

Challenges and Adaptation to Resilience in the PX and BZ Business

The 15th PTT Group Petrochemical Outlook Forum

Friday, 16 August 2024

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VALUE CHAIN
&
END USE



2

SUPPLY
&
DEMAND



3

INFLUENCE
FACTOR ON
TEXTILE INDUSTRY



4

SUSTAINABLE
TREND IN TEXTILE



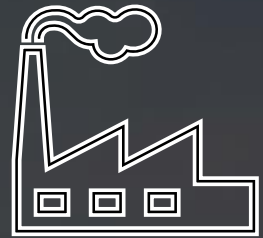
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HOW TO ADAPT
TO BE MORE
SUSTAINABLE

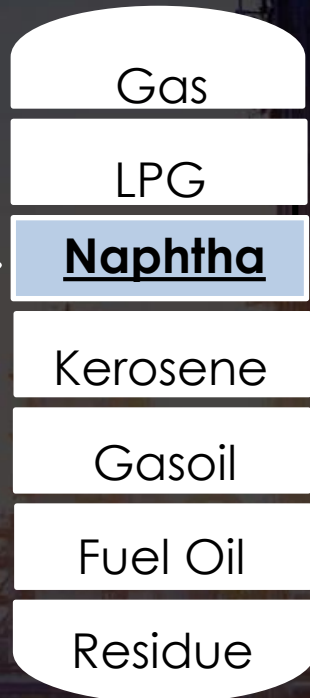


BZ VALUE CHAIN

Benzene Presents in a Variety of Consumer Products



Crude Oil



Distillation



Cracking/
Reforming



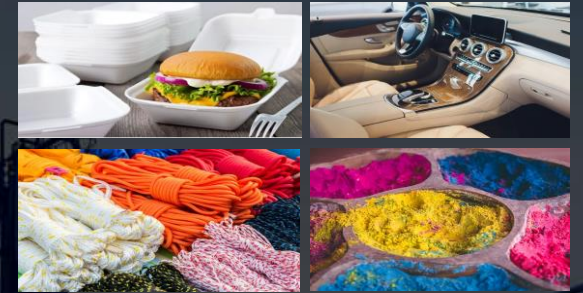
Pygas/
Reformate



Benzene
(BZ)

Paraxylene
(PX)

Styrene(50%) Cumene(21%)



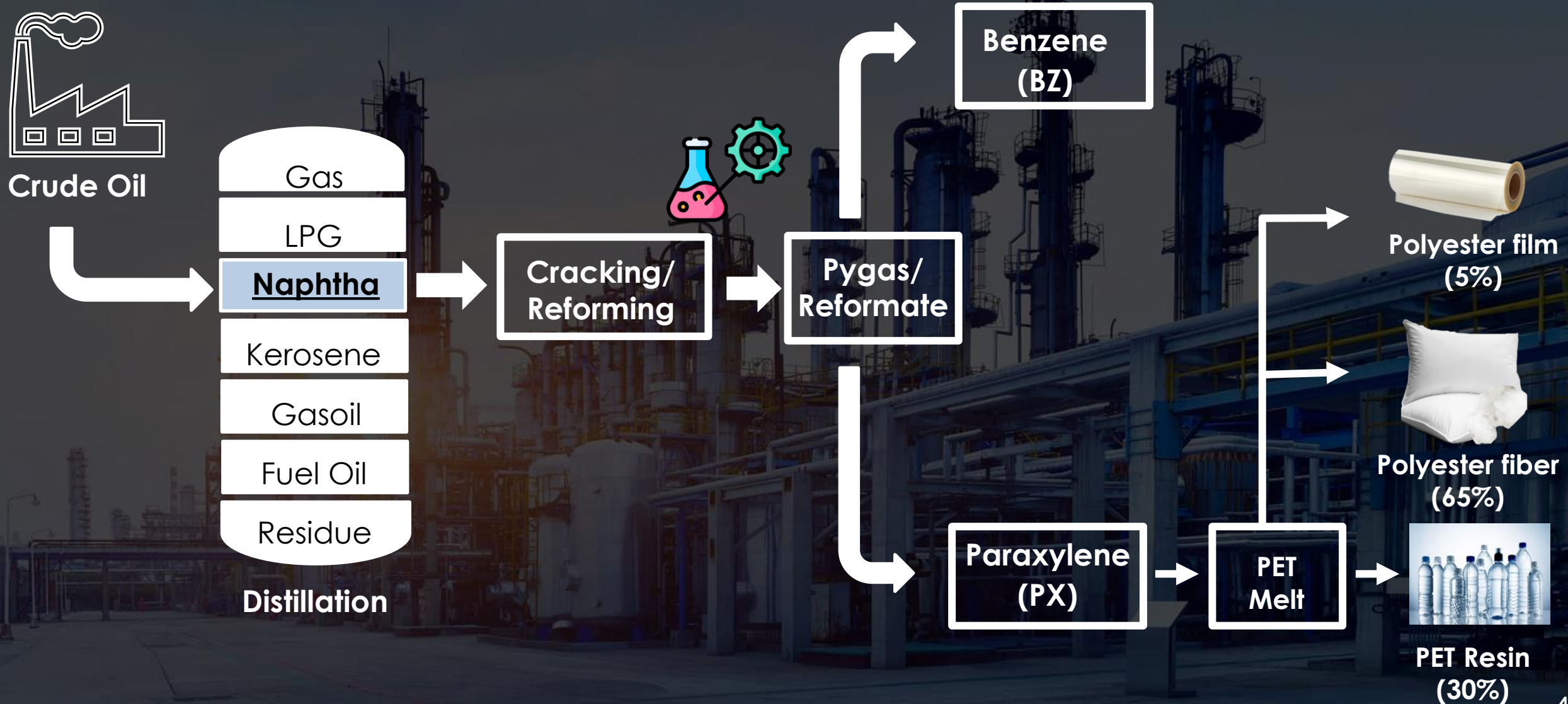
Cyclohexane (15%) Nitrobenzene (11%)



Linear Alkyl Benzene (3%)
(LAB)

