

NAVIGATING THE STYRENIC MARKET

Unveiling Challenges and Opportunities amid the Volatile World

The 15th PTT Group Petrochemical Outlook Forum

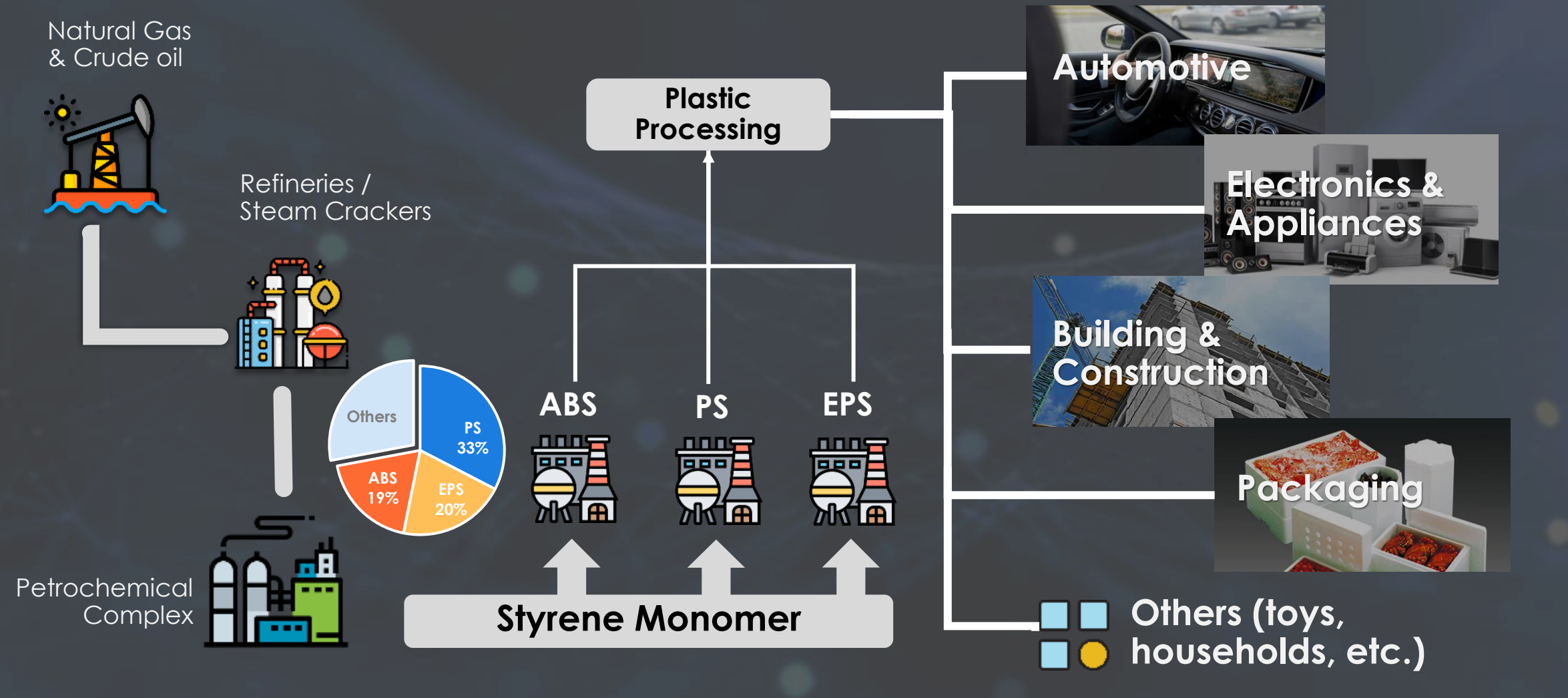
