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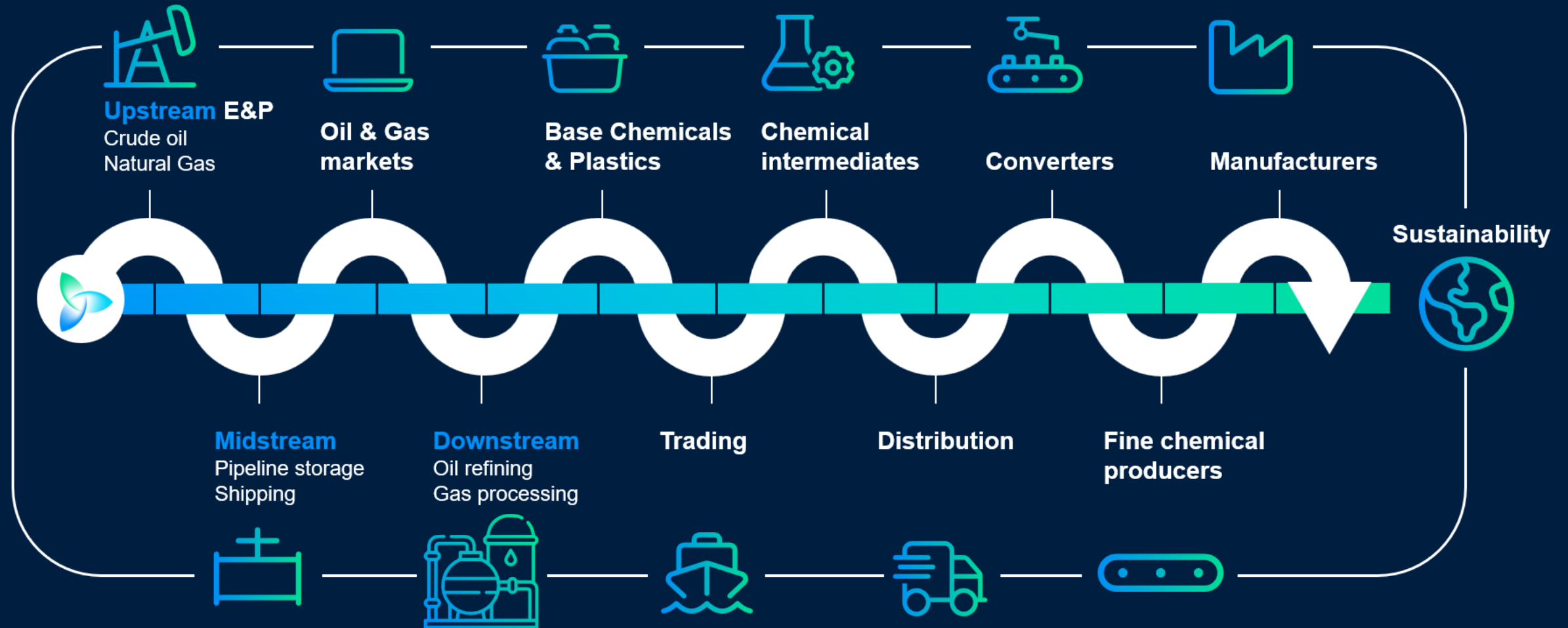
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Circular Plastics: Can Ambition Become Reality

APIC, Bangkok

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16 May 2025



Agenda

- 01 State of play for recycling
- 02 Impact of macroeconomic conditions on recycled markets
- 03 Regulatory landscape
- 04 Recycle price dynamics
- 05 Outlook for circular plastics



Mechanical recycling is relatively established in comparison to nascent but fast developing chemical recycling

2023 proved to be a challenging year for plastics recycling amid the macroeconomic headwinds

MECHANICAL RECYCLING SUPPLY TRACKER



CHEMICAL RECYCLING SUPPLY TRACKER



* Includes PET, PE and PP capacities

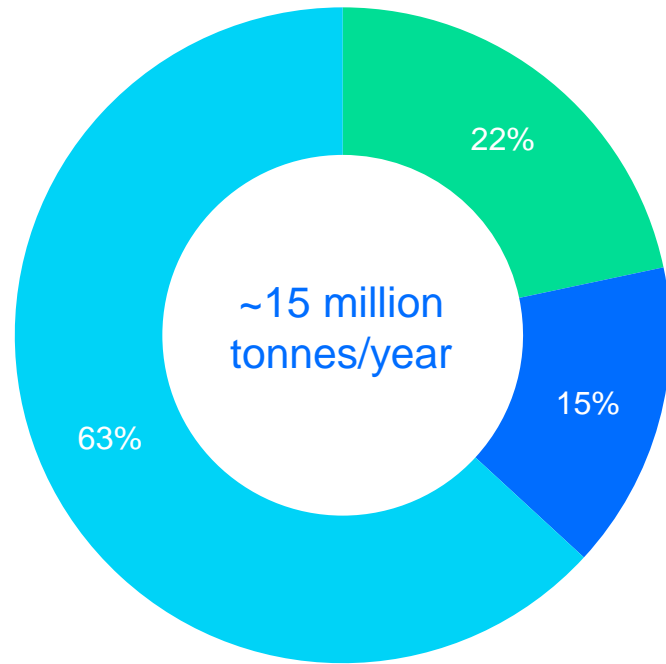
** Chemical recycling includes pyrolysis-based projects (all types, excludes tyre pyrolysis), glycolysis, hydrolysis, methanolysis projects; for all relevant polymers and all plant scales (both pre-commercial and commercial)

