S&P Global
Energy

The C4 Circus

Tightropes of Supply, Trade Acrobatics, and Green Surprises

Anthony Tso

APAC C4s and Derivatives

anthony.tso@spglobal.com

APIC 2026

Do you own one of these “viral” cups?

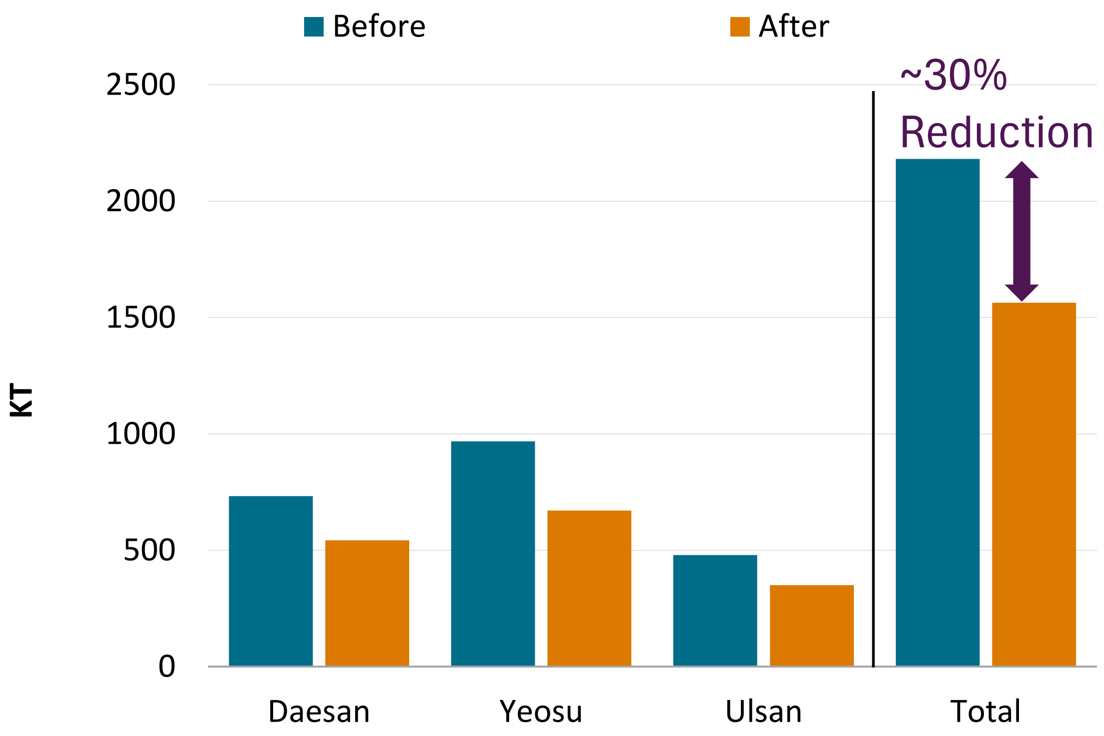
- Once a utilitarian product for laborers, recontextualized as a fashion accessory.
- Took social media by storm; with the cup shown as the sole survivor of a car fire, with ice still inside.
- Became a cultural icon in 2023, ***new releases were sold out in minutes and supply became tight.***
- Company’s revenue increased ten-fold from approximately $70 million in 2019 to $750 million in 2023.

- **Tightropes of Supply**
- Trade Acrobatics
- Green Surprises
- Key takeaways

"Rationalization" a new buzzword for the industry; as crackers and associated C4 units shut, supply will tighten in the short-term

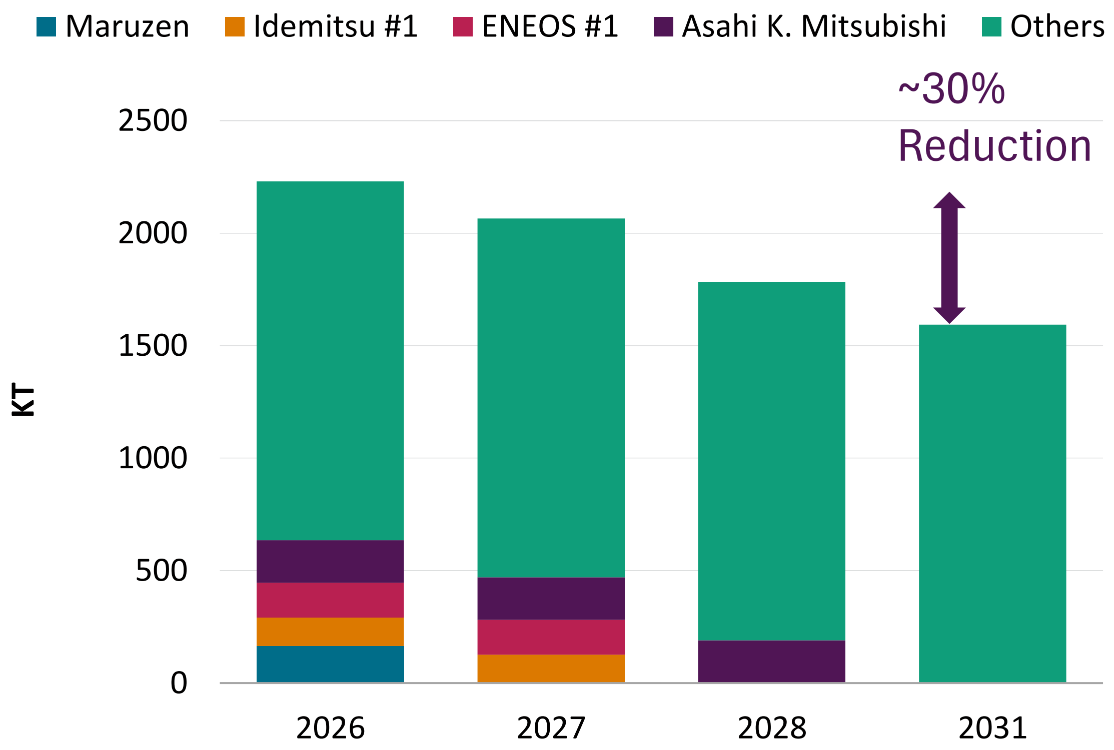
S. Korea's butadiene extraction and Japan's crude C4 capacities are both expected to fall by around 30%

S. Korea Butadiene Capacity Rationalization



Note: Includes S-Oil's new capacity at Ulsan, scheduled to start in 2026/2027.
Source: S&P Global Energy.

Japan Crude C4 Capacity Rationalization

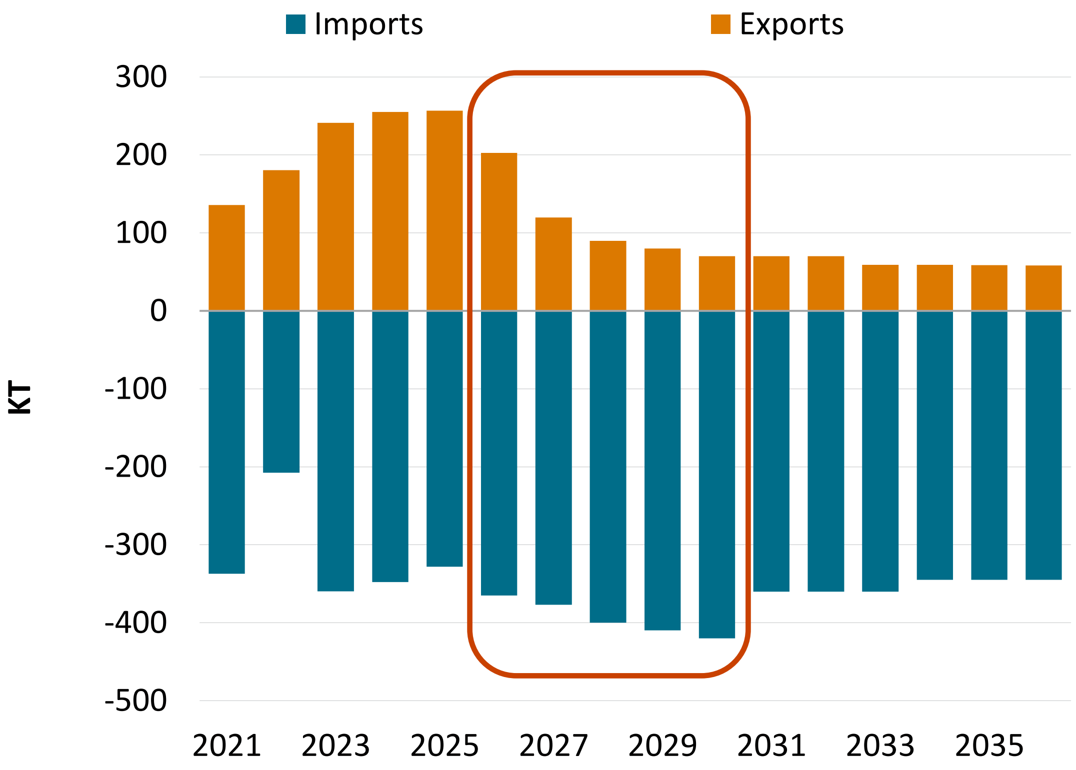


Source: S&P Global Energy.

S. Korea and Japan will foreseeably see a larger butadiene deficit in the next few years and imports will rise

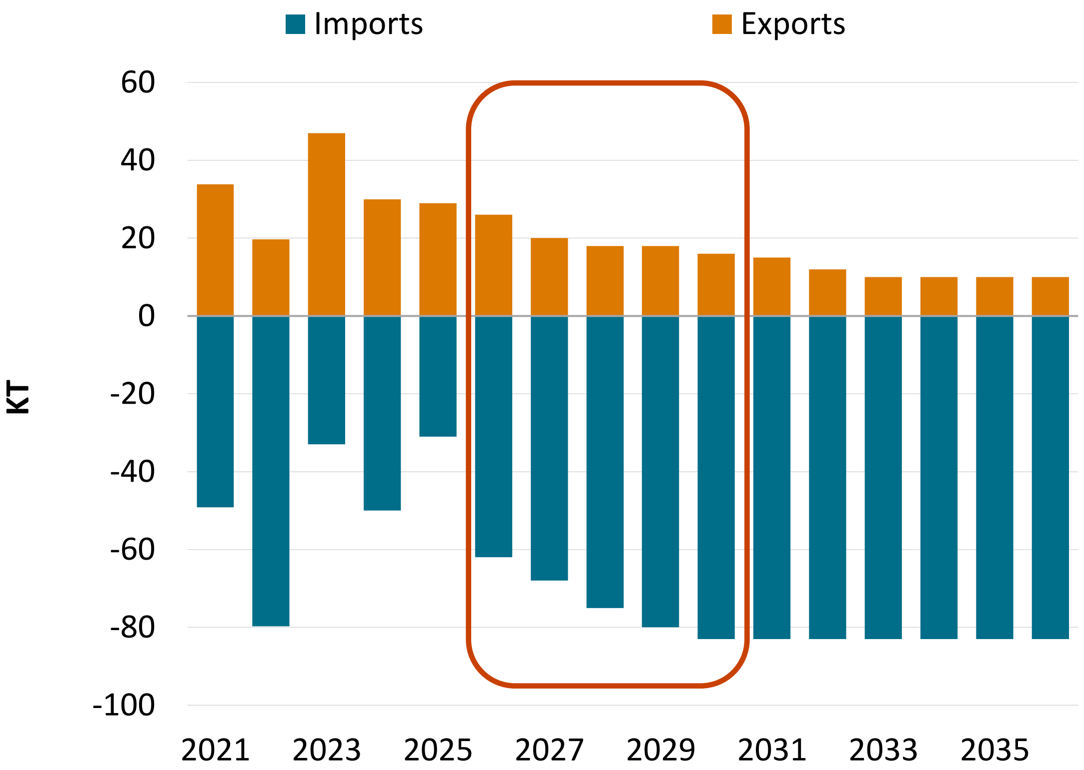
However, the rising imports trend is forecast to be arrested beyond 2031

South Korea Butadiene Trade



Source: S&P Global Energy.

Japan Butadiene Trade



Source: S&P Global Energy.

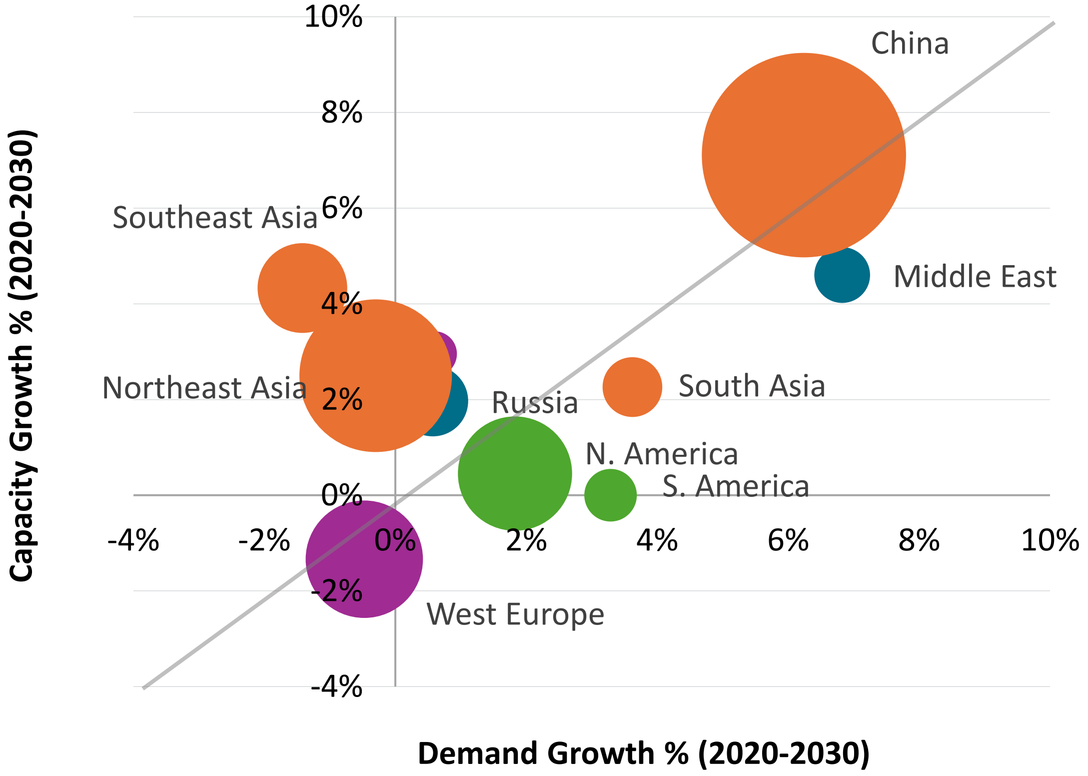
The story continues..

- Seeing massive sales, retailers over-ordered and manufacturers ramped up production sharply.
- Numerous manufacturers joined the bandwagon to ***upgrade their production lines and increase capacity to create similar cups.***
- By 2024/25, the urgent desire for such cups leveled off and the market saw saturation. Supply overhang followed…

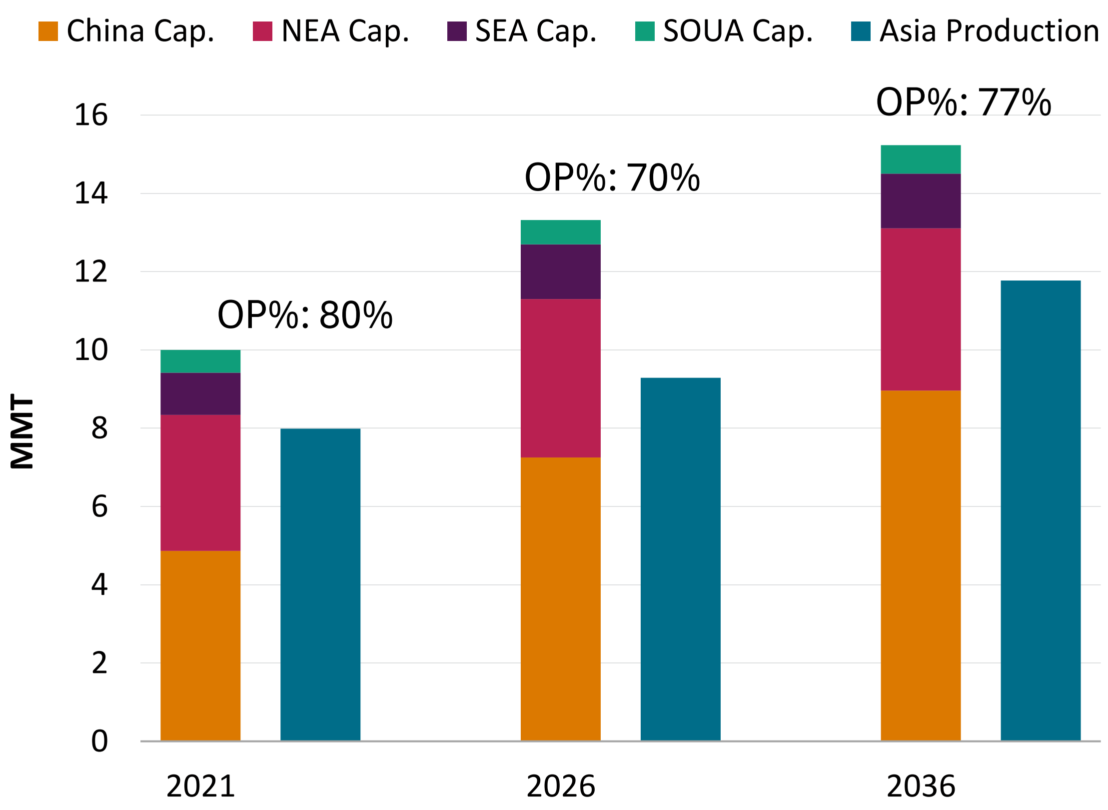
China's demand growth and strive for self-sufficiency drove an unprecedented wave of butadiene capacity additions

Asia's capacity growth has been surpassing demanding growth and butadiene extraction rates will remain under pressure

Butadiene Capacity vs Demand Growth



Asia Butadiene Capacity and Production

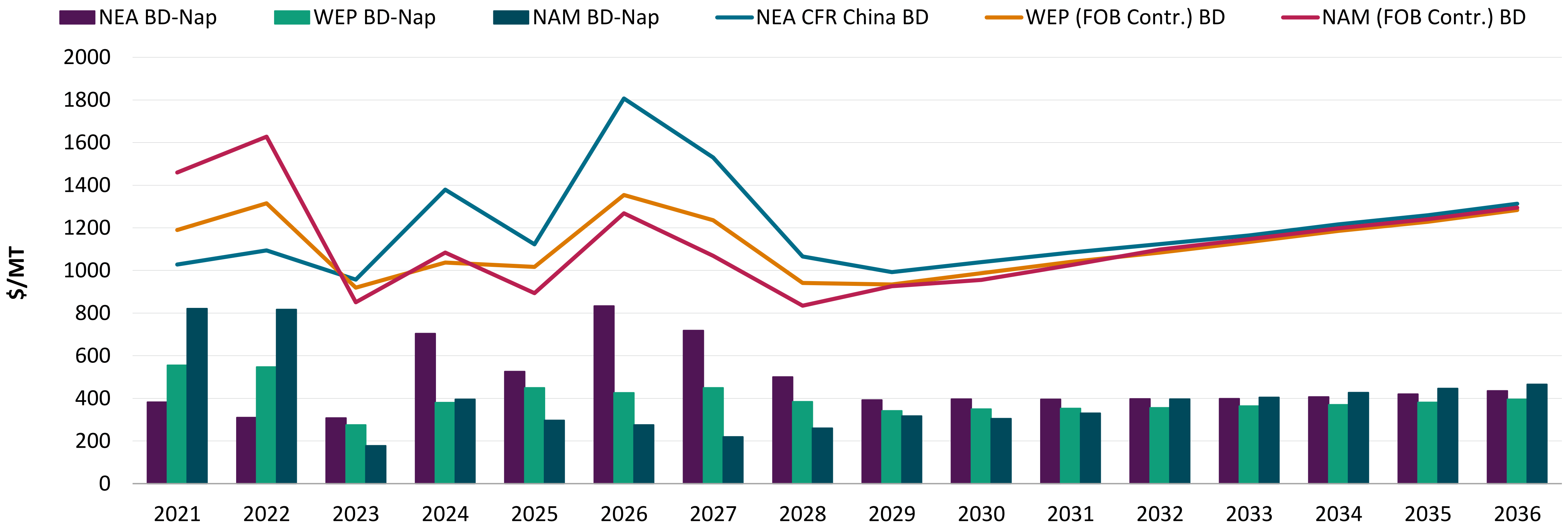


Source: S&P Global Global.

S&P Global Energy

As China becomes more self-sufficient and reduces its reliance on imports, Asian butadiene prices will decline, and regional margin differences will narrow

Global Butadiene Prices and Spreads



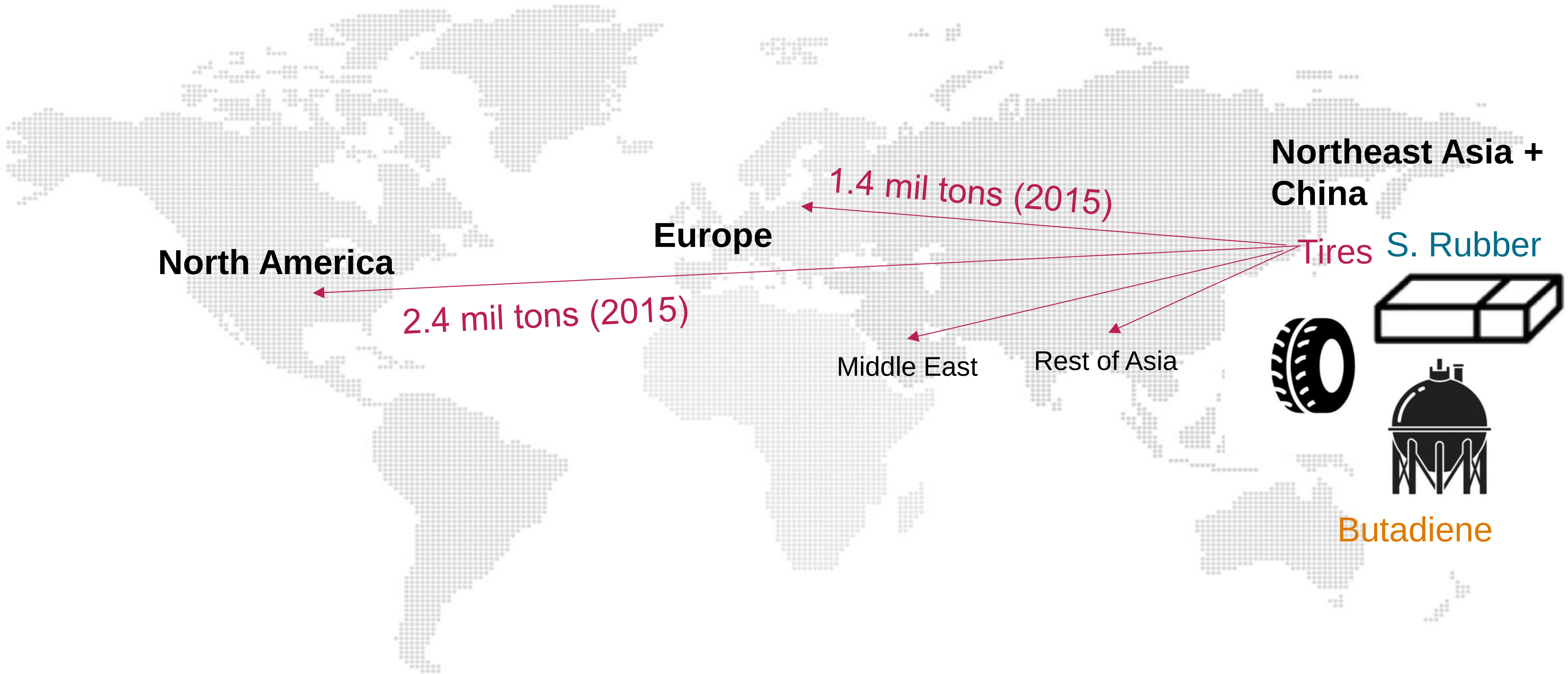
Source: S&P Global Energy.

- Tightropes of Supply
- **Trade Acrobatics**
- Green Surprises
- Key takeaways

S&P Global
Energy

About a decade ago, Northeast Asia (incl. China) was* the epicenter of butadiene, synthetic rubber and tires production

Some surplus synthetic rubber from Northeast Asia was also supplied to China to produce tires to be shipped to West

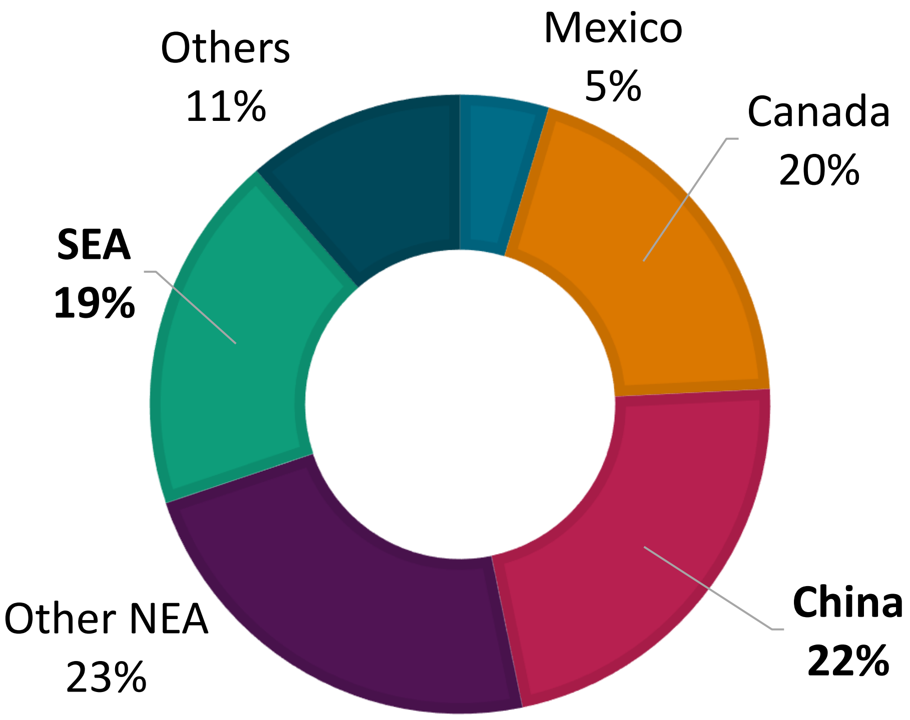


*Note: NEA is still a big production hub for the C4 value chain, however it has been losing its luster in recent years

United States’ tire imports have progressively shifted from China to Southeast Asia over the past decade

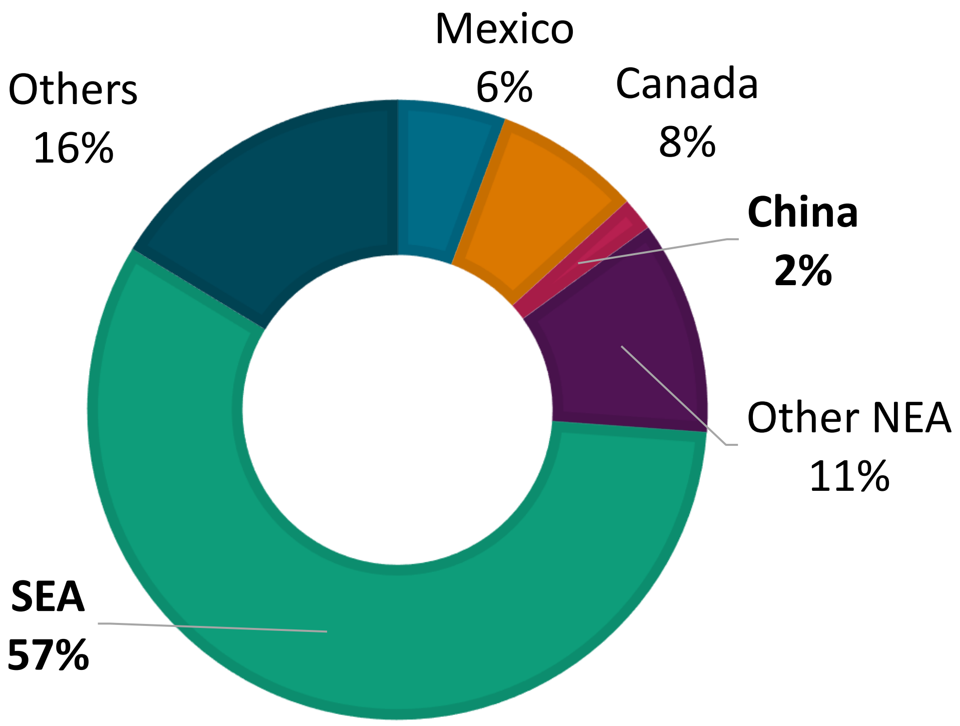
Thailand leads Southeast Asia in supplying over 50% of United States’ tire imports.

2015 US Tires Imports By Origin



Source: S&P Global Energy.

2025 US Tires Imports By Origin



Source: S&P Global Energy.