Friday, 16 August 2024

Did it bottom out

Where's Opportunity

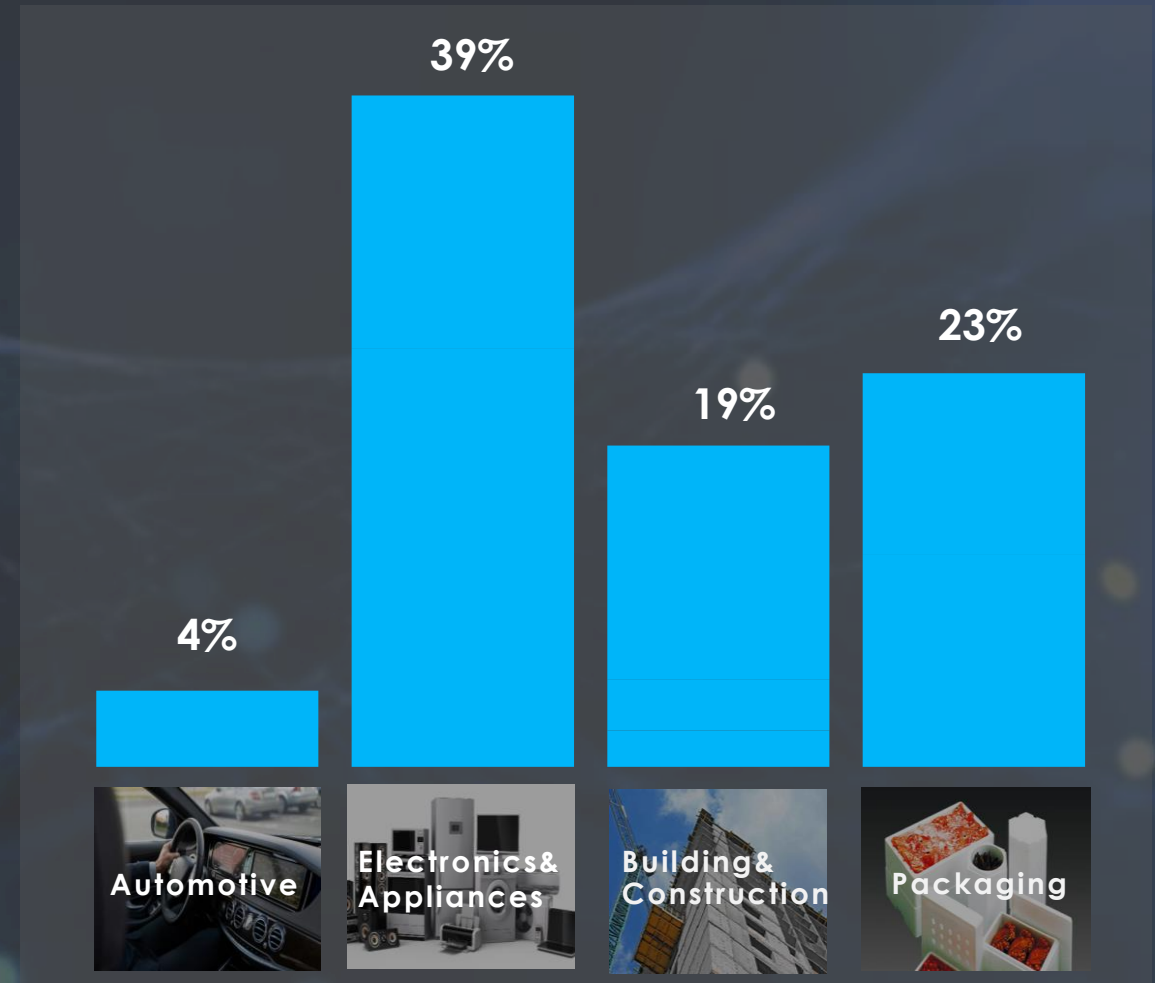
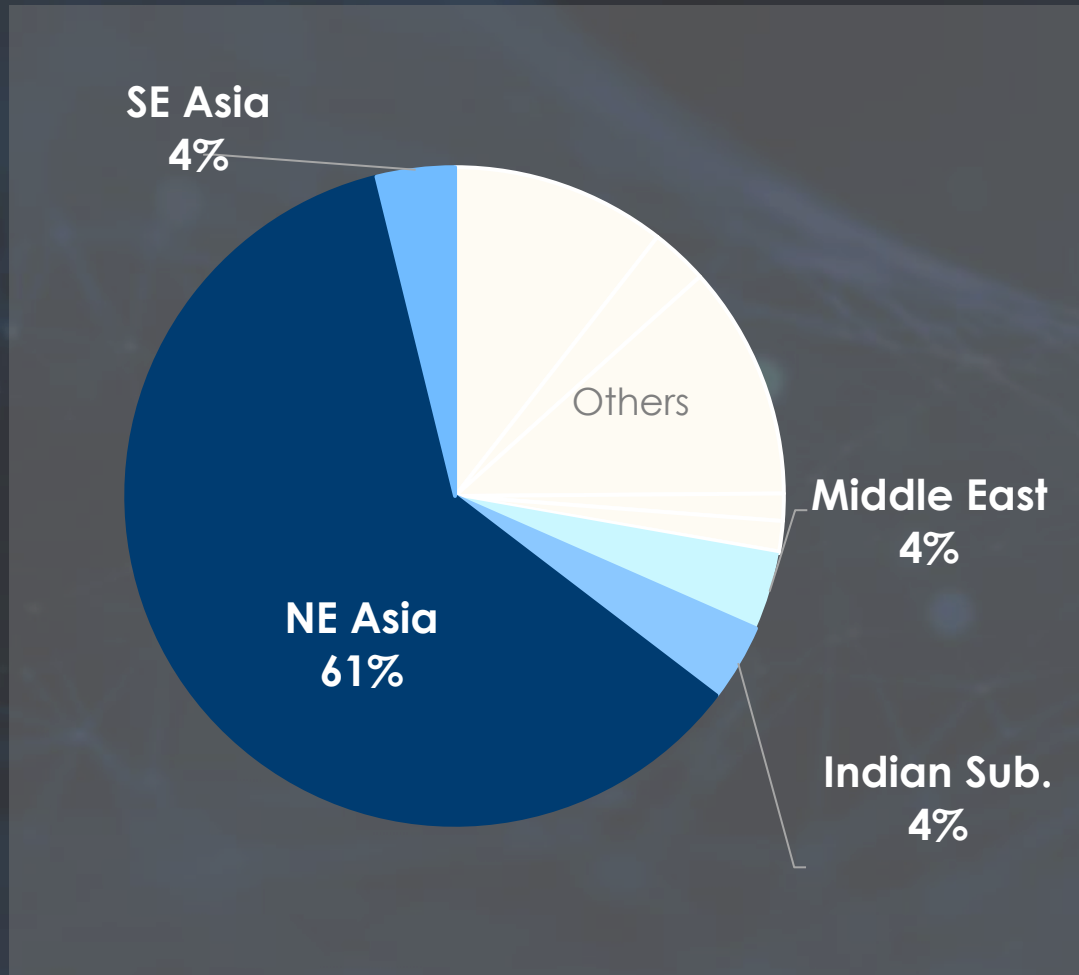
How We Survive

