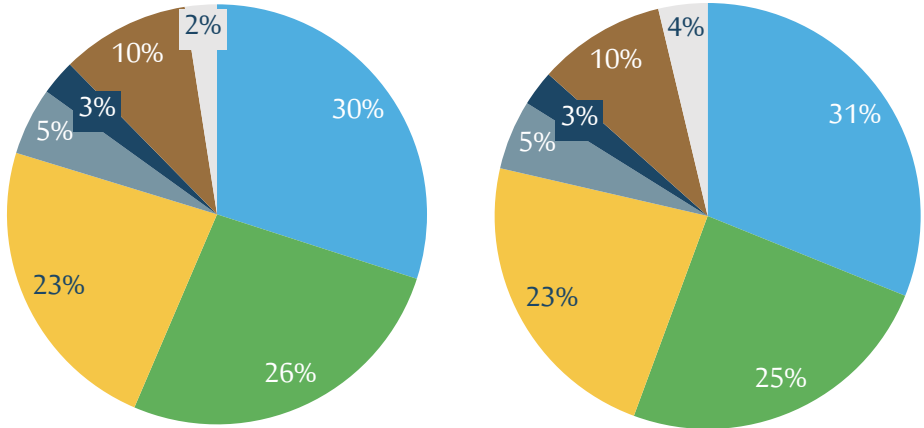
Have we invested enough in global energy supply?

- Global primary energy demand is expected to increase by 28% through 2045. Primarily driven by projected economic recovery, and growth
- Primary sources of energy are expected to grow from 2020 baseline, with the exception of coal, and renewables forecasted to witness the fastest growth
- Oil is forecasted to maintain its lion's share of the energy mix by 2045, with noticeable growth in gas

Primary Energy Demand Mix (mmbdoe)



Primary Energy Mix (2020 vs 2025)