Many tire manufacturers made substantial investments in Southeast Asia after 2018

Vietnam

- 金宇轮胎 JINYU TIRES
- 贵州轮胎 GUIZHOU TYRE CO.,LTD.
- HAOHUA 昊华轮胎

Cambodia

- SAILUN 赛轮集团
- 万力轮胎 WANLI TIRE
- GS 江苏通用科技股份有限公司 Jiangsu General Science Technology Co.,Ltd
- DOUBLESTAR 双星轮胎

Indonesia

- SAILUN 赛轮集团
- 中策橡胶 zc rubber Zhongce Rubber Group Co.,Ltd

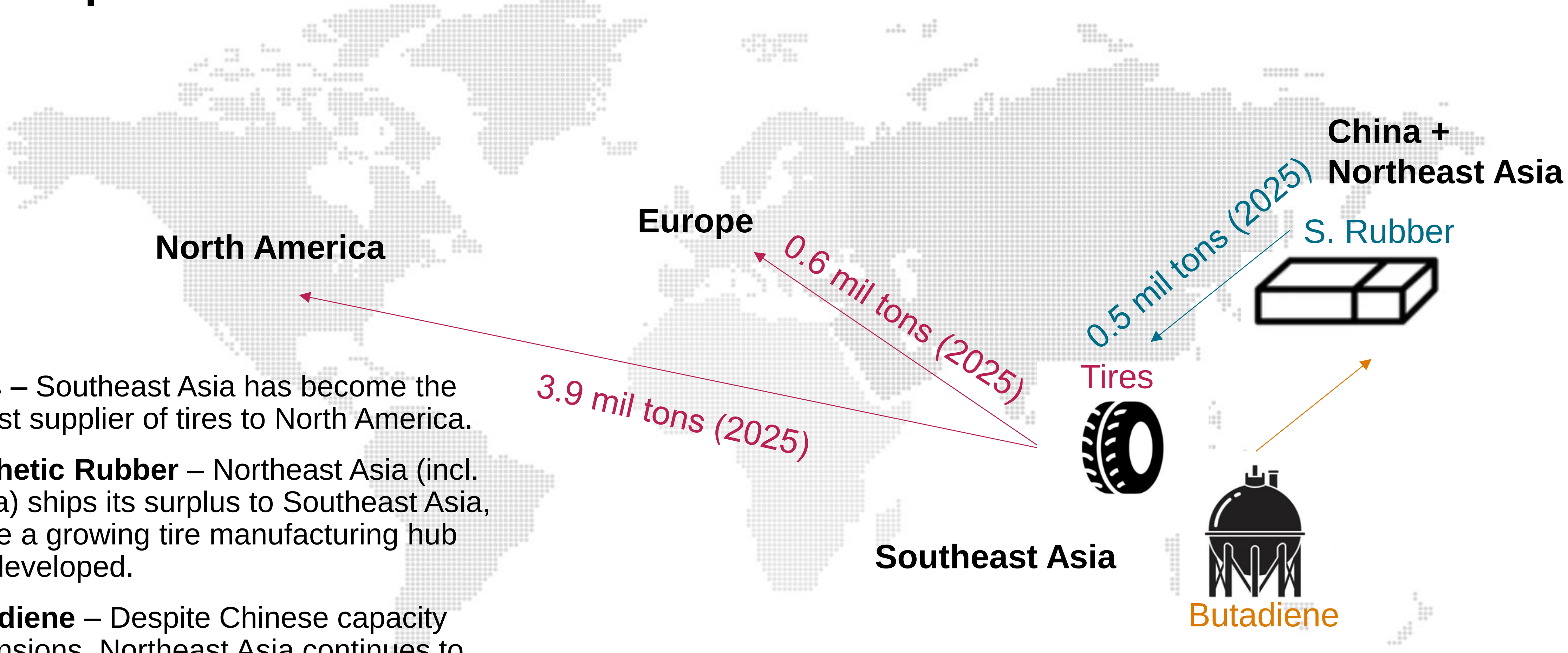
Malaysia

- FULLRUN 福临轮胎
- TOYO TIRES driven to perform

Thailand

- Continental
- BRIDGESTONE

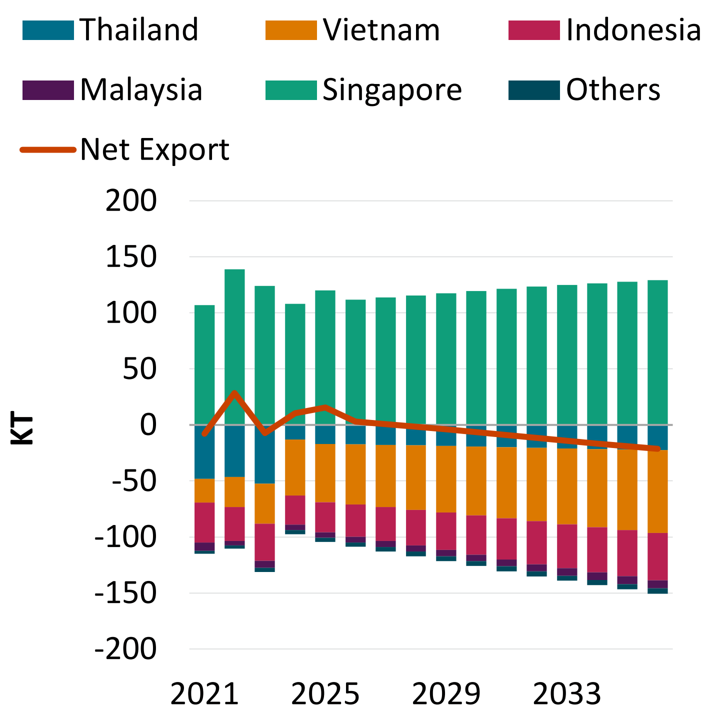
Trade supply chains for tires, synthetic rubber and butadiene have evolved over the past decade



- **Tires** – Southeast Asia has become the largest supplier of tires to North America.
- **Synthetic Rubber** – Northeast Asia (incl. China) ships its surplus to Southeast Asia, where a growing tire manufacturing hub has developed.
- **Butadiene** – Despite Chinese capacity expansions, Northeast Asia continues to absorb some Southeast Asian–origin cargoes to produce rubber for Southeast Asia.

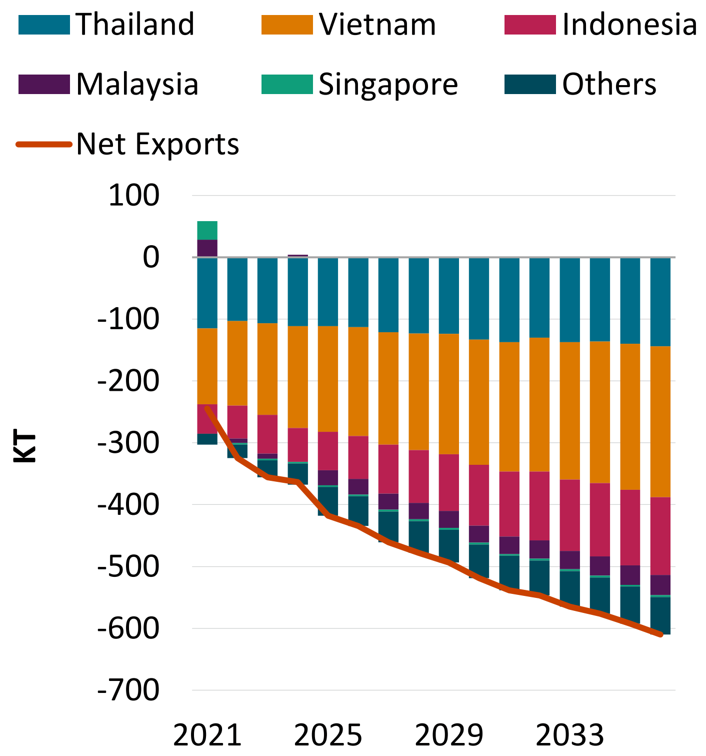
Southeast Asia’s synthetic rubber demand will continue to expand, with the resulting supply gap addressed by increased imports

SEA Butyl Rubber Net Trade



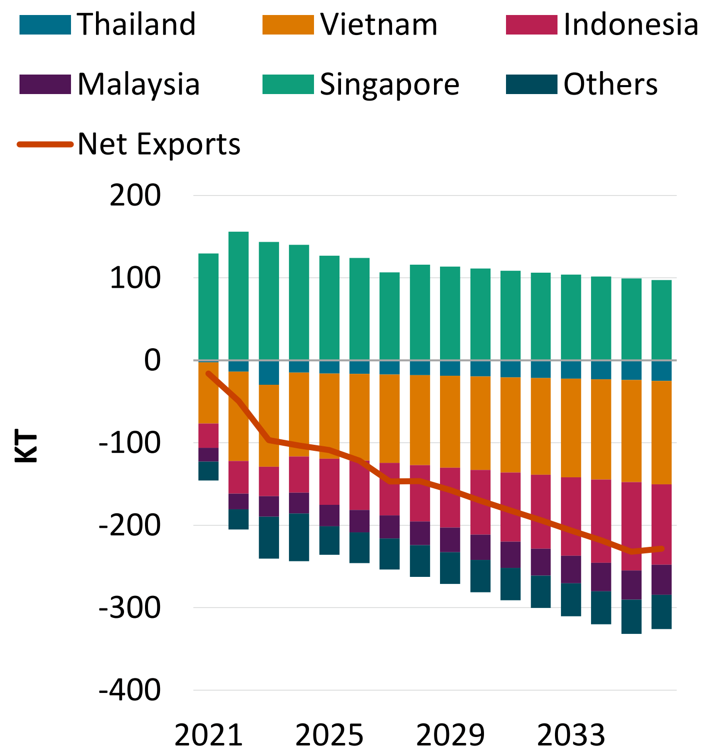
Note: Negative net exports indicate SEA in deficit.
Source: S&P Global Energy.

SEA PBR Net Trade



Note: Negative net exports indicate SEA in deficit.
Source: S&P Global Energy.

SEA SBR Net Trade



Note: Negative net exports indicate SEA in deficit.
Source: S&P Global Energy.

S&P Global Energy

- Tightropes of Supply
- Trade Acrobatics
- **Green Surprises**
- Key takeaways

The side story, will it become the main story?

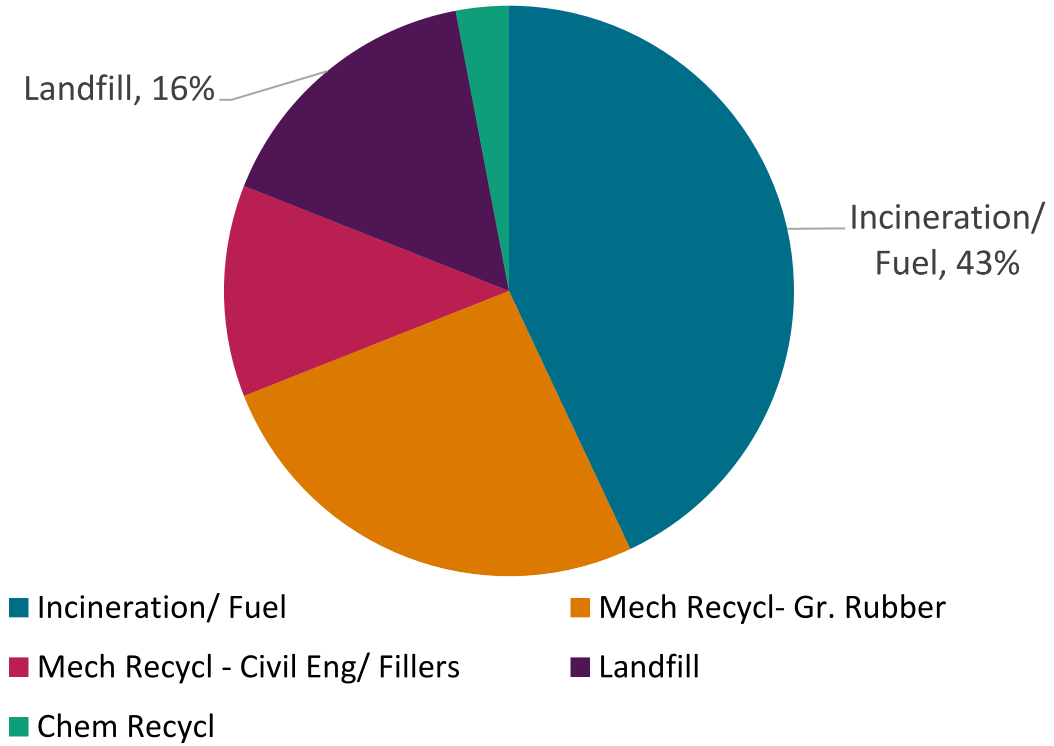
- End-of-life impact: Durable cups are still difficult to recycle and often end up in landfills.
- Usage paradox: Reusability benefits decline when consumers own multiple reusable cups.
- Credibility question: This raises concerns over ***whether the effort is genuine sustainability or greenwashing.***

Mainstream tire companies are differentiating themselves in the premium tire space with a focus on sustainability

Strategic Dimension	BRIDGESTONE	MICHELIN	PIRELLI	Continental
Materials	Advanced Synthetics (e.g. ENLITEN), recycled rubber	Advanced Synthetics, silica and sustainable fillers	Synthetics, eco design practices	Increase sustainable feedstocks, recycled rubber
Premium Focus	Dedicated EV lines, lightweight technologies	Strong OEM/ EV positioning	Premium segment focus, including EV	Active EV & performance tire competence, sustainable rolling resistance compounds
R&D Focus	Recycling/ compounding tech, alt. natural resources	Compounding optimization, broad material science research	Digital eco-design and advanced compounding	Composite materials (ContiRe.Tex), sustainable additive use, rice-husk silica innovations.
Sustainability Targets	**100% sustainable materials by 2050; 40% recycled/renewable by 2030.**	**40% recycled/renewable by 2030; 100% by 2050**	**Focus on certified bio & recycled content by 2030.**	**At least 40% renewable & recycled materials by 2030; 100% by 2050 goal.**

Waste management is still a challenge and majority of used tires are not mechanically or chemically recycled

Global Tire Waste Disposal/ Recycling



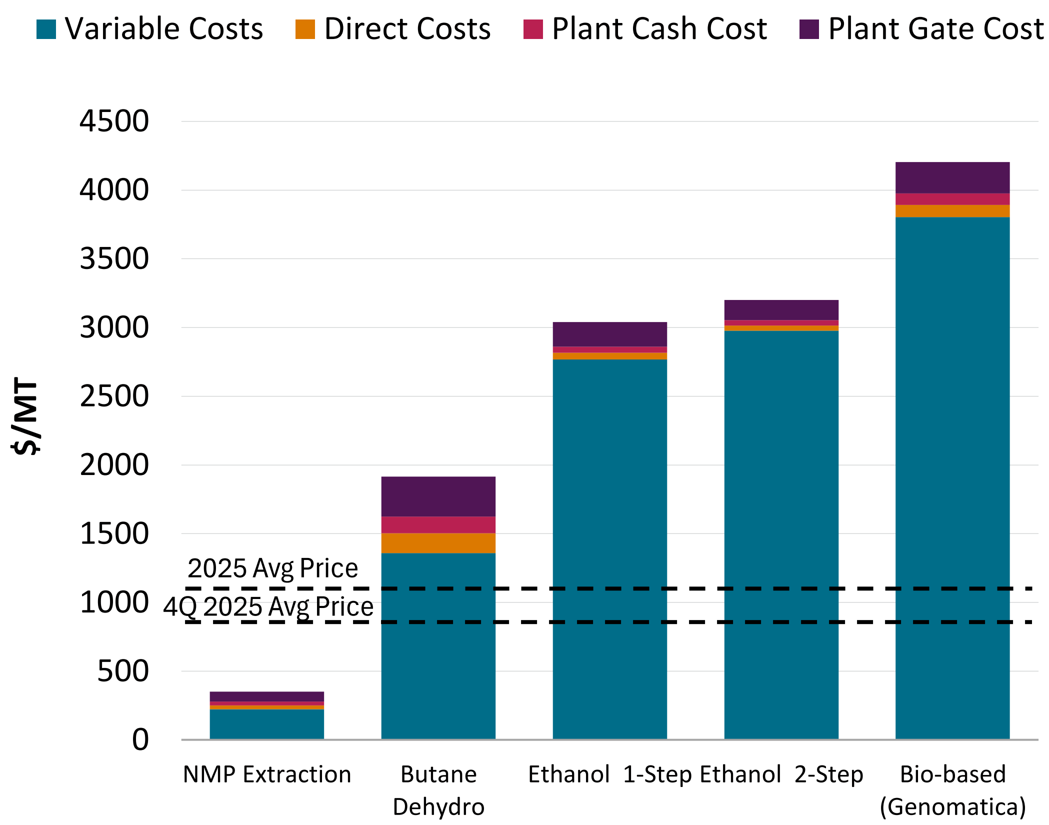
Source: S&P Global Energy.

- **Incineration** – Burnt in cement klins, power plants due to their high calorific value but has emissions concerns
- **Mechanical recycling** – The most common form of recycling, rubber crumbs used for playground flooring, synthetic tuft, civil engineering fillers, road embankments etc.
- **Landfills** – common in regions without sufficient waste management infrastructure
- **Chemical recycling via devulcanization** – devulcanized rubber can be reprocessed for low-end use like footwear, mats
- **Chemical recycling via pyrolysis** – conversion into pyrolysis oil (chemical feedstock) and carbon black

Bio-based butadiene projects see limited progress; costs continue to be an inhibiting factor for large scale commercialization

Project/ Stakeholders	Location	Progress
BioButterfly (Michelin, IFPEN, Axens)	France	Completing R&D and technology homologation, commercialization in 2026
Synthos and Lummus Technology	Poland	Engineering/ development phase for butadiene plant (using bio-derived ethanol) with 40kta cap (2022)
Bridgestone, PNNL, ENEOS	USA, Japan	Pilot-plant built in 2024, partnership with ENEOS for bio-based tires
Genomatica (and others)	USA, Europe	Commercial success of sister process for Bio-BDO in Iowa with 66kta cap (Oct 2025)
Zeon & Yokohama Rubber	Japan	Goal to have bench facility in 2026 and produce plant-ethanol based butadiene by 2030
Global Bioenergies	France	Isobutene project; company restructuring (late 2025)

Butadiene Cost of Production by Production Routes



Note: Costs are based in Asia, updated for 4Q 2025.
Source: S&P Global Commodity Insights.

Key takeaways from the C4 Circus

- **Tightropes of supply** – Cracker rationalizations are emerging but only replaced by newer, bigger facilities and butadiene extraction rates unlikely to recover significantly in the short-term.
- **Trade acrobatics** – The C4 supply chain gets complex, and trade shifts are expected as production and demand centers evolve.
- **Green surprises** – Green initiatives, sustainability and recycling efforts are taking baby steps; high costs hurdles need to be overcome.

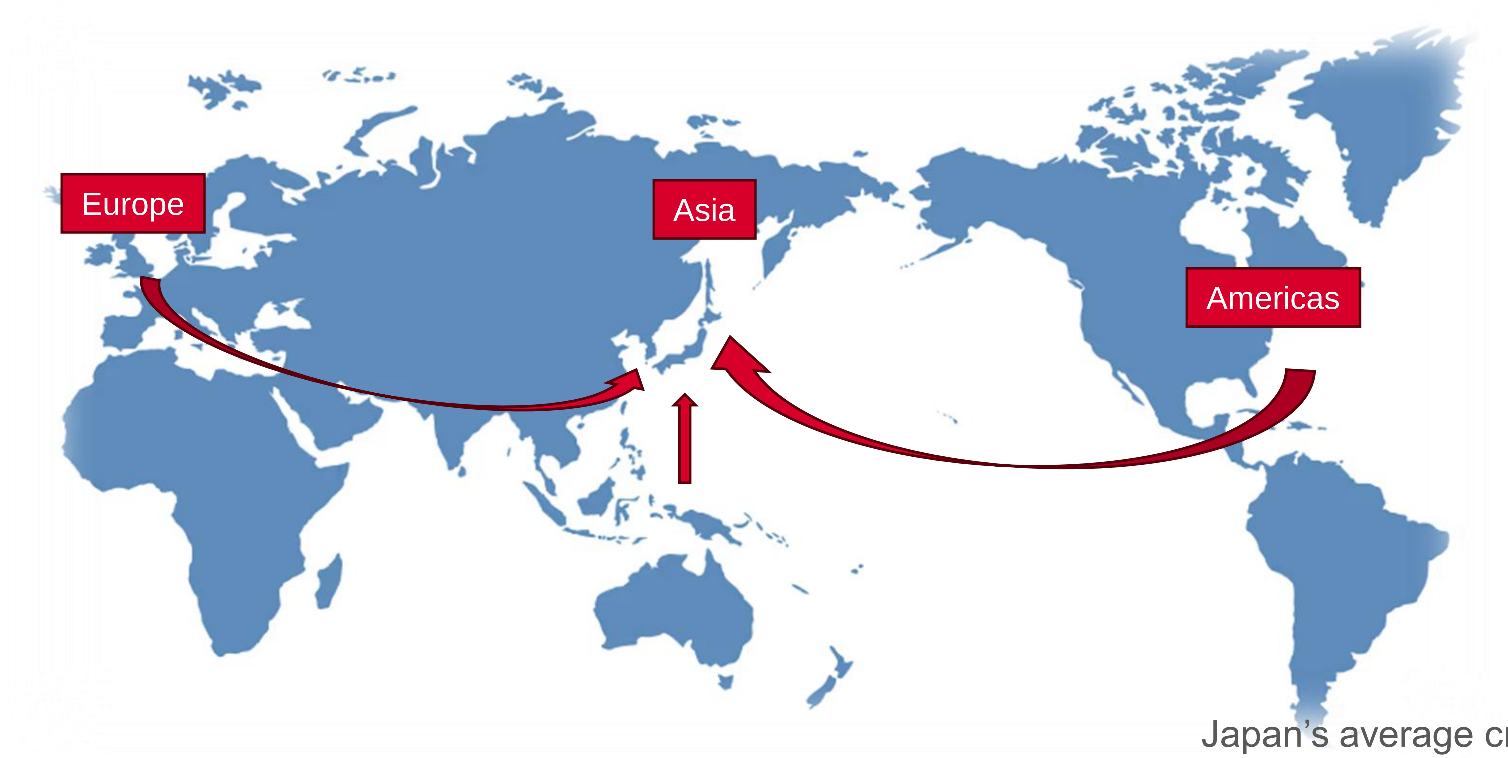
S&P Global Energy

Thank you

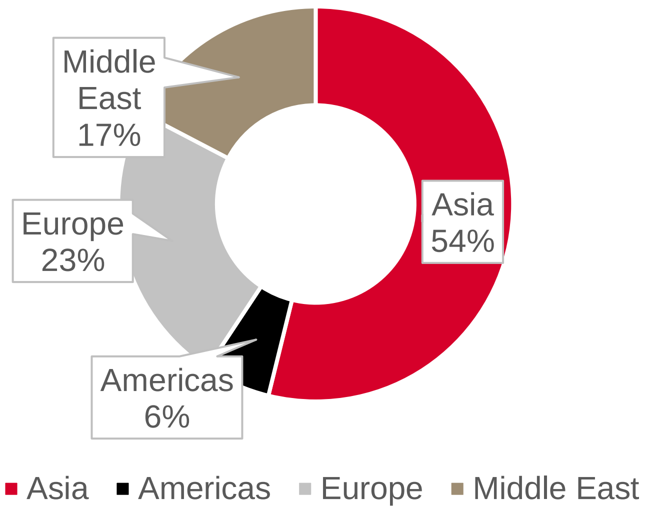
S&P Global
Energy

The C4 Circus: Tightropes of Supply, Trade Acrobatics, and Green Surprises

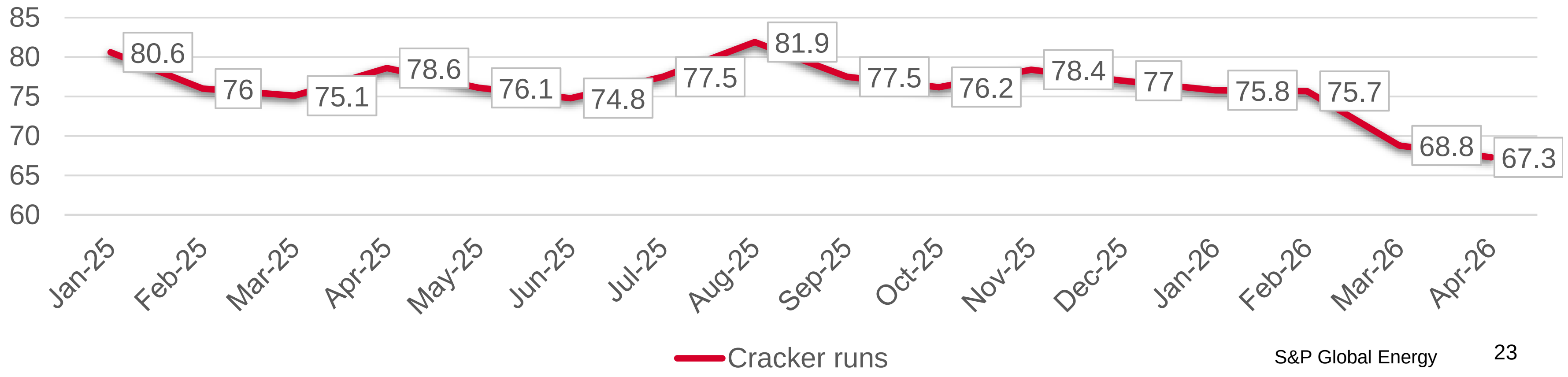
Asia butadiene trade flow before US-Iran conflict



China's butadiene import breakdown

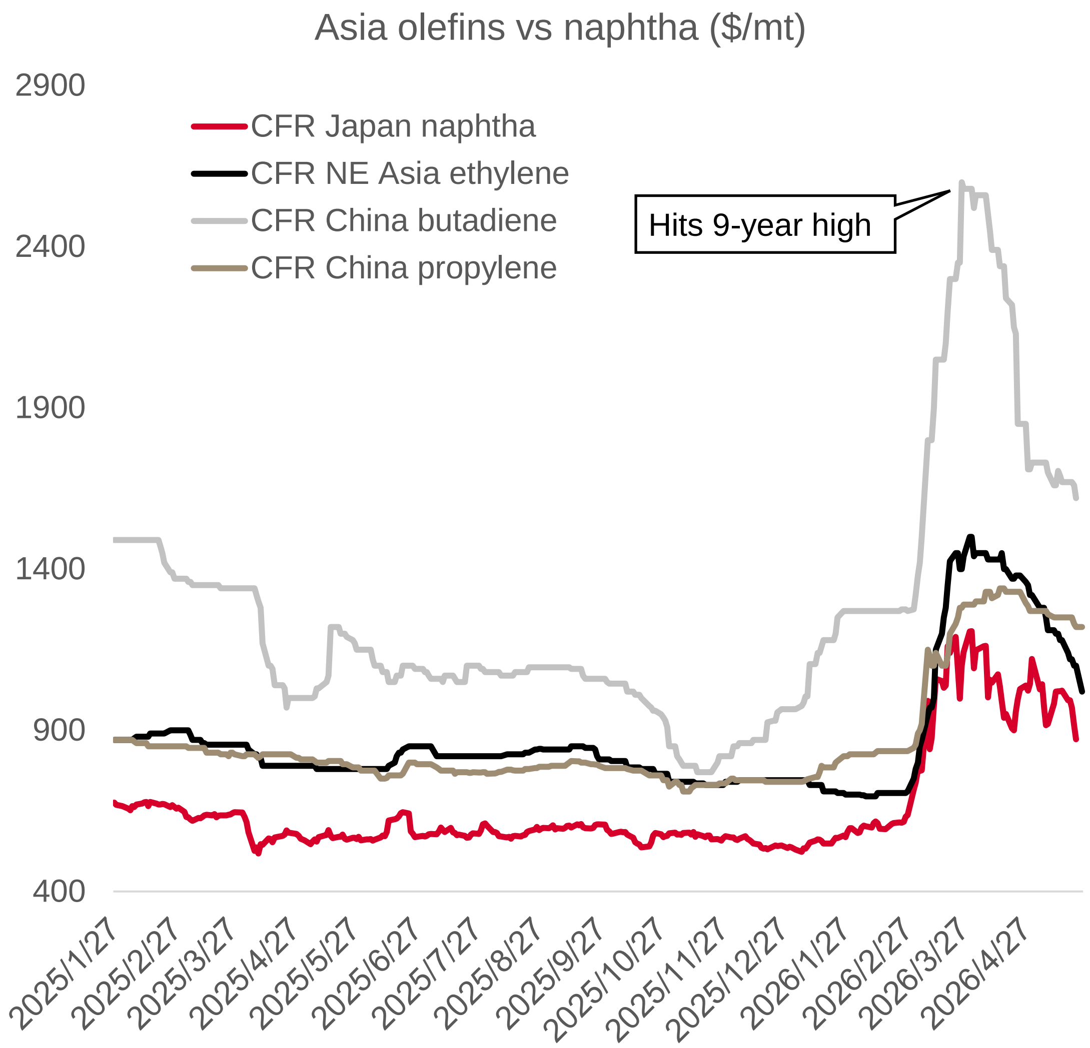


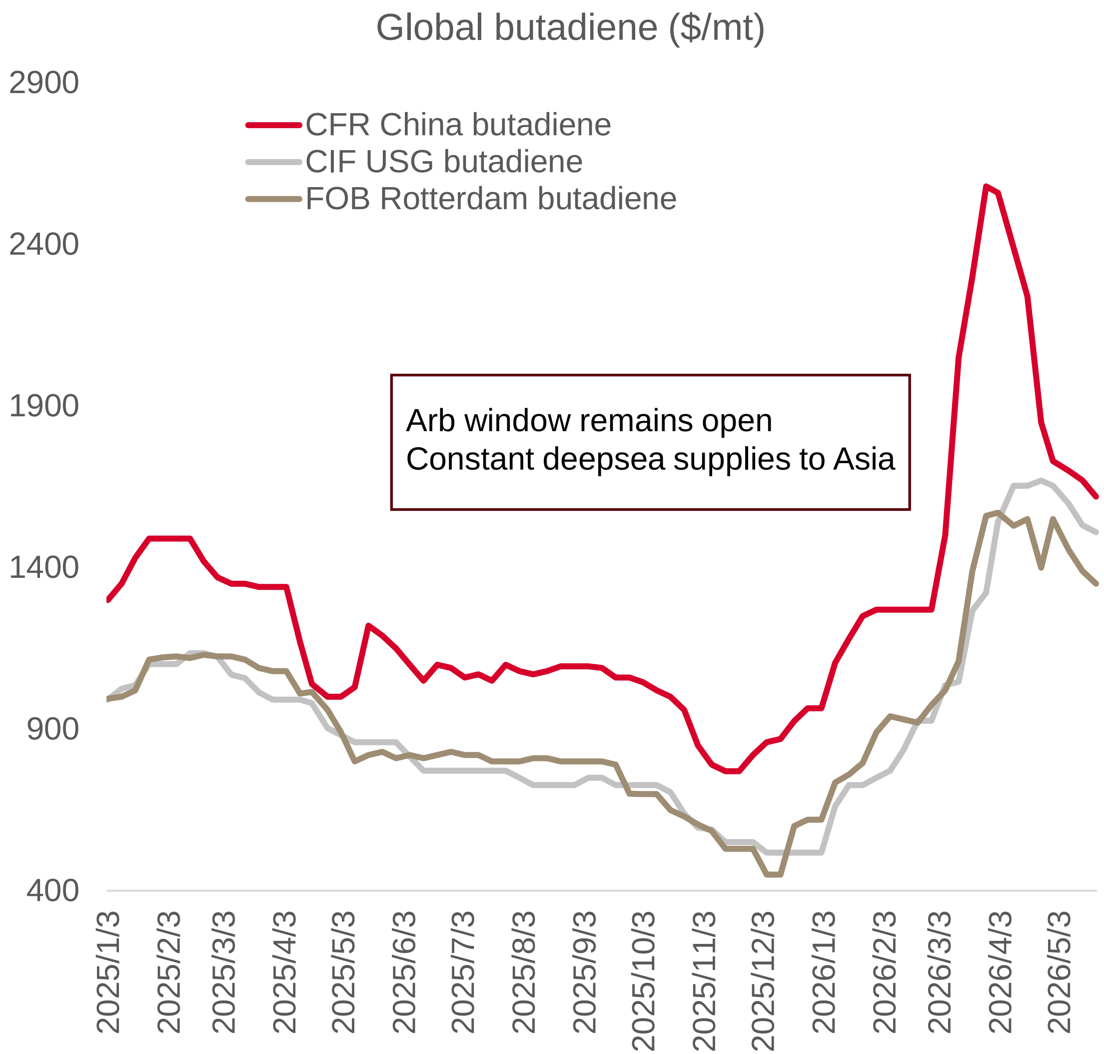
Japan's average cracker runs (%)