STYRENIC SUPPLY CHAIN



WORLD STYRENIC DEMAND IN 2024

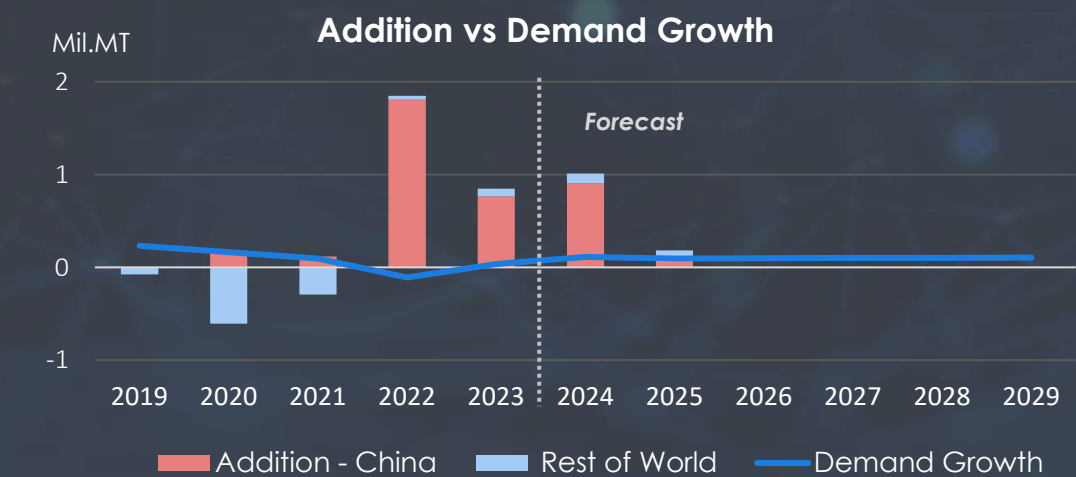
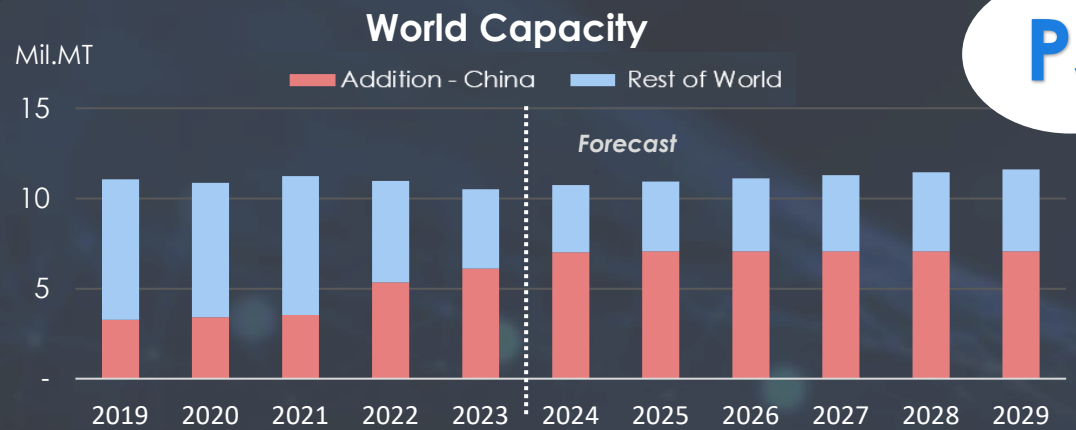
Asia Is the Biggest Consumer, While the Electrical and Electronic Sectors Drive Demand Growth