Source: ICIS Recycling Supply Tracker – Mechanical, 2025; ICIS Recycling Supply Tracker – Chemical, 2025



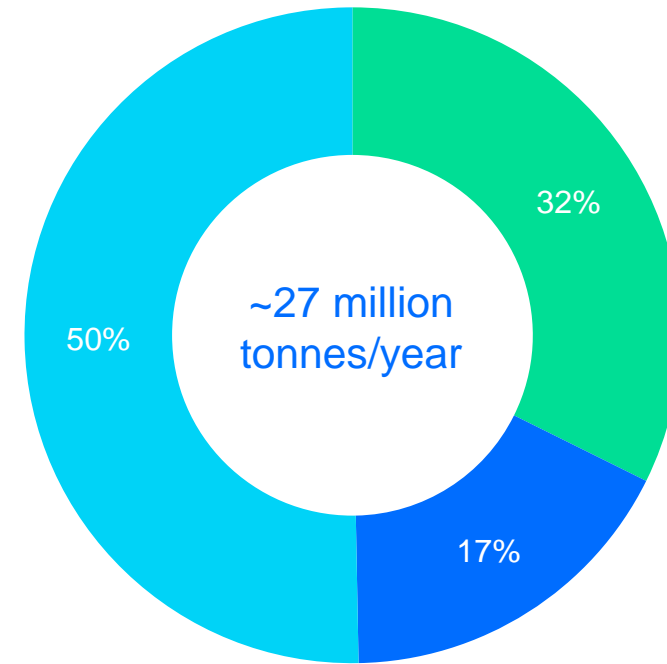
Recycling production in Asia compared to Global