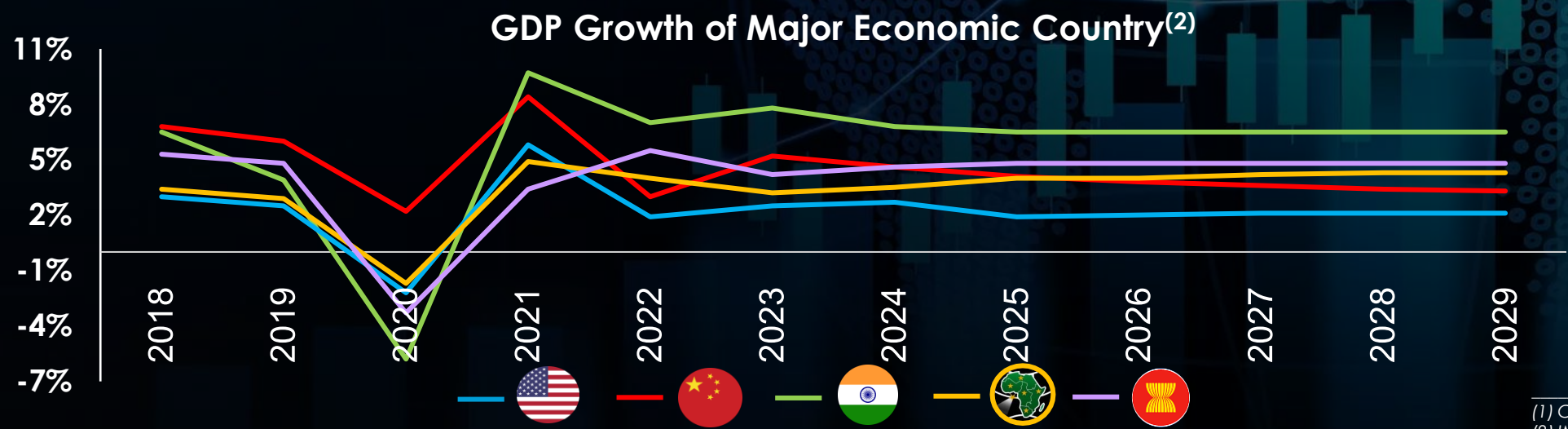
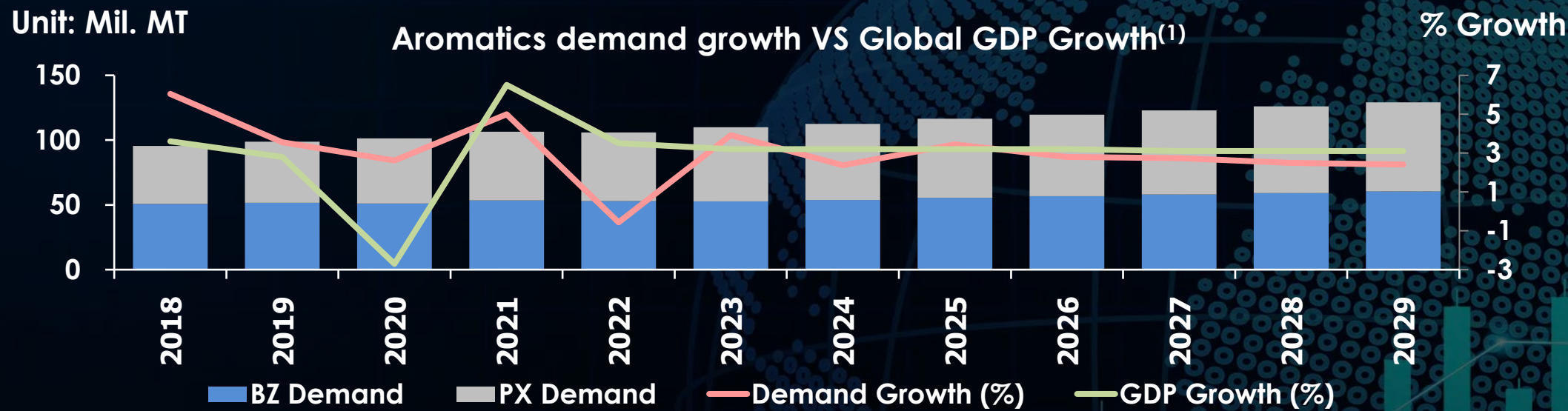
PX VALUE CHAIN

Paraxylene Plays a Key Role in the Production of Polyester Fiber



AROMATICS DEMAND GROWTH

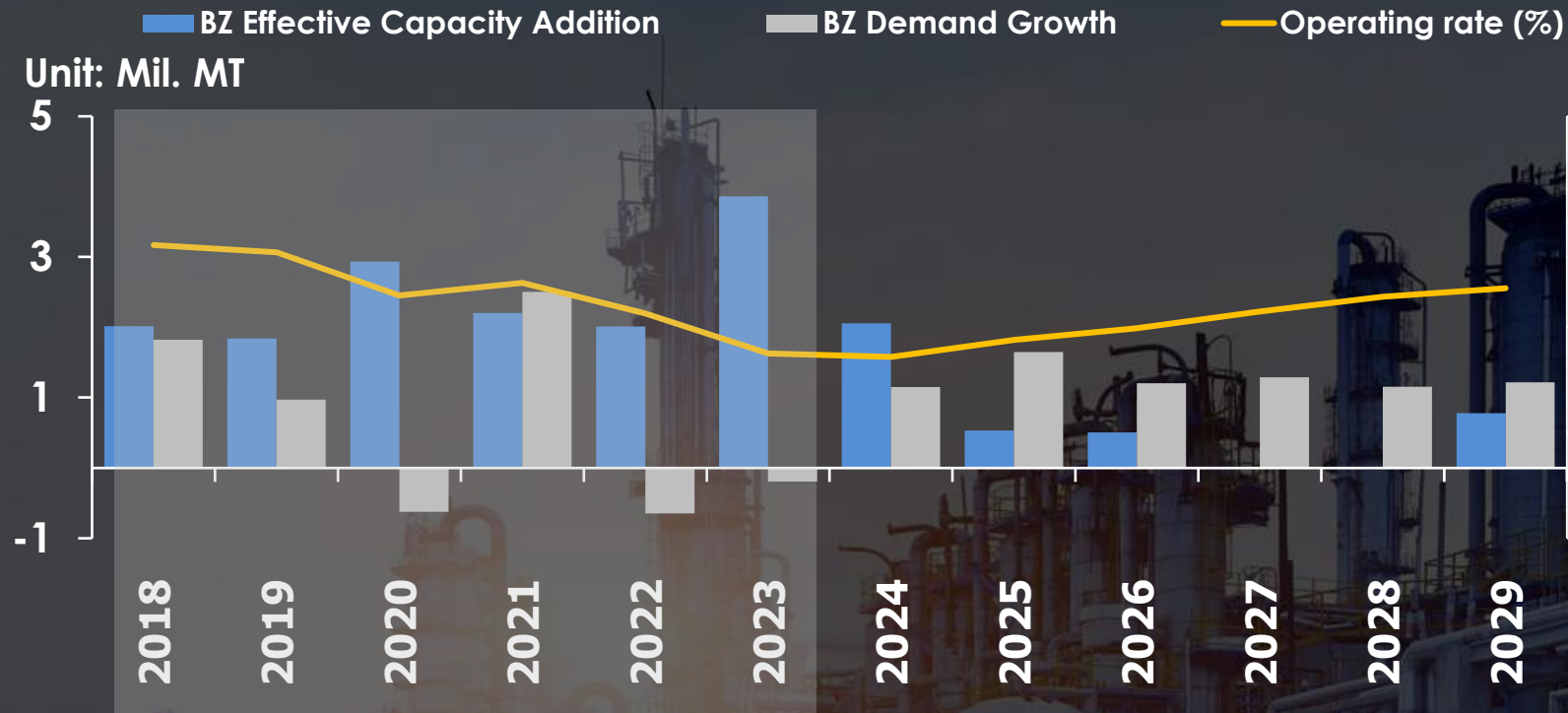
Aromatics Demand will Grow, following Global GDP Growth



