



human energy[®]

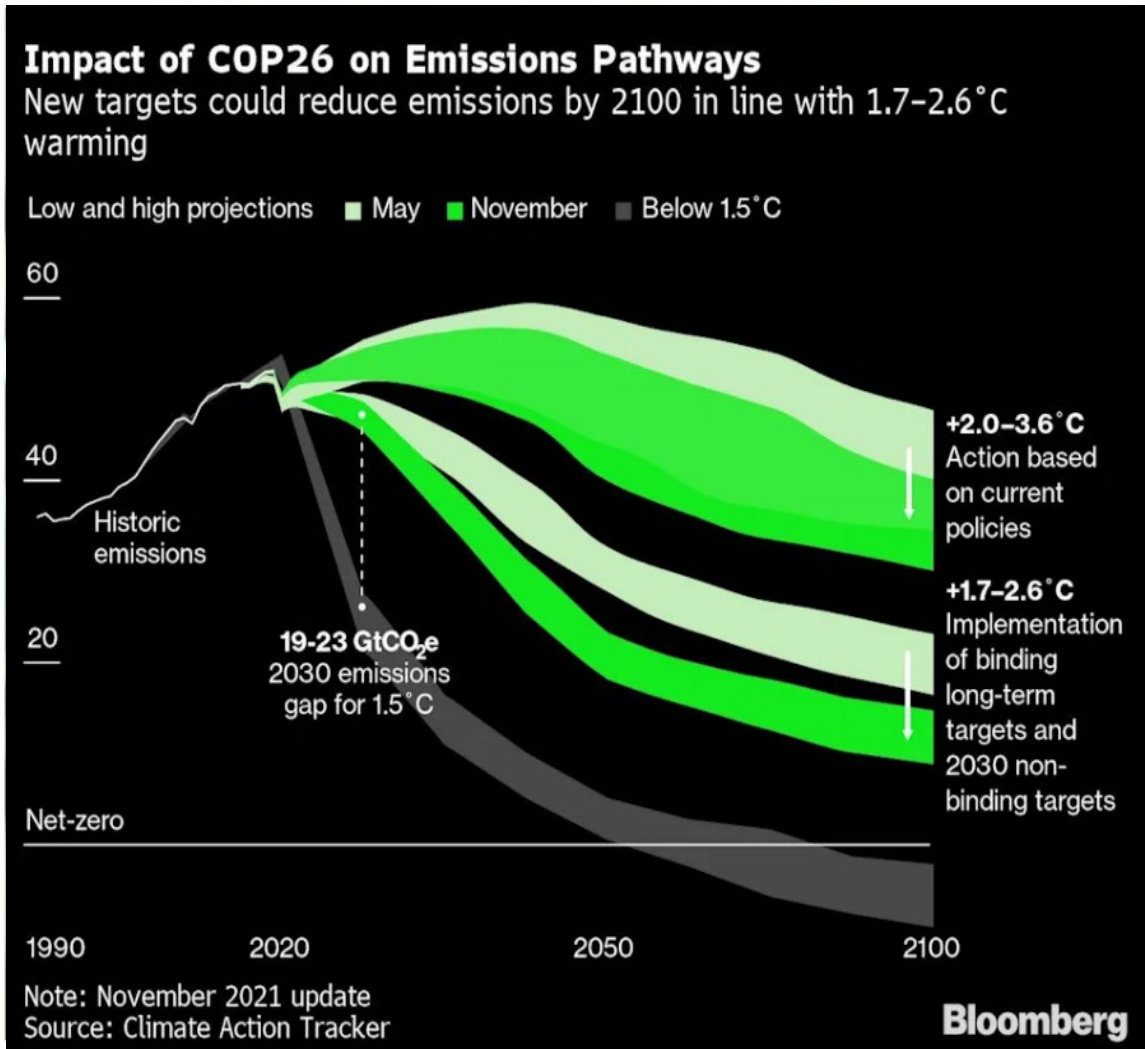
Permian Crude to Chemicals, feedstock diversification at manufacturing hub

Goutam Biswas

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New Delhi

our strategy - accelerating growth in lower carbon energy



“Higher returns, lower carbon recognizes the need to deliver for our stockholders and to work with all stakeholders in a world moving toward a lower-carbon economy. We embrace this future and are aligning our strategy to advance these goals.”