Mechanically recycled polymer
2024 production in APAC*



■ PE ■ PP ■ PET**

Mechanically recycled polymer
2024 production globally*



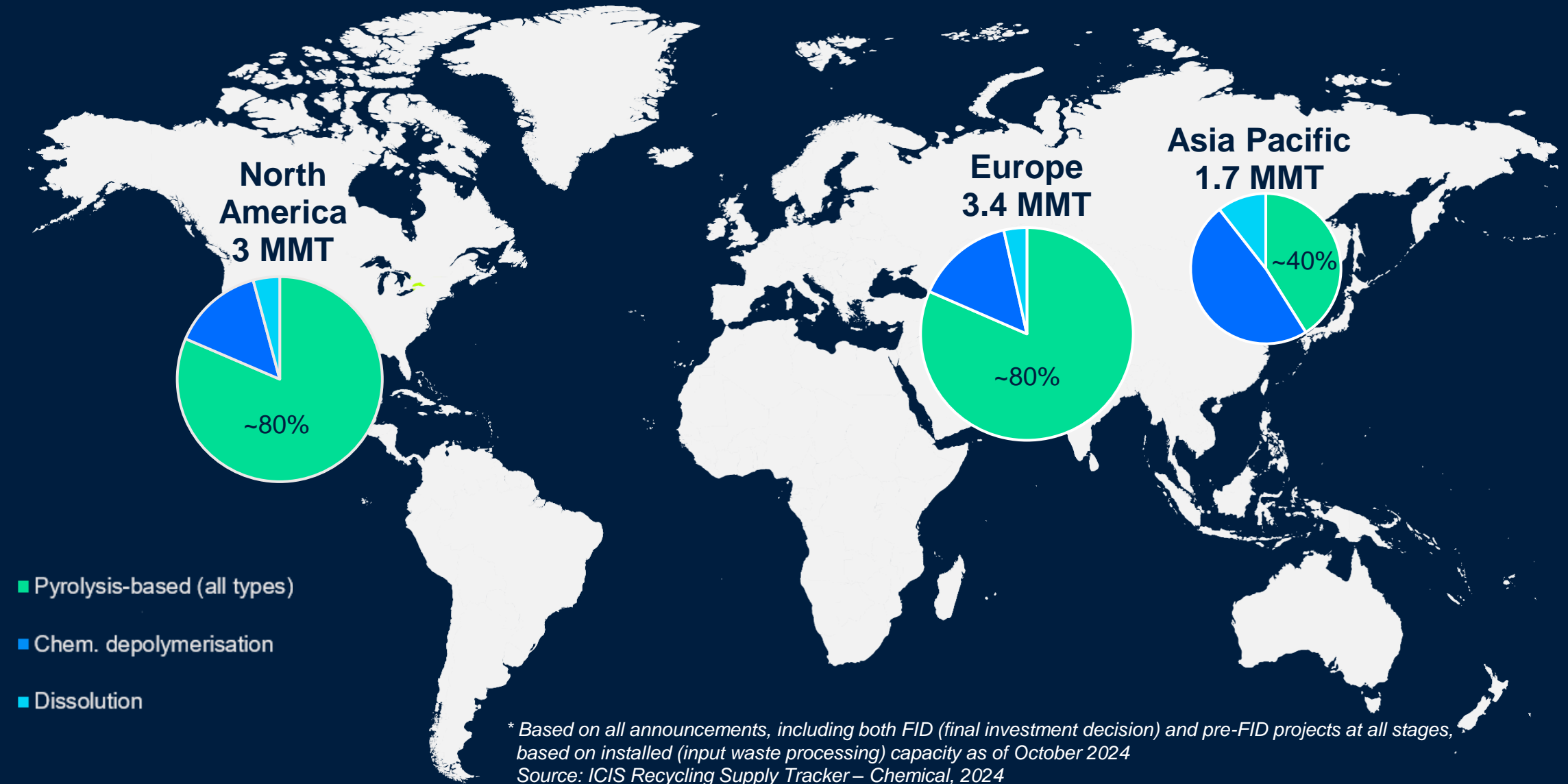
■ PE ■ PP ■ PET**

* Including PE, PP and PET

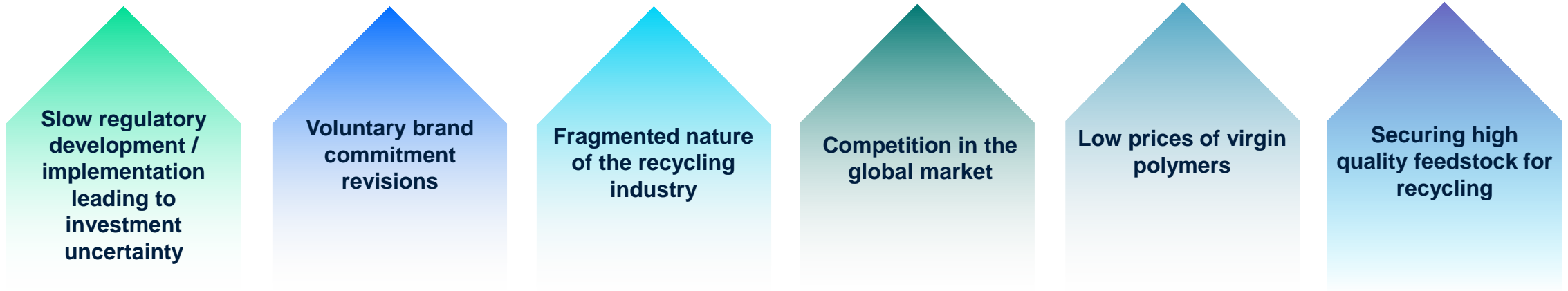
** Including PET resin, polyester film & polyester fibre grades

Source: ICIS Supply & Demand Database and Recycling Supply Tracker – Mechanical, 2025

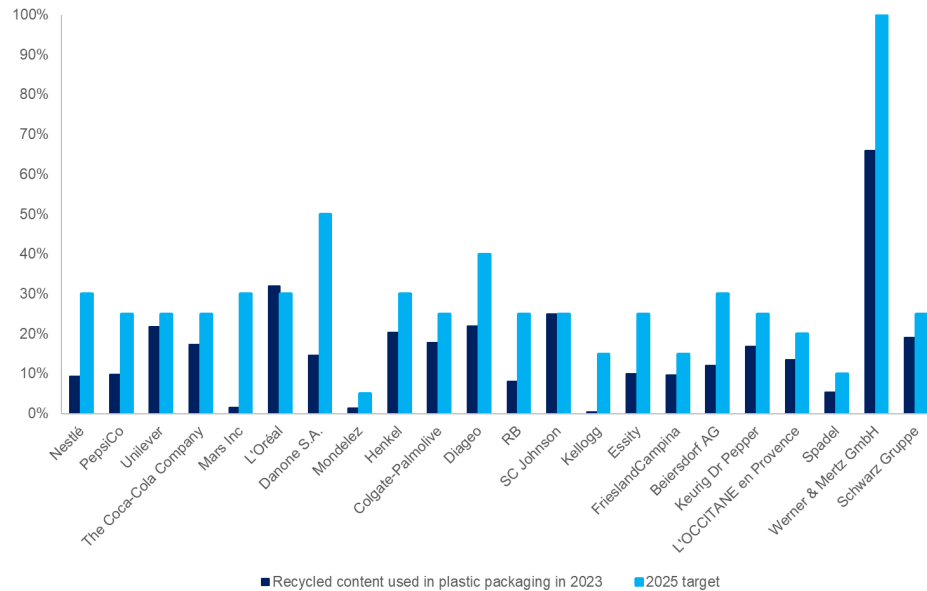
Europe has potentially the world's largest chemical recycling project pipeline (operating + announced* plants)