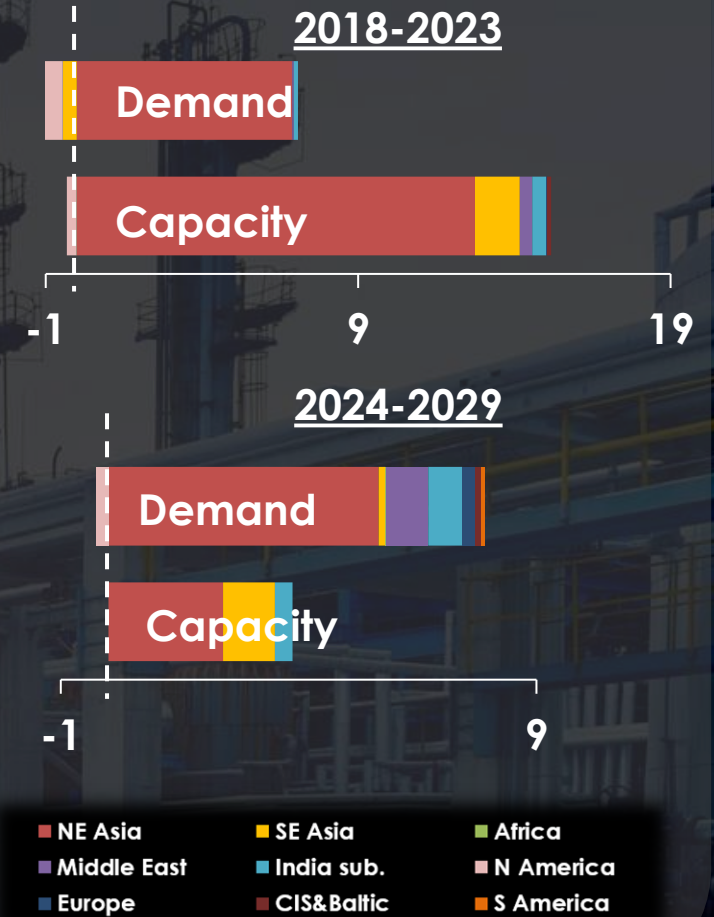
(1) CMA Spring 2024
(2) IMF(2024)