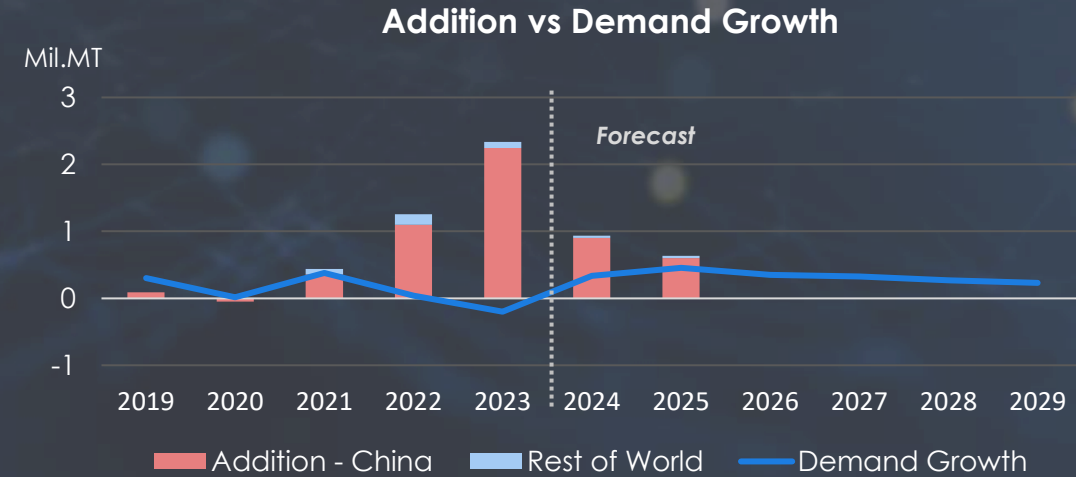
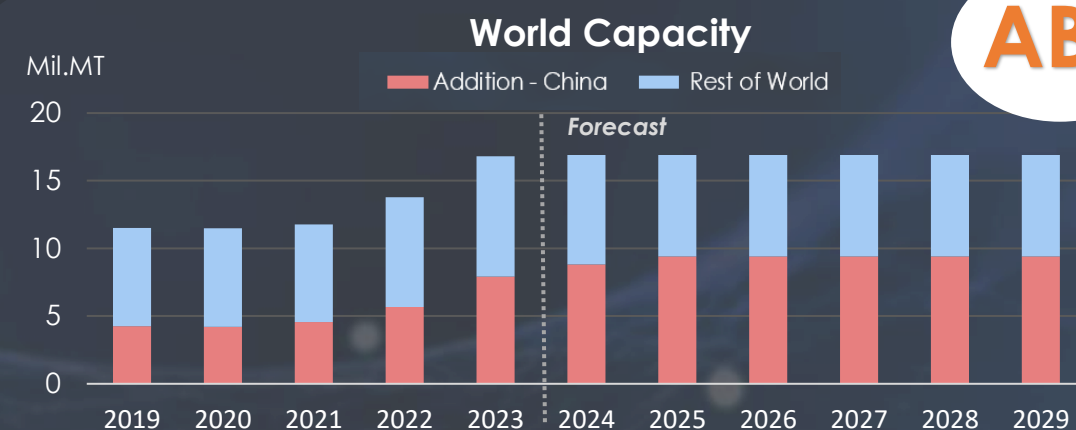
MASSIVE CAPACITY EXPANSION

Huge Capacity Additions in China Until 2025 Amid Steady Demand Growth

PS

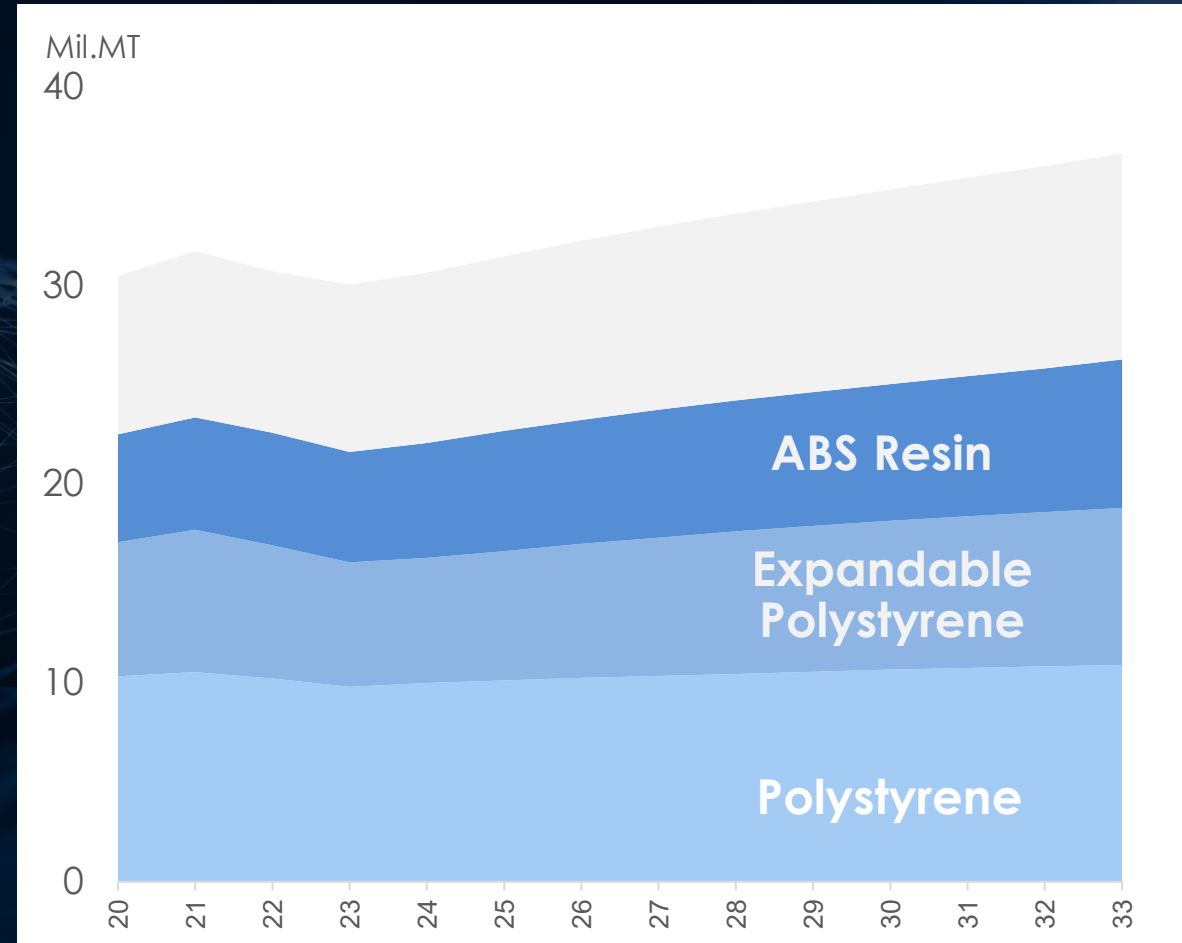


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STYRENIC RETURNS TO GROWTH POST-2025