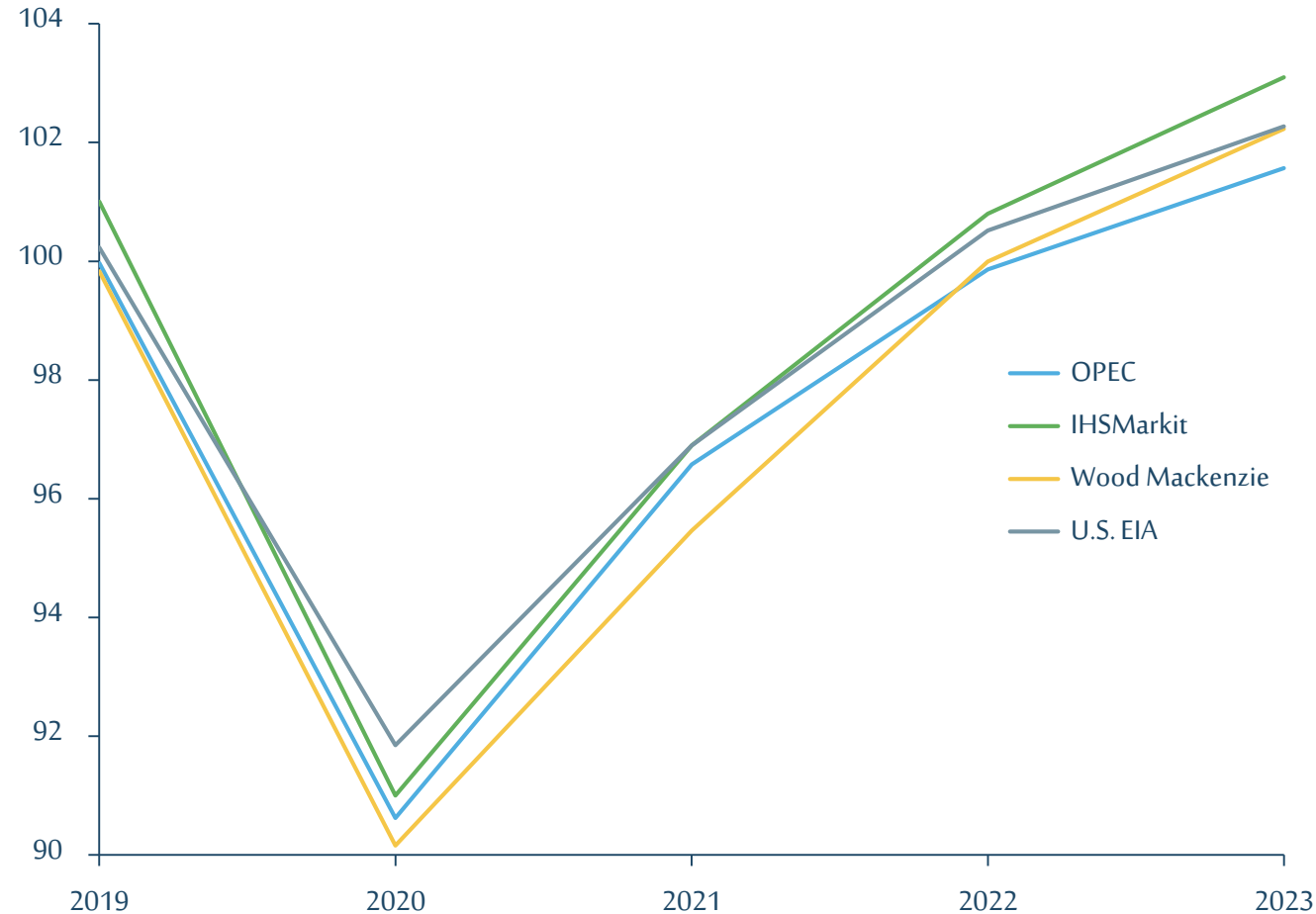
Source: OPEC World Oil Outlook 2021



Med-Term Oil Demand

How is the oil demand going to shift and change in the next 2 years?

- Oil demand is expected to recover from COVID-19 levels by 2022.
- The global health system has more arsenals to fight the pandemic nowadays (vaccinates, post-infection tablets ... etc), this coupled with structural change in demand for petrochemical products and consumer behaviors in mobility, pushing demand for oil in the short and medium terms.