BZ DEMAND & SUPPLY ⁽¹⁾

Improving Benzene Market due to Outpacing Demand

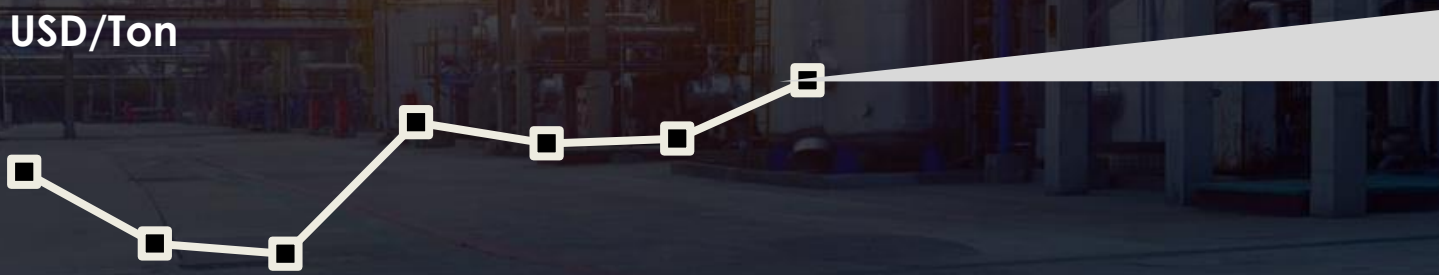


Demand Growth And Capacity Addition By Region



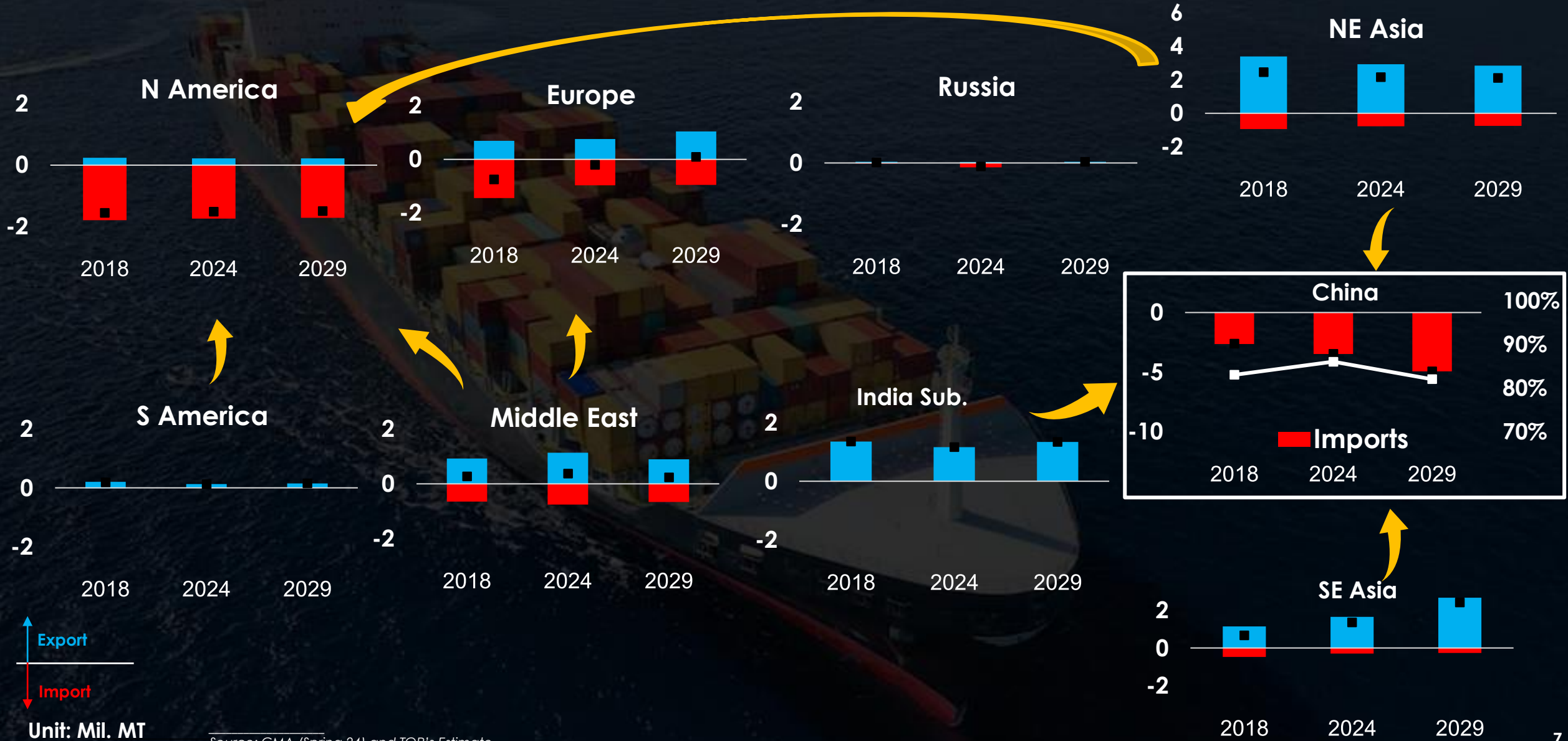
BZ Spread Vs Price⁽²⁾

Unit: USD/Ton



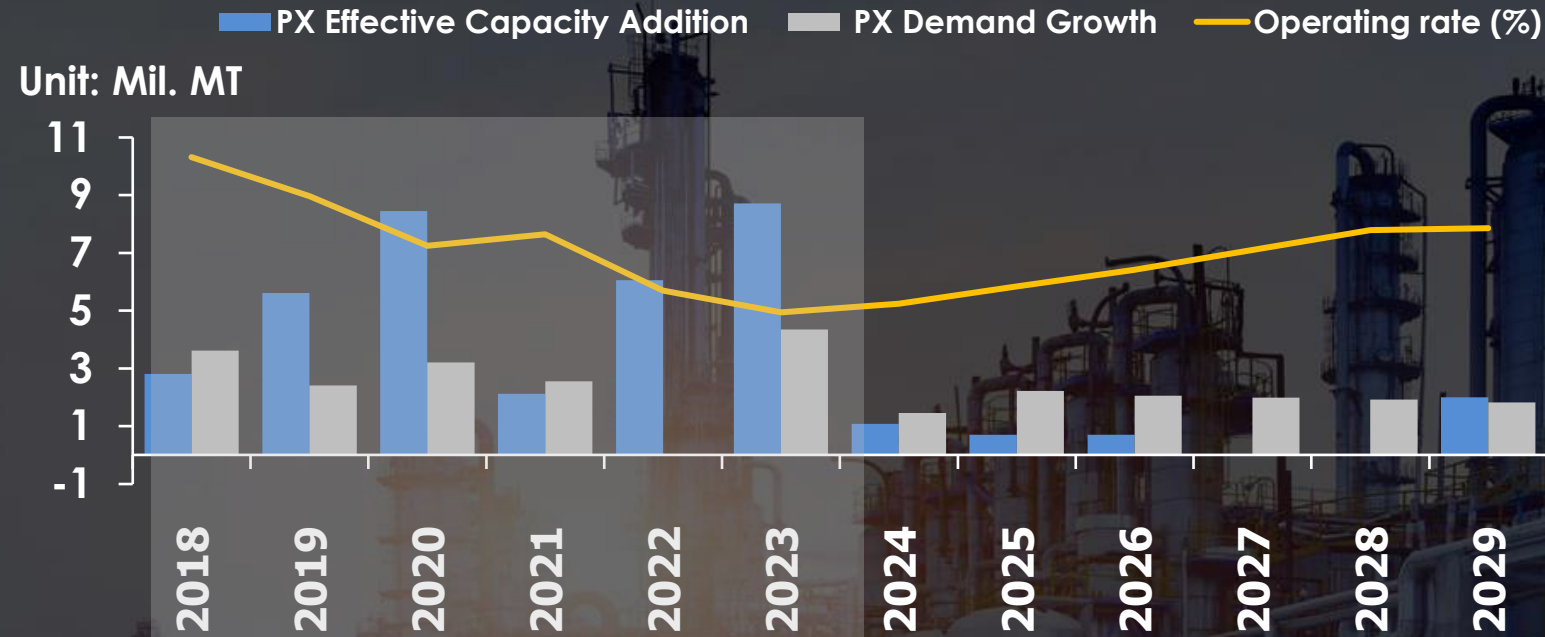
GLOBAL BZ TRADE FLOW

China is More Self-Sufficient but Remains a Net Importer of Benzene

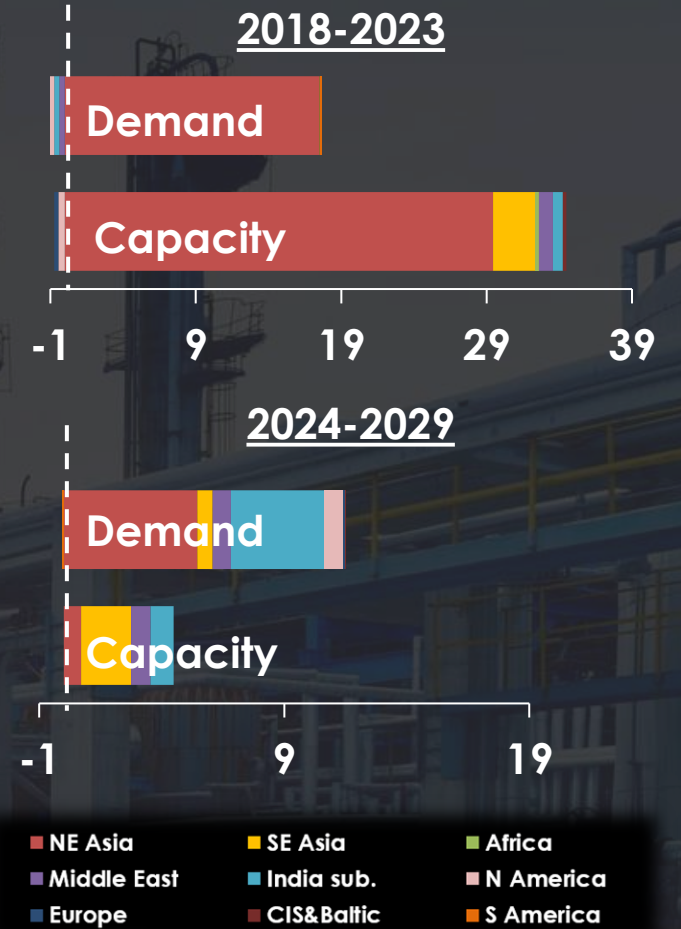


PX DEMAND & SUPPLY ⁽¹⁾