The drive for 'green transition' is currently competing with tough macroeconomic conditions

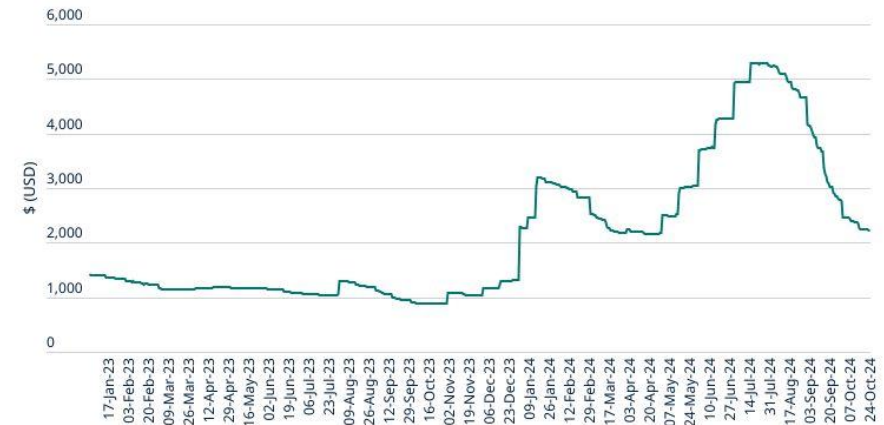


EMF Global Commitment 2024 Progress Report



North China to North Europe shipping

20ft Dry Cargo weekly container freight rates (short contract type, terminal handling charges at both ports)



SOURCE: Xeneta (updated till 24 October 2024, mean values used)

Plastic-related legislation increasing globally



GLOBAL

Basel convention
Global Plastics Treaty

NORTH AMERICA

- US Save Our Seas Act
- US RECYCLE Act
- US state EPR and PCR requirements
- US Break Free From Plastic Pollution Act
- CA provincial EPR
- CA Action Plan on Zero Plastic Waste

ASIA PACIFIC

- National Sword / Import restrictions
- ASEAN Regional Action Plan for Combating Marine Debris
- Country specific EPR, SUP Bans
- Waste export ban and Recycling Modernization Fund (Australia)

EUROPE

- Packaging and Packaging Waste Regulation
- Circular Economy Package
- EU 2022/1616
- Single Use Plastics Directive
- EU Plastics waste charge
- Country specific plastic packaging taxes
- End-of-Life Vehicles (ELVs) Regulation

** Not exhaustive list which includes both adopted and drafted / proposed legislation*

PPWR scope and market restrictions



WIDE SCOPE

- Replaces a directive and amends the SUPD (Single-use Plastic Directive 219/904)
- Covers most packaging and packaging waste (B2C and B2B)
- Includes quantitative targets, sustainability requirements and market restrictions
 - Reusable targets within a system of reuse

	2030	2040
MINIMUM RECYCLED CONTENT		
For contact sensitive packaging made of PET (excluding single-use beverage bottles)	30%	50%
For contact sensitive packaging made of plastic other than PET (excluding single-use plastic beverage bottles)	10%	25%
Single-use plastic beverage bottles	30%	65%
Remaining types of plastic packaging	35%	65%
RECYCLABILITY	70-95%	80-95%
REFILL	10%	

Regulatory landscape is emerging across APAC



China



Japan



India



Korea



Indonesia



Thailand



Taiwan



Singapore



Philippines



Vietnam



Malaysia

	China	Japan	India	Korea	Indonesia	Thailand	Taiwan	Singapore	Philippines	Vietnam	Malaysia
SUP ban	●	●	●	●	●	✓	✓	✗	●	●	●
Plastic waste trade restriction	✓	✗	✓	●	✓	✓	✓	✗	✓	✓	✓
Food contact application	●	✓	✓	✓	✗	✓	✓	✗	✗	✗	✗
Mandatory PCR	✗	●	●	✗	●	✗	✗	✗	✗	✗	●
DRS	✗	✓	●	✓	✗	✗	✓	✗	✗	✓	✗
EPR	●	✓	●	✓	●	✗	✓	●	✓	✓	✓

✓ Regulation in place
 ● Draft legislation / in progress
 ✗ No regulation
SUP Single use plastic
PCR Post-consumer recycled content
DRS Deposit refund schemes
EPR Extended producer responsibility