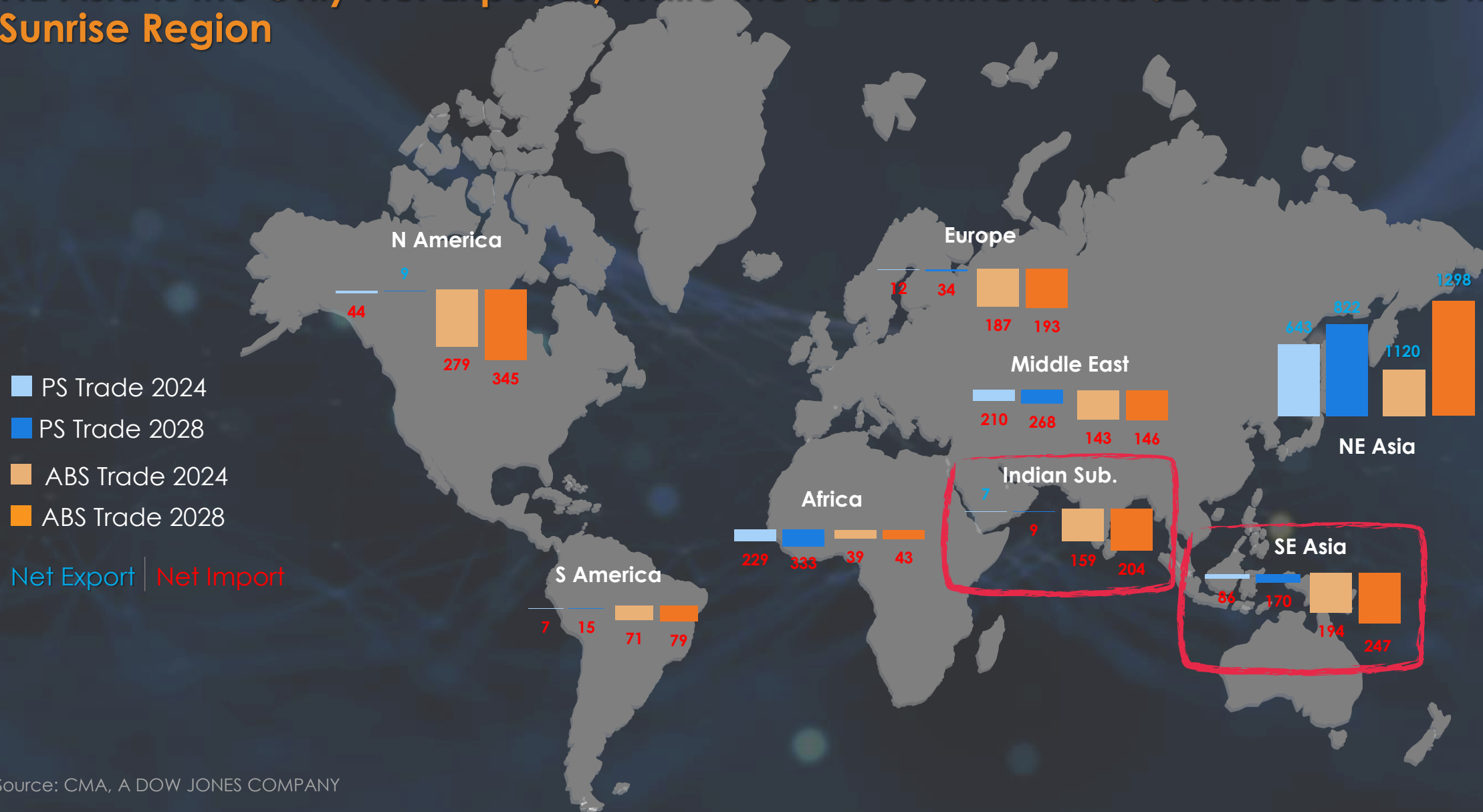
Styrenic Returns to Growth, Driven Mainly by Urbanization and Emerging Technology



Source: WPC

TRADE GRAVITY SHIFTS EAST

NE Asia Is the Only Net Exporter, While the Subcontinent and SE Asia Become the Sunrise Region