Improving Paraxylene Market as Demand Growth Outpacing Capacity Addition

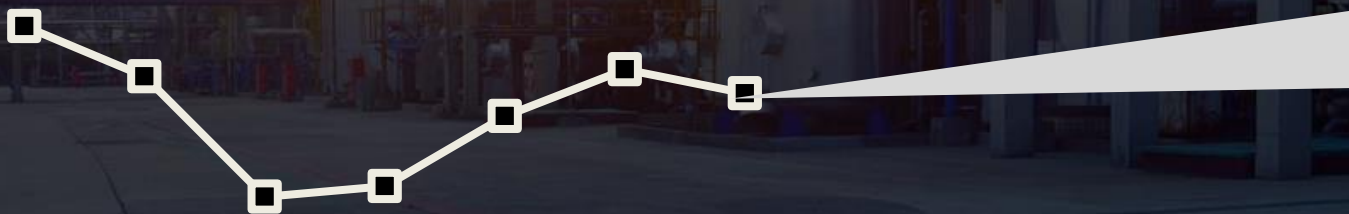


Demand Growth And Capacity Addition By Region



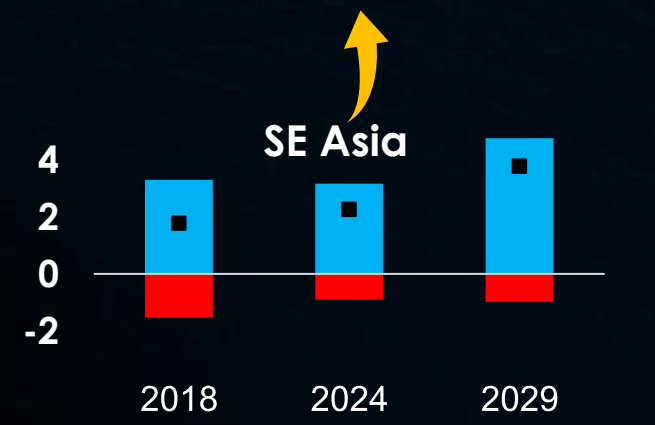
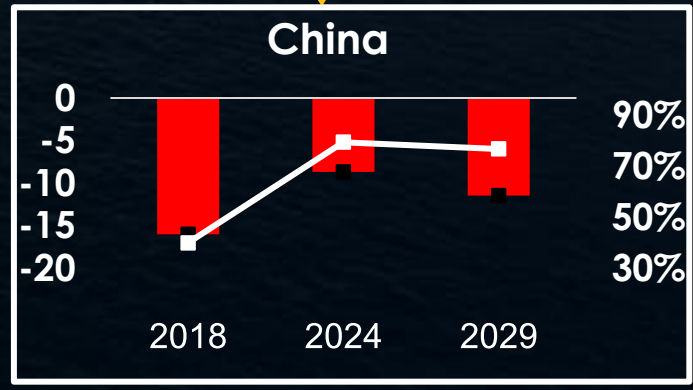
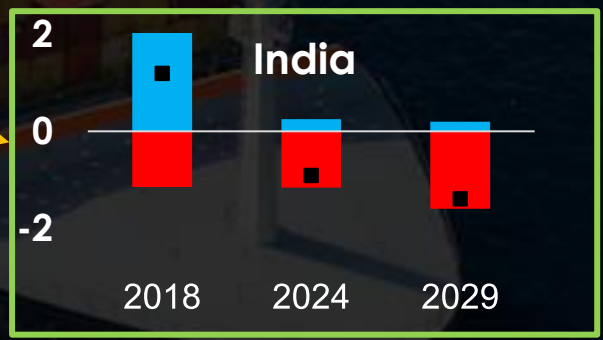
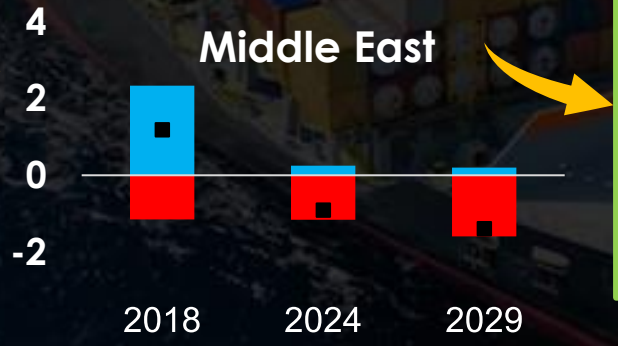
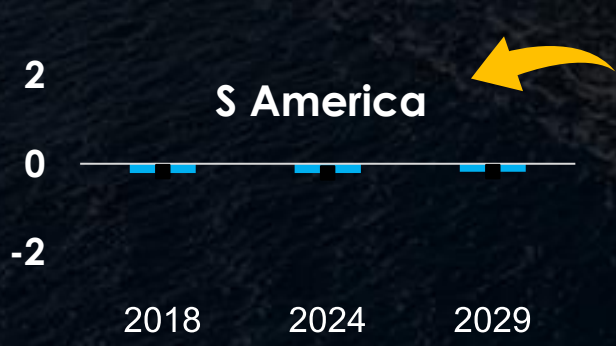
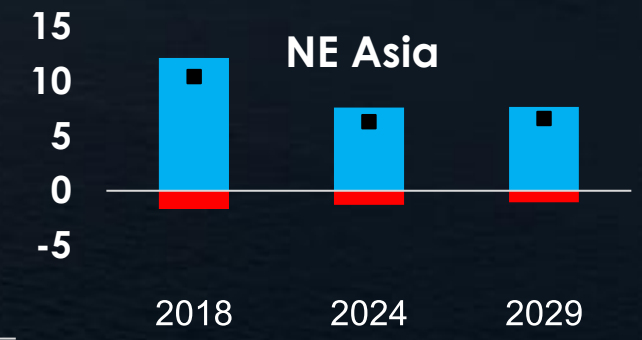
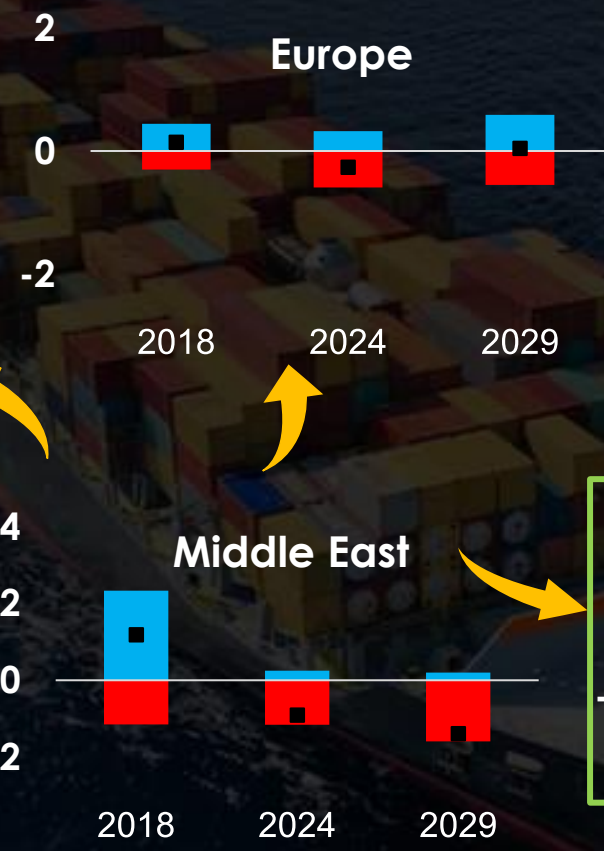
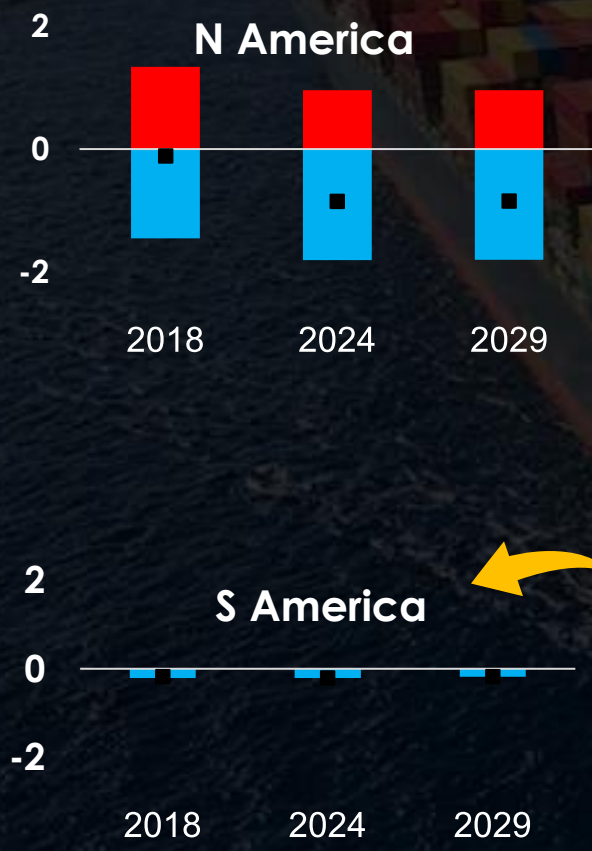
Unit: USD/Ton