Source: S&P Global Energy, China Customs, JPCA

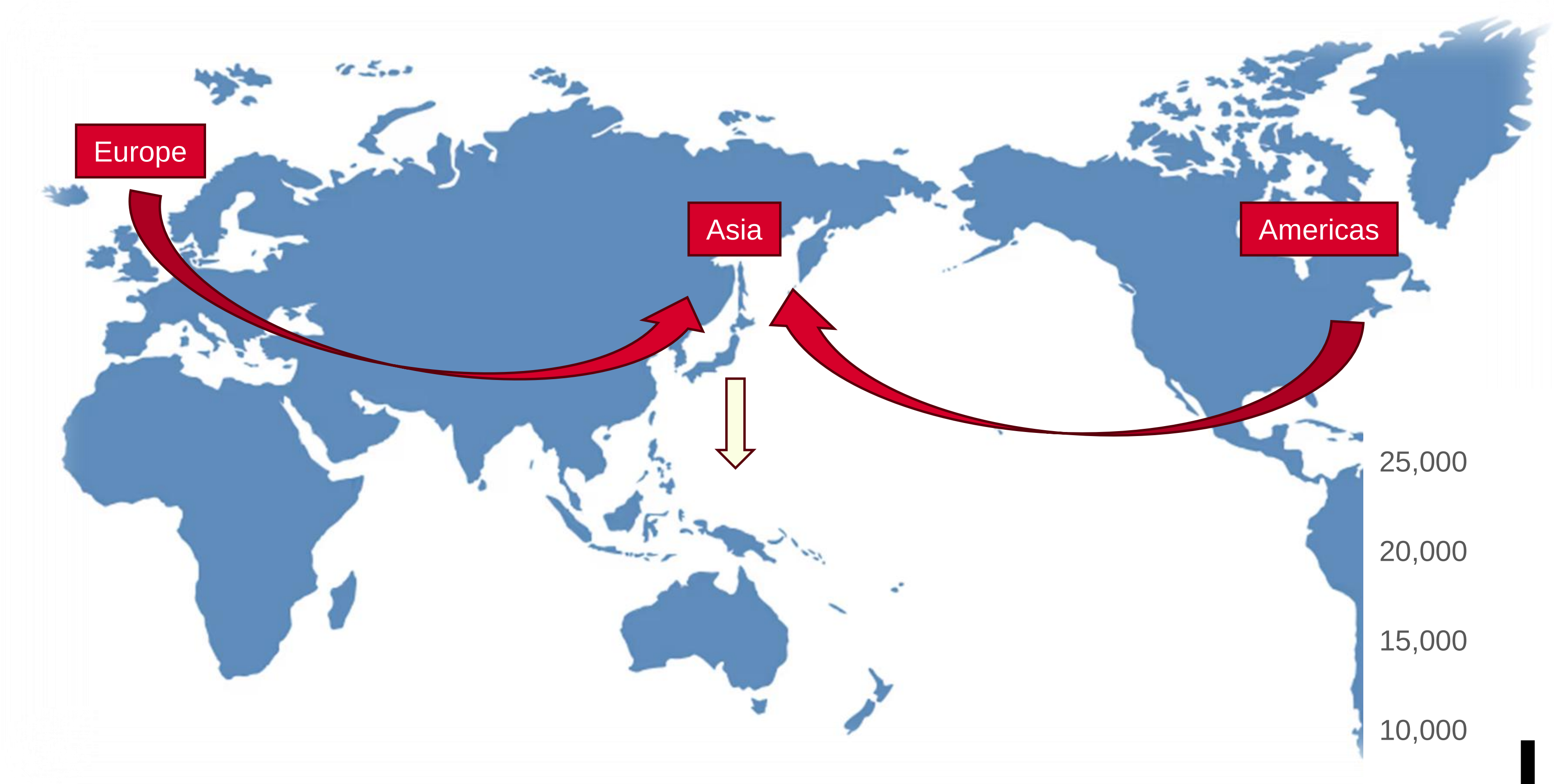
Asia olefins climb after US-Iran conflict amid lower steam cracker runs

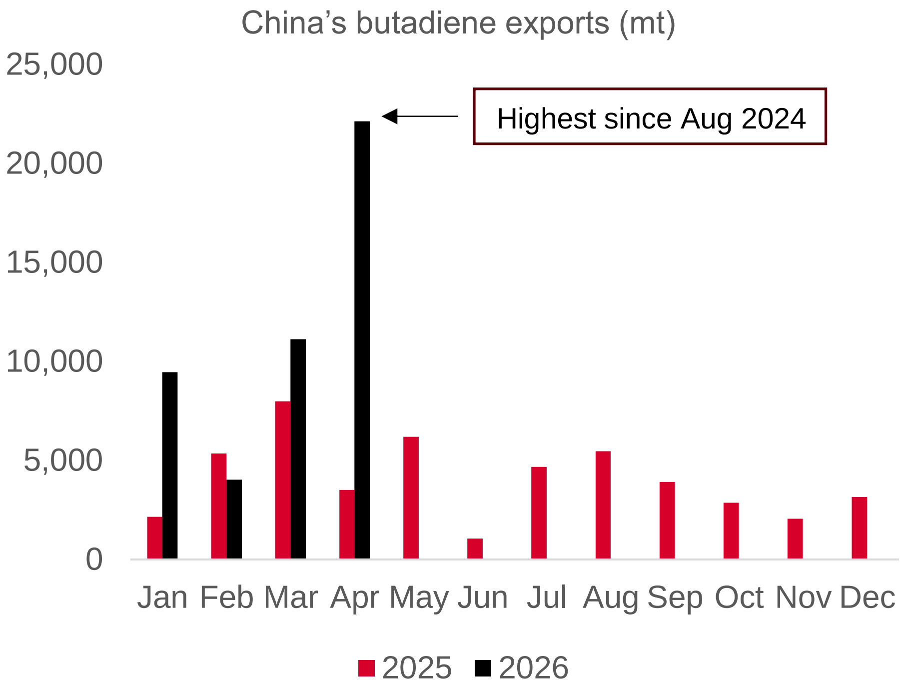




Source: S&P Global Energy

Asia butadiene trade flow change after the conflict as China accelerates exports

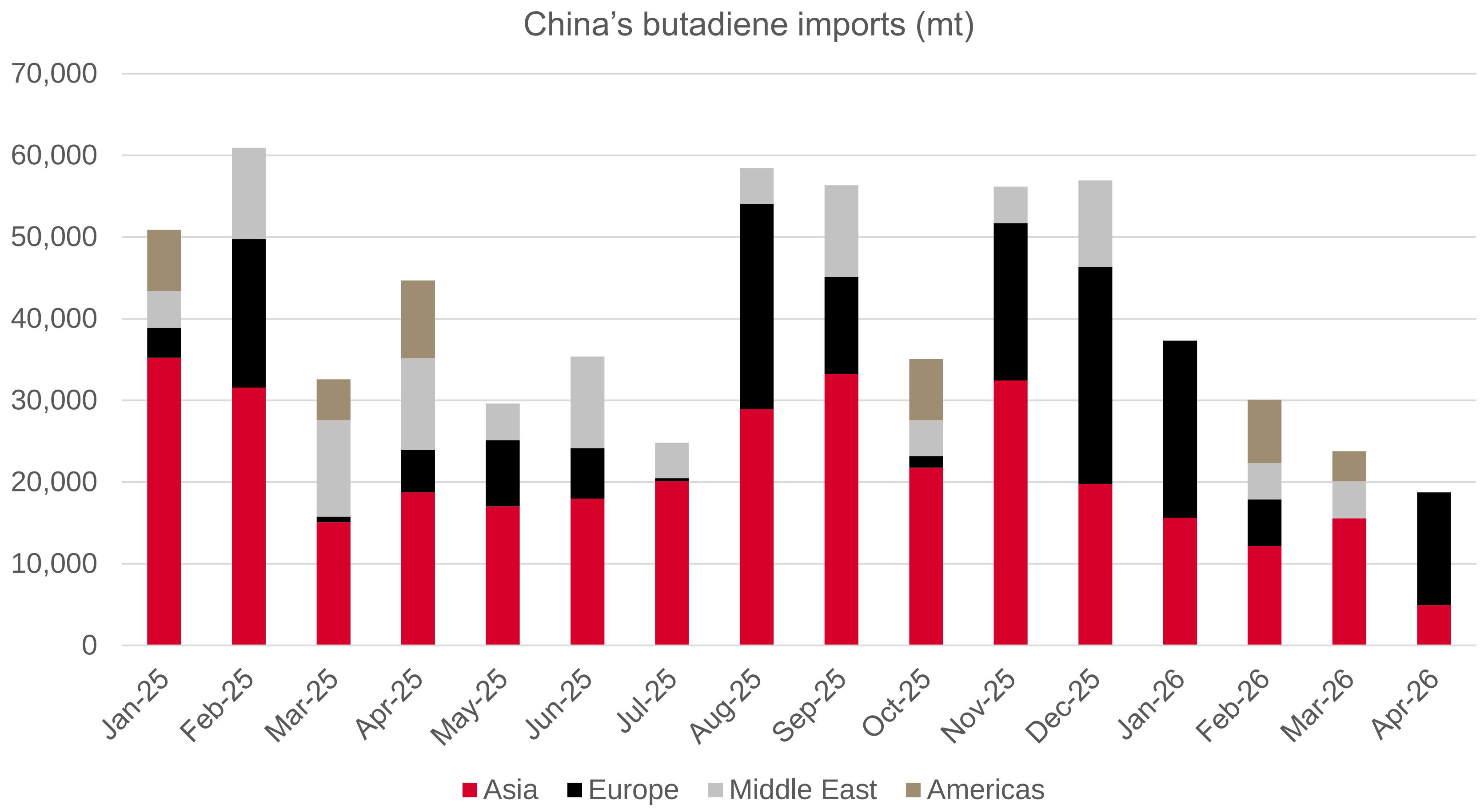




Source: Chinese Customs

S&P Global
Energy

China's butadiene imports: Apr imports hit lowest since Mar 2024



China's April butadiene imports hit lowest since March 2024.

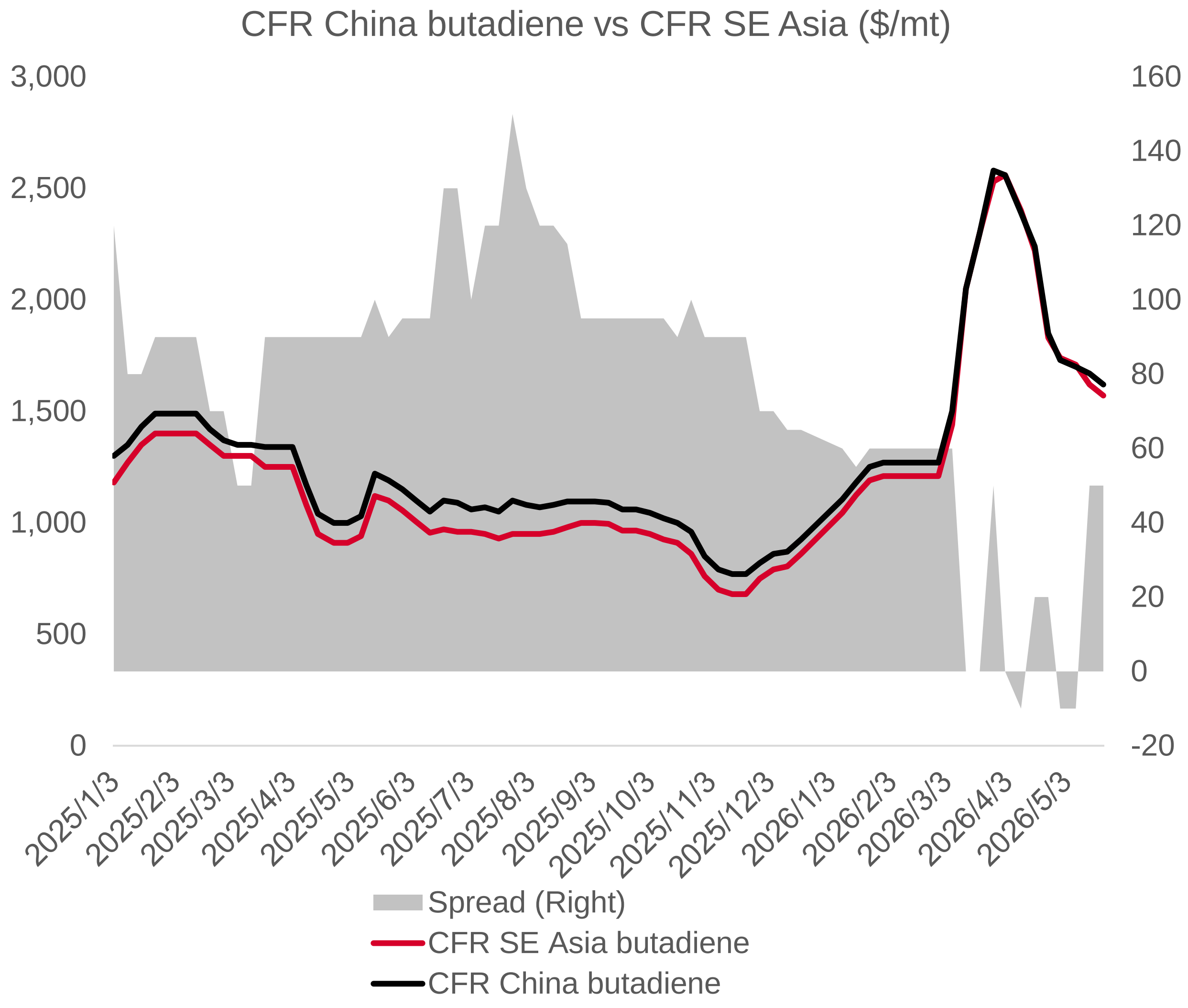
China's butadiene imports from Asia stood at 4,924 mt in April, the lowest since August 2022 when the imports recorded at 3,030 mt.

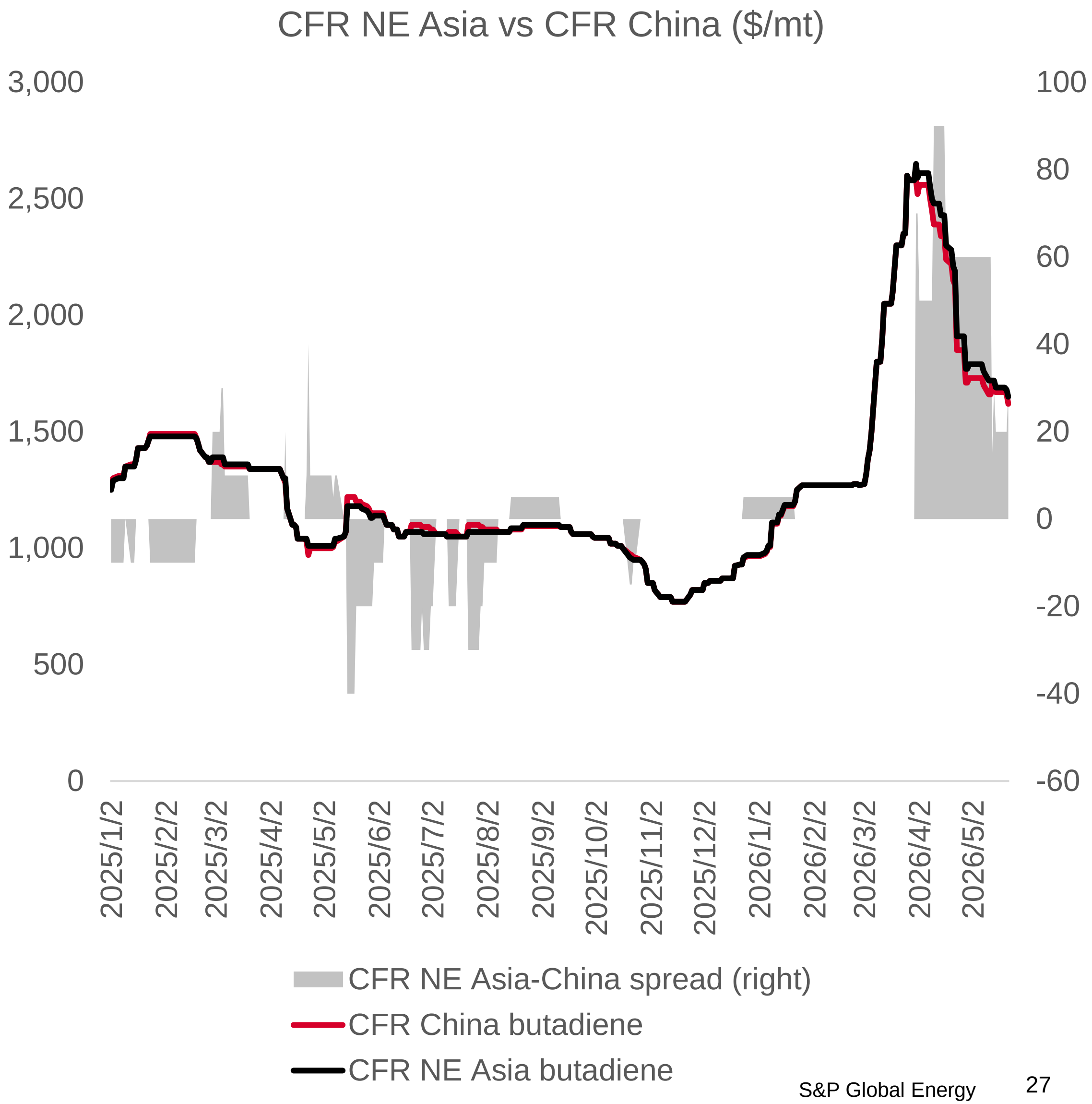
China's butadiene imports from Europe recorded at 13,818 mt in April.

No imports recorded from the Americas, Middle East.

Source: China Customs

CFR NE Asia, CFR SE Asia outperform vs CFR China

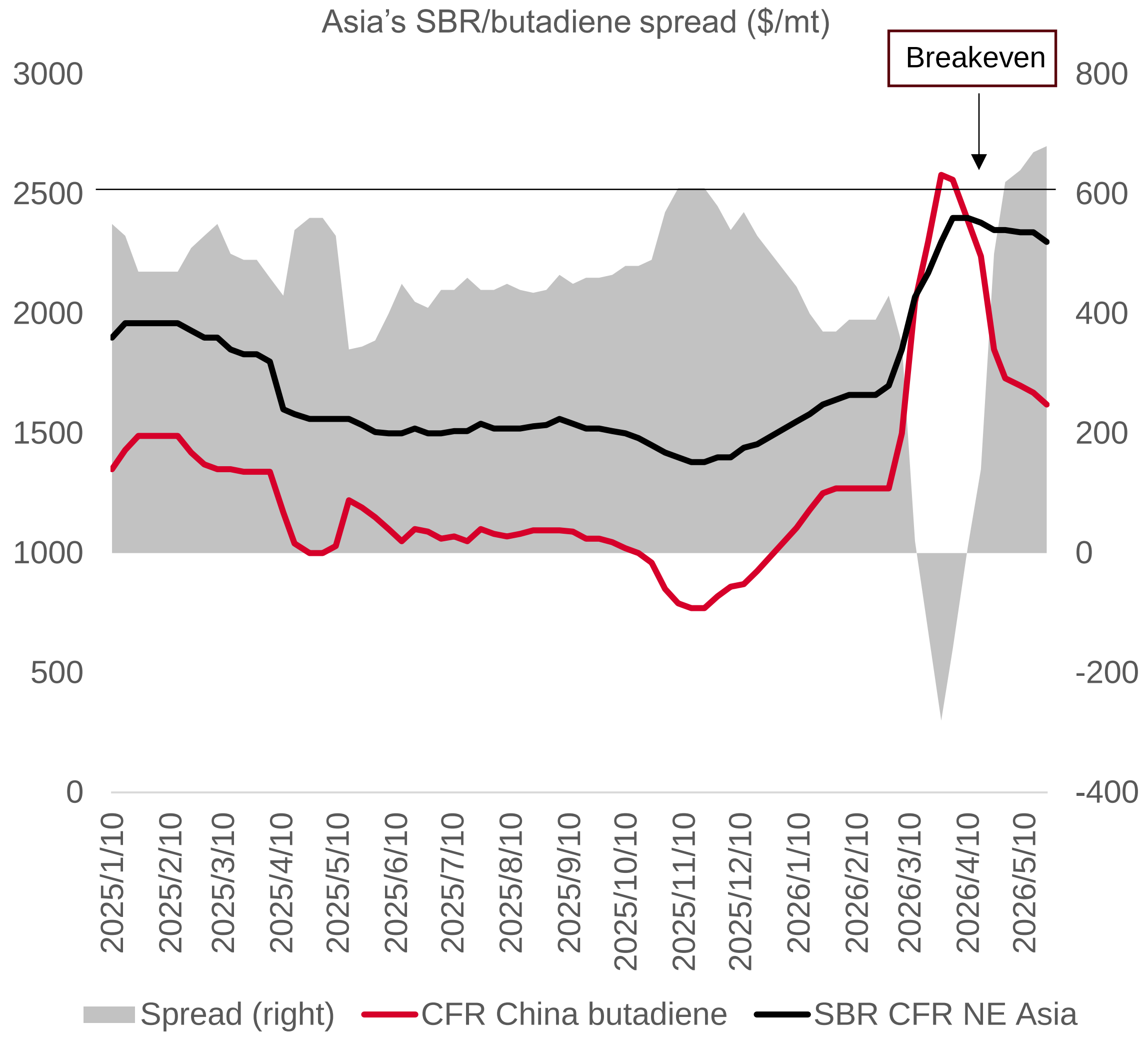


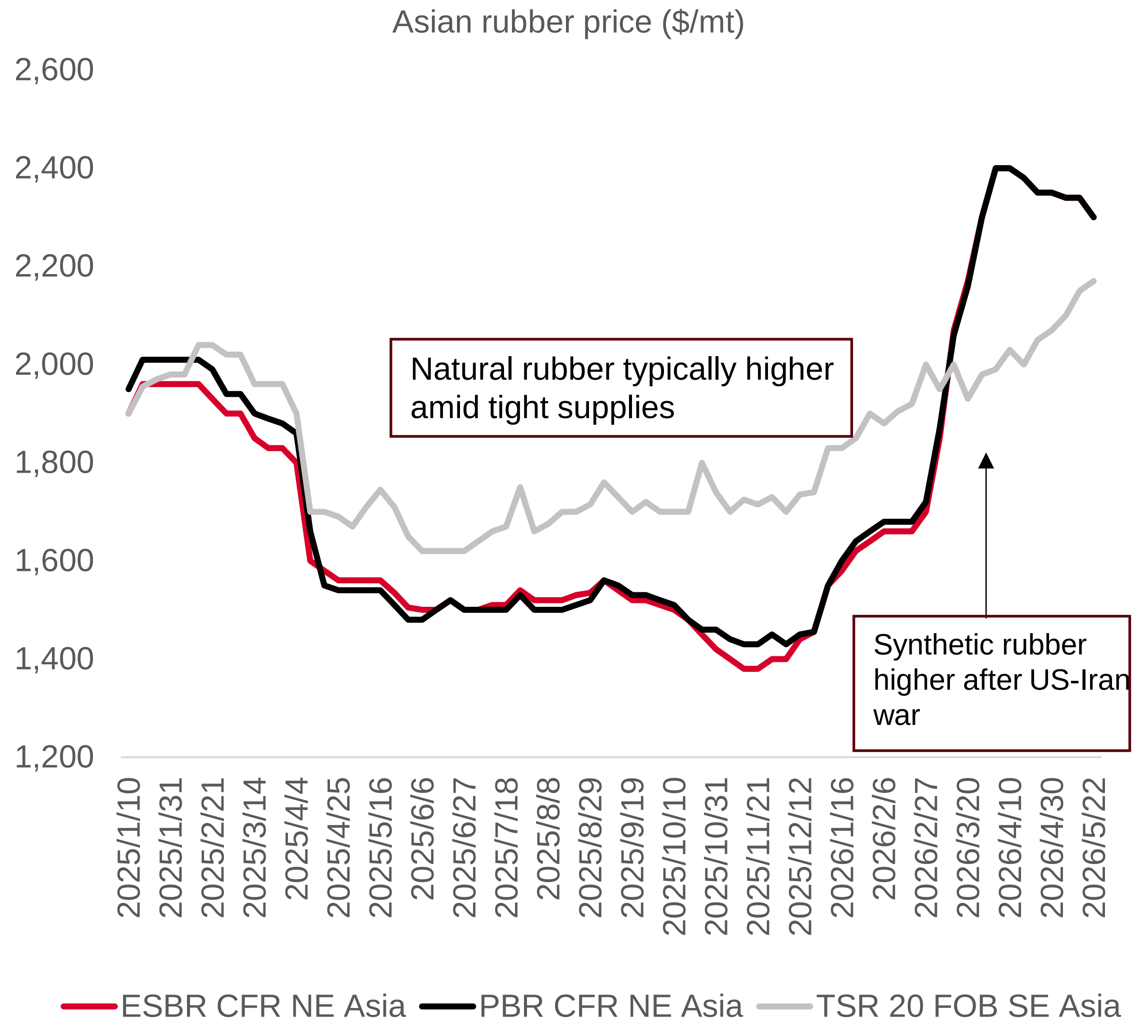


Source: S&P Global Energy

S&P Global Energy

Asia's SBR/butadiene spread flips negative, synthetic rubber moves higher than natural rubber