Source: OPEC World Oil Outlook 2021, IHSmarkit, WoodMackenzie, U.S. EIA

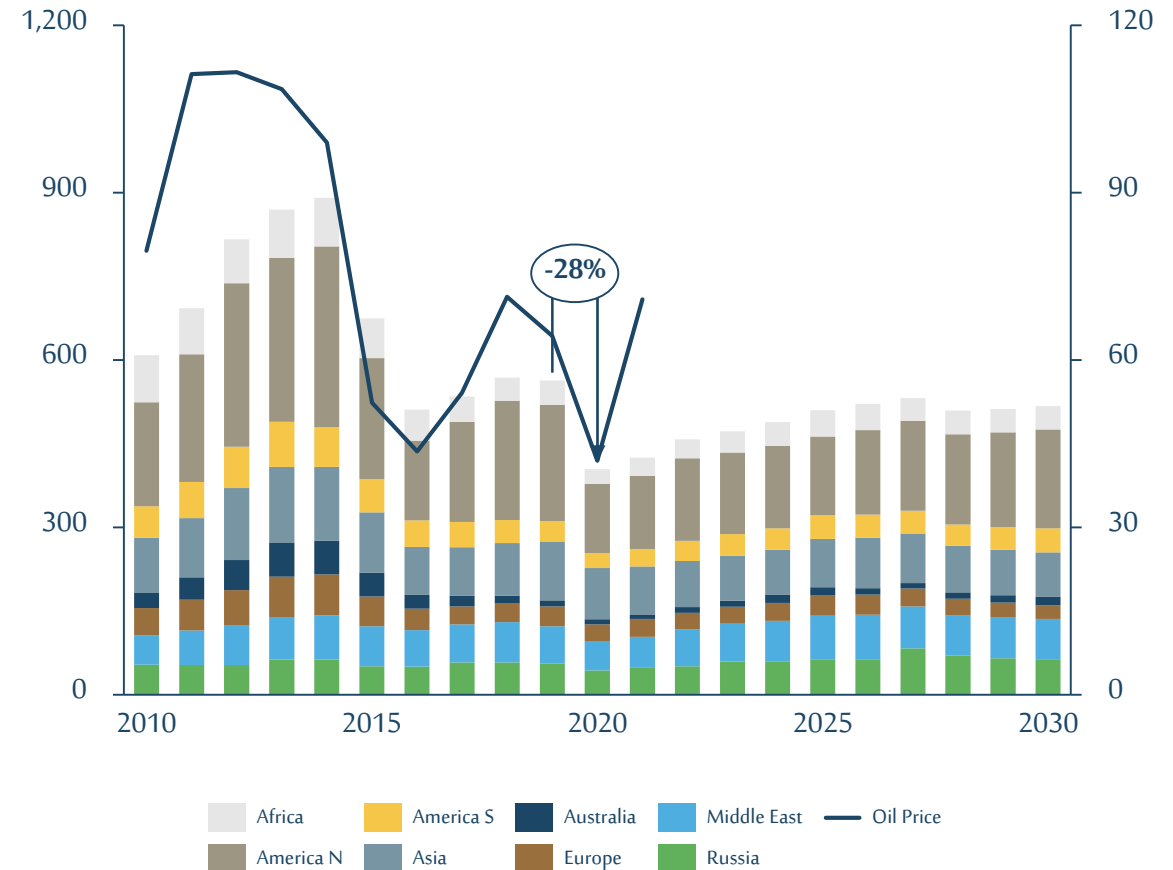


Underinvestment fueling Global Energy Crisis

How are the dynamics of demand and supply playing out?

- Global investment in oil and gas upstream declined by 30% in 2020-2021.
- Investment needs to grow by at least 5% annual to meet expected short term demand till 2025
- Without influx of investments, the energy market could potentially undersee further volatility, which is not in the interests of either producers or consumers.
- Saudi Arabia remains committed to supporting investments, which yield sustainable market stability and the right enabling environment

Global Upstream CAPEX (Billions, \$)



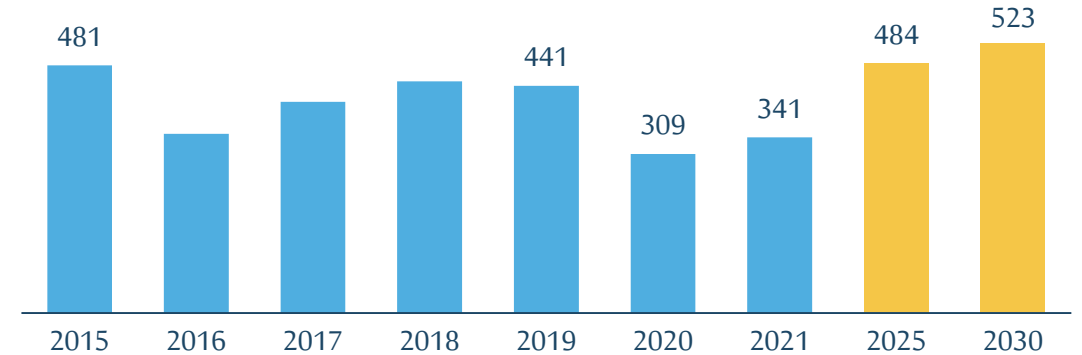
Source: Rystad, FRED, OPEC World Oil Outlook 2021