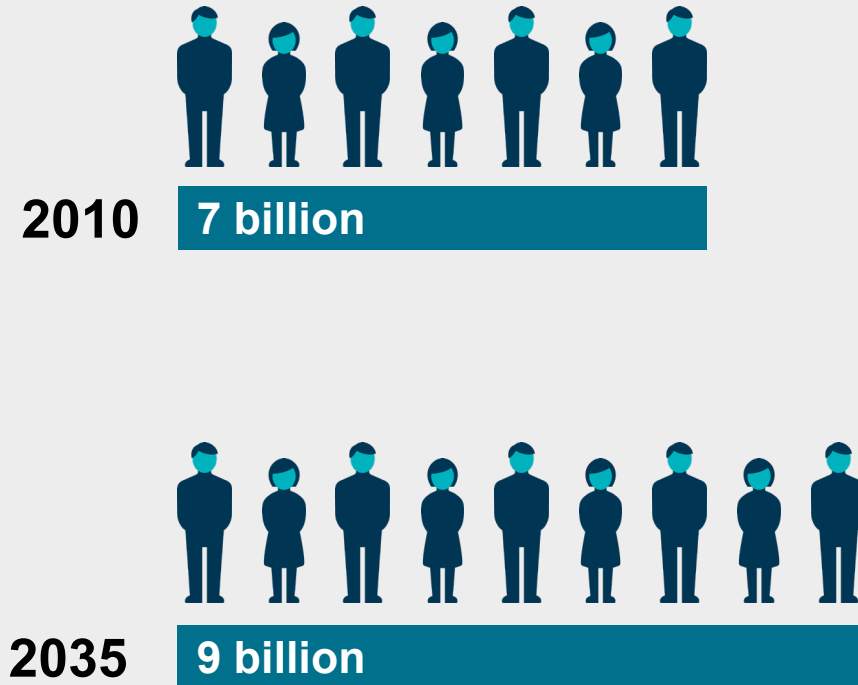
Mike Wirth
Chairman of the Board
and CEO of Chevron

Source: Climate action trackers



Growth driven by a growing population and increase in middle class

Global population growth



Global middle class growth

750
million
people in the
last 10 years

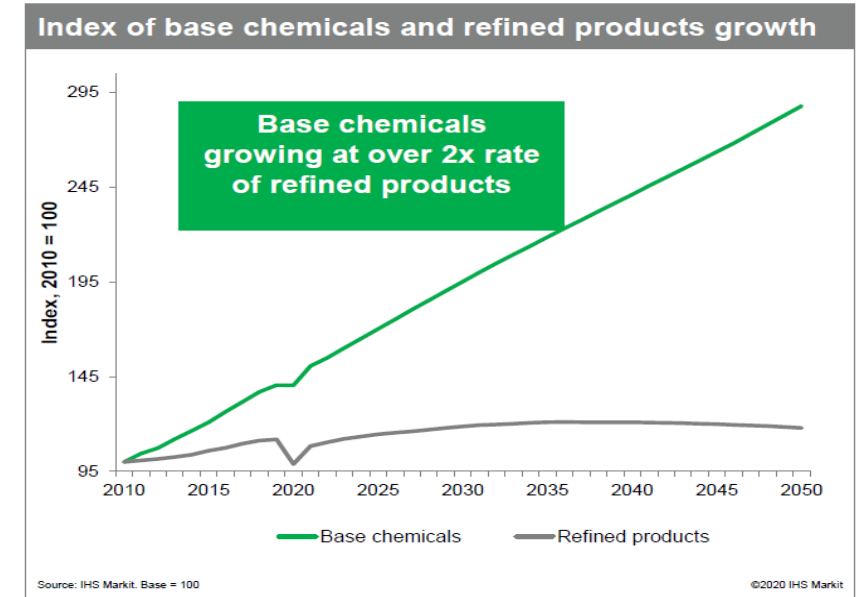
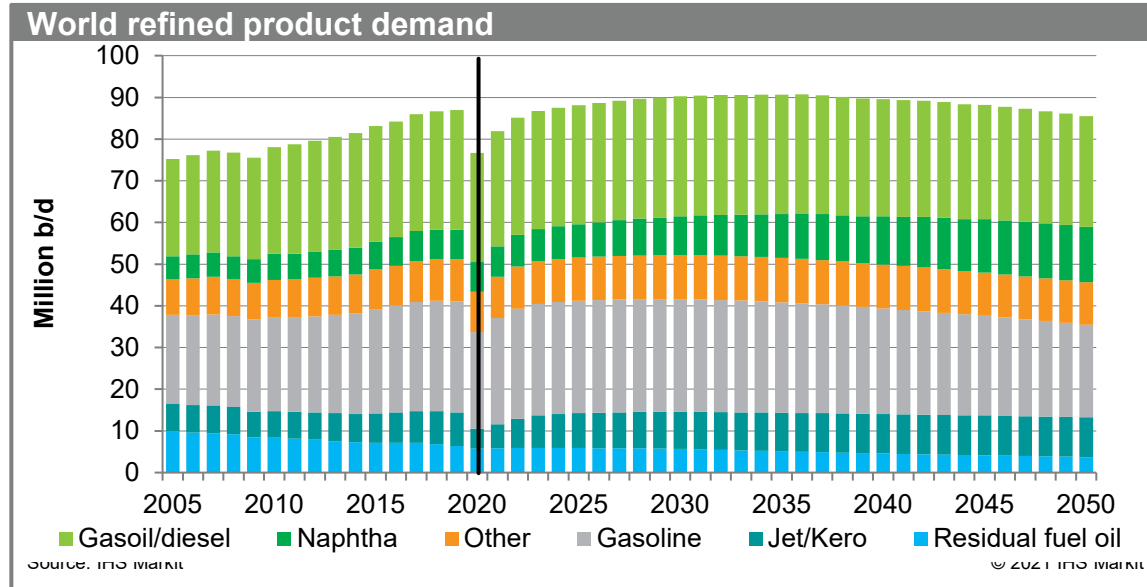