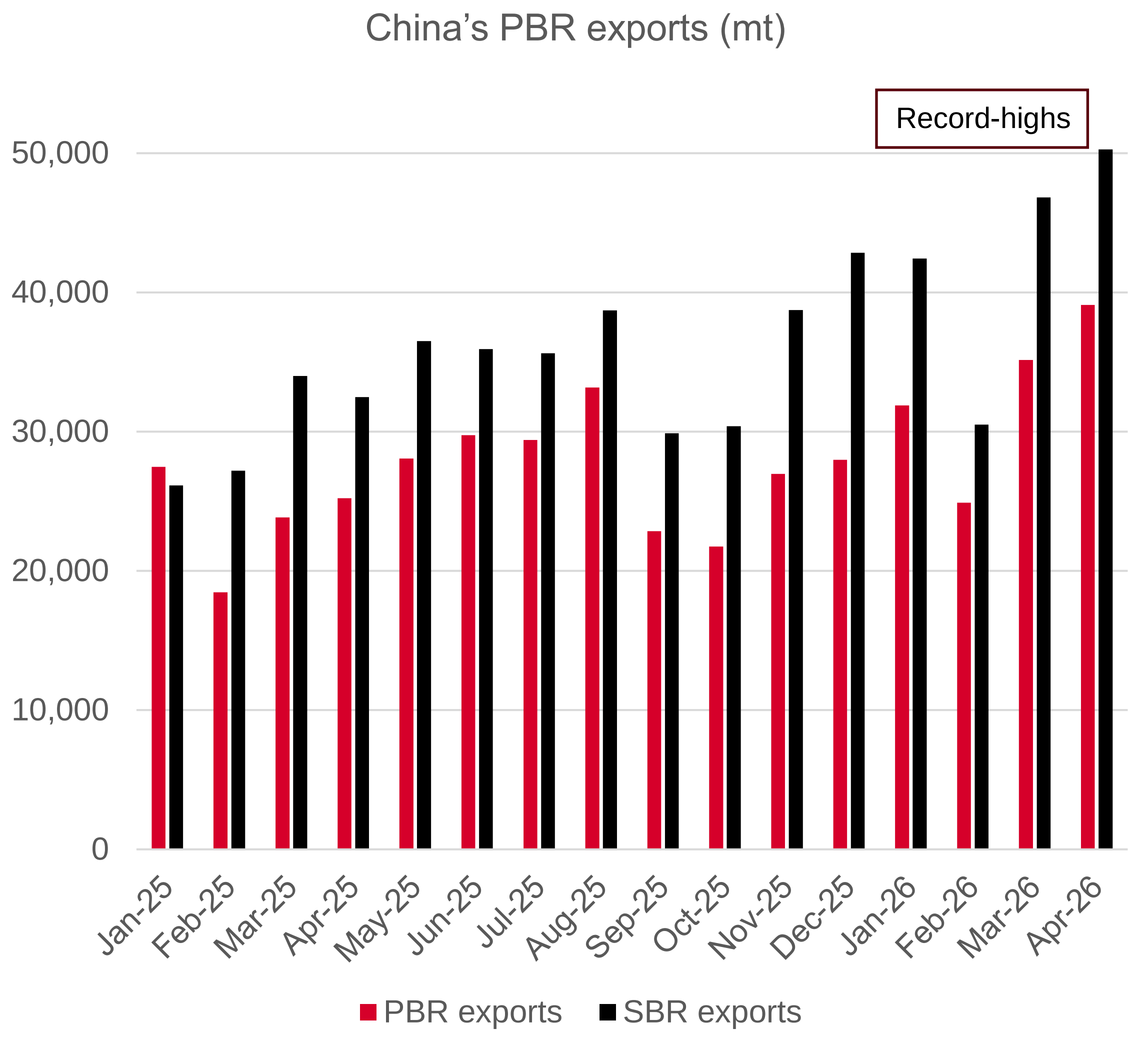


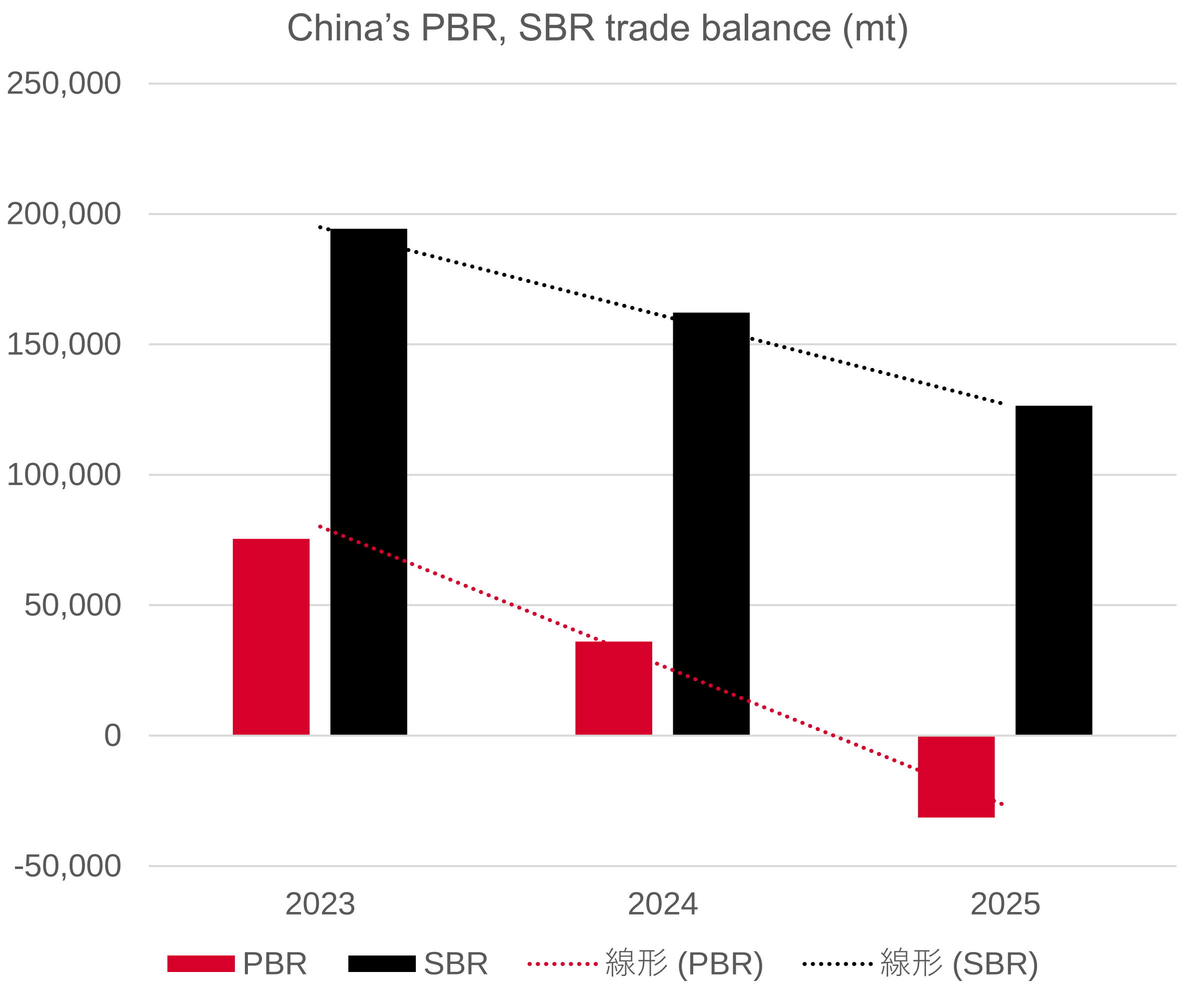


Source: S&P Global Energy

S&P Global
Energy

China’s synthetic rubber exports rising, turns PBR exporter in 2025

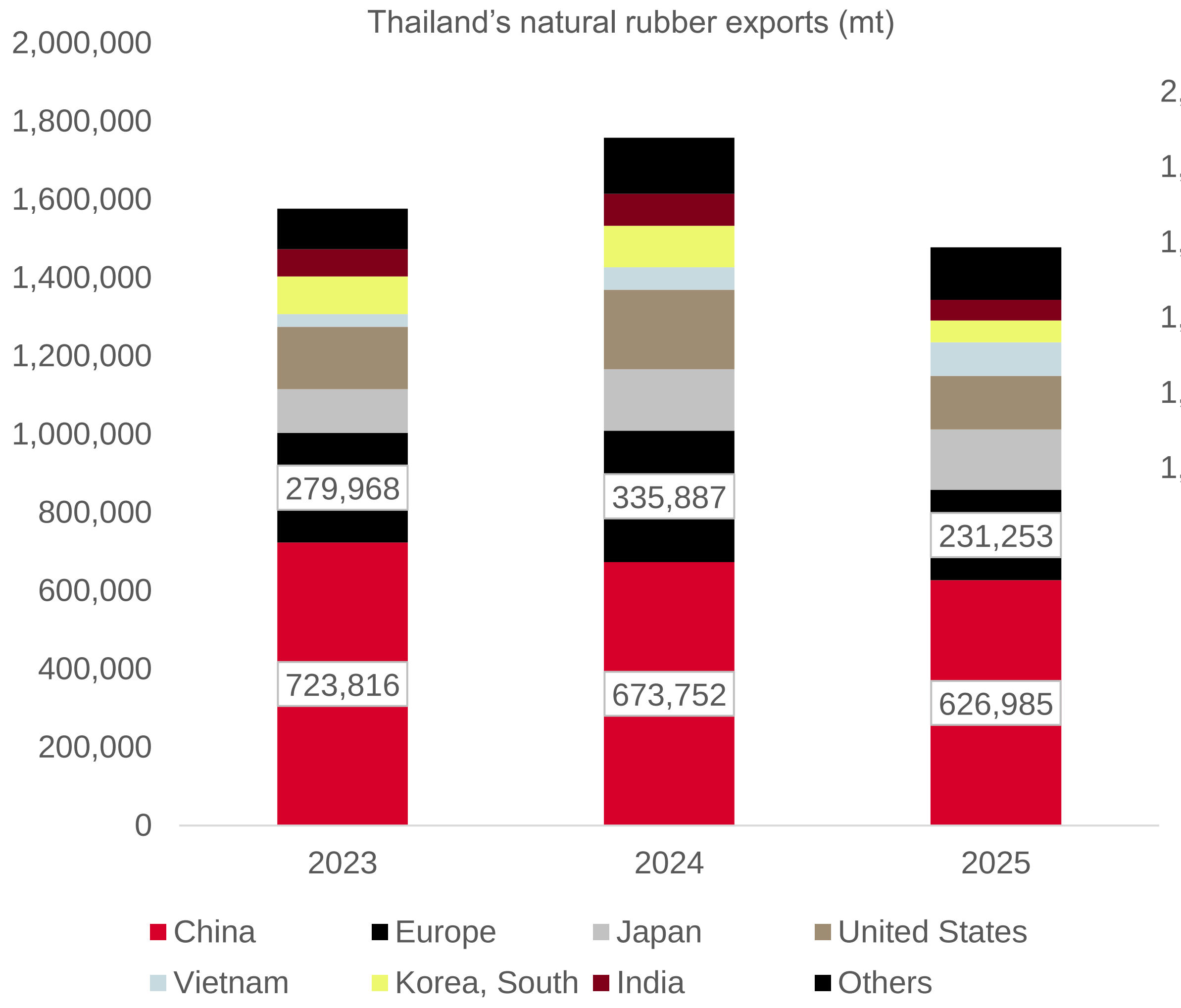


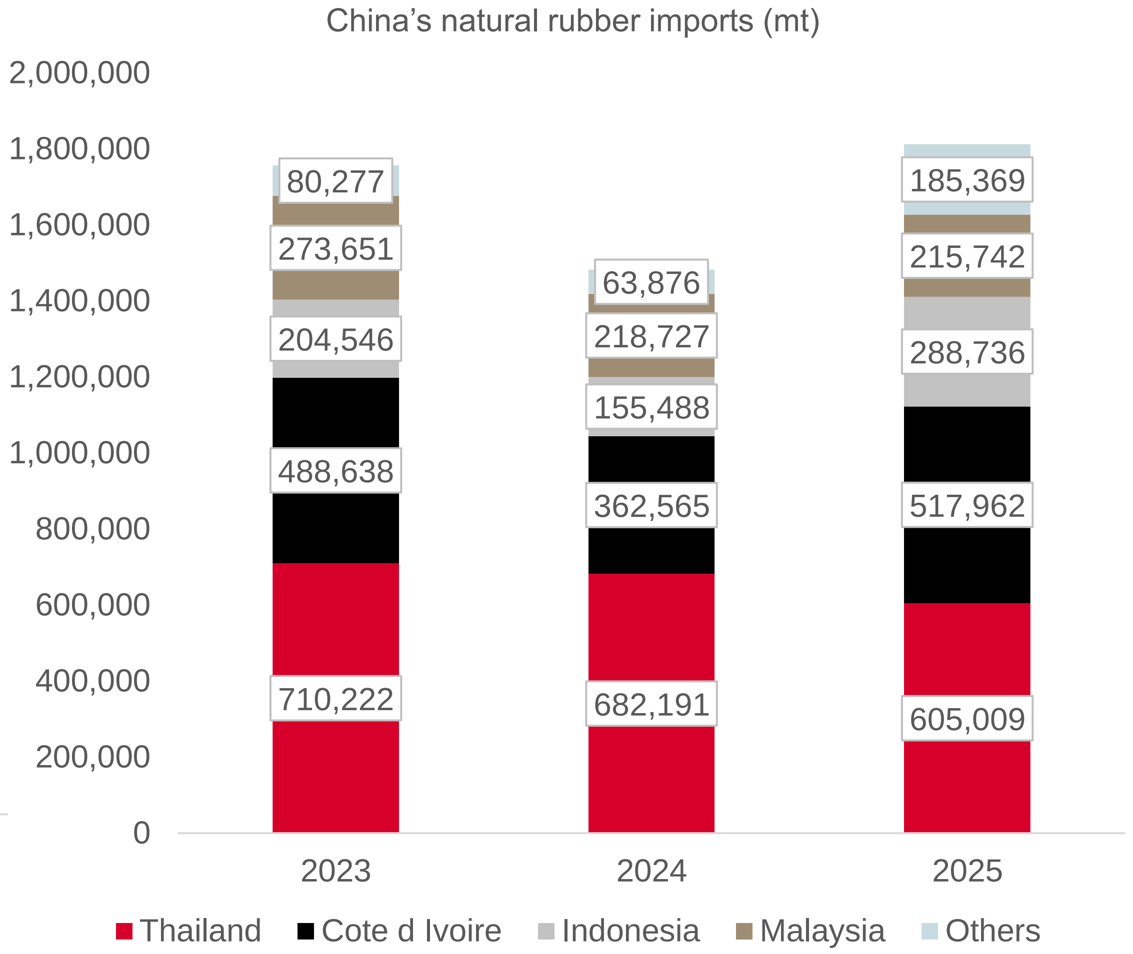


Source: China Customs

S&P Global Energy

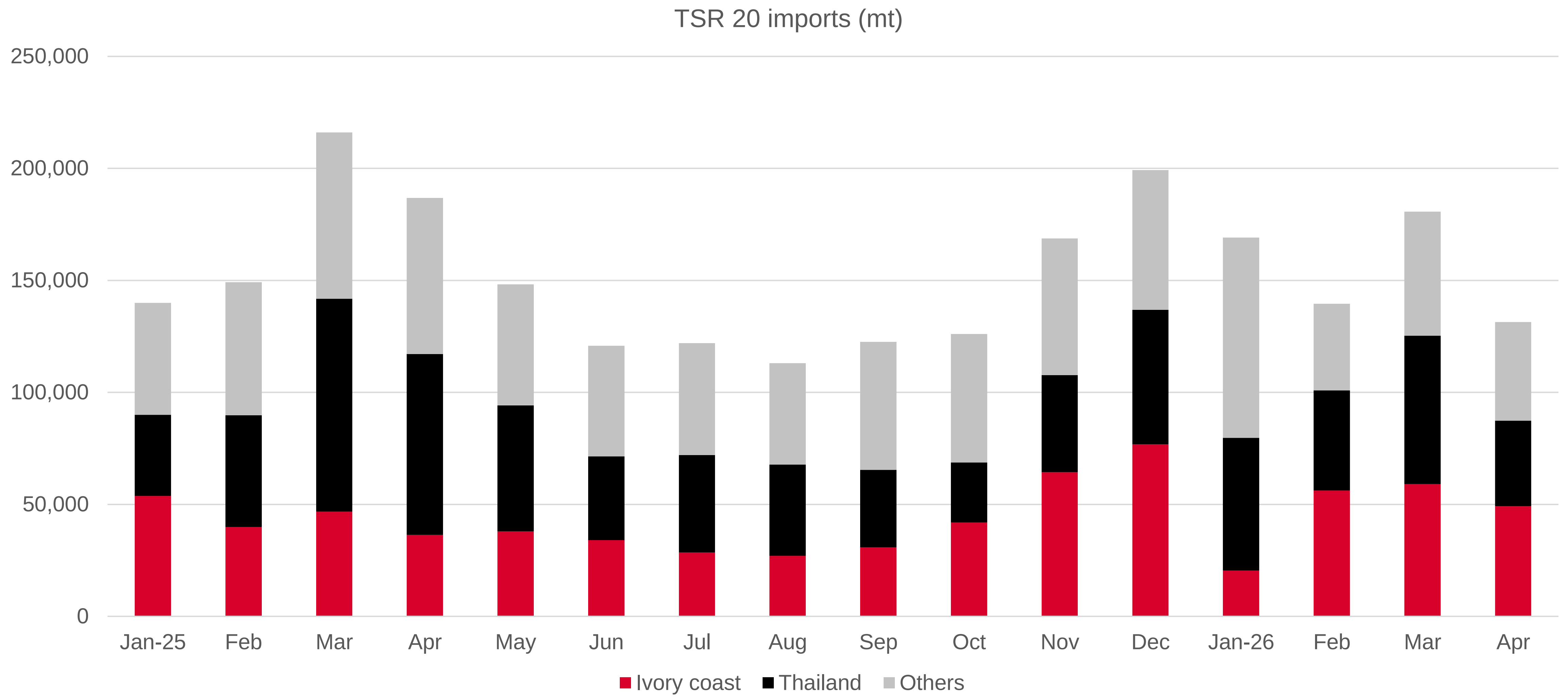
Natural rubber: Thai exports falling, China importing more from Ivory Coast





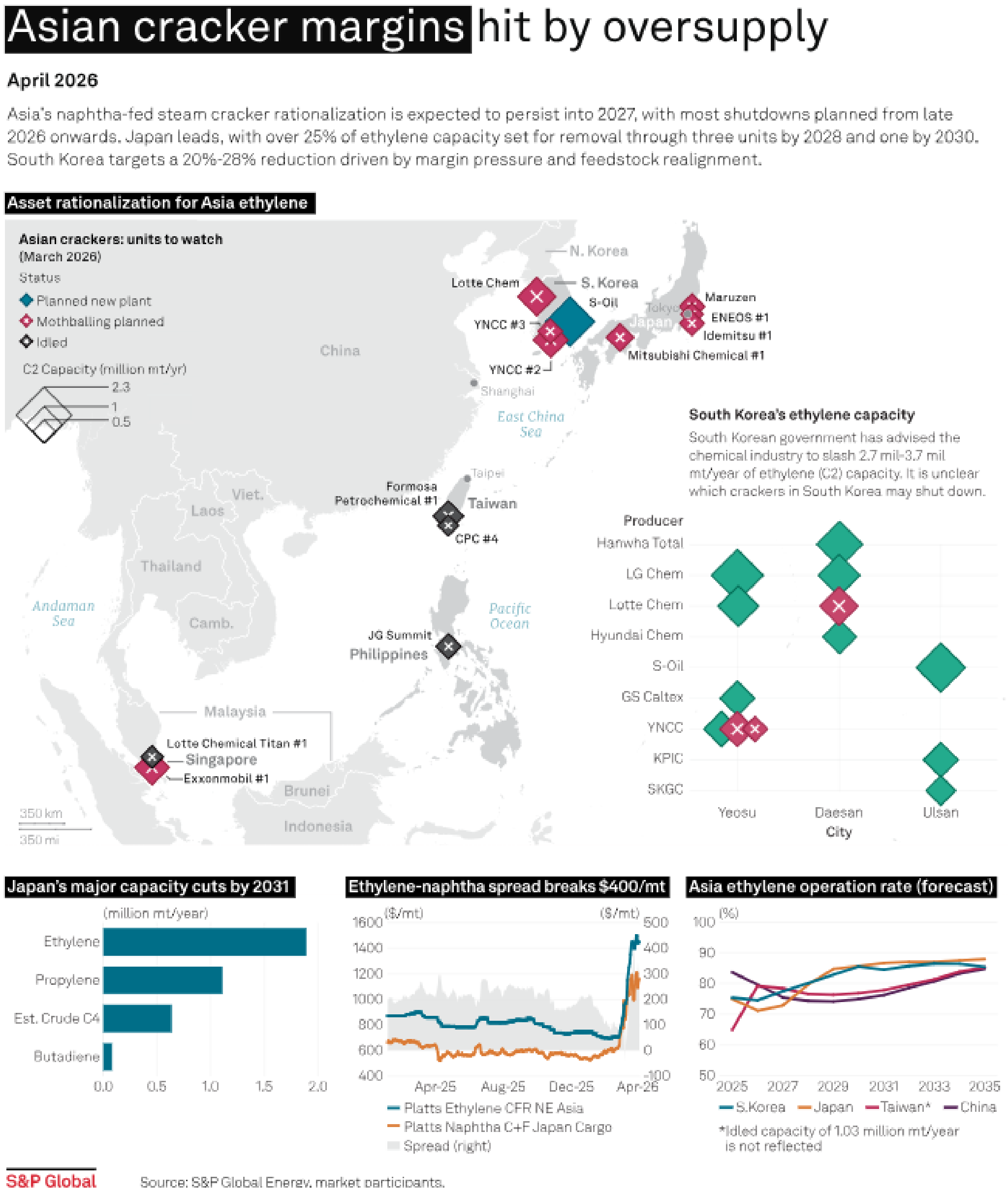
Source: Thai Customs, China Customs

China’s TSR 20 imports: Ivory Coast supplies increasing



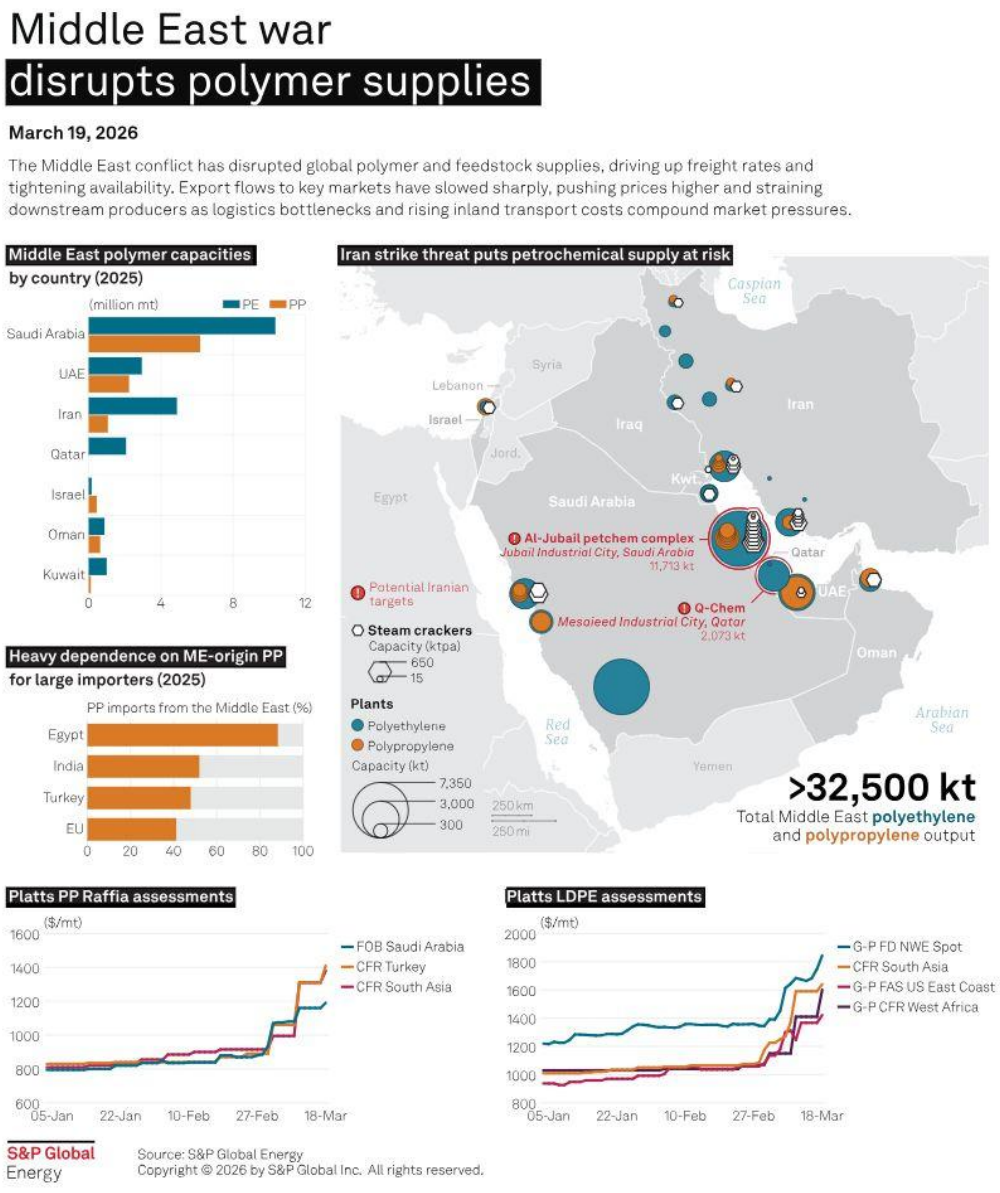
Source: China Customs

Platts Infographics: Asia cracker rationalization plan



https://www.spglobal.com/energy/en/news-research/latest-news/chemicals/040826-infographic-asia-cracker-rationalization-continues-as-margins-weaken

Platts Infographics: Impact on polymers amid Iran-US conflict



[INFOGRAPHIC: Middle East war disrupts polymer feedstock supplies | S&P Global]

S&P Global
Energy

THANKS!