PX Spread Vs Price ⁽²⁾



GLOBAL PX TRADE FLOW

China is more Self-Sufficient but Remains a Net Importer of PX, While India has Become a Net Importer



Export
Import

Unit: Mil. MT

Source: CMA (2018) Source: CMA (Spring 24) and TOP's Estimate

INFLUENCE FACTOR ON TEXTILE INDUSTRY

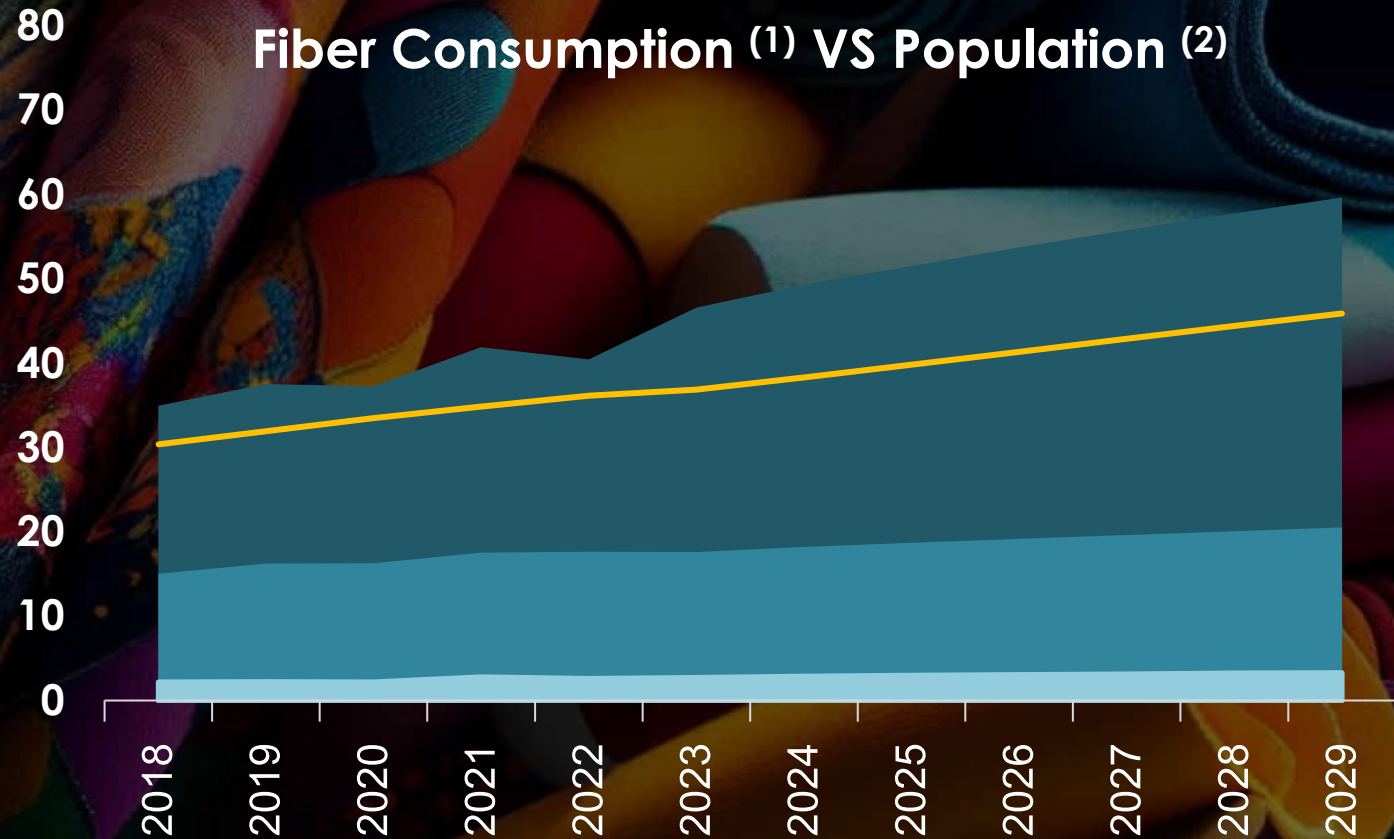
Fiber Consumption Continues to Grow, Driven by World Population Growth and Improving Quality of Life, Both are Key Factors in the Textile Industry