CHINA Plus One

ASEAN – Preferred Region for China and Foreign Companies



Geopolitical tensions



Pandemic-driven disruption

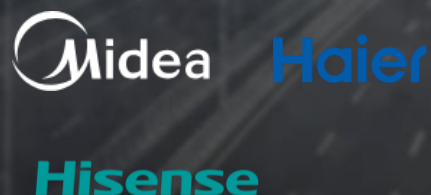


Government Policy

Consumer electronics



Home appliance



Electric vehicle



Digital economy



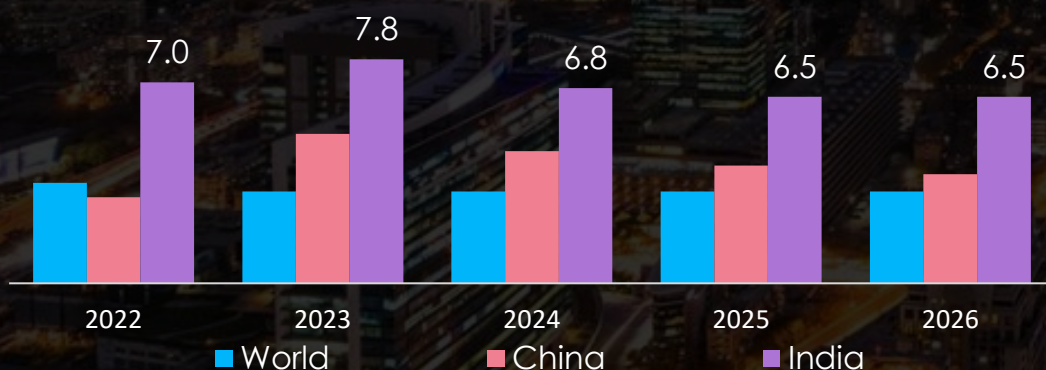
Renewables



INDIA URBANIZATION

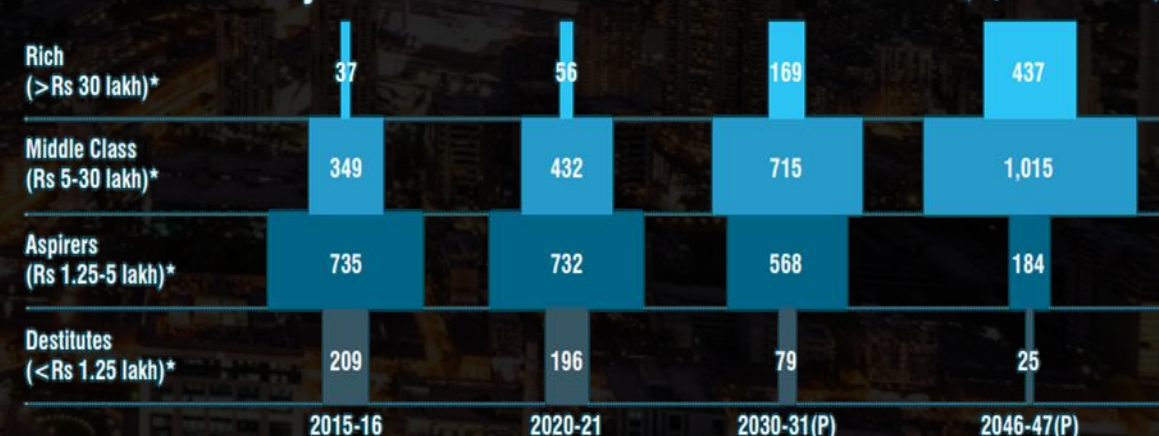
India Become A Silver Lining Amid Challenges

GDP Growth At Constance Price, in Percent



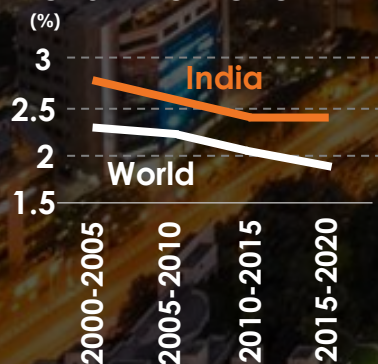
Source: IMF @ 2024

India's Income Pyramid



*Annual household income at 2020-21 prices

ANNUAL URBAN POPULATION GROWTH (%)