Fumiko Dobashi

Manager, APAC Chemicals

Fumiko.Dobashi@spglobal.com

Download
free APIC 2026 Special Report

How capacity rationalisation is reshaping the synthetic rubber value stream in Asia

APIC 29 May 2026

Ai Teng Lim

Senior Editor, ICIS

Ann Sun

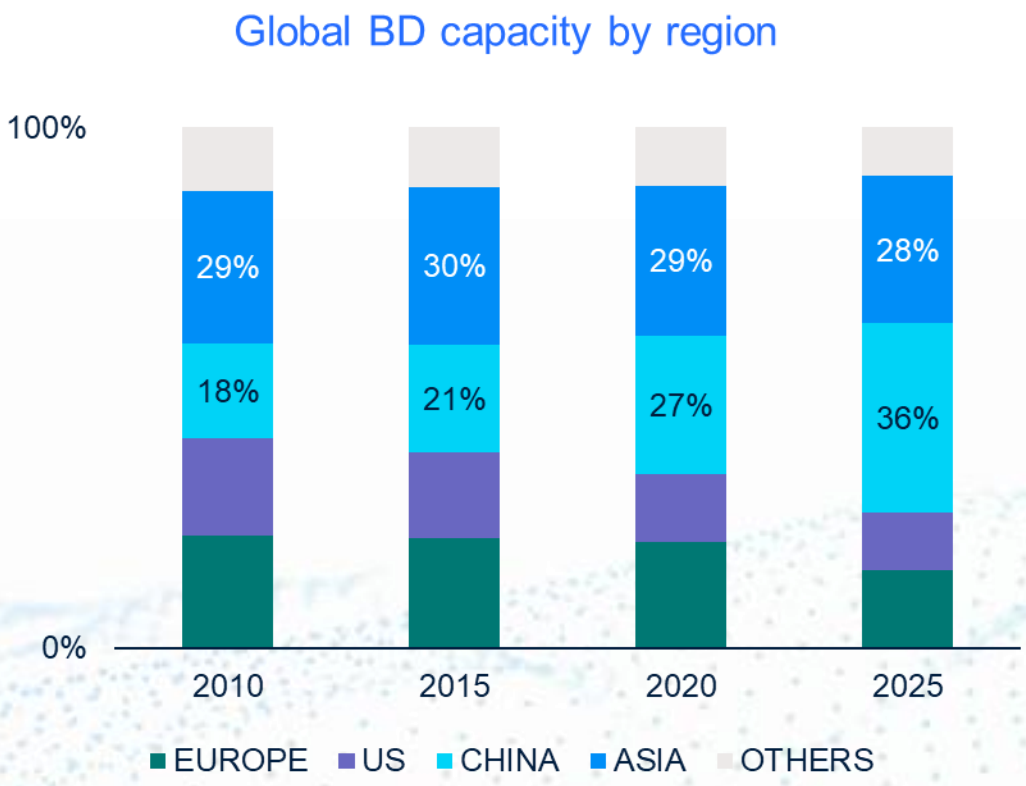
Senior Analyst, ICIS

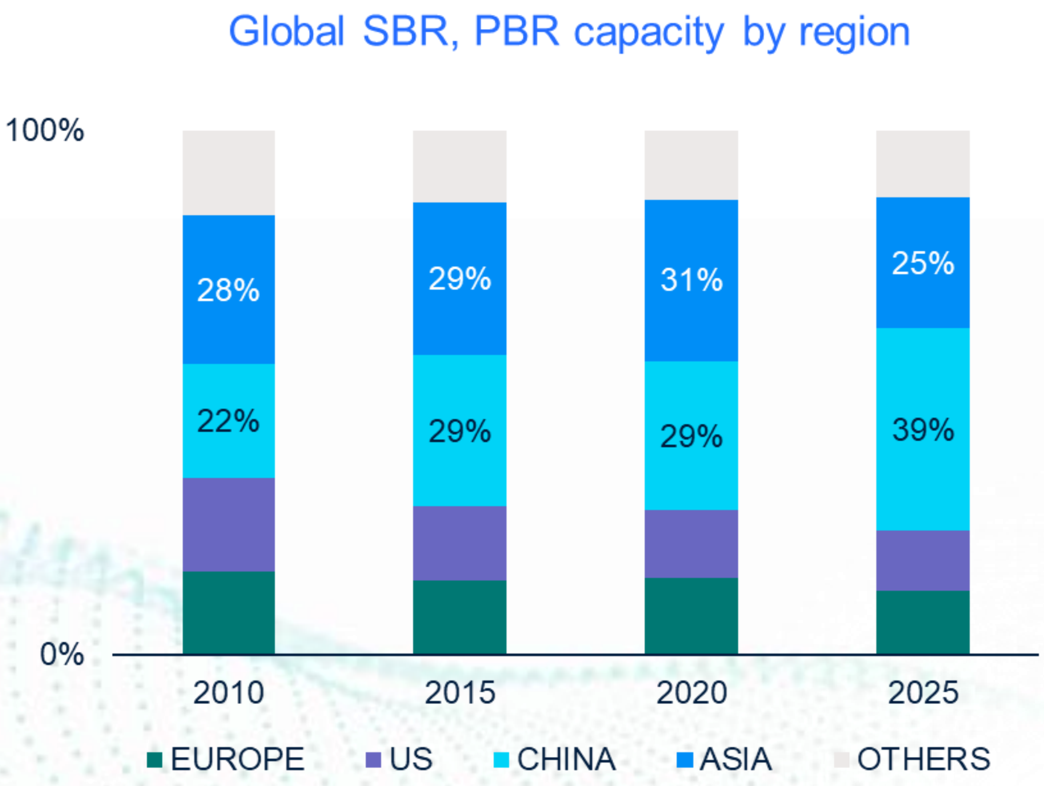
Contents

* SBR and PBR

China accelerates BD-SR expansion for self-sufficiency

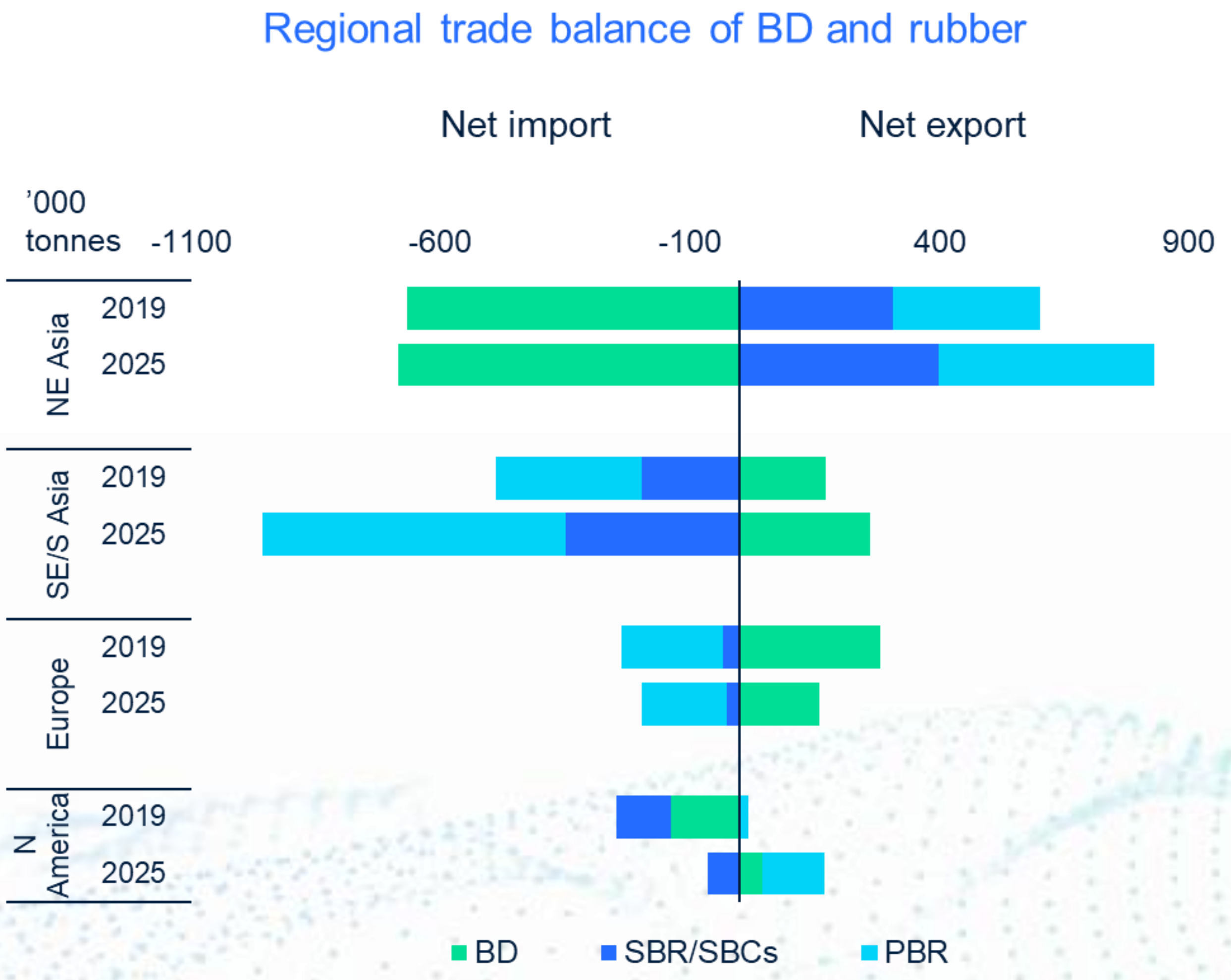
- Capacity growth aligned with auto and tyre sector expansion
- Strategic shift towards petrochemical independence
- China now commands over a third of global BD and SR capacity





Source: ICIS Supply & Demand database

China's capacity build has reshaped regional trade balance



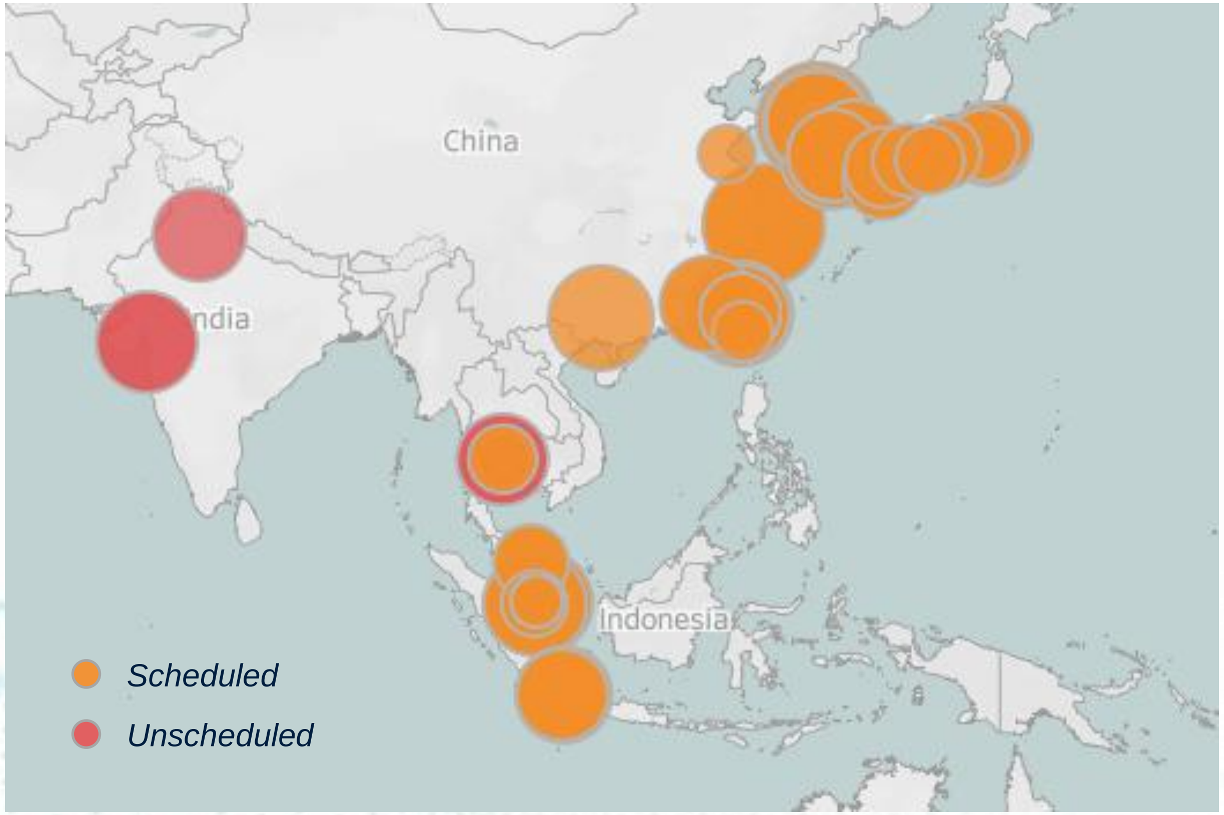
- NE Asia, led by China, is now a larger net exporter of SBR/PBR
- SE Asia is taking in more synthetic rubber imports
- Despite capacity expansion in China, NE Asia remains a net importer of BD

Source: ICIS Supply & Demand database

Mideast disruptions expose uneven feedstock vulnerability within Asia

- 40-80% of Asia's naphtha imports linked to Middle East
- Korea, Japan, SE Asia → higher exposure
- China → more resilient (with availability to alternative feedstock alike coal)
- Cracker cuts concentrated in ex-China Asia

Production losses at Asian crackers in March 2026



Source: ICIS Live Disruptions Tracker

BD-SR price trends vary in China and broader Asia – different challenges

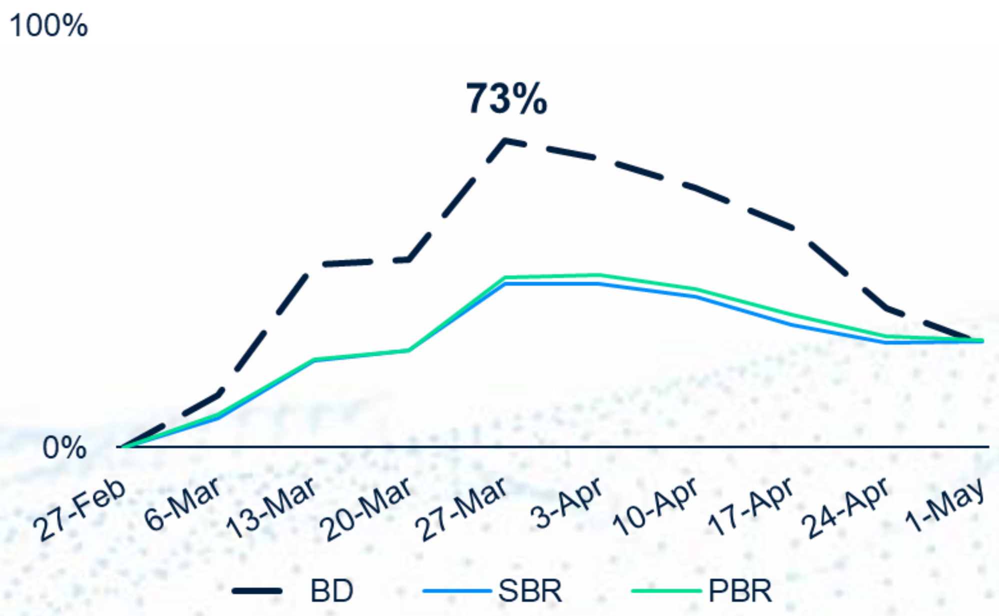
China domestic market

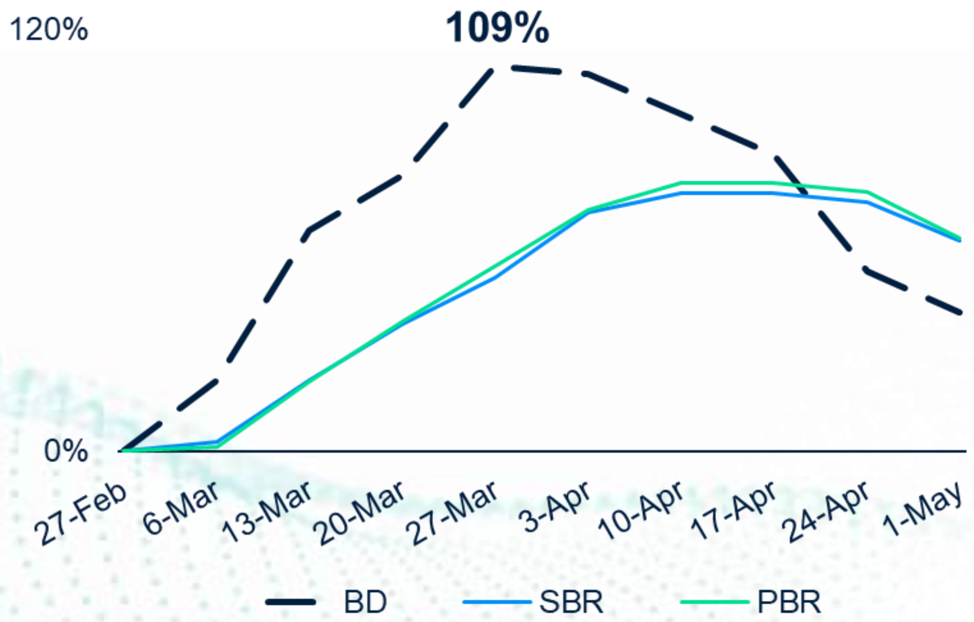
- BD prices rose more moderately than wider Asia
- But derivative prices lagged behind

Broader NE/SE Asia markets

- BD prices more than doubled
- But BD costs fully passed through
- SBR/PBR prices track BD rise

Price fluctuations following the war (27 Feb as base)





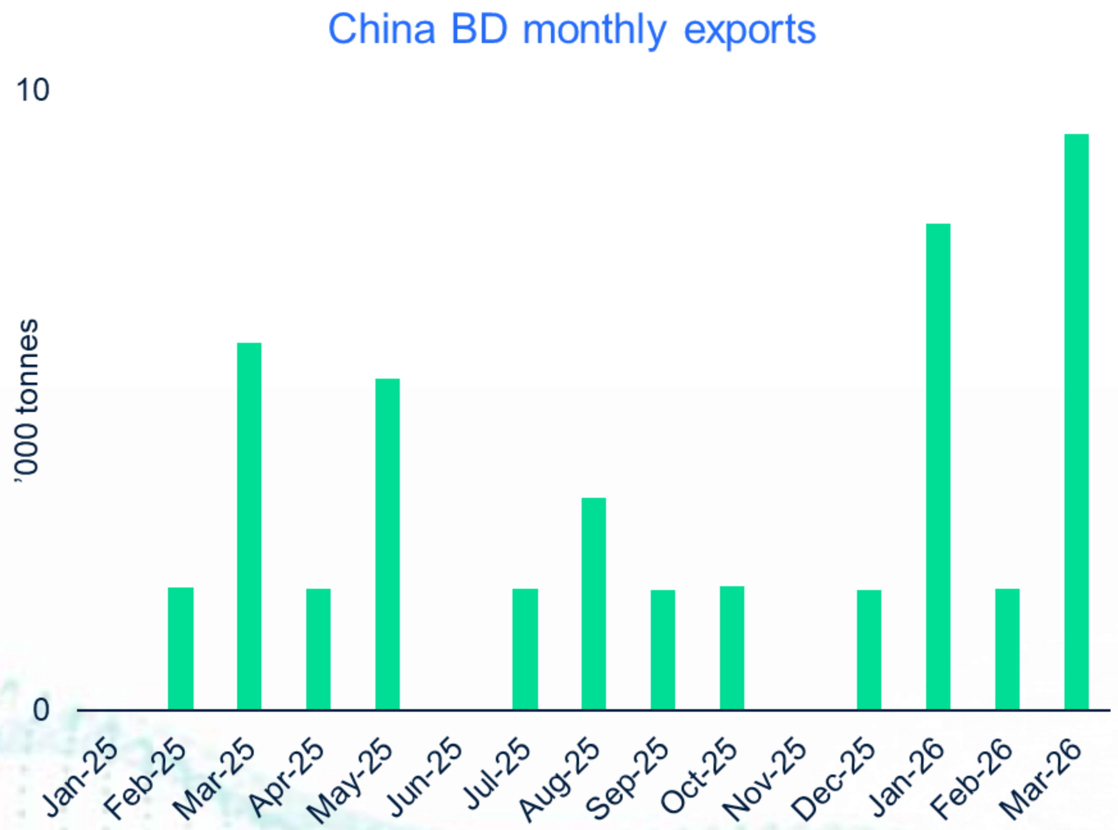
Source: ICIS

Will China remain as net BD importer?

- PBR margins under pressure, with >300 kt/year capacity shut since March

- Synthetic rubber demand muted; China tyre exports face downside risks from rising protectionism (US tariffs, EU ADD) and supply chain disruptions

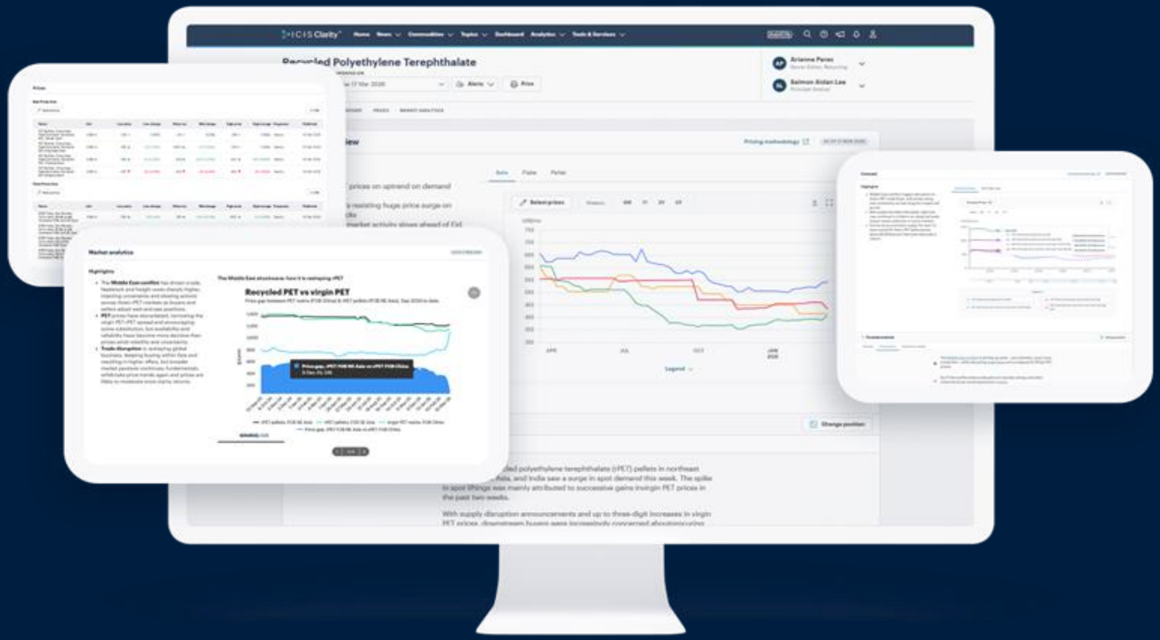
- China swings to exporting more BD, also to plug growing BD shortfall in NE Asia



Source: ICIS

I·C·I·S Clarity™

The latest Butadiene insights with greater agility, accuracy and depth



Real-time updates

Track market movements as events unfold with live updates from ICIS editors and analysts.

Smarter data visuals

Interactive data elements and cleaner layouts make it easy to move from big picture to detail in one view.

Broader perspective

Understand cross-regional and value chain insights faster with a streamlined layout and intuitive navigation that reveals emerging trends and connections earlier.

All in one place

Access pricing, analysis and forecast information in one place, providing a single, consistent reference point when following market developments.

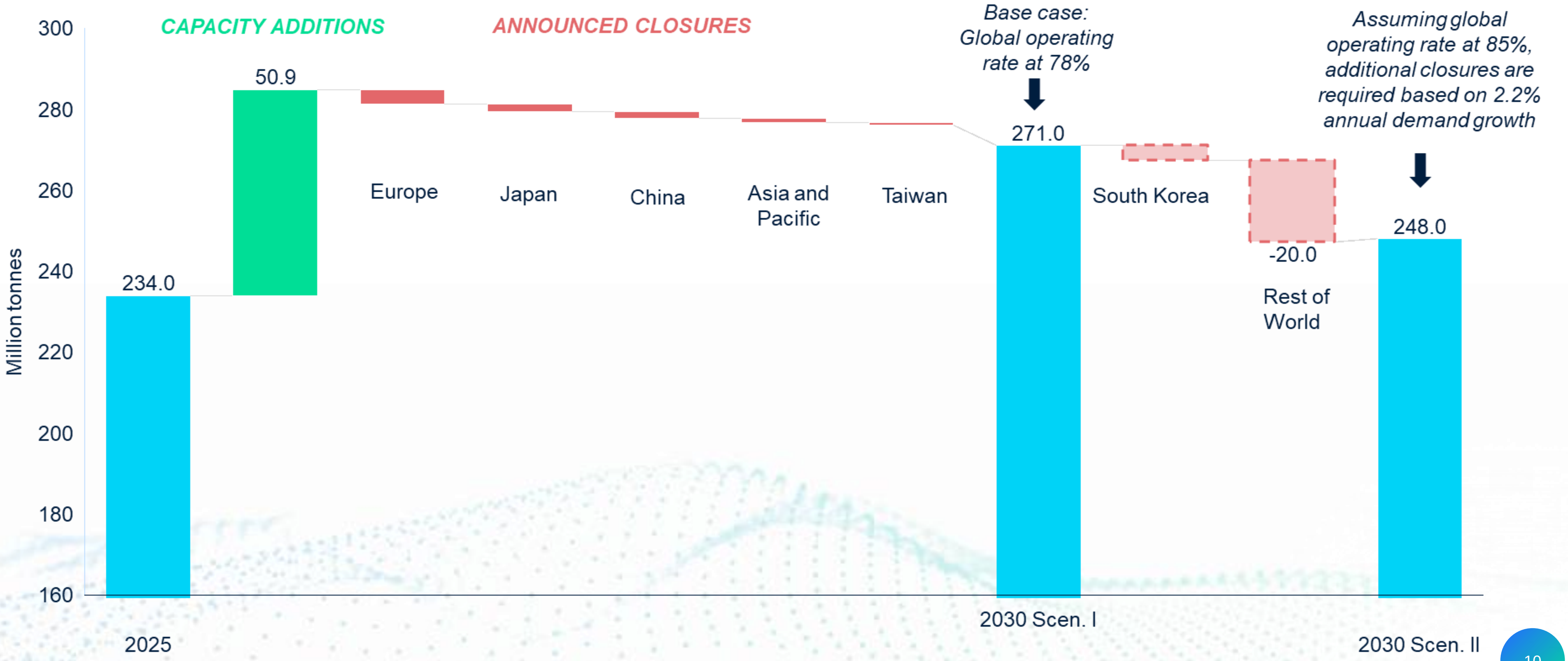
Not subscribed to ICIS Clarity? Contact us

New Chemical commodity pages coming to ICIS Clarity™ in Q2 2026

"We are not living through a period of change, but a change of period"

Cracker rationalisation: more closures needed to restore margins

New capacity faces rising delays – macroeconomic headwinds and geopolitical stress cloud the outlook

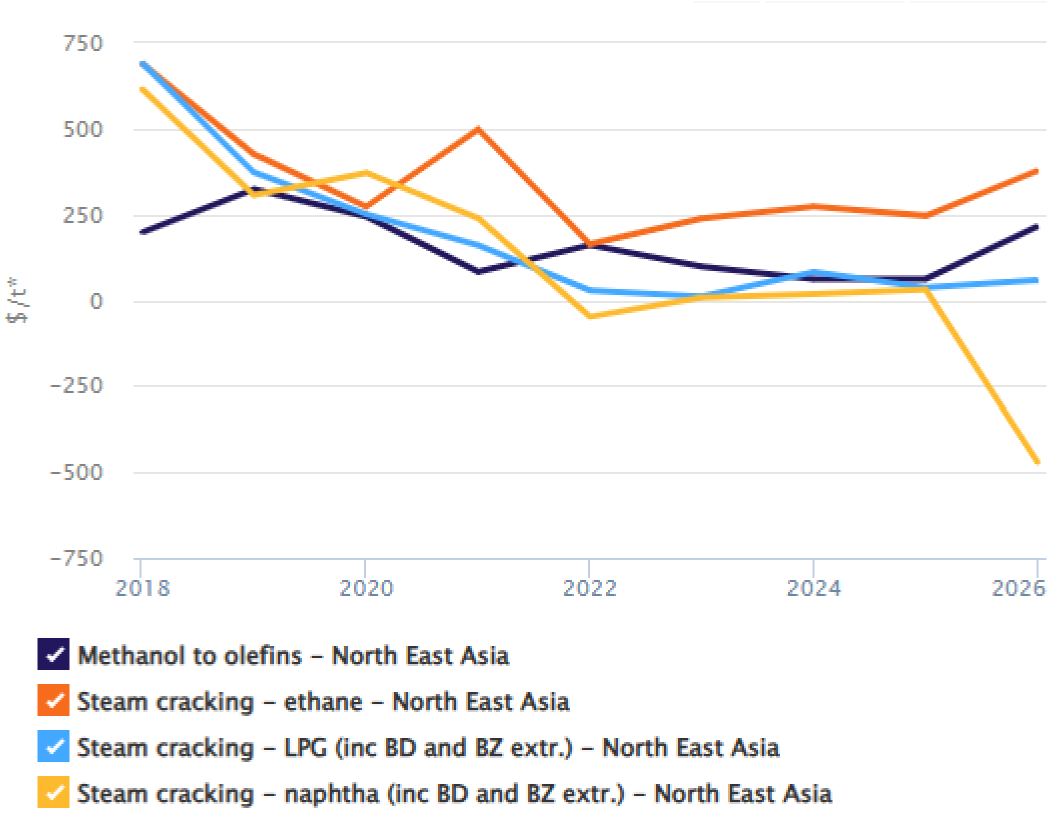


Source: ICIS Supply and demand database

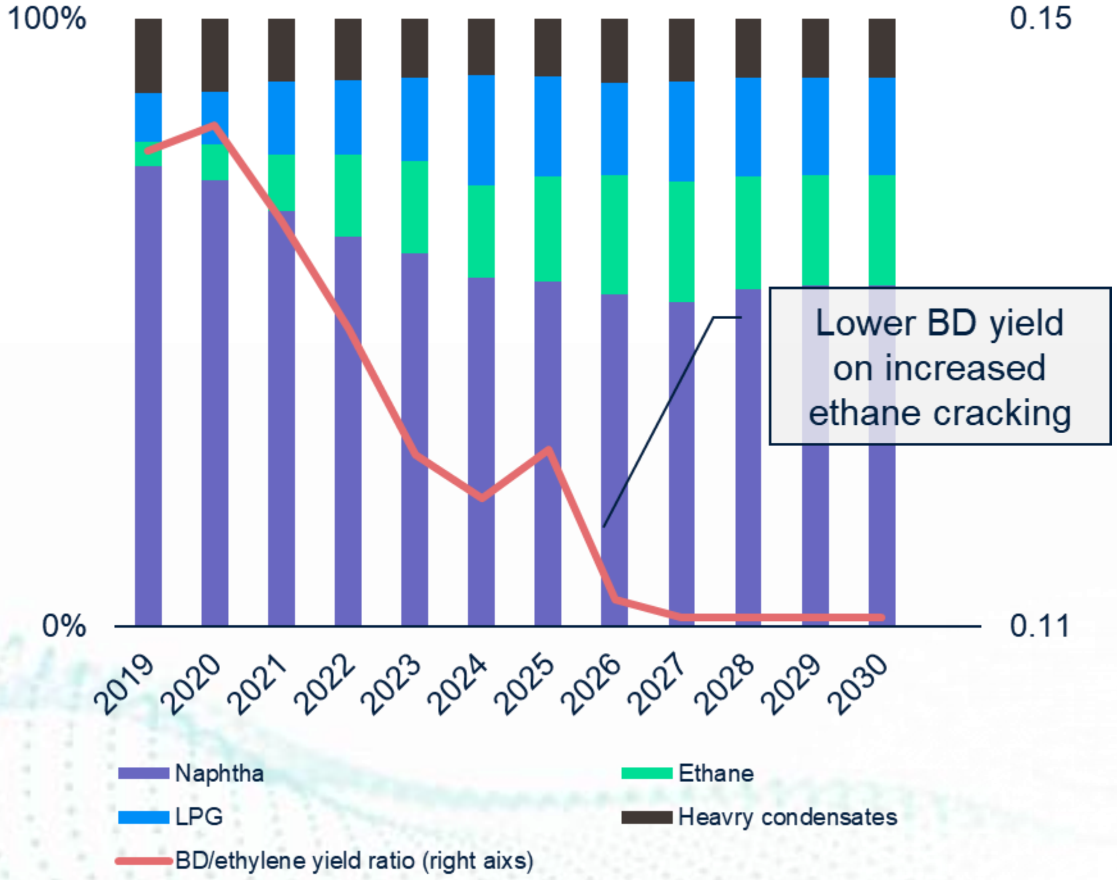
The shift to lighter feedstocks structurally reduces BD output, tightening long-term supply