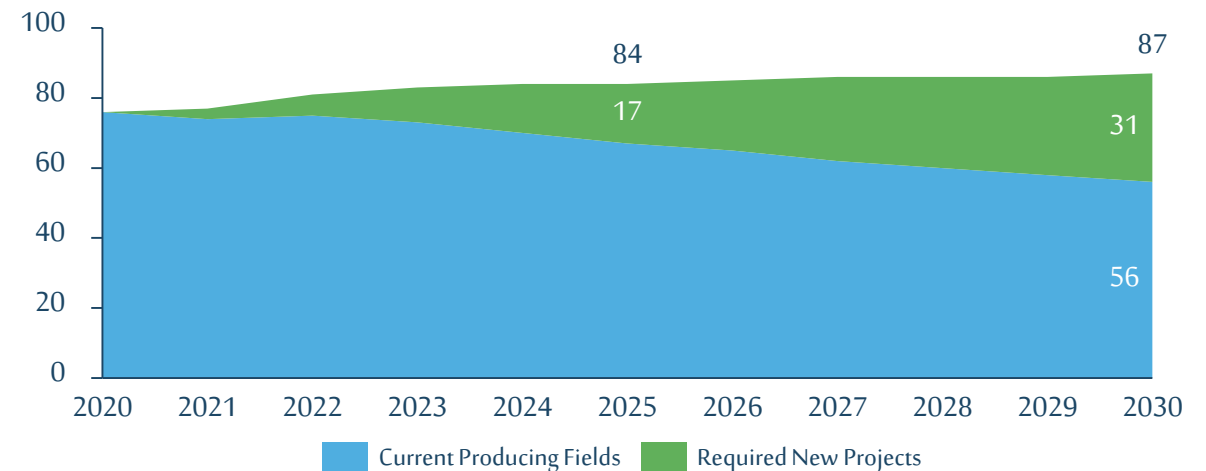
Oil Demand (Mid Term)

- The total investment required over the next ten years exceeds \$4.7 trillion
- Restricting investments or introducing further barriers to invest in conventional hydrocarbons could lead to 30 MMBD deficit in supply
- Investments is already rising, led by NOCs with double digit budget hikes, but continued global increases are not assured due to pressure on investments (i.e. capital discipline constraints of public operators, increasing stakeholder scrutiny of emissions and economic returns, price volatility and governments' energy transition strategies)

CAPEX for Global Exploration and Production Activities (Billions, \$)



Required New Projects to Meet Expected Demand (MMBD)



Source: IHSmarkit, WoodMackenzie, IEA, IEF



Take-A-Ways

- Energy demand will grow to support economic growth in the near-medium terms.
- Oil will continue to play a vital role in the global energy mix; renewables and green energy sources will support the resilience of the global energy mix.
- Oil demands will be shaped by growth in petrochemicals, transport and growth from developing countries post COVID19.
- Underinvestment has fueled energy crisis; supply deficit could be faced in the near-medium term if we don't increase/ease investment in the conventional hydrocarbon sector.
- Saudi Arabia has been working globally and domestically to ease the global energy crisis by increasing investments in hydrocarbons, with a focus on GHG emission reduction via versatile frameworks (CCE, Hydrogen, etc.)