Unit: Mil. MT

Fiber Consumption ⁽¹⁾ VS Population ⁽²⁾

Millions of people

Influence Factor



10,000

9,500

9,000

8,500

8,000

7,500

7,000

6,500

6,000



Fashion Trend



Economic Recovery



Emerging Country



Improving Quality of Life



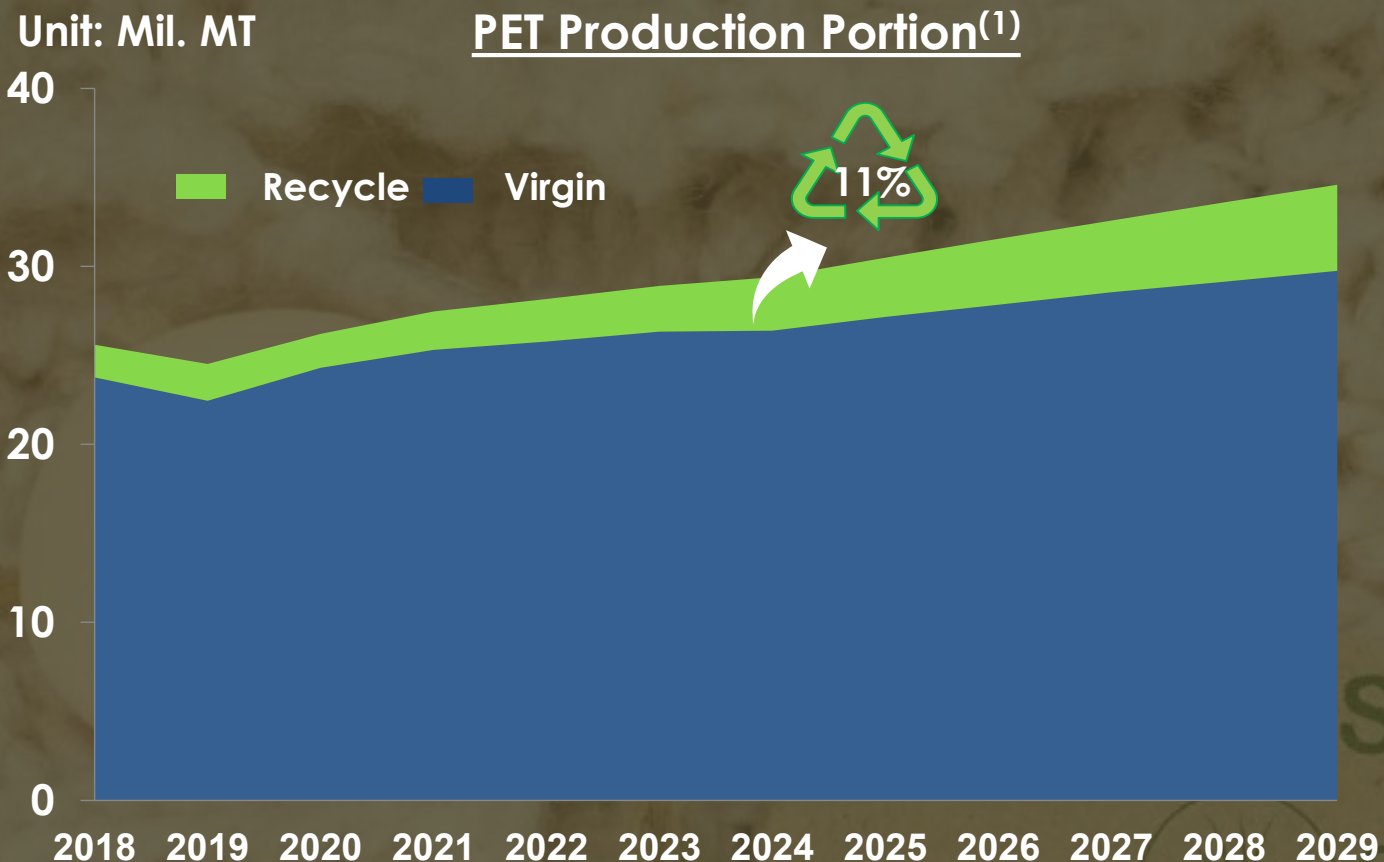
Sustainable Trend

(1) CMA (Spring 2024)

(2) IMF(2024)

SUSTAINABLE TREND IN TEXTILE

Recycle Trend Increased Driven by Sustainability and Circular Economy



Recycled Feedstocks by Region(Y2023) ⁽²⁾



Patagonia

92% of polyester-based products are **recycled** and **avoided emitting CO₂ more than 10.5M pounds** ⁽³⁾



Adidas x Parley

Recycled ocean **plastic waste** to produce Ultra Boost from **1 in 2017 to 15 million of shoes in 2020** ⁽⁴⁾



Join: The Power of Clothing

Used 100% recycled polyester fabric derived from plastic bottles ⁽⁵⁾

⁽¹⁾ CMA Spring(2024)

⁽²⁾ S&P (2024)

⁽³⁾ Patagonia website (2024)

⁽⁴⁾ Adidas news(2024)

⁽⁵⁾ Fast retailing website (2024)

ADAPTATION TO BE MORE SUSTAINABLE

FLEXIBLE PRODUCTION PROCESS

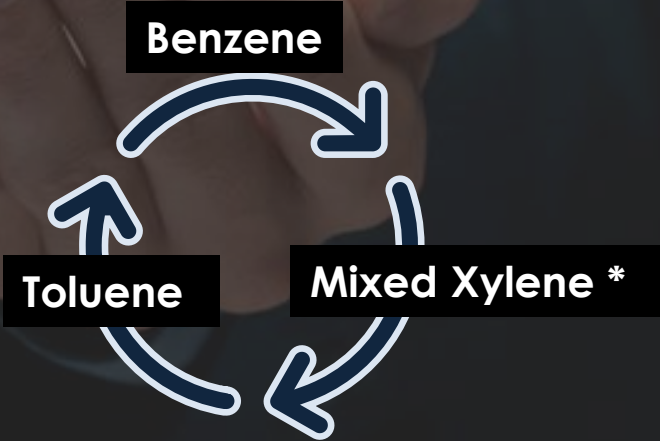
A Flexible Production Process To Capture The Best Economics