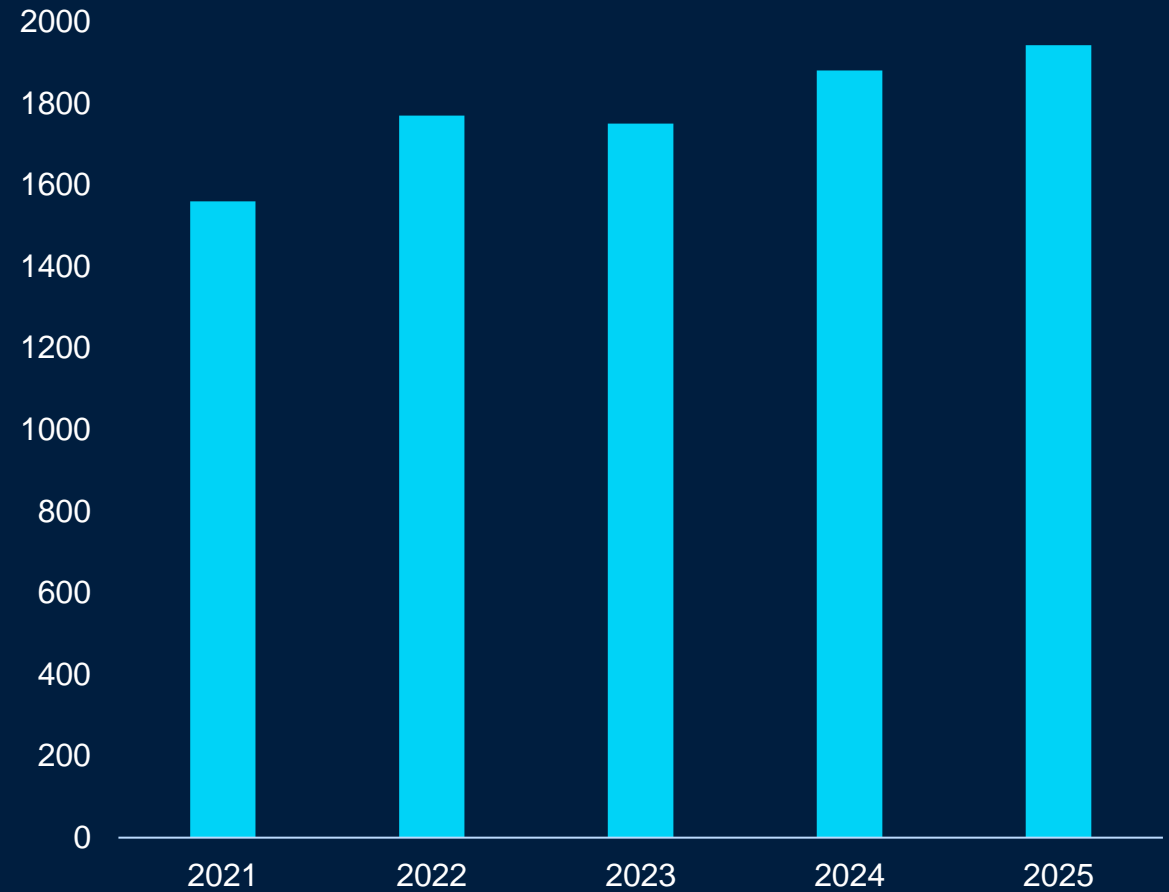
Increasing spread with feedstock on packaging grades



Europe R-HDPE Yearly Average Feedstock Price Spread: Blow-moulding Natural Pellet (€/tonne)