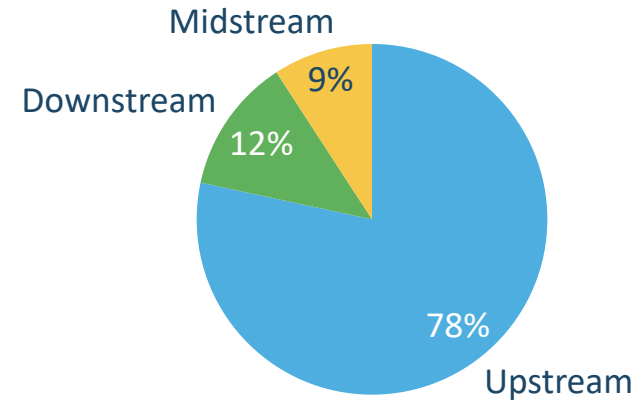


Investment Breakdown

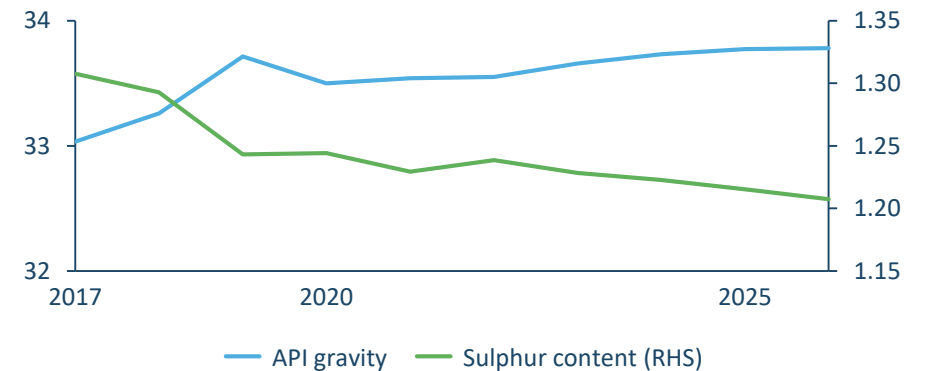
Would upstream lower CAPEX and projects delay impact other sectors?

- Upstream projects represent (~9.2 Trillions) represent 78% of total cum of the cumulative oil-related investment to meet demand by 2045.
- Downstream required cumulative investments is estimated to be around (~1.5 Trillions). This could raise as some global producers lowered their investments in the past 5 years which altered the global crude slate.

Cumulative oil-related investment requirements by sector (2021-2045)



Global Crude Quality



Source: OPEC World Oil Outlook 2021

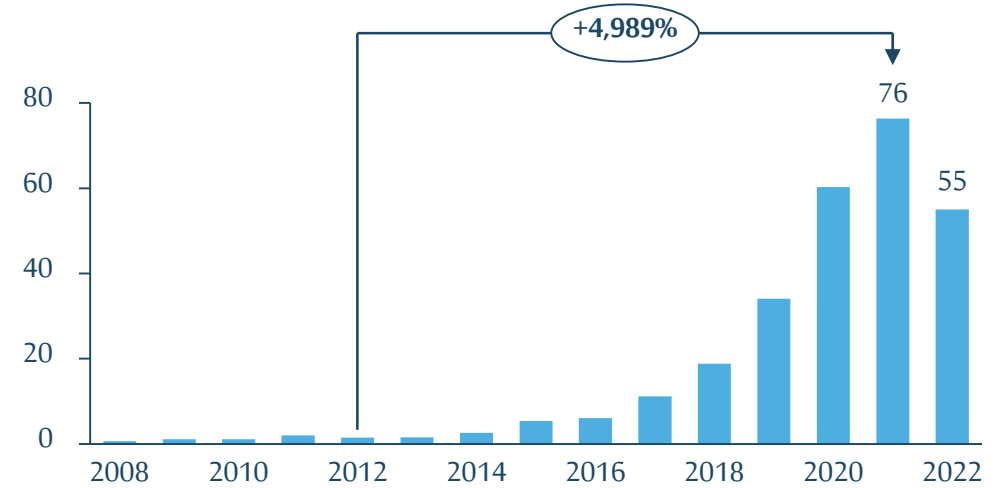


Policy-Based ESG Investment Acceleration

What is the burden on the energy producers in the ESG era?

- A momentum toward directing investments toward ESG policies. Google online public interest shows increase of interest by 43% annual between 2012 and 2022.
- Low ESG related investments could become more expensive; hence, rechanneling financing away from conventional fuels projects.
- This trend, if continued to develop, could lead to rising energy prices .

Public Interest in ESG Investing (Points)