= 2.27 times U.S. population



Two-thirds
of the world's population
will enter the middle class
over the next decades

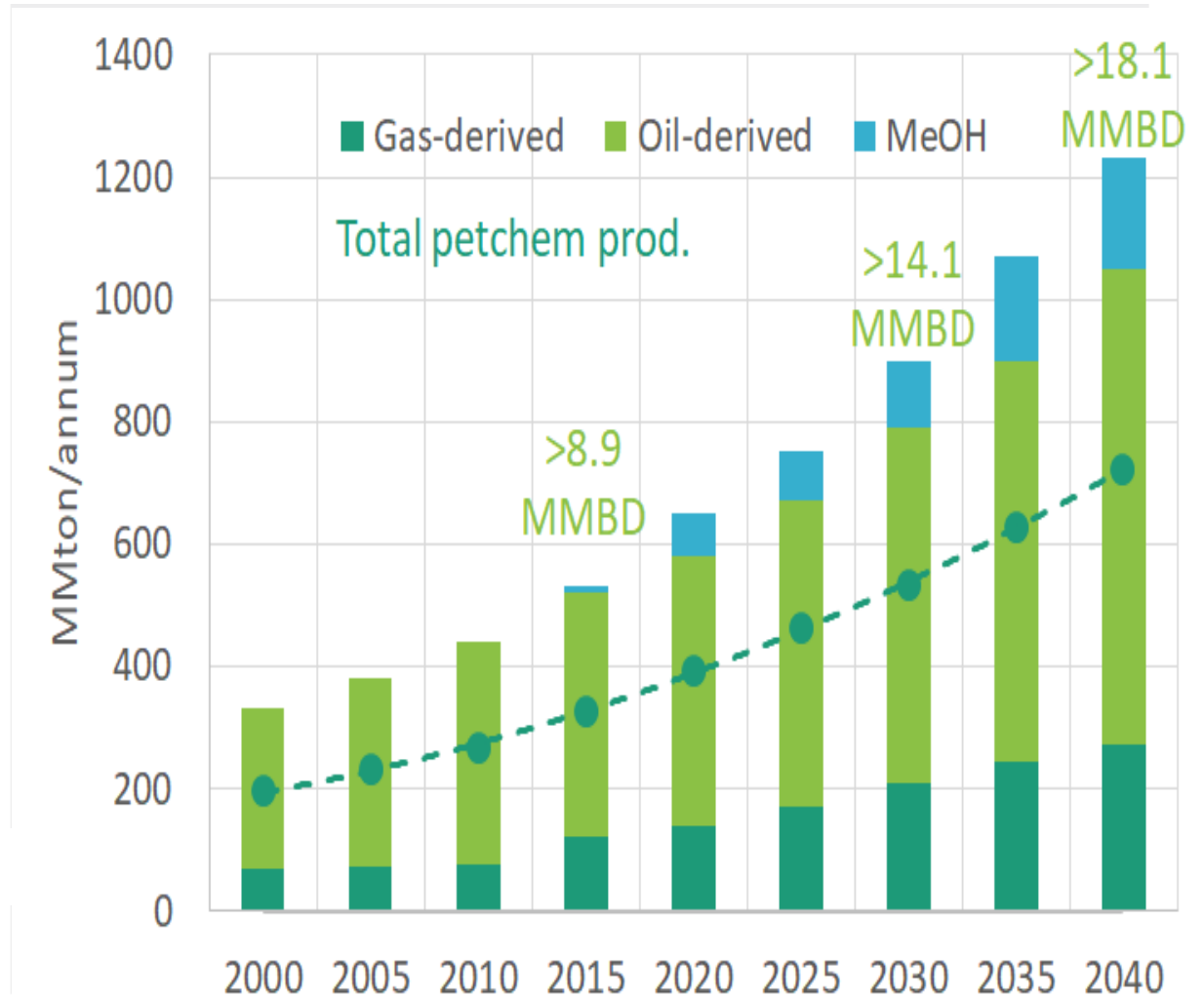
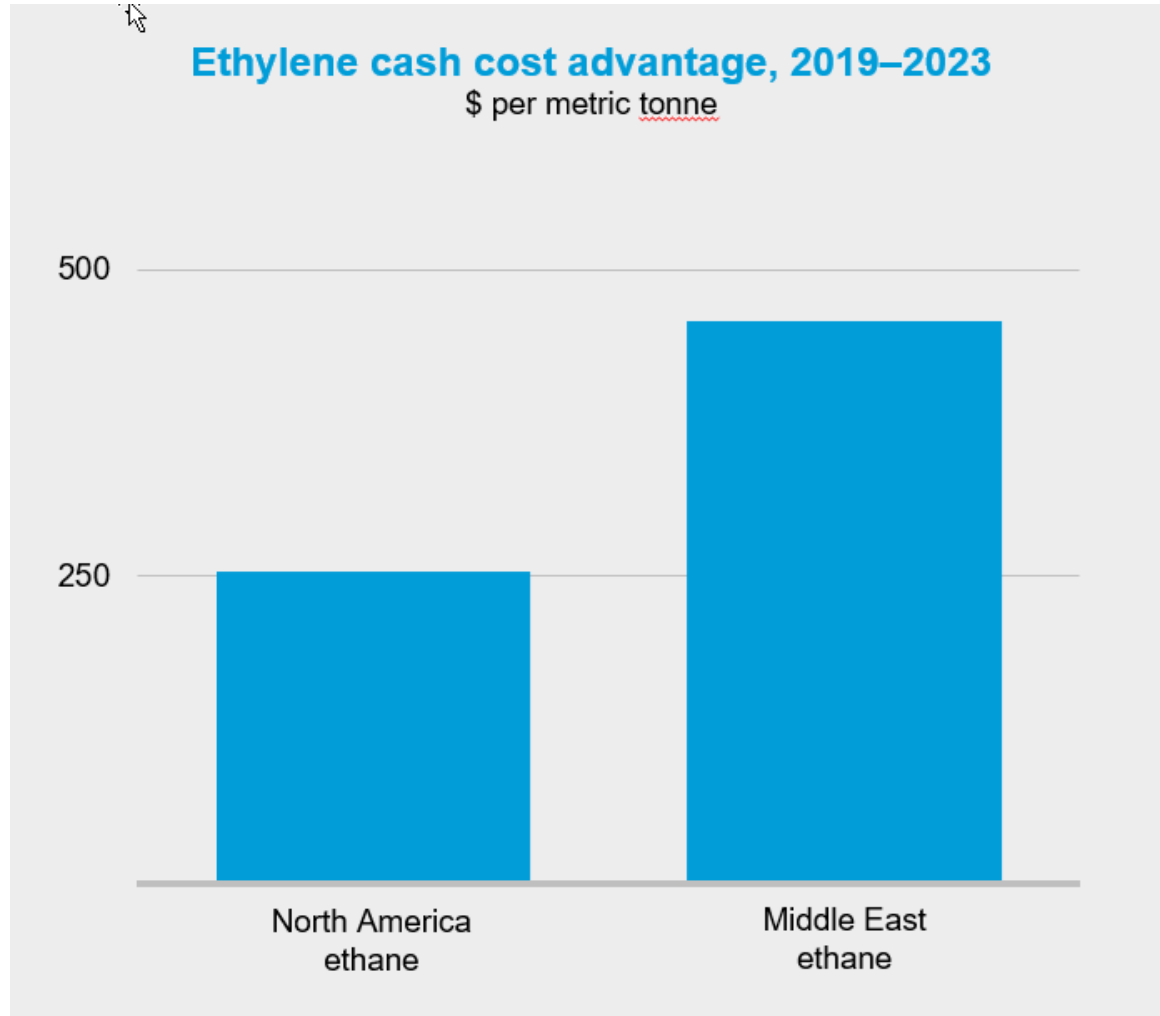
World Refining Product & Petrochemicals Outlook