Fuel Mode (Gasoline)



Aromatics



HIGH PRODUCT CONVERSION

From High Refinery Product Yields to High Chemical Product Yields



Hengli

PX complex
(focus on reforming)⁽¹⁾

43% in 2019



Zhejiang Phase1

PX complex⁽¹⁾

45% in 2020



Shandong-Yulong

PX complex⁽²⁾

~Excess 50% in 2025

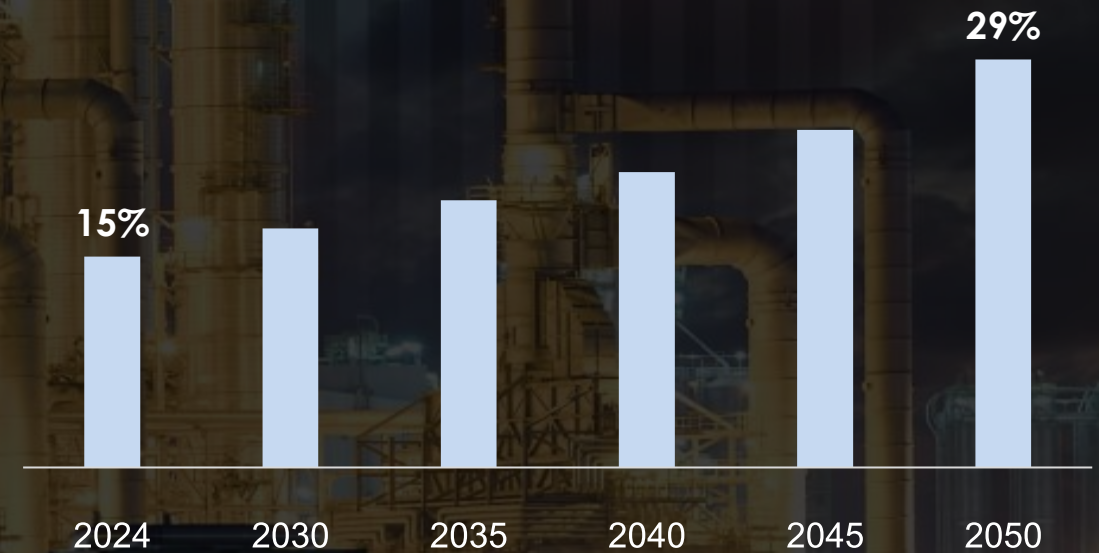


Aramco

COC complex⁽³⁾

Targeting 70-80% in 2025+

Percent Crude into Chemicals ⁽⁴⁾



(1) S&P- Crude oil to chemicals (2021)

(2) S&P (2024)-Process Economics Program (PEP) Report

(3) Saudi Aramco website

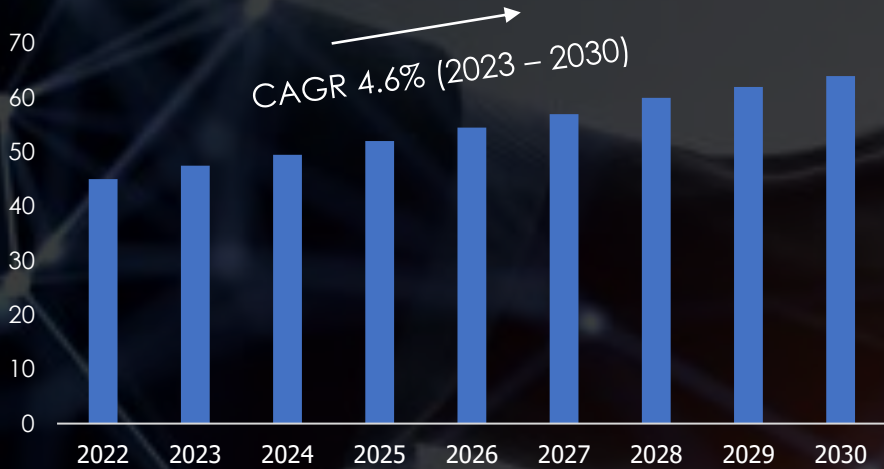
(4) S&P (2024)

WAY FORWARD

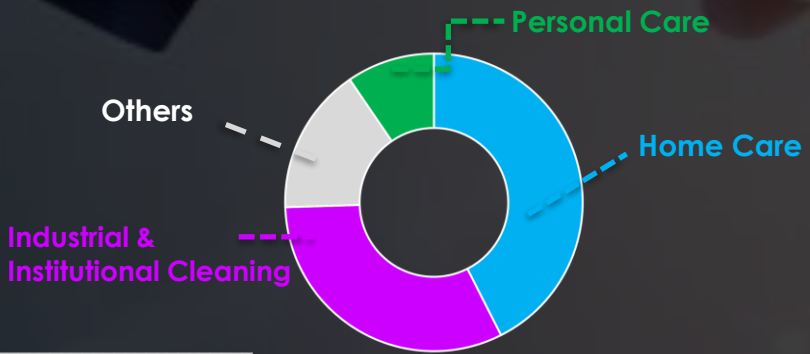
Developing into High Value Business

Global Surfactants Market Size ⁽¹⁾

Surfactants Market Size 2023-2030 (US\$ in Bn)



Global Surfactants Market Share, By Application, 2023 ⁽²⁾



(1) Researchgate (2) Fortunebusinessinsights (2024)



Way Forward

Disinfectant and Surfactant (D&S)



Linear Alkyl Benzene (LAB)



KEY TAKEAWAYS

Aromatics Demand Growth Will Be Outpacing Capacity Addition

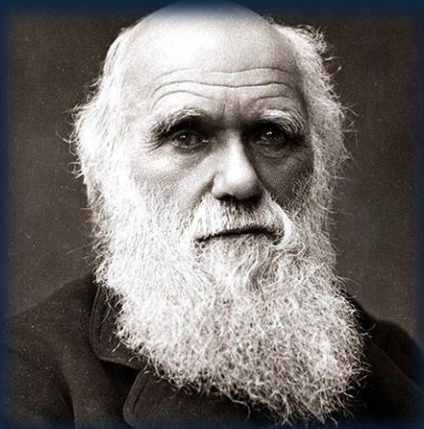
**Aromatics Continue To Grow, Following Global GDP,
World Population And Better Living Quality**

**Growing Of Recycle Trend But Virgin Material Is Still The Major
Contribution In The Market**

Developing into High Value Business

**“ IT IS NOT THE STRONGEST OF THE SPECIES THAT
SURVIVES, NOR THE MOST INTELLIGENT.**

**IT IS THE ONE THAT IS
MOST ADAPTABLE TO
CHANGE ”**



Charles Darwin



Thank you