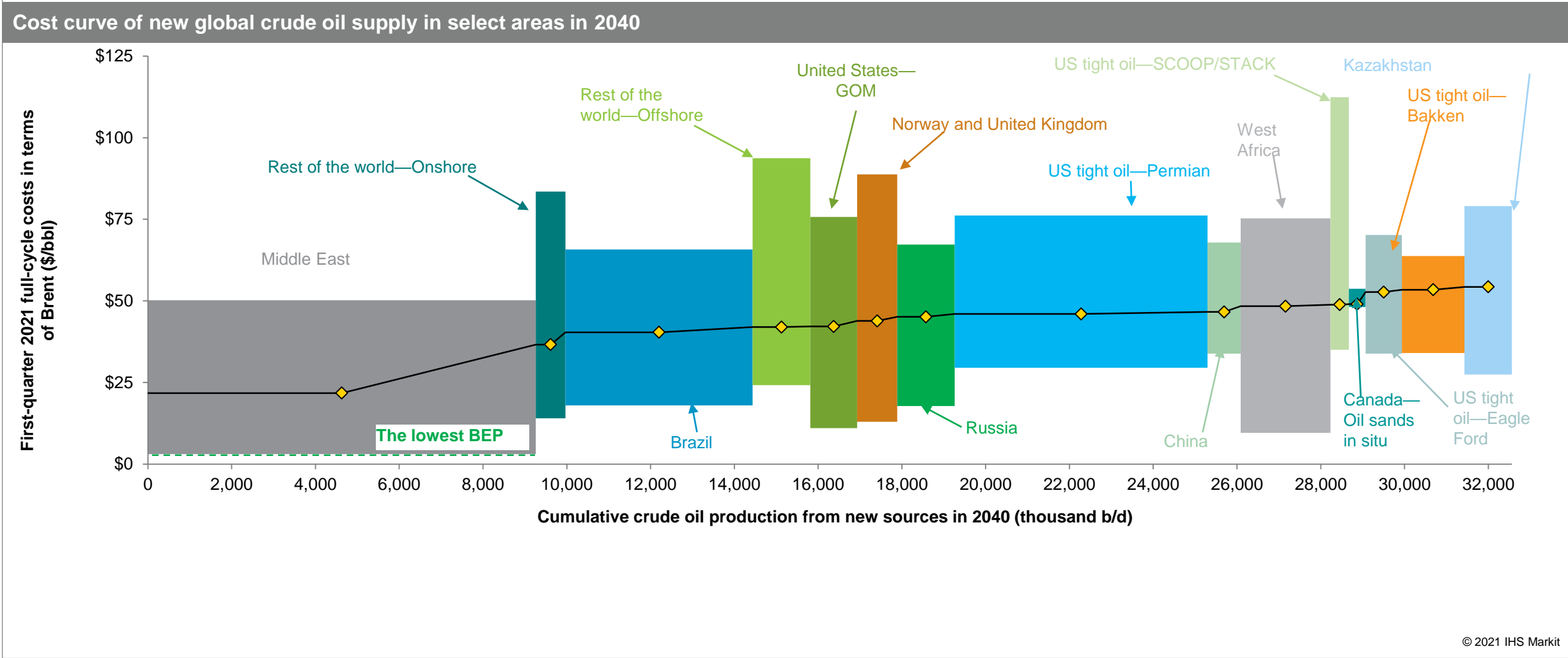
THE WALL STREET JOURNAL
U.S. | JOURNAL REPORTS: YEAR IN REVIEW
This Was the Year Investment and Businesses Put Big Bets on Climate
A lot of individuals, institutions hope to profit from reducing emissions

REUTERS
Middle East
Saudi wealth fund PIF to issue green debt soon, says governor

The New York Times
Business Schools Respond to a Flood of Interest in E.S.G.
As the number of jobs focused on environmental, social and governance issues grows, M.B.A. programs are updating their courses to meet demand from students and recruiters.