Ethylene variable margins in NE Asia

As of 1 May 2026



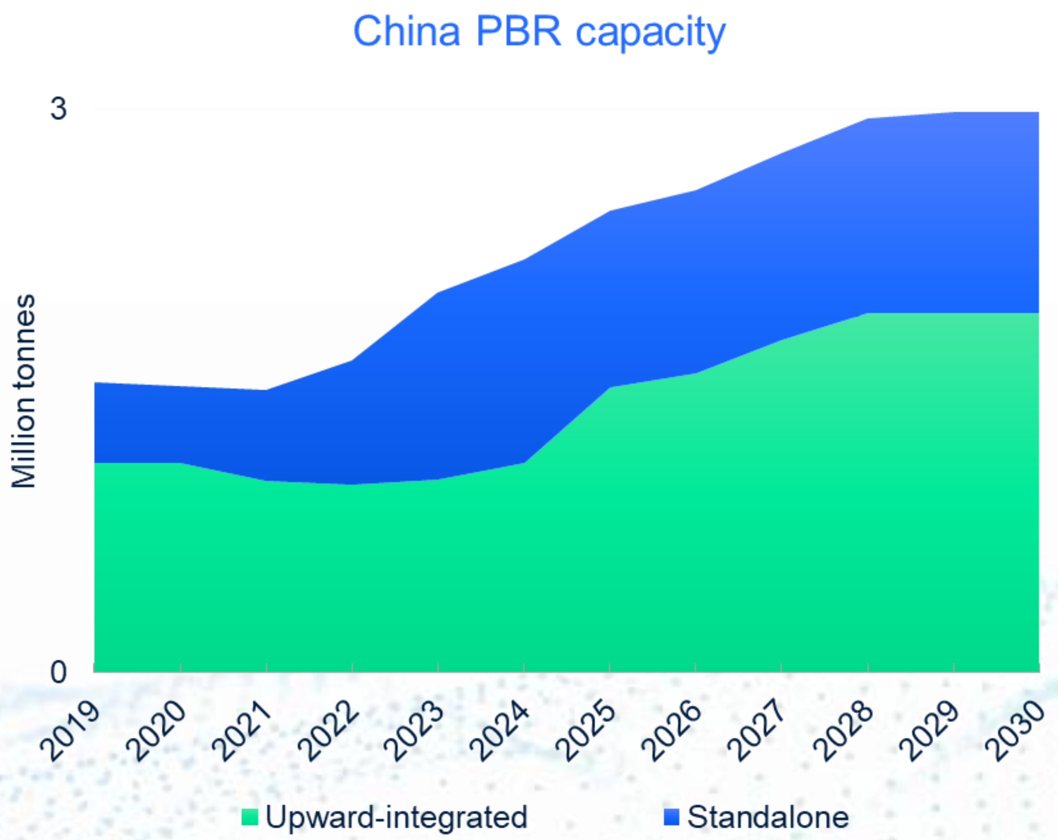
China cracker feedstock



Source: ICIS Supply & Demand database

China's integrated value chain drives structural cost advantage

Cracker → BD → rubber



Source: ICIS Supply & Demand database

Strong export growth observed across the whole value chain, increasing flexibility for China

Export CAGR, 2019–2025

BD: 3%

Emerging as swing supplier in NE Asia

SR: 41%

Shifted from net importer to exporter

Tyre: 6%

Growing on cost advantage and improving quality

Auto: 42%

Expanding as a strategic national priority

National strategy: China's 15th Five Year Plan prioritizes low-carbon integration and self-sufficiency over volume growth

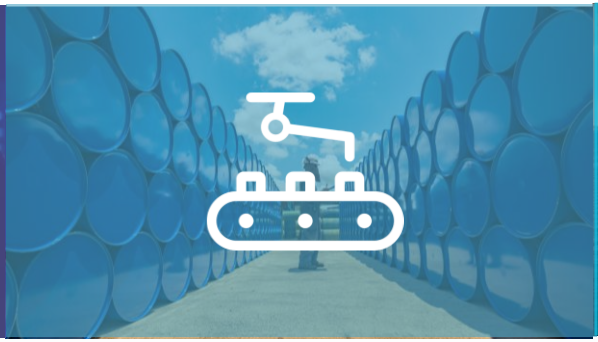
GREEN DEVELOPMENT

- Dual carbon controls to peak by 2030
- Phase out energy-intensive legacy capacity
- Replace fossil energy with non-fossil sources

INDUSTRIAL OPTIMIZATION

- Boost industrial autonomy via core technology breakthroughs
- Shift to advanced materials to replace imports
- Deploy AI-enabled smart manufacturing

SAFETY & SUPPLY ASSURANCE



- Strengthen domestic oil and gas supply security
- Expand reserves and upstream development
- Promote coal-to-oil and gas base construction

INTERNATIONAL EXPANSION

- Go global: resources, capacity, market and services
- Bringing in: capital, technology, management and institutional systems

Policy is accelerating the shift from commodity rubber production toward integrated, high-performance, and compliance-driven growth

Global rules reinforce the shift to integrated, low-carbon synthetic rubber production — timing uncertain, direction clear

EV Transition Policies

EV growth reshapes tyre demand – boosting replacement volumes while structurally favouring durable, high-spec rubber grades over commodity output.

Tyre Wear & Microplastics Rules

Tyre wear is emerging as a regulated environmental metric across major markets, driving demand towards lower-abrasion, higher-performance rubber formulations.

Sustainability & Carbon Standards

OEMs and tyre makers increasingly require carbon footprint certification, especially in European supply chains – favouring integrated, lower-carbon producers over non-certified commodity players.

Trade & Localisation Policies

Rising trade barriers and localisation requirements are fragmenting global supply chains, reinforcing the case for vertically integrated, regionally based rubber production.

Key conclusions | BD&SR market reset: 4 structural shifts

Tightening BD supply

Feedstock shift + geopolitics = less BD, not just temporary

China leads pricing

Price taker → regional price setter

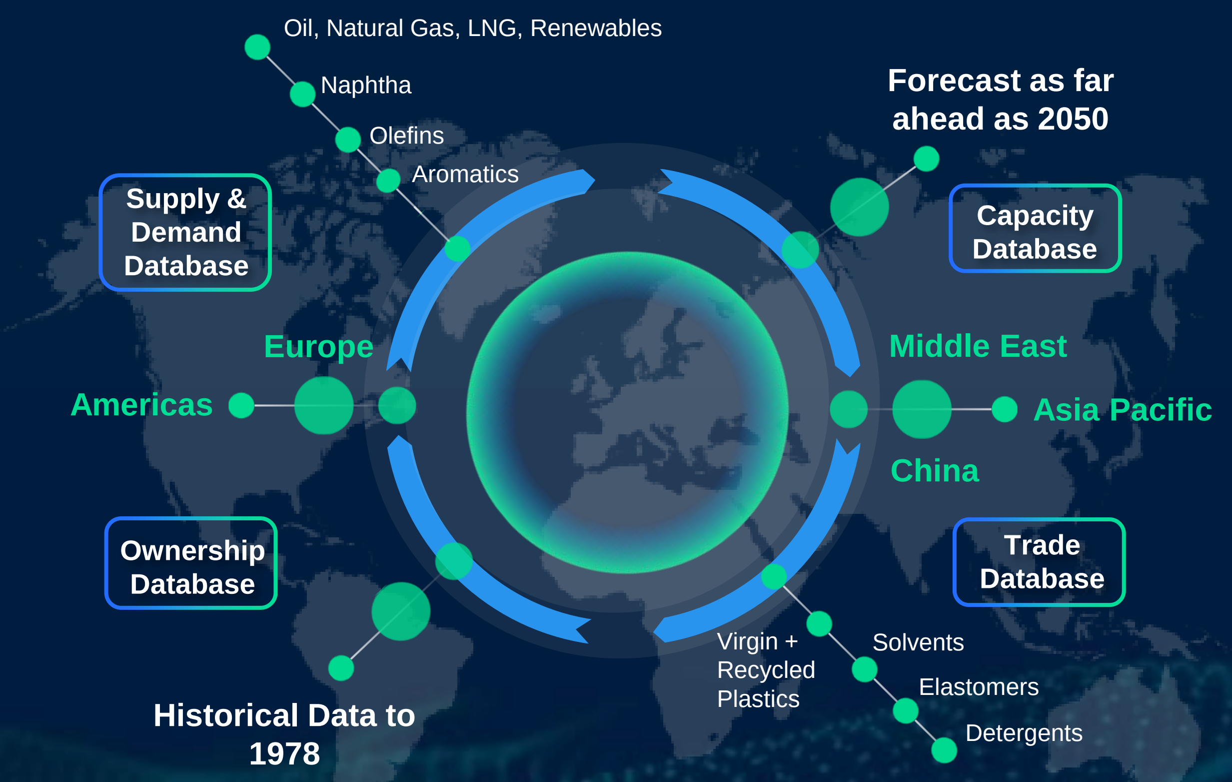
Higher volatility

Trade flows + arbitrage amplify swings

Demand ceiling

Concentrated downstream limits extreme runs

ICIS Supply and Demand Database



Get an end-to-end view of supply and demand across Energy, Refining and Chemical value chains from 1978 to 2050. Unrivalled breadth and depth of data covering supply, demand, trade flows - updated daily with monthly and quarterly round-ups plus a twice yearly comprehensive global review.

- 100+ Chemicals, Oil Products & Energy commodities x 175+ countries
- 10,000+ companies
- 13,000+ Plants and Refineries
- Capacity and Production Volumes
- Import, Export Trade Flows
- Supply - Demand Balances
- Virgin and Recycled Plastics

Contact us for more info

ICIS Clarity + data export and download options
On-demand access to ICIS experts to validate your interpretations
License on a 'per commodity' basis or select from pre-built commodity packages

Thank you

Ai Teng Lim
Senior editor, APAC
+65 9621 0684
aiteng.lim@icis.com

Ann Sun
Senior analyst, Asia Petchem Analytics
+86 185 2137 0598
ann.sun@icis.com

I·C·I·S | Price • Predict • Perform

OPIS A DOW JONES COMPANY

CHEMICAL MARKET ANALYTICS

APIC 2026
Asia Petrochemical Industry Conference
FUKUOKA, JAPAN

Synthetic Rubber in Asia

Navigating Prolonged Uncertainties

May 2026

Anthony (Young Ho) Song
Executive Director, Asia C4 Olefins & Elastomers
Anthony.song@chemicalmarketanalytic.com

OPIS
A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS

Agenda

- Middle East Crisis Impact
- Tariffs & Automotive
- Rationalization Status
- Butadiene
- Butadiene Derivatives
- Price Outlook

OPIS A DOW JONES COMPANY

CHEMICAL MARKET ANALYTICS

Middle East Conflict Impact

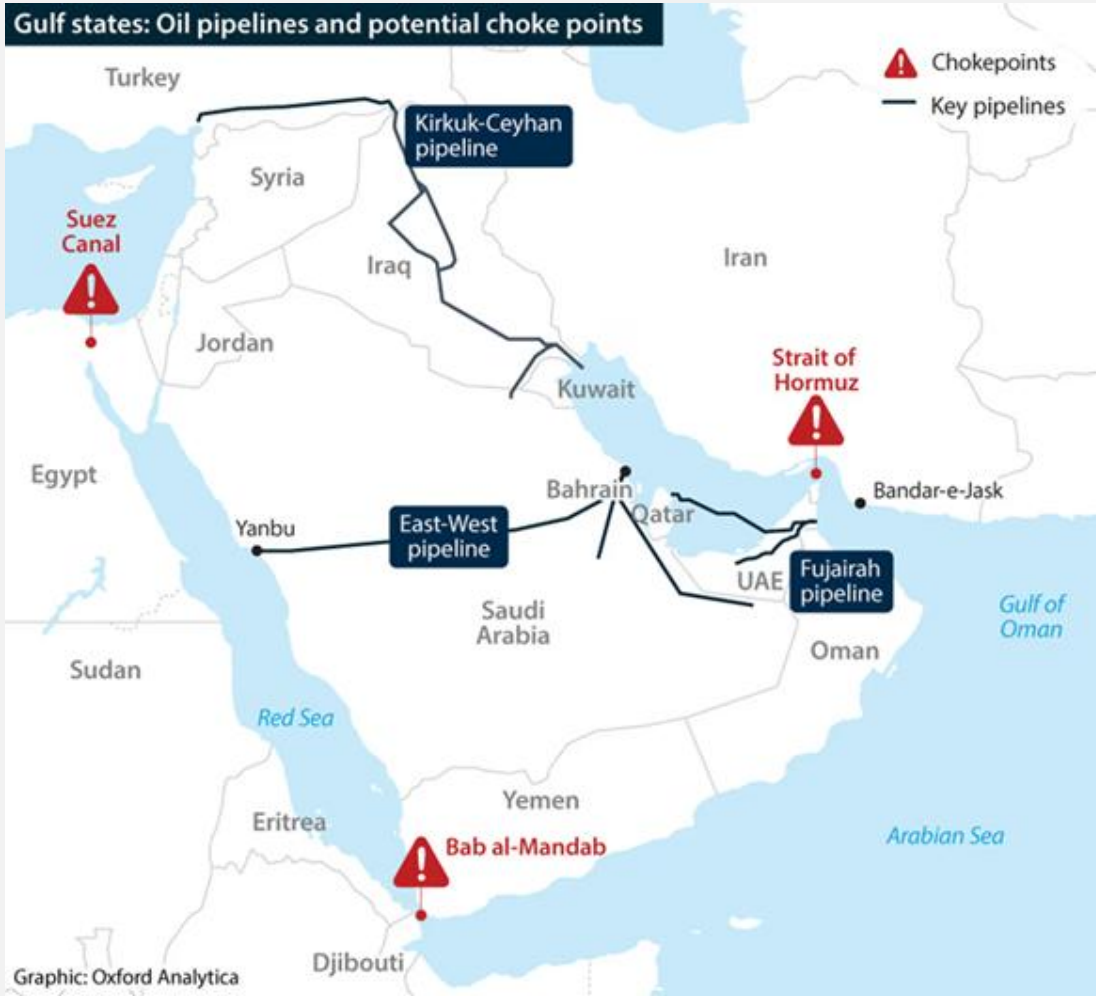
Middle East conflict timeline

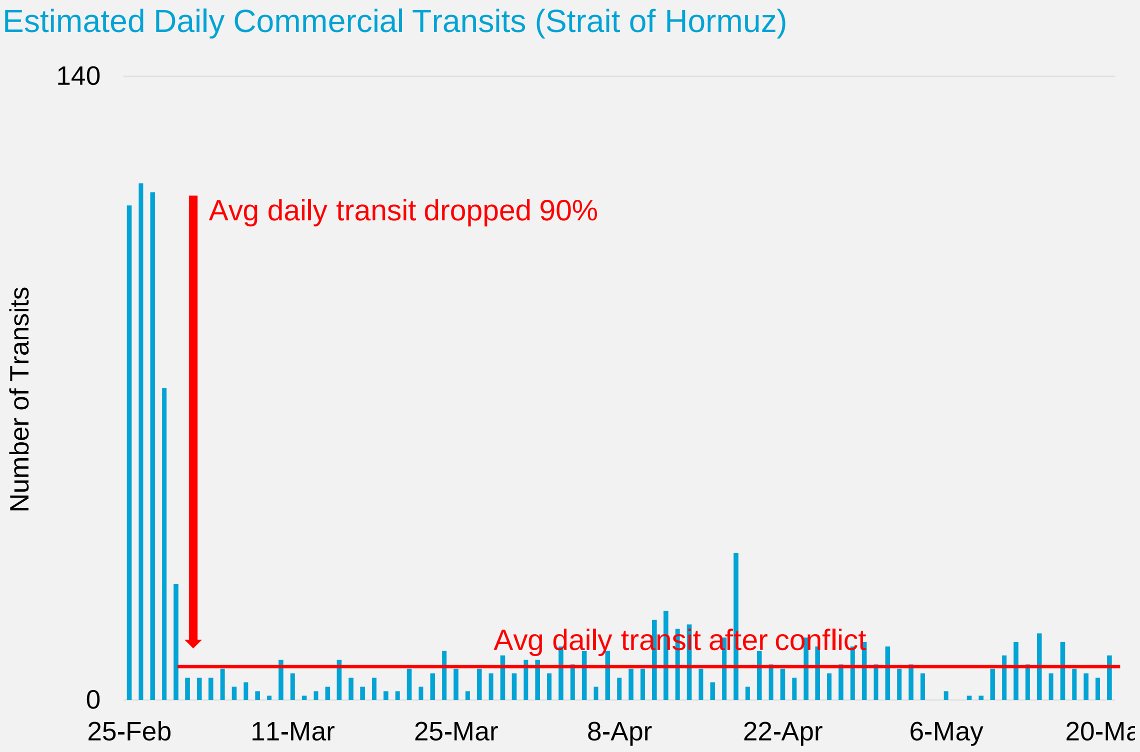
OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS

Major timeline of Middle East conflict

Feb 28	Early Mar	Mar 2	Apr 8	Early May		Since mid-May
Outbreak of Middle East conflict	Regional escalation	Expansion to Lebanon	**Ceasefire**	**Proposal to end the conflict**	**US announces “Project Freedom”**	**What’s next?**
US and Israeli forces launch coordinated strikes on Iran	Iran retaliates with massive missile and drone strikes on Israel and Gulf Arab nations	Israel intensifies airstrikes in Lebanon, targeting Hezbollah	Ceasefire takes effect, halting the major joint campaign against Iran	US and Iran proposing 14 point MOU to end the ongoing war and start 30 day negotiation period for a comprehensive agreement	Help free up ships in the Strait of Hormuz	No agreement reached Postponed military strike Extended 60 days ceasefire and reopening Strait of Hormuz (?)

Asia highly dependent upon oil and naphtha supplies from Middle East

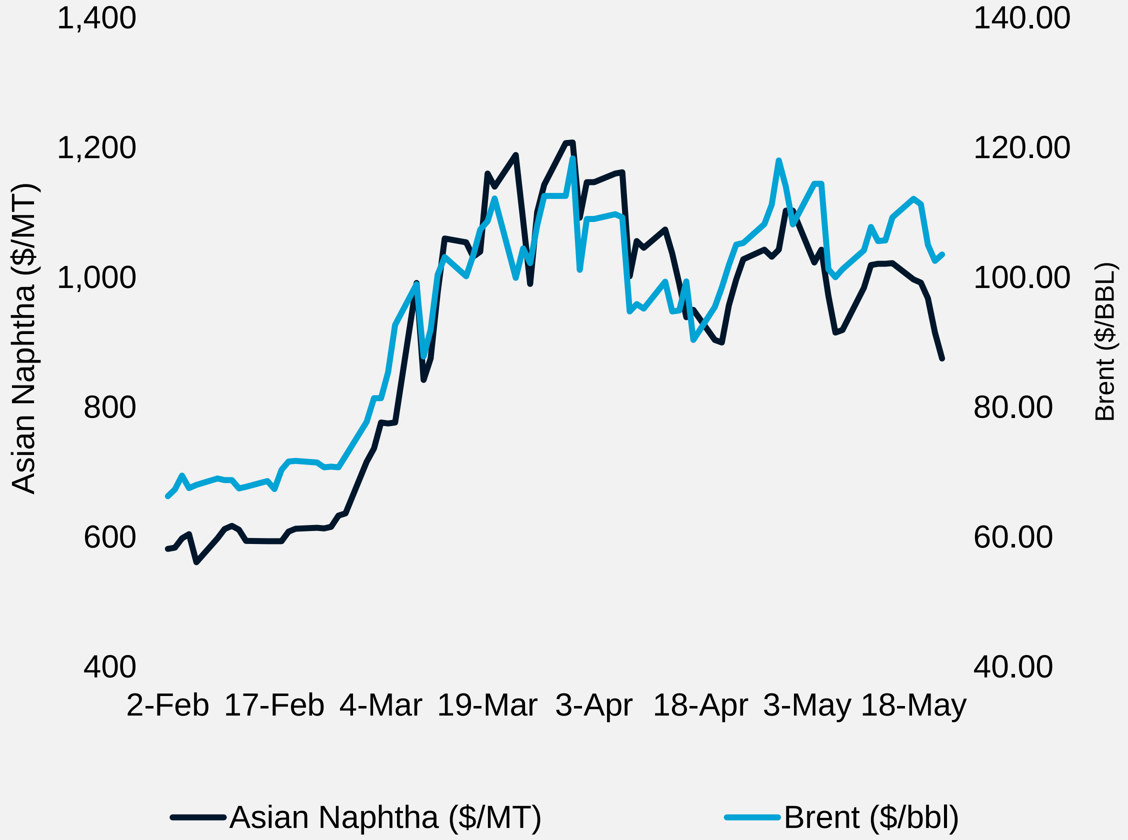




Source: Dragonfly from Dow Jones Company

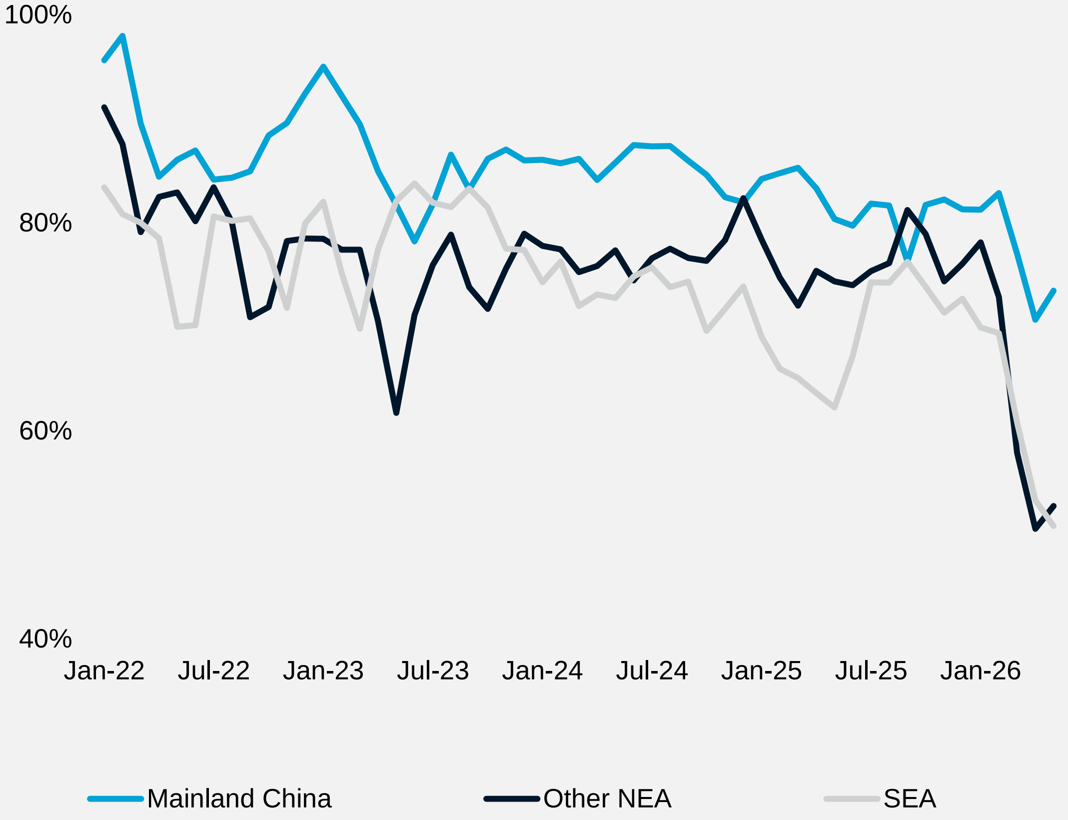
Cracker feedstock prices surged and led to further run cuts

Crude Oil and Asian Naphtha Price Trend



Source: Chemical Market Analytics by OPIS

Asia Cracker Operating Rates

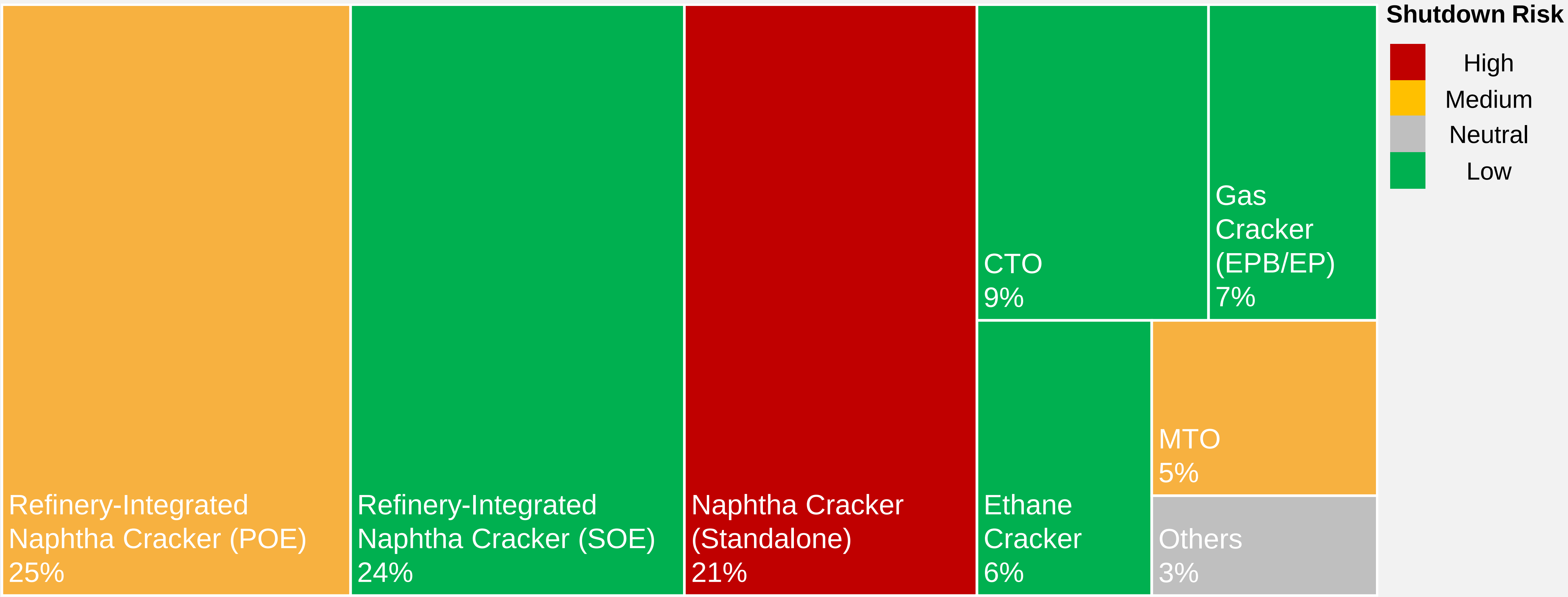


Source: Chemical Market Analytics by OPIS

Supply risk arises as the tension in the Middle East escalates

OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS

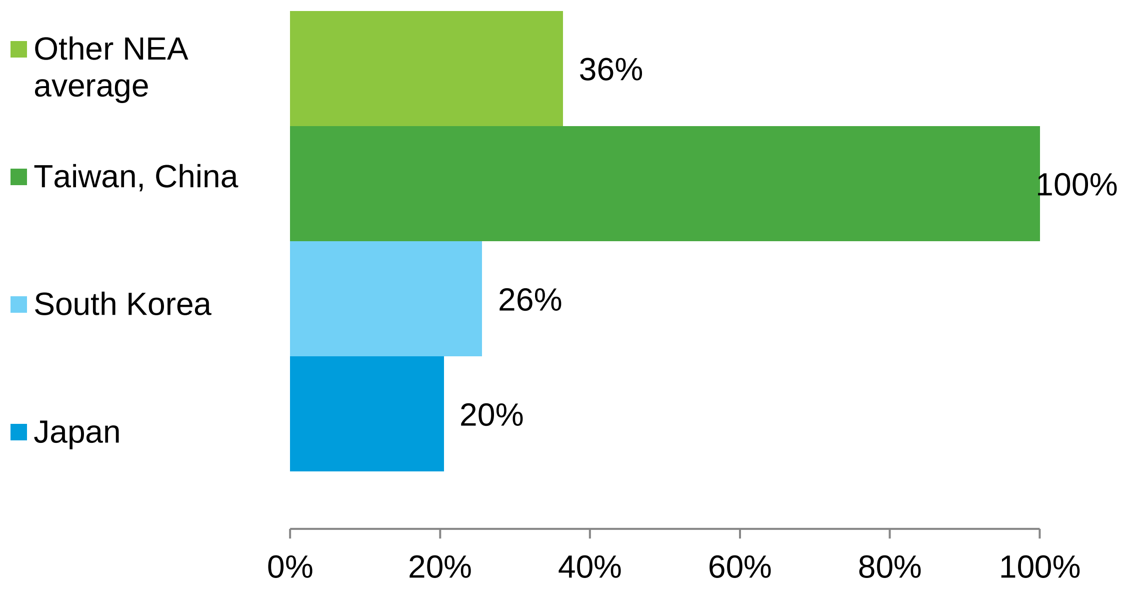
Mainland China – Relatively better situation amid various feedstock sources and production type