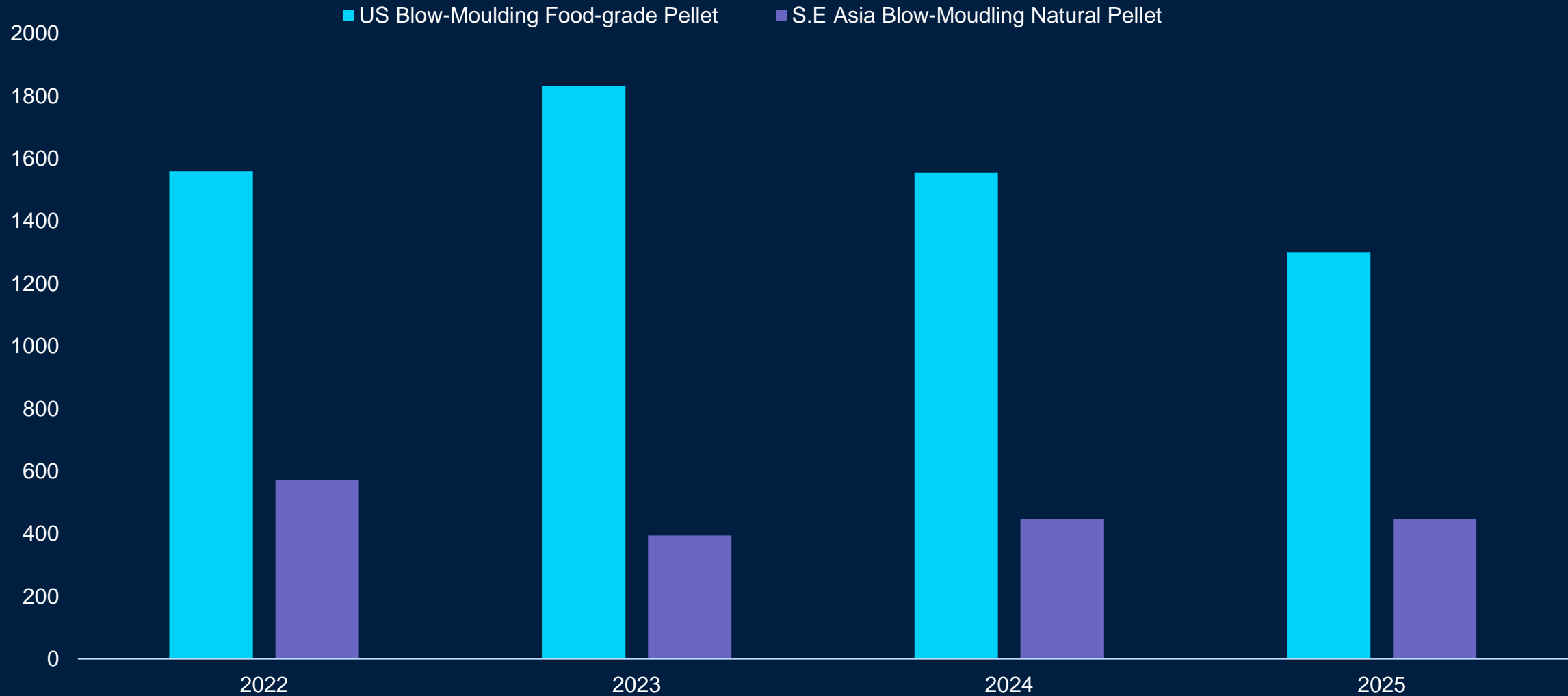
Europe R-PP Yearly Average Feedstock Price Spread: Post-consumer Natural Pellet (€/tonne)



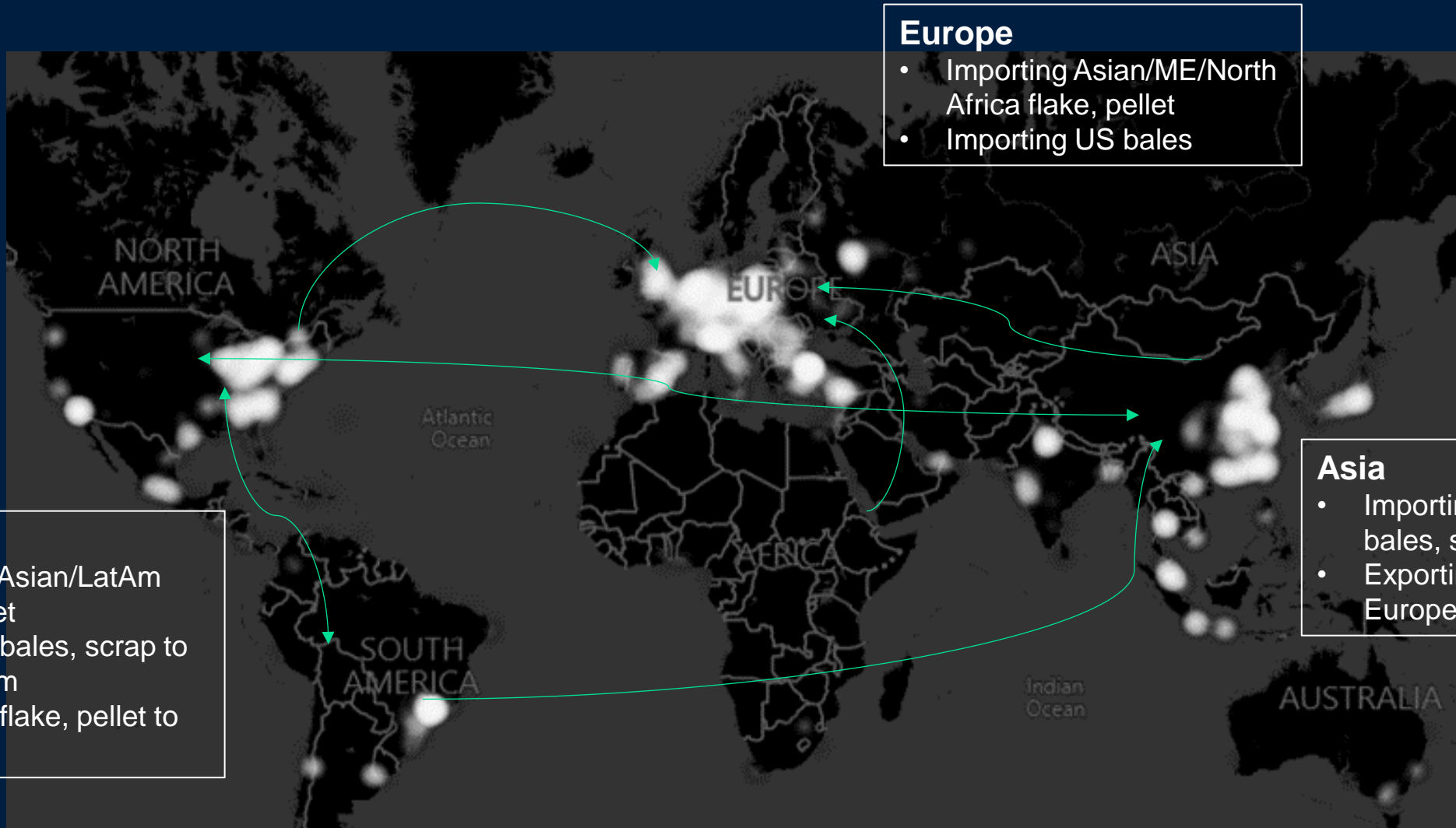
US/Asia markets reflect the lower regulatory burden