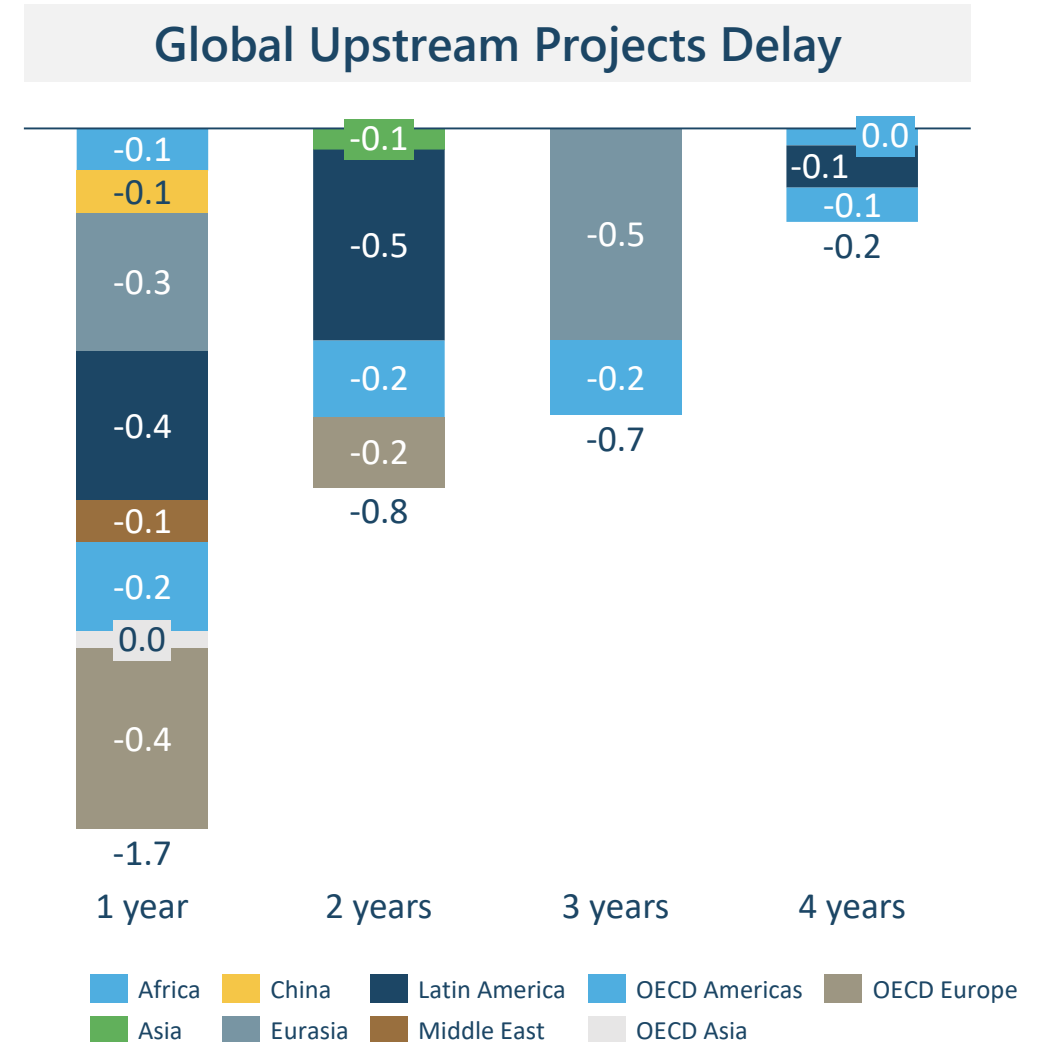
Middle East Producers will continue to retain their cost advantage



COVID-19 Pandemic shocked investment inflow

Why would COVID-19 continue to impact energy market for the next 5 years?

- Upstream Project FIDs have been delayed in 2020 and 2021, on average for 2 years.
- Upstream projects in the Middle East, lead by Saudi Arabia, have witnessed the lowest slowdown as government supported the energy sector to ensure reliability.
- KSA Energy ecosystem managed to deliver many projects in 2020 and 2021 (Smart metering, Circular Carbon Economy, Hydrogen, expansion of solar, energy mix ...)



Energy Markets Ongoing Volatility

Why different energy products are witnessing different market volatility?

- The pandemic changed to the energy industry, with investment in renewable energy sources faring best through the downturn as policy makers pushed for green recovery.
- Some countries are utilizing a share of their fiscal stimulus aimed at boosting economic recovery to support the green recovery, to enhanced the role for renewables and help achieve Paris agreement targets.
- Unbalanced policies could unnecessarily burdensome the economy, with regressive social impacts creating challenges for resilient and sustainable energy system which is leading to higher prices

Energy Products Prices