Supply risk arises as the tension in the Middle East escalates

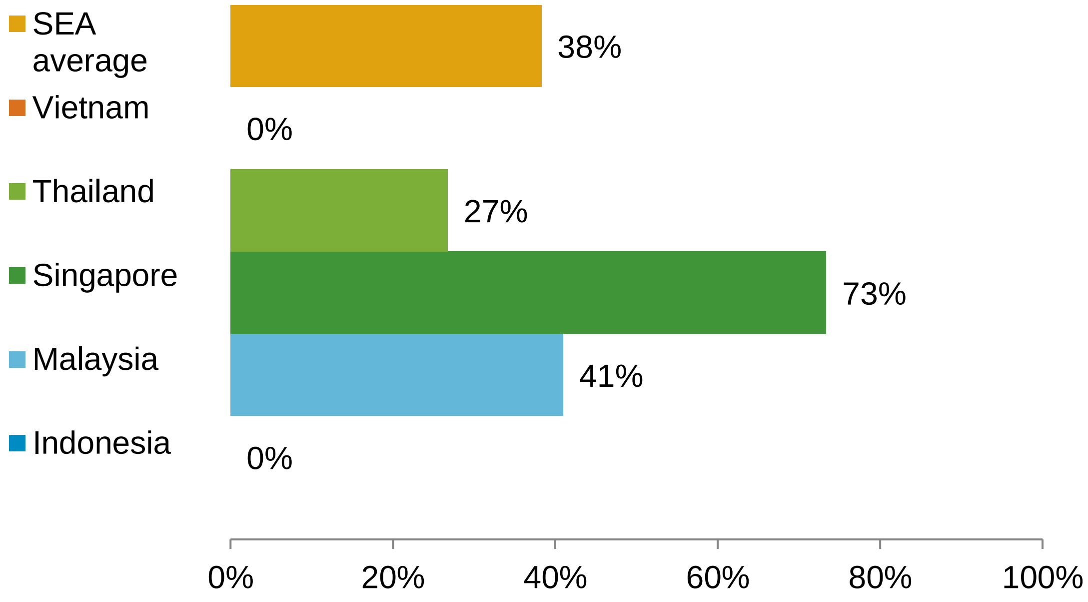
Standalone crackers in other Asia are heavily relying on Middle Eastern feedstocks

Refinery-Cracker Integration Status in NEA ex. mainland China



Source: Chemical Market Analytics by OPIS

Refinery-Cracker Integration Status in Southeast Asia

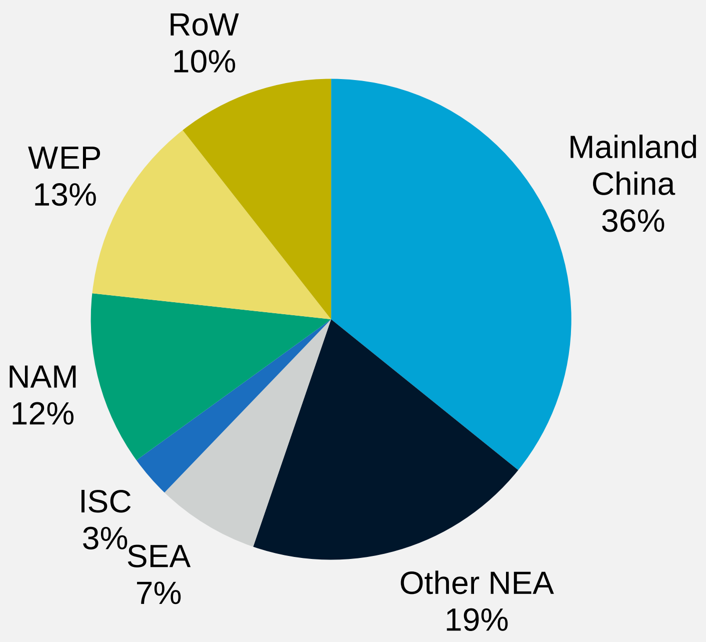


Source: Chemical Market Analytics by OPIS

Asia is key butadiene producing region and most vulnerable from crisis in Middle East

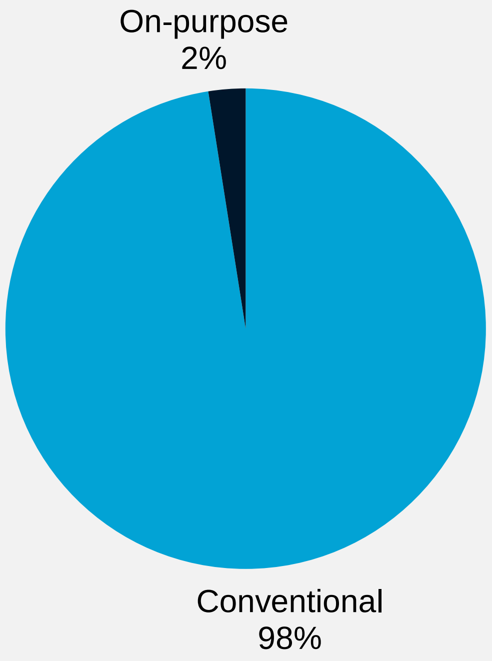
OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS

Global Butadiene Capacity by Region



Source: Chemical Market Analytics by OPIS

Asia Butadiene Capacity

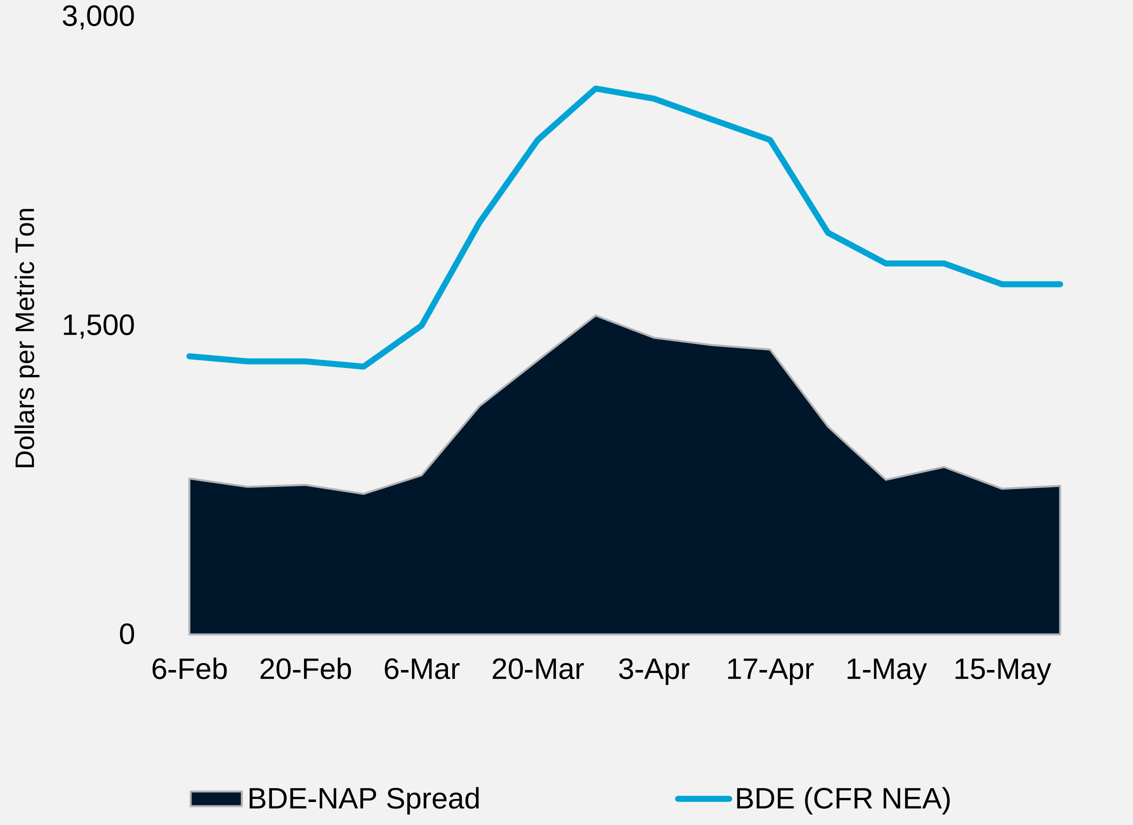


Source: Chemical Market Analytics by OPIS

Middle East conflict results in tight supply and price surge

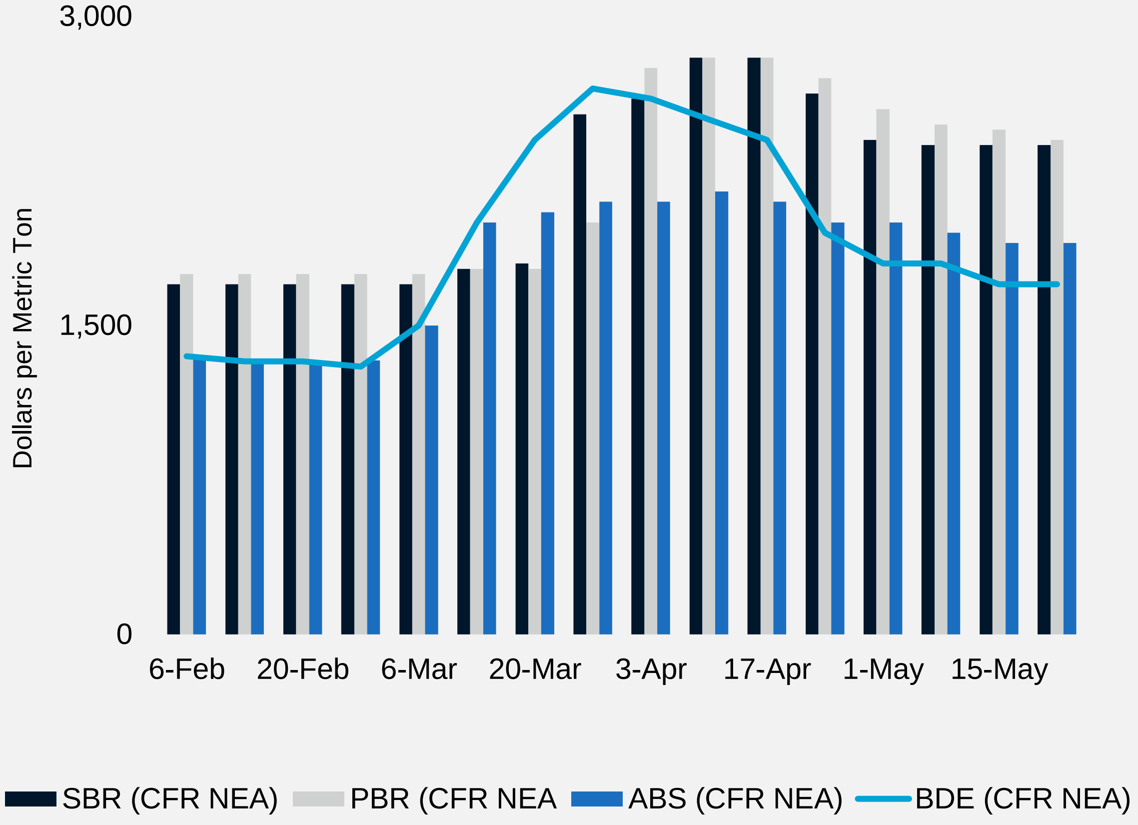
OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS

Butadiene and Naphtha Price Spread



Source: Chemical Market Analytics by OPIS

Butadiene and Derivative Price Trends



Source: Chemical Market Analytics by OPIS

OPIS A DOW JONES COMPANY

CHEMICAL MARKET ANALYTICS

Tariff & Automotive

Automotive tariffs remains

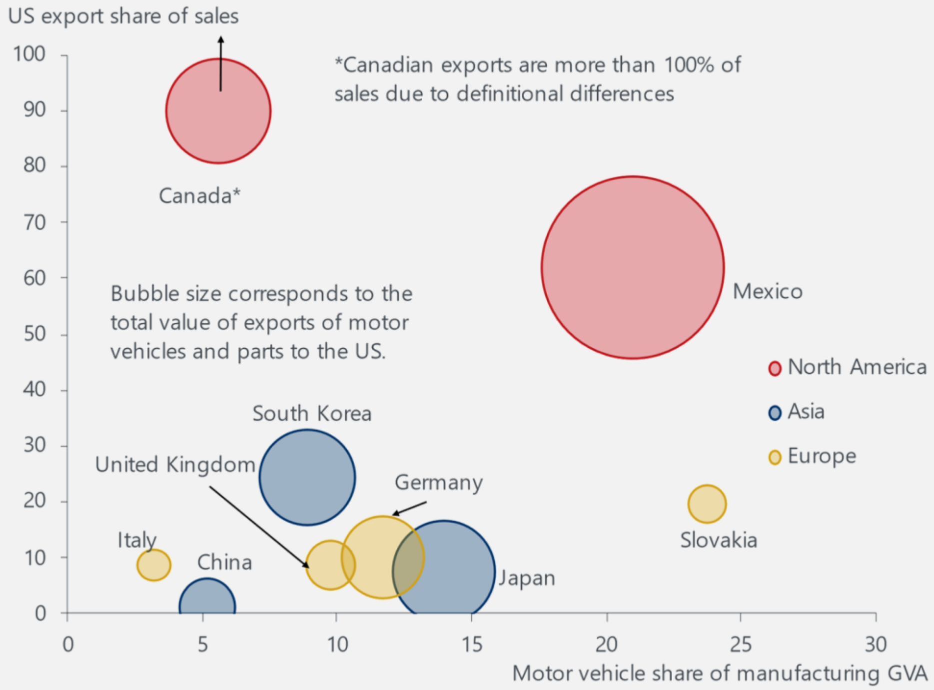
OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS

25% automotive tariffs

- Effective April 3 (finished vehicles), May 3 (major auto parts)
  - **Non-cumulative:** steel/aluminum tariffs, "fentanyl" tariffs on Canada and Mexico (25% on the non-US content of USMCA compliant autos and auto parts)
  - **Cumulative:** China tariff, 2.5% MFN rate (except deals)
  - **15% credit** of vehicle retail value (assembled in the US) for an equal amount imported parts (exc. from China). 10% credit from April 30, 2026, 0% from April 30, 2027; Vehicles assembled in Mex/Can not eligible.
  - Inflationary pressures are likely despite partial replacement of imports with domestic supply. Less automotive exports in producer countries could erode domestic chemicals demand.
  - Exemptions: **UK – 10%** on first 100,000 vehicles; **Japan, EU, South Korea – 15%**

Tariff risk: US sales share vs automotive share of manufacturing

by country



Source: Oxford Economics

Auto raw materials

conventional ICE, estimate

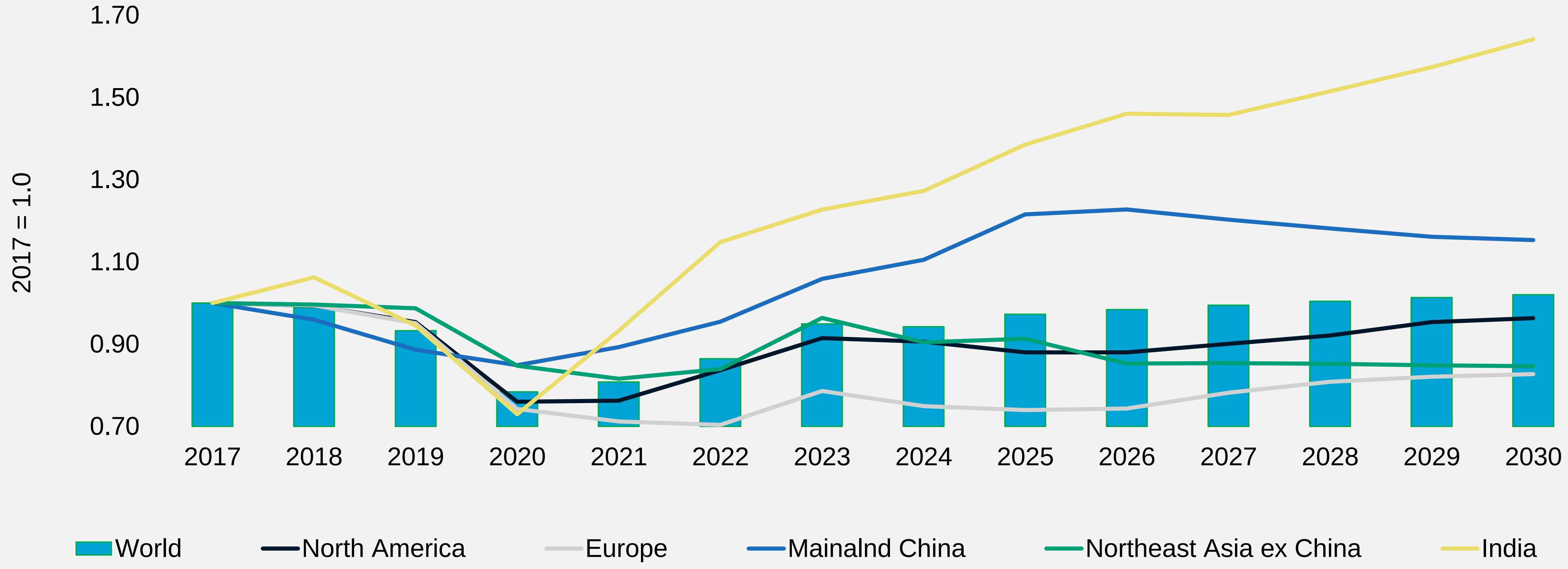
Total weight: 1-1.5 mt

Material	Weight %
Plastics & Polymers	3-8
Paints & coatings	1-2
Metals & alloys	75-85
Lubricants & fluids	1-2
Adhesives & sealants	0-1
Rubber & elastomers	3-10
Glass & ceramics	1-3

Regional trend is different

OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS

Light Vehicle Production Trends

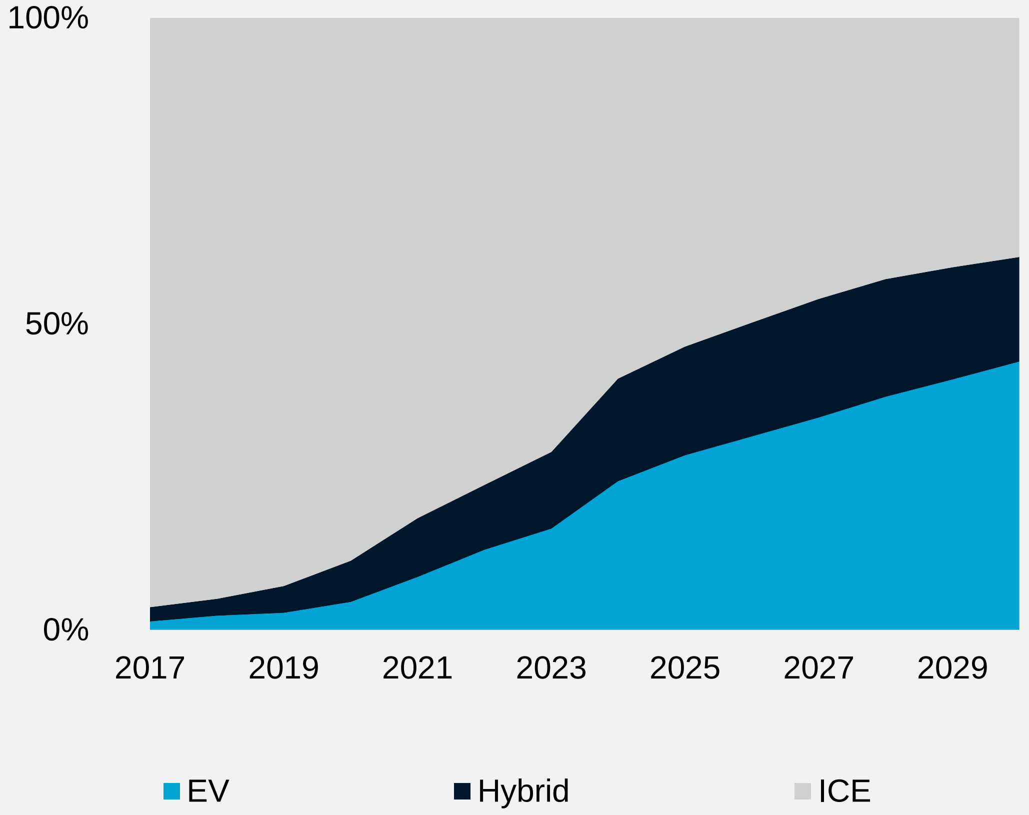


Source: Oxford Economics

Mainland China drives EV production growth

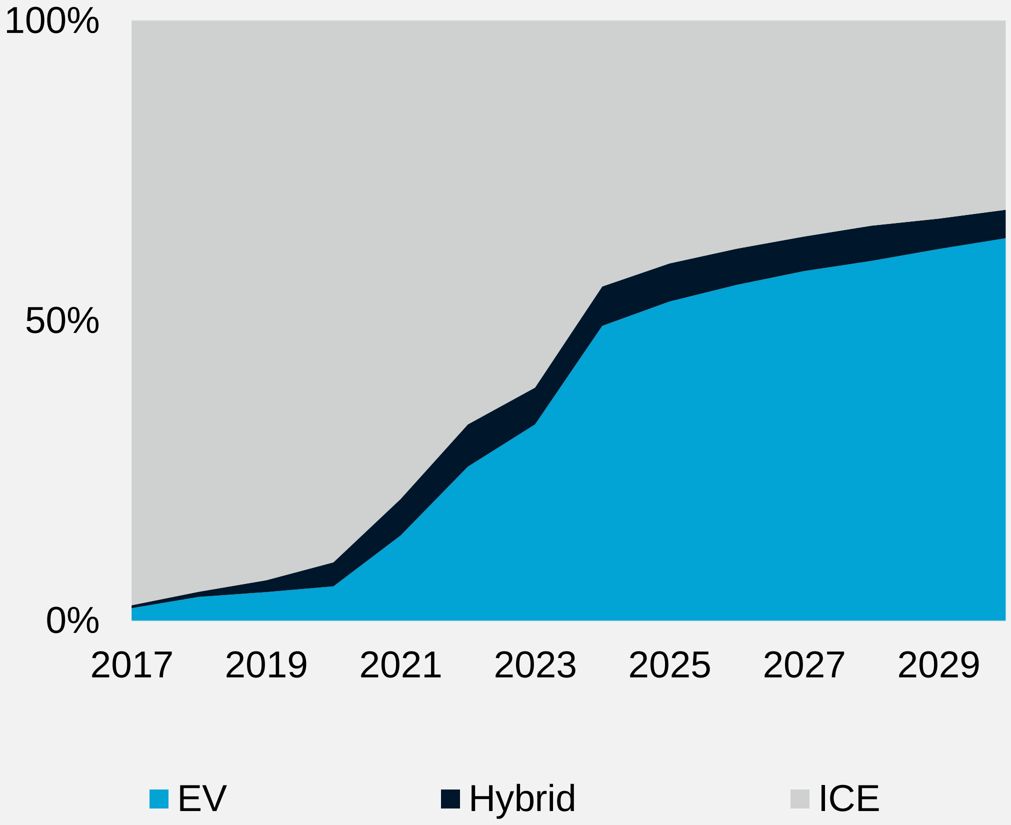
OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS

Global EV, Hybrid, ICE Production Share



Source: Oxford Economics

Mainland China EV, Hybrid, ICE Production Share



Source: Oxford Economics

OPIS A DOW JONES COMPANY

Chemical Market Analytics

Synthetic Rubber Feedstock Rationalization in Asia and Europe

Rationalization in mainland China

OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS

Company	Province	C2 (kta)	BD (kta)	Idled	Will Close	Remark
Sinopec Qilu	Shandong	860	164	Idled since 2025		Build new 2027 [C2 1,000 / BD 150]
Sinopec Yanshan	Beijing	820	143	Idled since 2025		
Sinopec Tianjin	Tianjin	200		Idled since 2025		
PetroChina Fushun	Liaoning	180	30		Will close 2026	Will close 2026 [C2 950 / BD 180]
PetroChina Jilin	Jilin	150			Will close 2026	Built new 2025 [C2 1,200 / BD 200]
PetroChina Lanzhou	Gansu	690	124		Will close 2026	Build new 2027 [C2 1,200]
Sinopec Maoming	Guangdong	380	150		Will close 2026	Build new 2027 [C2 1,000 / BD 140]
Sinopec Shanghai	Shanghai	700	120		Will close 2029	Build new [C2 1,200 / BD 200]
Sinopec Jiangsu	Jiangsu	800			Will close 2029 (build new)	Will close 2029 (build new)
Sub Total		**4,780**	**731**			
Others		60,393	6,676			All other existing capacities
Total		**65,173**	**7,407**			
Idled		1,880	307			
Will close		2,900	300			

Rationalization in South Korea

OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS

Company	City	C2 (kta)	BD (kta)	Announced	Under discussion	Remark
Hyundai Chem	Daesan	**850**	**100**	**Merge crackers, shut down Lotte cracker**	**downstream restructuring**	**Form JV company by Q3 2026 (50:50 share)**
Lotte Chem		**1,100**	**149**			
Hanwha Totalenergies		1,505	157		reduce polymer production	Metathesis CAP 300
LG Chem		1,270	174			
GS Caltex	Yeosu	900	100			
LG Chem No.1		1,160	160		merging with GS Caltex	If not merged, shutdown No.1 and maintain No.2 only
LG Chem No.2		800	140			
Lotte Chem		**1,200**	**160**	**Merge crackers, shut down YNCC No.2 & 3**	**downstream restructuring**	**Form JV company (1/3 share each by Lotte, DL, and Hanwha)**
YNCC No.1		**900**	**240**			
YNCC No.2		**930**	**130**			
YNCC No.3		**470**				
SKGC	Ulsan	670	115			
KPIC		900	150			
S-Oil		1,800	200			start up Q4 2026
Sub Total		**14,455**	**1,975**			
Others		200	319			S-Oil Recovery from FCC (C2) / LG ODH and Kumho offline capacity
Total Capacity		**14,655**	**2,294**			
Announced		2,500	279			
Possibility		1,160	160			
Capacity post-restructure		**10,995**	**1,855**			

Rationalization in Japan

OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS

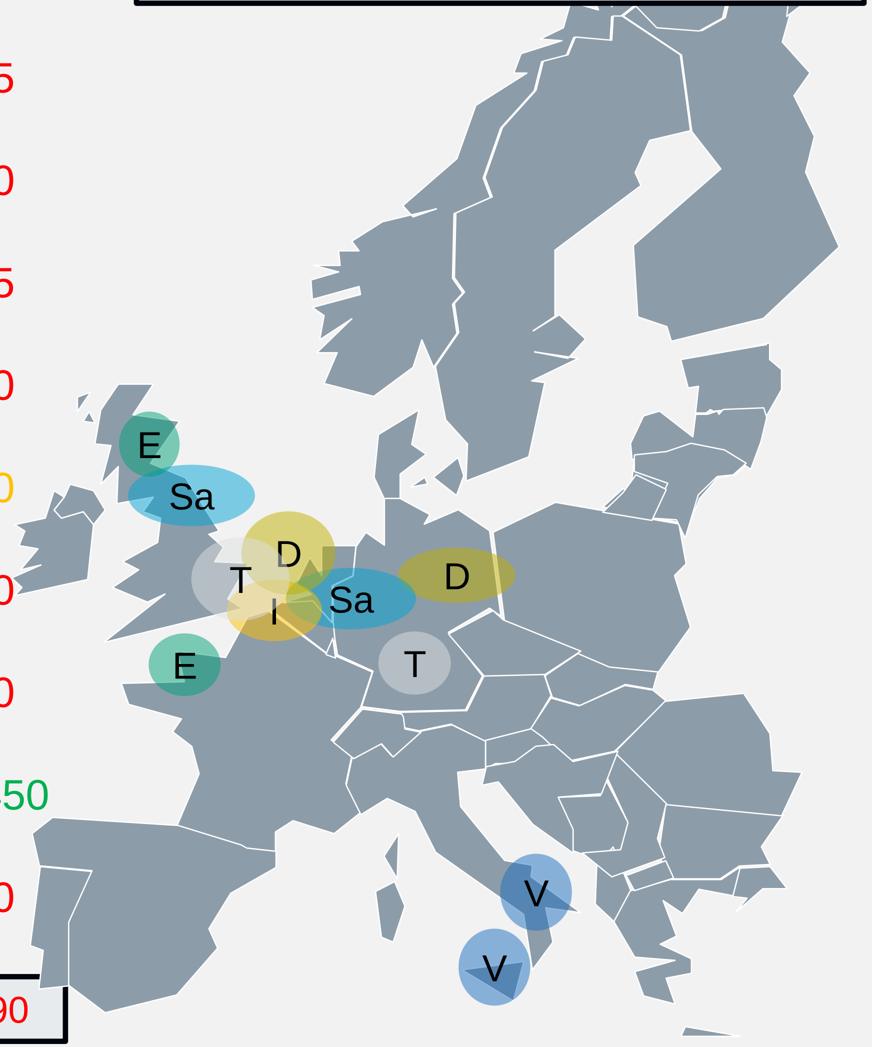
Company	City	C2 (kta)	Contained BD (kta)	Announced	Under discussion	Remark
AMEC	Mizushima	**570**	**64**	**close 2030**		**Okayama BD (JV Asahi & Zeon)**
ENEOS	Kawasaki	540	61			
ENEOS	Kawasaki	**443**	**50**	**close 2028**		
Maruzen	Chiba	**525**	**59**	**close 2027**		**Chiba BD (JV Maruzen & UBE)**
Keiyo Ethylene	Chiba	768	86			
Mitsui	Chiba	612	69			
Idemitsu	Chiba	**414**	**47**	**close 2027**		
Idemitsu	Tokuyama	689	78			
Crasus	Oita	691	78			
Osaka PC	Sakai	500	56			
Tosoh	Yokkaichi	527	59			
Mitsubishi No.2	Kashima	539	61			
Total Capacity		6818	767			
Announced		**1,952**	**220**			
Capacity post-rationalization		**4,866**	**547**			

European Assets Rationalization Ongoing – Crude C4 key now

				CC4*	BD	C2
E	2024	ExxonMobil NdG FR	C2/BD	-80	-80	-400
Sa	2024	Sabic Geleen NL	C2	-85		-575
V	2025	Versalis Brindisi IT	C2/BD	-75	-145	-440
Sa	2025	Sabic Wilton UK	C2/BD	-25	-100	-865
V	2025	Versalis Priolo IT	C2	-70		-450
D	2025	Dow Terneuzen NL*	C2	-50		-660
E	2026	Exxon/Shell Mosmorran UK	C2	-25		-830
T	2027	TotalEnergies A'werp BE	C2	-85		-570
I	2027	Ineos Antwerp BE	C2	+40		+1450
D	2027	Dow Böhlen DE	C2/BD	-70	-105	-510
			Total	-450	-430	-3190

* temporary not restarted after TA

Rationalization C2 > CC4 > Bd

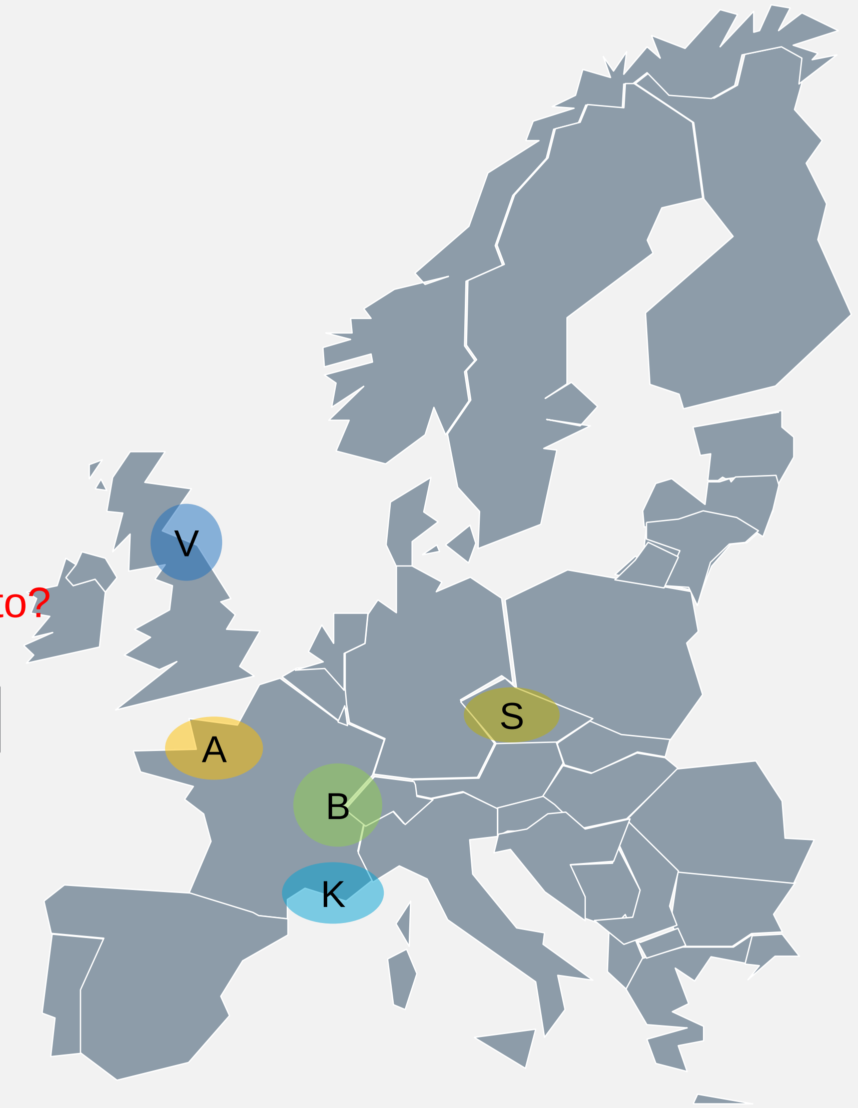


* CC4 as contained BD

Rationalization also downstream

	Year	Company	Plant	BD Der	BD
S	2023	Synthos	ESBR Kralupy CZ	110	82
V	2024	Versalis	PBR/SSBR G’mouth UK	140	125
K	2026	Kraton	HSBC Berre FR	30	20
A	2026	Arlanxeo	PBR/SSBR Port Jerome FR	120	110
B	2026?	Butachimie	ADN Chalampé FR	520/350 down to?	