US/Asia R-HD Yearly Average Feedstock Price Spread: (\$/tonne)



Trade patterns strengthening



Europe

- Importing Asian/ME/North Africa flake, pellet
- Importing US bales

US

- Importing Asian/LatAm flake, pellet
- Exporting bales, scrap to Asia/LatAm
- Exporting flake, pellet to Europe

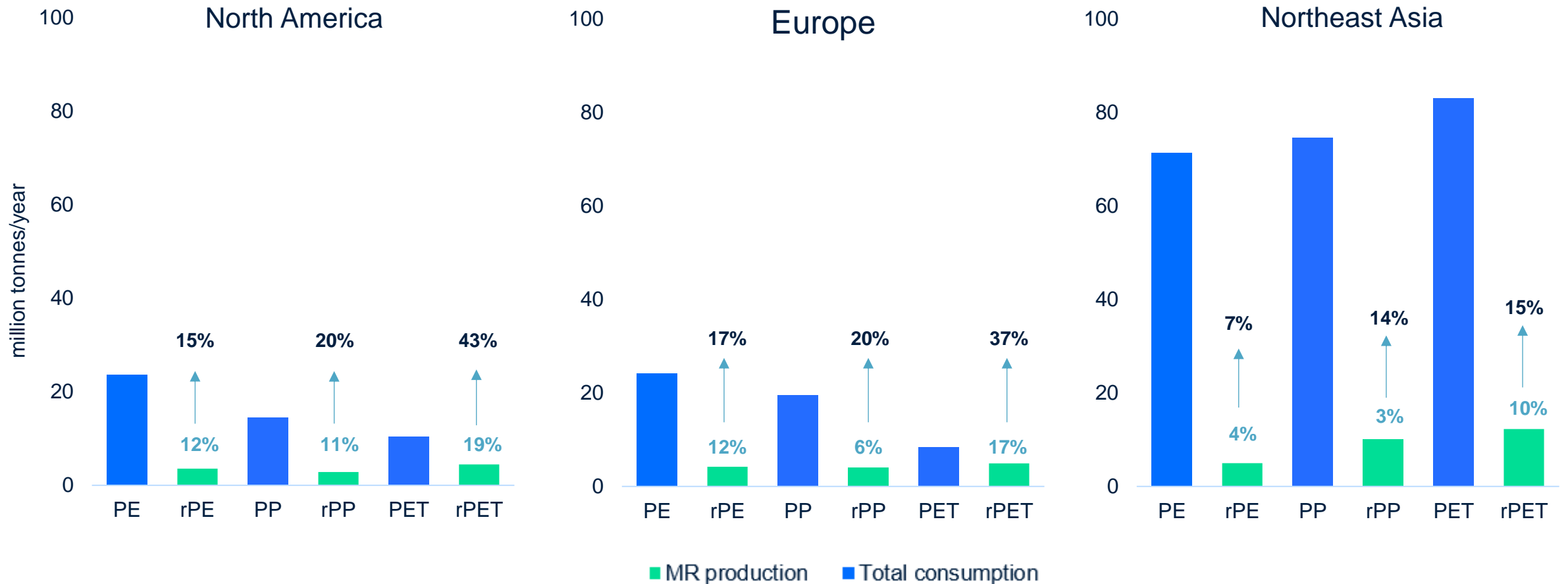
Asia

- Importing US/LatAm bales, scrap
- Exporting flake, pellet to Europe/US/North Africa

By 2050 share of mechanically recycled polymers is forecast to increase but the penetration level is still limited



Mechanical recycling penetration on demand, 2050 forecast from 2024 levels








Europe includes EU, non-EU countries and Turkey

PET including PET resin, polyester film & polyester fibre grades

Source: ICIS Supply & Demand Database and Recycling Supply Tracker – Mechanical, 2025