- Refined product demand is expected to be stagnant at pre-pandemic level
 - Gasoline will see the largest decline
 - Diesel demand will maintain near pre-pandemic level
 - Fuel switching for both power and bunker sectors will reduce residual fuel oil demand by more than half
 - Jet fuel demand will help sustain demand and grow overall
 - Strong demand from petrochemicals industry will double the demand share of naphtha in global mix, making it the largest contribution to overall growth to 2050, adding 6.2 million b/d vs pre-pandemic level



Strong petrochemical market fundamentals

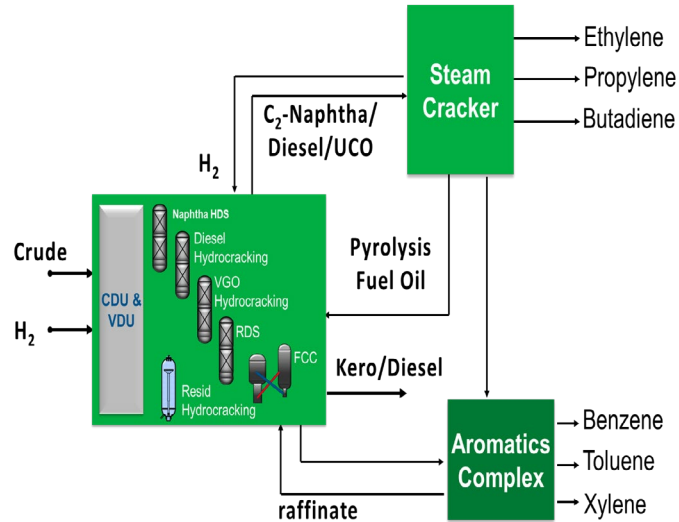


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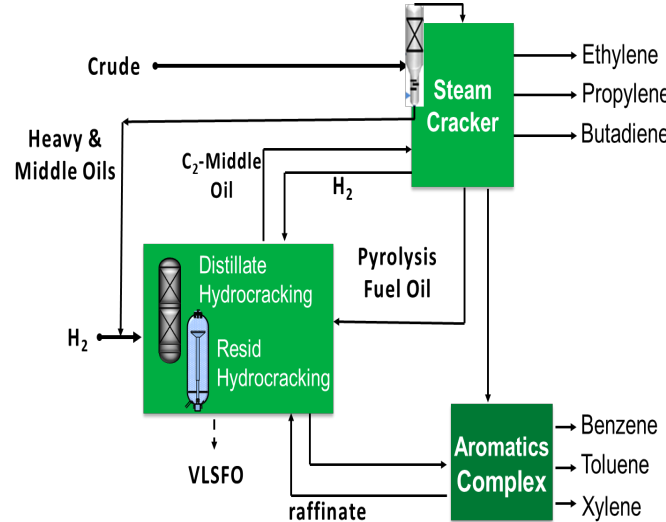