Source: World Bank

70%

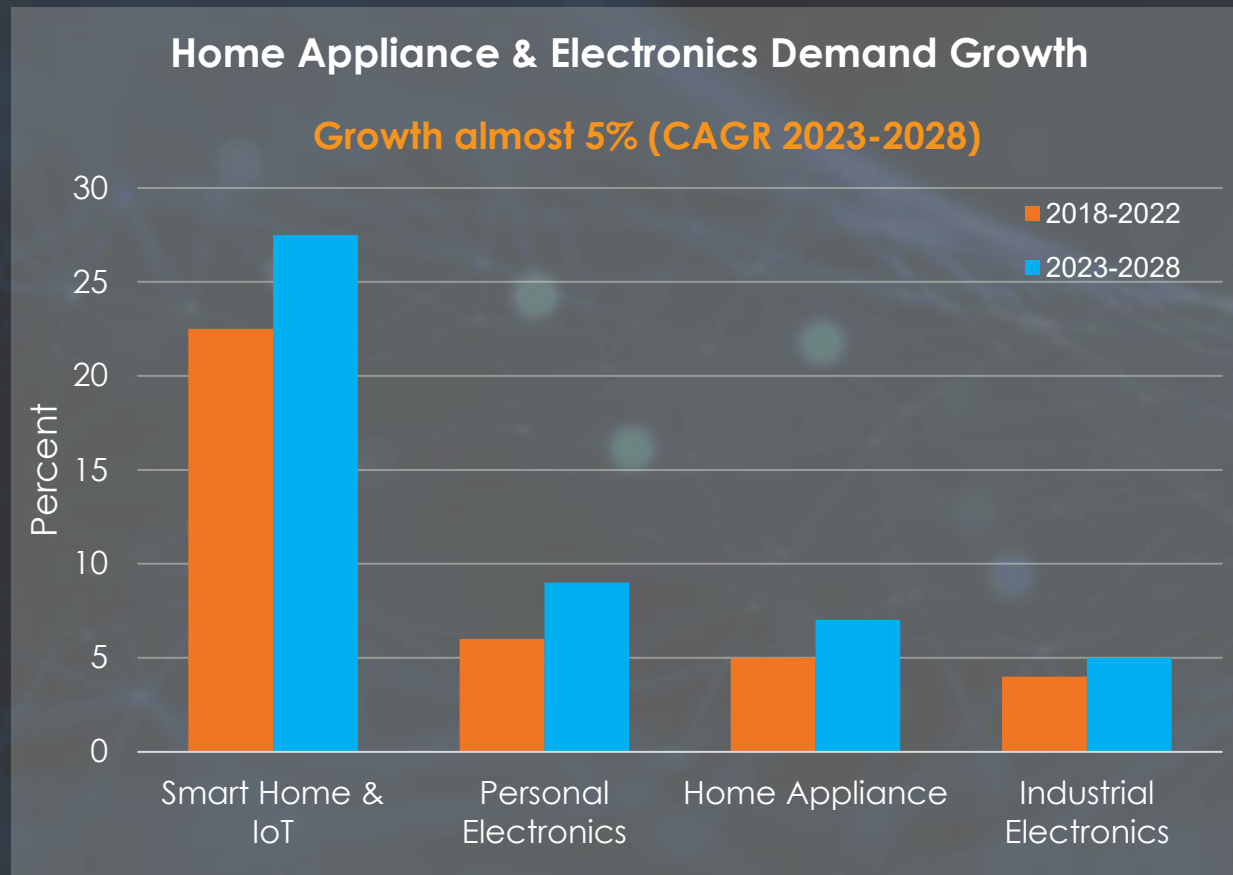
of national income expected to come from urban areas by 2036

Billion \$840

the estimated investment in urban infrastructure over the next 15 years

Indian Urbanization

The Impact of Emerging Technology and Urbanization Has Driven Home Appliance & Electronics Demand Growth



Source: Custom Market Insights, Precedent Research

- ✓ Smart Appliances
- ✓ IoT-Enabled
- ✓ More Functionality
- ✓ Influence of Health and Wellness Trends
- ✓ Focus on Sustainability