System level approach is required to accelerate growth of the recycled polymer market

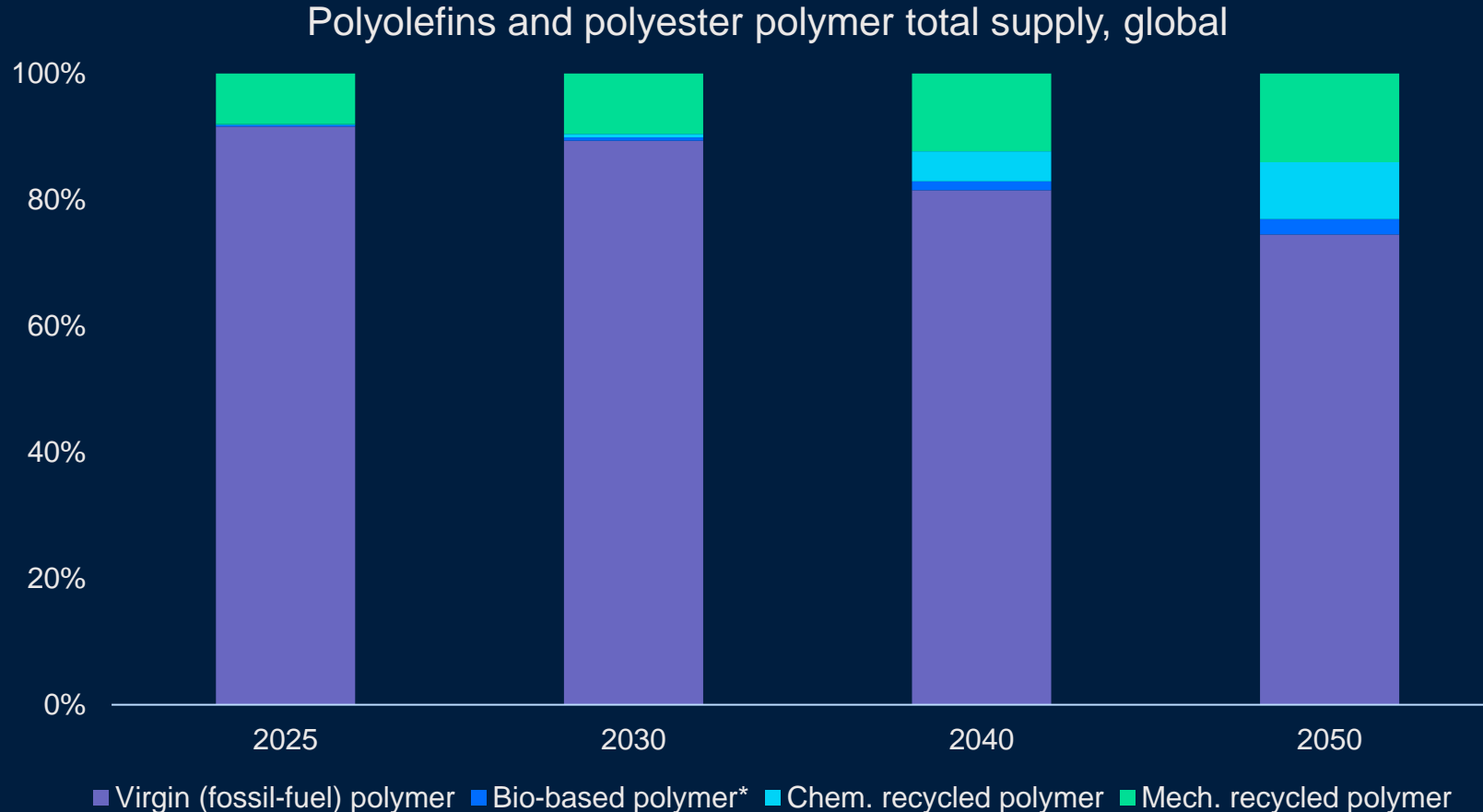


	Key areas	Particular measures
	incentives for long-term demand	mandated recycled content targets and well-tuned plastic taxes/fiscal measures
	economic support to infrastructure development	extended producer responsibility (EPR) schemes and eco-modulated fees
	best practices and innovations in waste management	aligned guidelines and standards, design for recycling, high-tech for sorting (e.g. watermarks and artificial intelligence (AI)) and complex integrated recycling centres
	new recycling technologies	legally recognised chemical recycling and a mass balance chain of custody model, greenfield capacity building
	pro-active engagement with consumers	benefits of deploying all the recycling technologies available and transparent environmental impact studies (LCA)

Global polymer production is forecast to change significantly in the long term



For example, in the supply of polyolefins and polyester polymer, the share of circular polymers could increase from ~8% in 2025 to ~25% in 2050



* Polymers produced from bio-naphtha and/or bio-LPG, also known as 'bio-attributed'
Source: ICIS Analytics scenario

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