

July 15, 2019

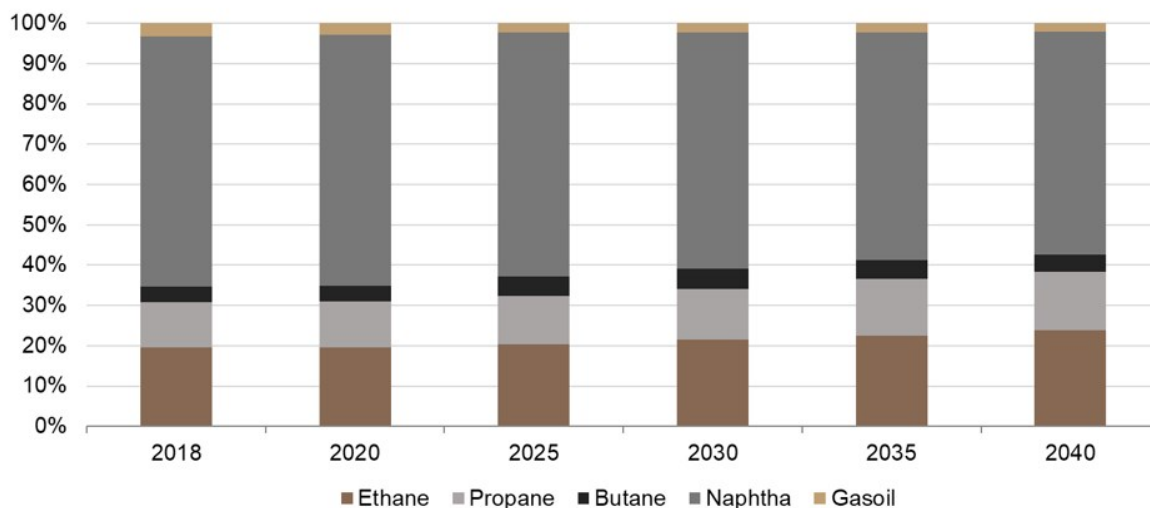
# Impact of Switching to Gas-Based Feedstock on Aromatics Supply

Stratas Advisors

Petrochemical feedstock has been switching from liquid to gas throughout the world and the total share of gas feedstock (includes ethane and LPG) for petrochemical plants will increase from 34.7% in 2018 to 42.6% by 2040. Historically, naphtha had been the more preferred feedstock for petrochemical plants because of the value of by-products produced from the cracking of naphtha feedstock. But now gas prices in the US are projected to remain below \$30 USD/boe (\$5/MMbtu) until 2025, and the delta between Henry Hub natural gas prices and WTI is projected to widen from \$44 USD/bbl in 2019 to \$75 USD/bbl in 2030. This has shifted the advantage to NGLs to be used as steam cracker feedstock providing higher margins.

In 2018, the total demand for petrochemical feedstock was 458.4 MMtpa, out of which naphtha was 284.3 MMtpa, contributing 62% to the total petrochemical feedstock. The figure below shows the global petrochemical feedstock share through 2040.

## Global Petrochemical Feedstock Share through (2018-2040)



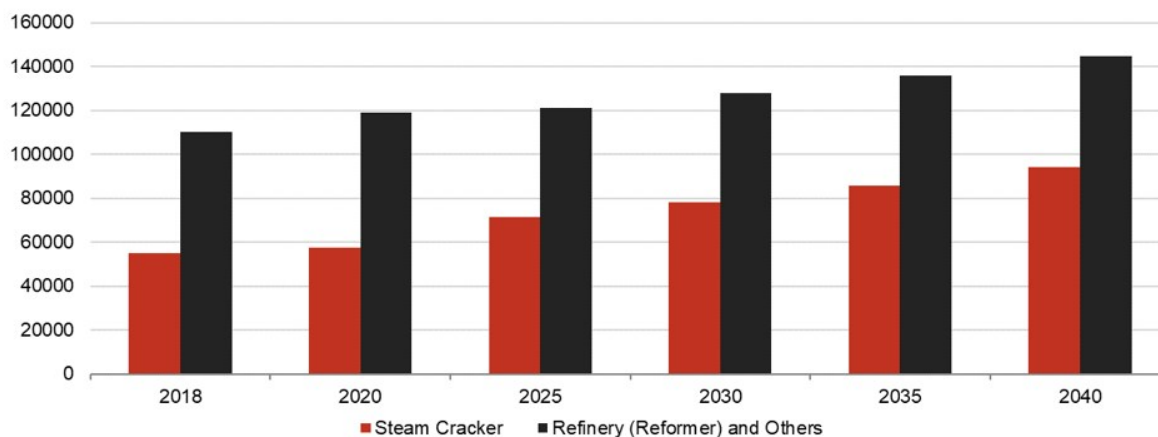
Source: Stratas Advisors

The shift of petrochemical feedstock from liquid- to gas-based feedstock in steam crackers will result in lower aromatics yields from crackers. To meet the demand of aromatics, there would be a need for

aromatics production from naphtha reformers in refineries and other sources like CTO (coal to olefins) or COTC (crude oil-to-chemicals). But CTO and COTC are currently limited to the China region. Other regions will require an increase of production from reformers at refineries.

*The majority of the supply-demand gap will be met through naphtha reformers in refineries from the Asia region. The figure below shows production share for aromatics from different reformers and steam cracker facilities.*

### Aromatics Production by Facility, Mtpa



Source: Stratas Advisors

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