STYRENIC OUTLOOK

Styrenic Margins Gradually Recovered After 2025

PS

USD/MT

2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029

USD/MT

2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029

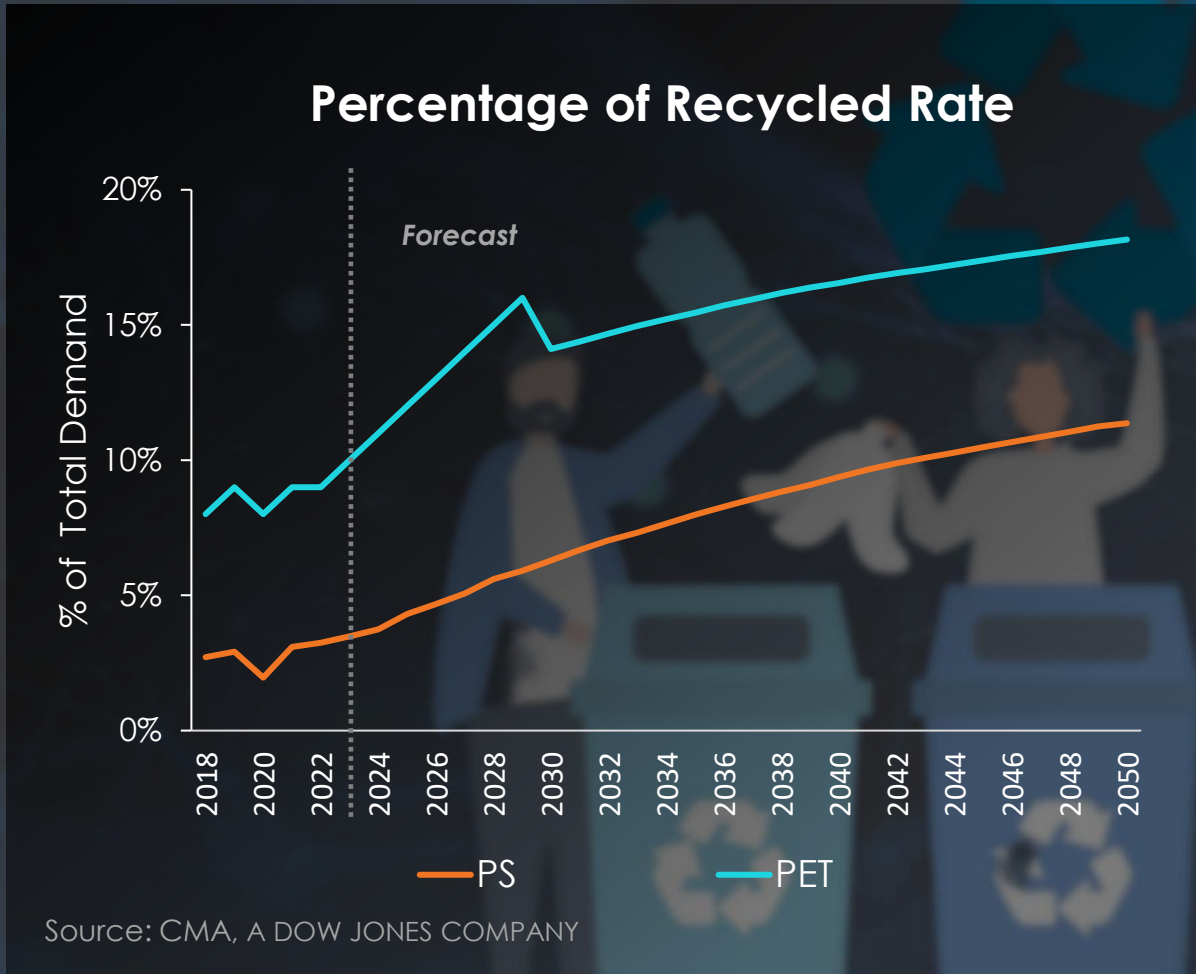
ABS

SUSTAINABLE TRENDS OF **STYRENIC**

CHALLENGE & OPPORTUNITY

SUSTAINABLE CHALLENGES IN STYRENIC

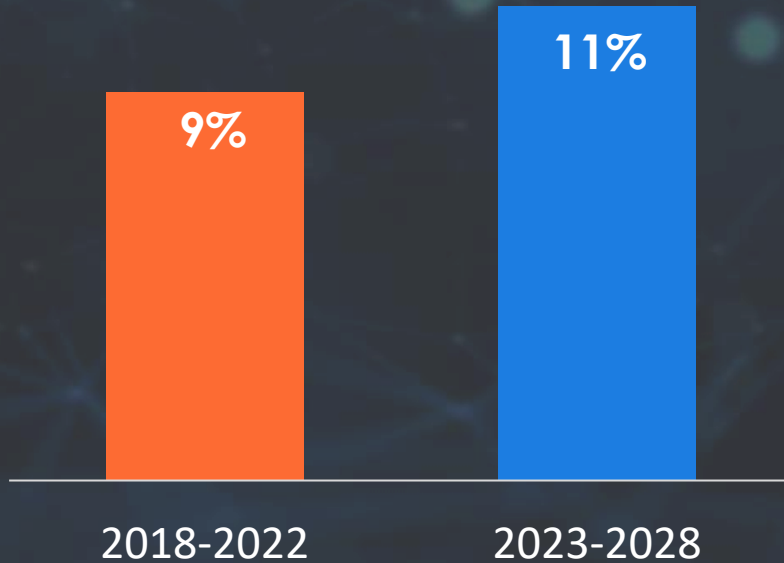
Slow Growth of Recycled Rate in the Styrenic Chain Due to Many Obstacles



HIGH DEMAND FOR RECYCLED MATERIALS

Companies Are Incorporating Recycled Plastics into Their Products, Reducing The Need For Virgin Materials And Minimizing Waste

% Recycled Demand Growth



Source: GlobeNewswire



Electrolux Group

Increase the proportion of recycled plastic the Group uses to 50% by 2030.

SAMSUNG

By 2030, apply recycled resin to 50% of plastic parts used in DX products. And aim to expand e-waste collection system to all countries with sales presence, collecting a cumulative 10 million ton.

DELL
Technologies

By 2030, more than half of our product content will be made from recycled, renewable or reduced carbon emissions material.

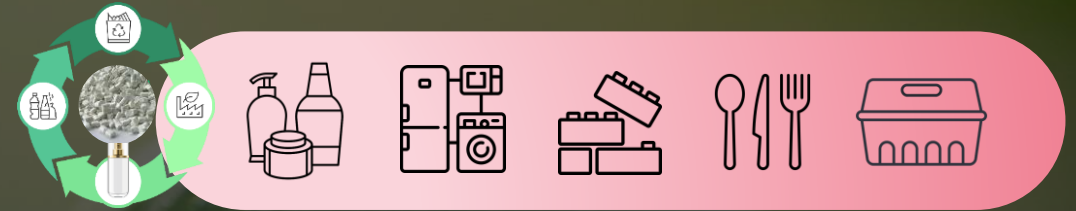
SUSTAINABLE WAY FORWARD

Bio Composites and Recycled Compounds Are Becoming New Solutions for Styrenic

Bio-based Percentage Range: 10 – 40%



Posted-Consumer Recycled



Virgin Polymer
(PE, PP, ABS, PS)



Specific Additive
特定の添加剤



BIO COMPOSITE

RECYCLED COMPOUND



KEY TAKEAWAYS

- ◎ Center shifts to Asia
- ◎ Demand growth by post-2025
- ◎ Emerging technology and urbanization in developing countries driving demand
- ◎ Preparation for sustainability



“ There are no
**secrets to
 success.** It is
 the result of
**preparation,
 hard work and
 learning from
 failure.** ”

— Collin Powell