Crude & Transportation Fuels to Chemical

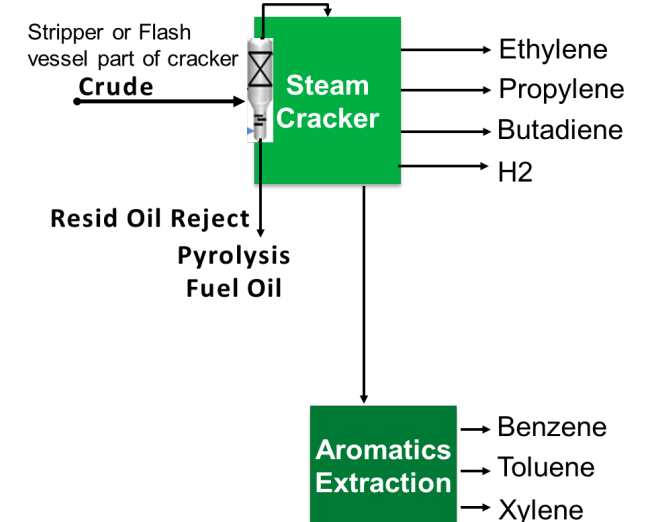
Complex Refinery & Petrochemical Integration



Thermal Crude to Chemicals (TC2C)



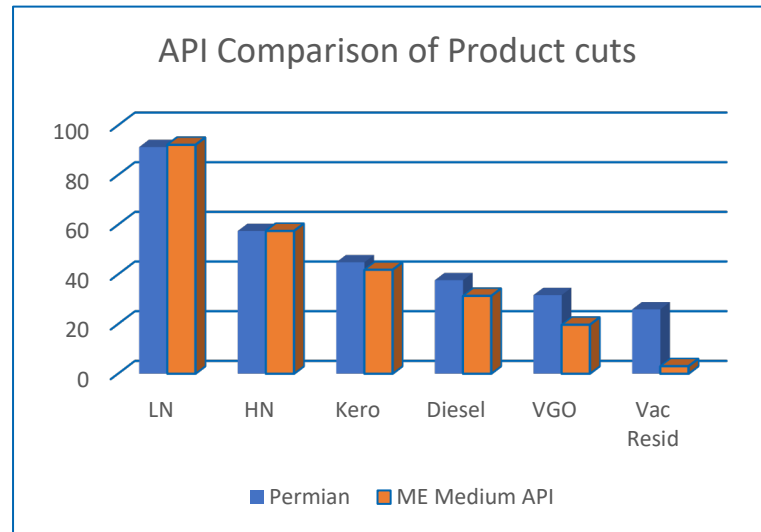
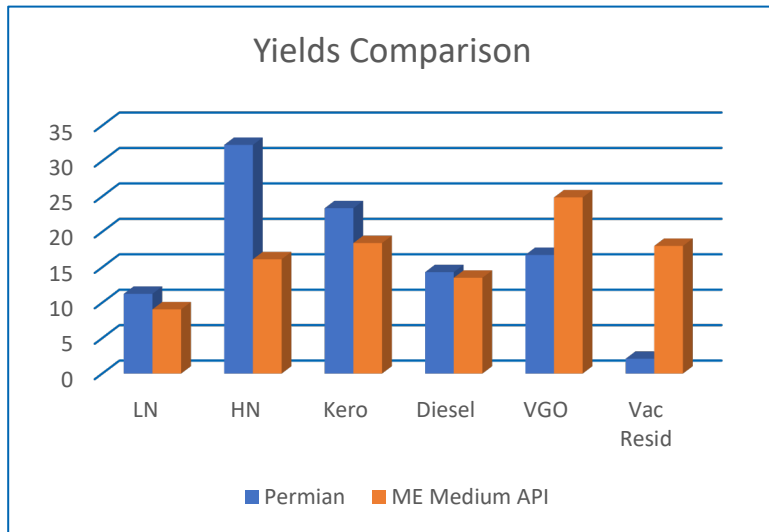
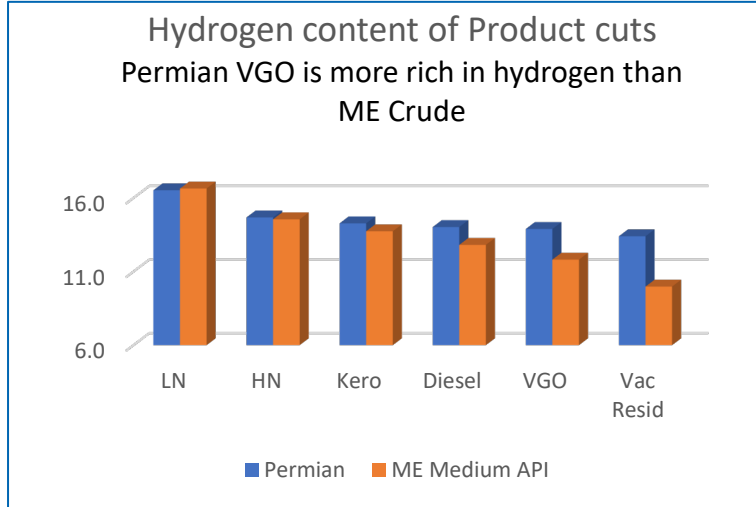
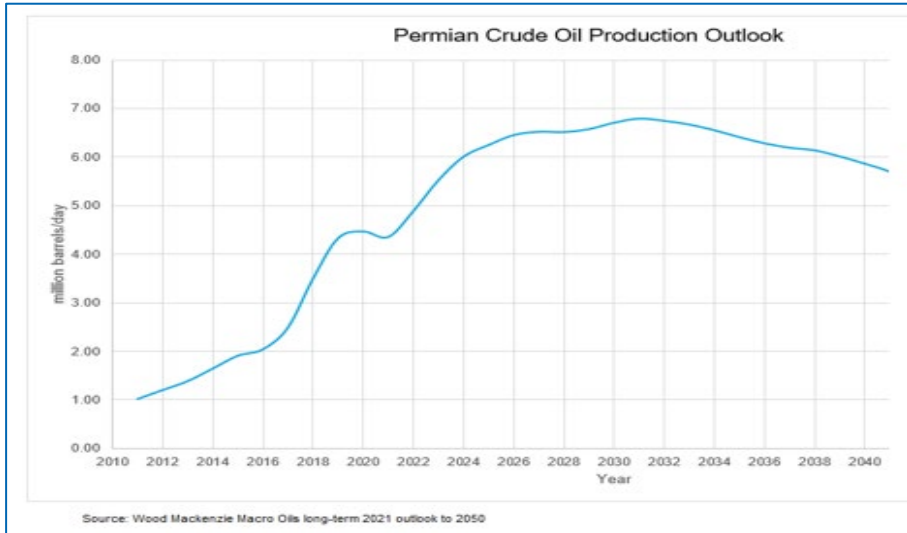
Direct Crude to Chemicals



- Refinery closures, transportation fuel demand shrinkage, lack of naphtha feed, and robust chemical demand will move refineries to produce more base chemicals like ethylene, propylene & BTX
- Hydrocrackers shifting production from Diesel to naphtha and diesel hydrocracking to naphtha
- FCC shift from gasoline to olefins by maximizing propylene and light olefin cracking to propylene
- Direct crude to chemicals offer low capex option for competitive petrochemicals production



Why Permian crude



- Permian is a prolific field, producing over 6 MMBPD during peak.
- Chevron is expected produce near 1 MMBOED by 2025
- Rich in hydrogen and high paraffin content make the crude suitable for ethylene cracker feedstock
- Very comparable ethylene yields versus naphtha feedstock with comparable investment
- Significant premium on naphtha price over Permian crude
- Not all Permian crudes are same, Chevron with it's large production base and access to pipeline able to supply segregated high quality crude



Thank you

- Chevron wants to be a partner of choice for feed supply and value chain optimization that maximizes benefit to your refinery or petrochemicals unit
- Chevron has Linear Programming and Decision Analyst expertise to optimize your feedstock for value creation that a conventional trading organization lacks
- We are available to start the dialog on feed supply

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**Summit on Global Chemicals & Petrochemicals Manufacturing
Hubs in India**

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