Total	-327



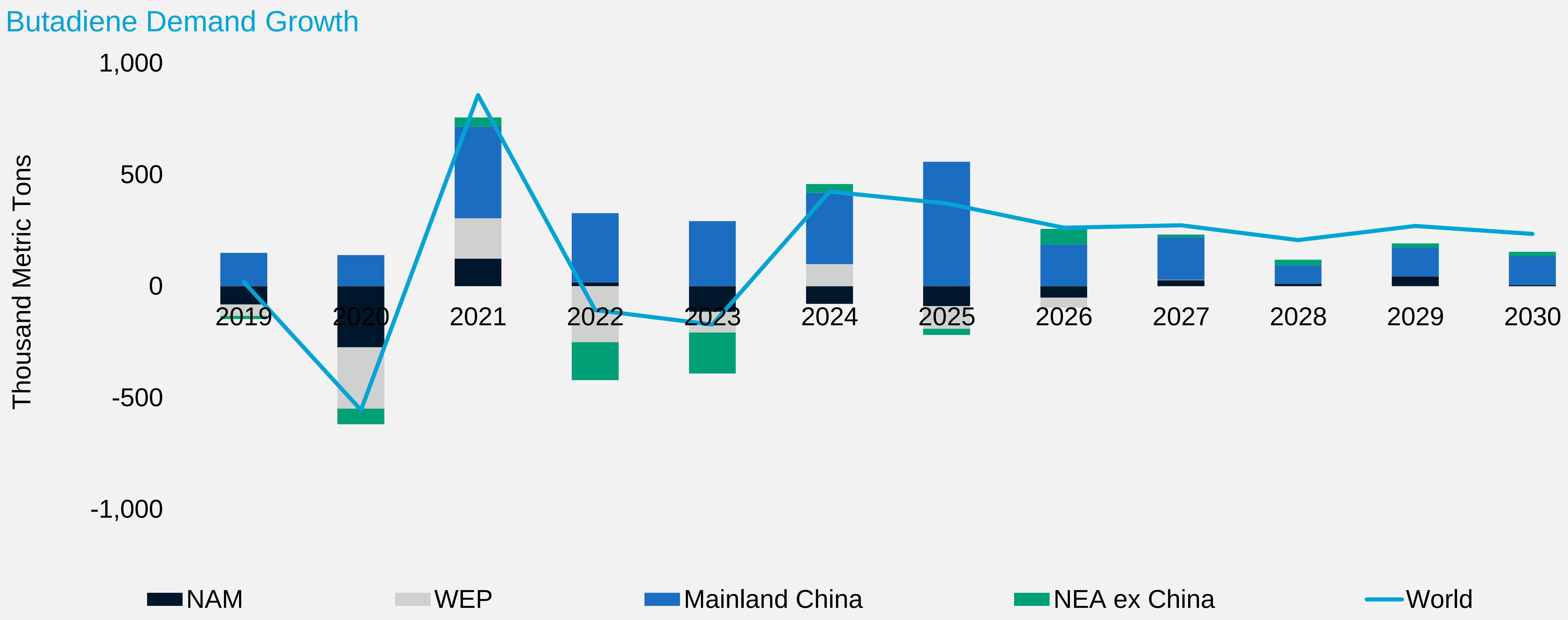
- Butachimie low OR – capacity reduction expected
- PBR Schkopau closed 2020 but reopened 2023
- Downstream closures in tires, vehicle plants, etcetera
- Tire/auto plants moving (again) to the east in Europe
- Closures Bd derivatives < Bd plants < CC4 capacity

OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS

Butadiene

Global demand trends

OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS

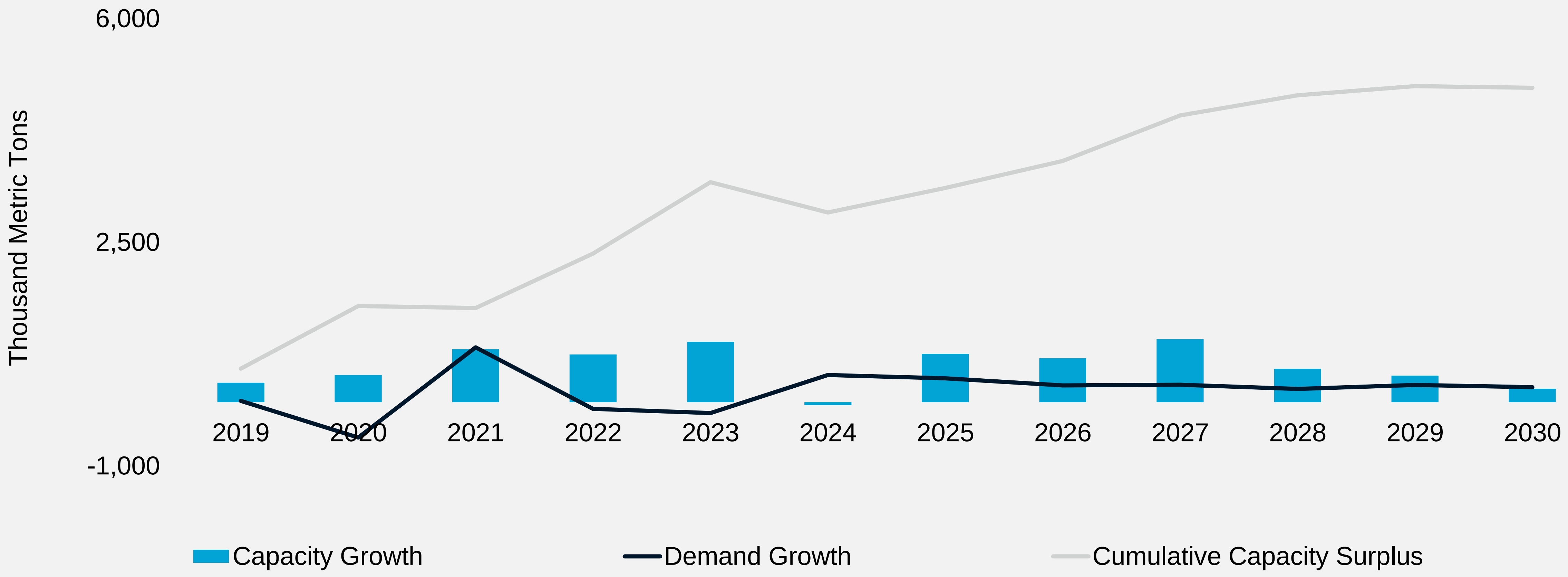


Source: Chemical Market Analytics by OPIS

Over capacity endures

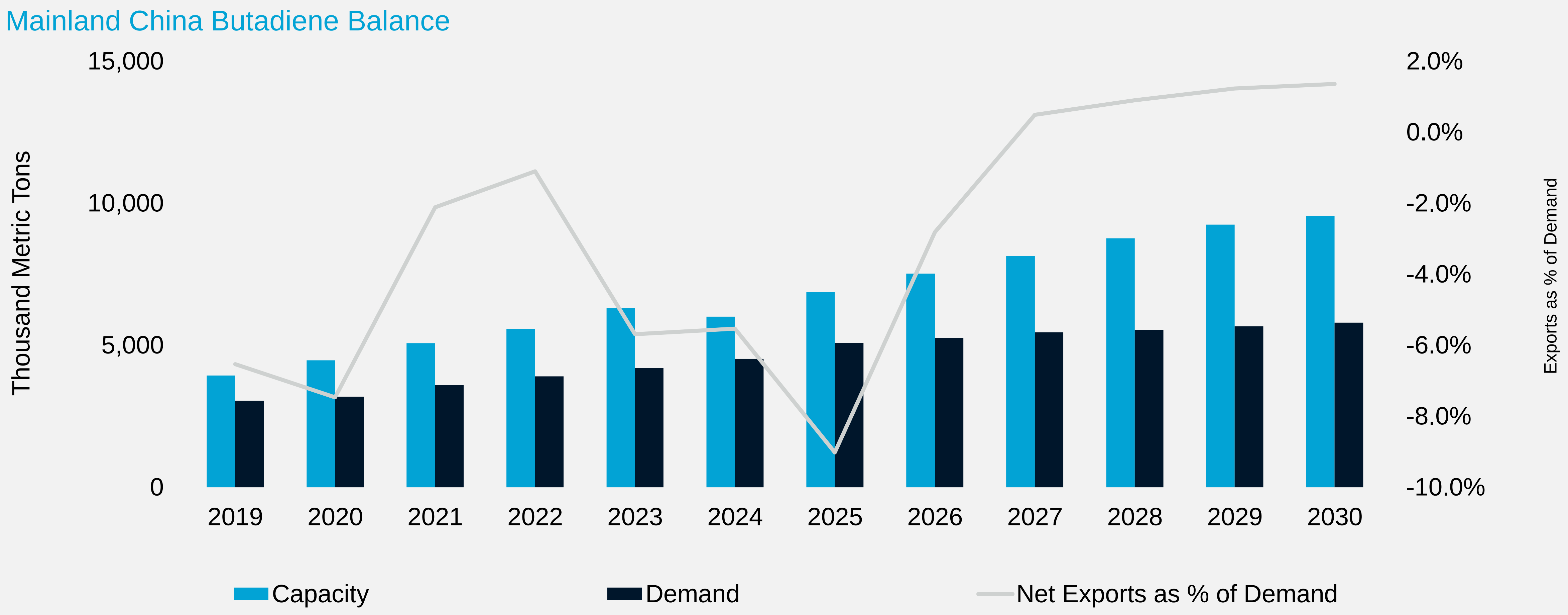
OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS

Global Butadiene Capacity vs Demand Growth



Source: Chemical Market Analytics by OPIS

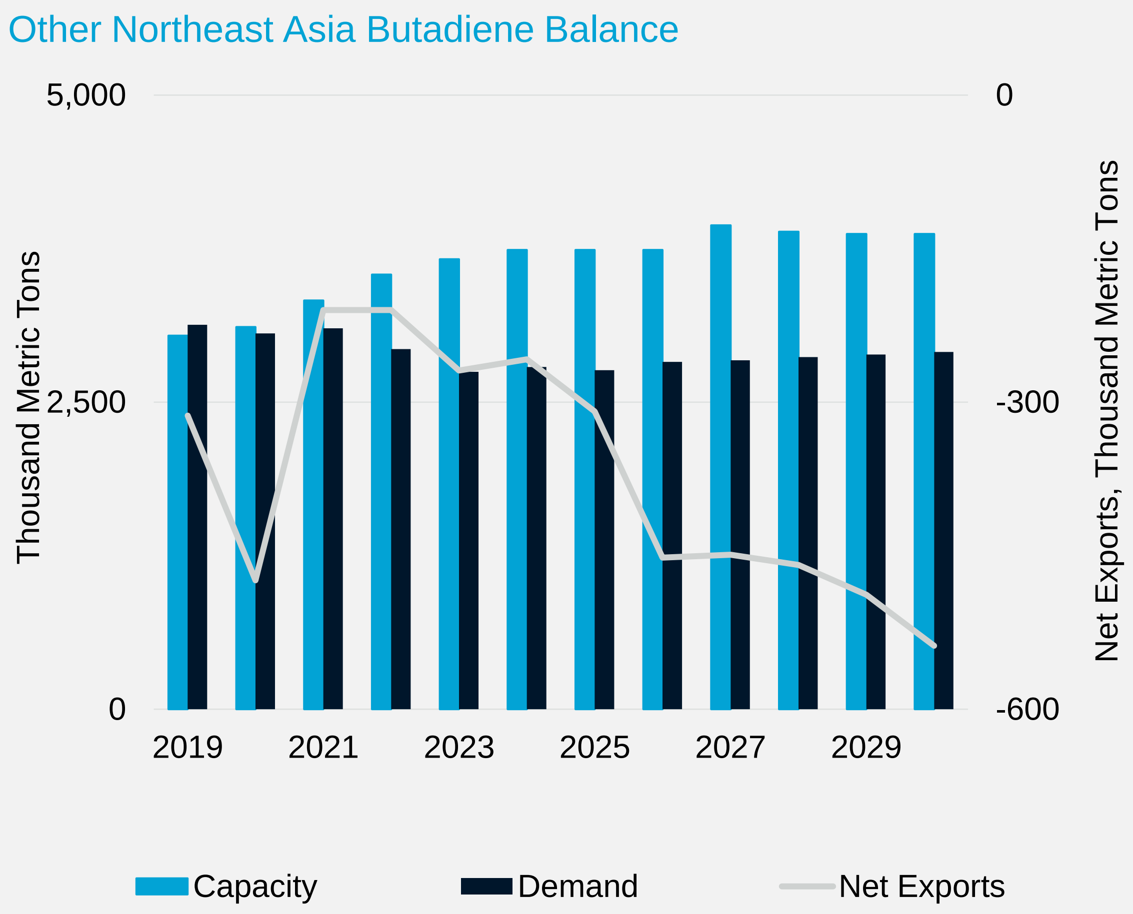
Mainland China continues to invest to expand extraction



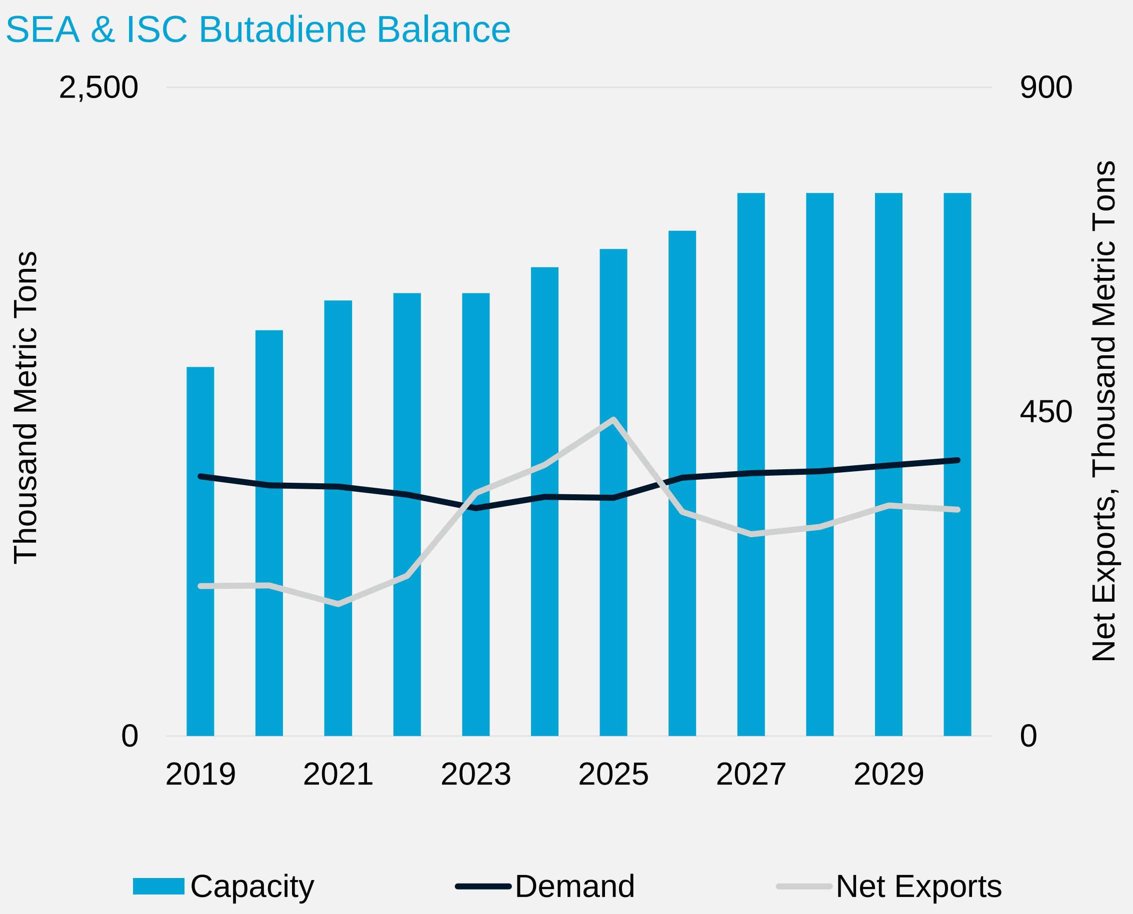
Source: Chemical Market Analytics by OPIS

SEA & ISC exports are expected to be absorbed by other NEA

OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS



Source: Chemical Market Analytics by OPIS

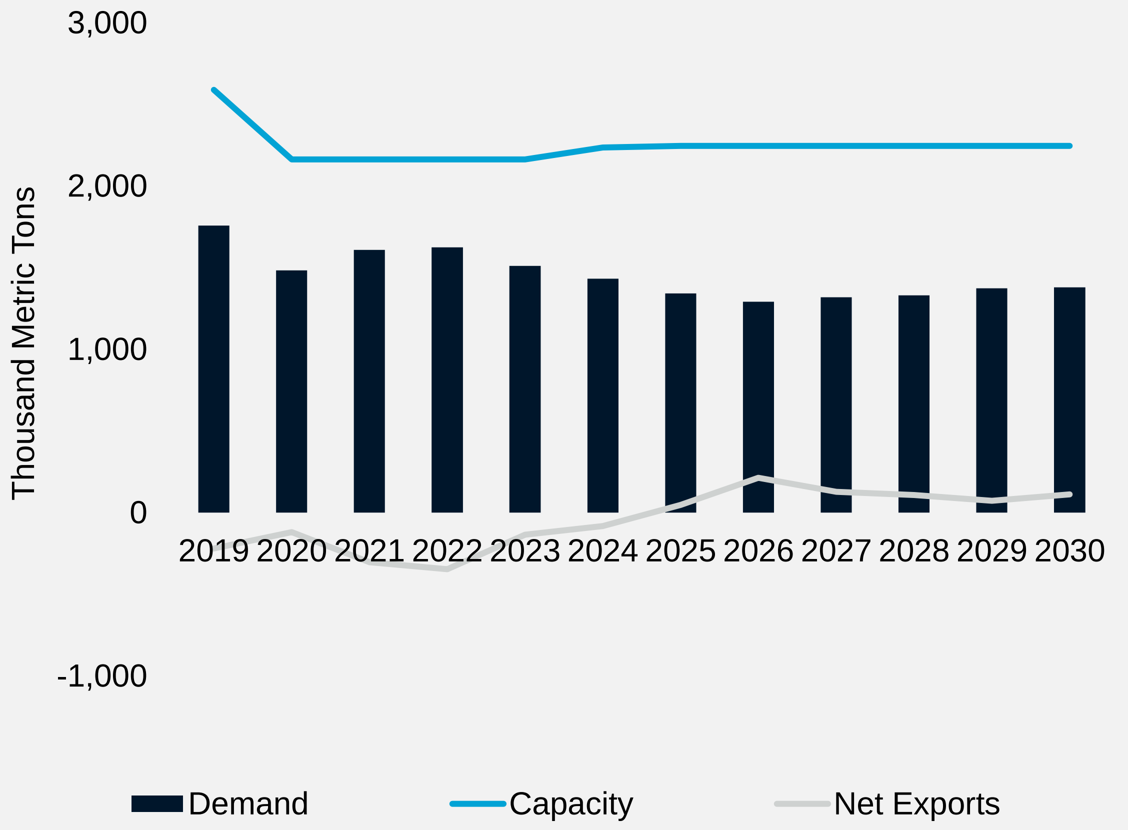


Source: Chemical Market Analytics by OPIS

WEP exports decline while NAM shifting to small net export

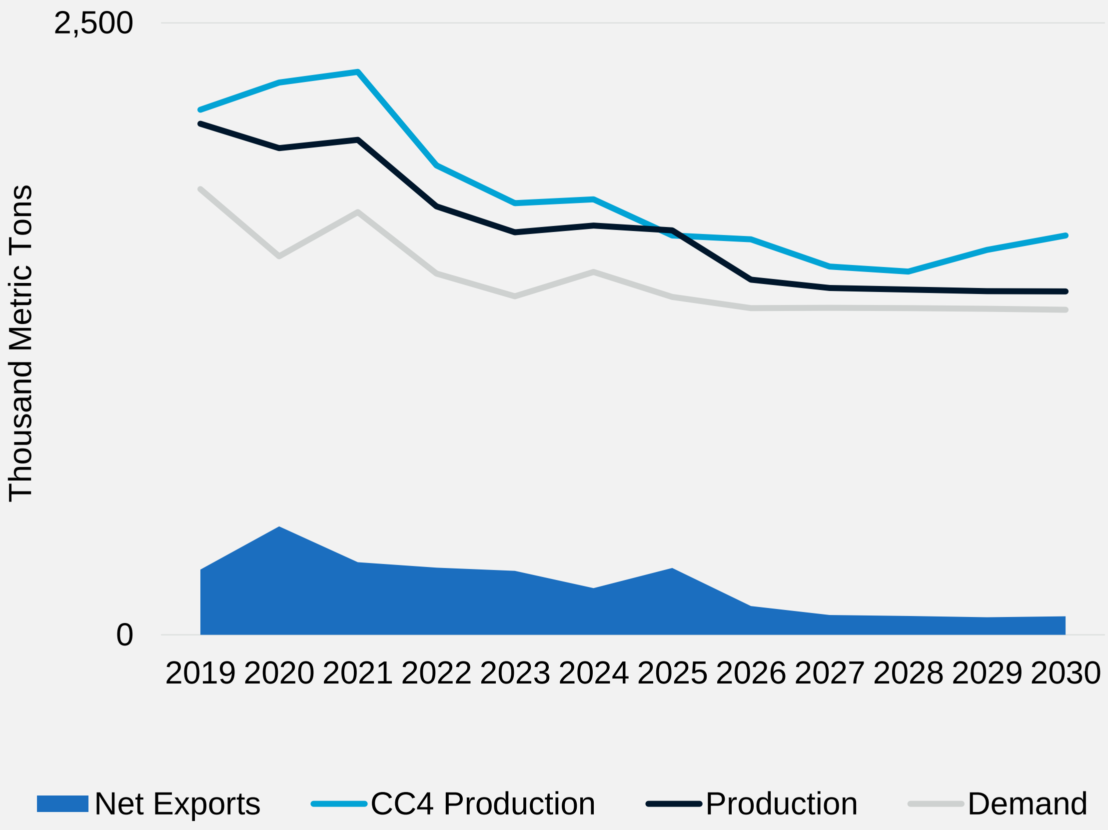
OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS

North America Butadiene Balance



Source: Chemical Market Analytics by OPIS

West Europe Butadiene Balance

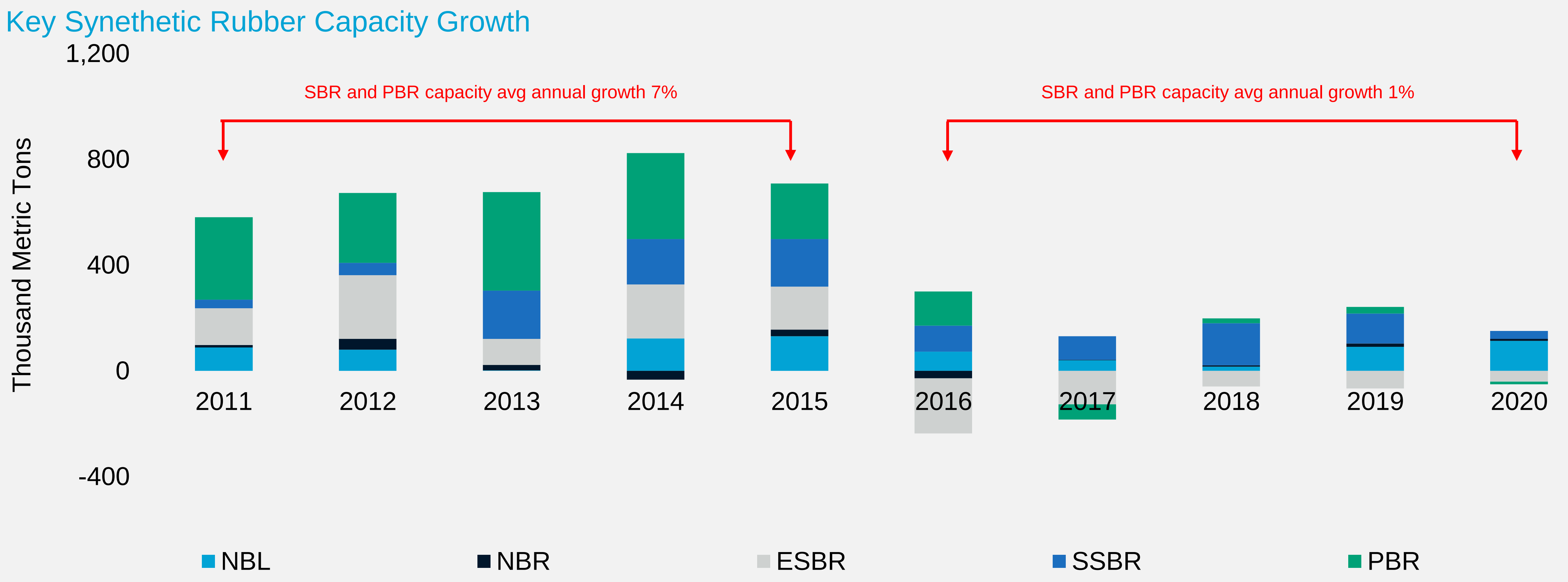


Source: Chemical Market Analytics by OPIS

Butadiene Derivatives

Rubber capacity growth trend

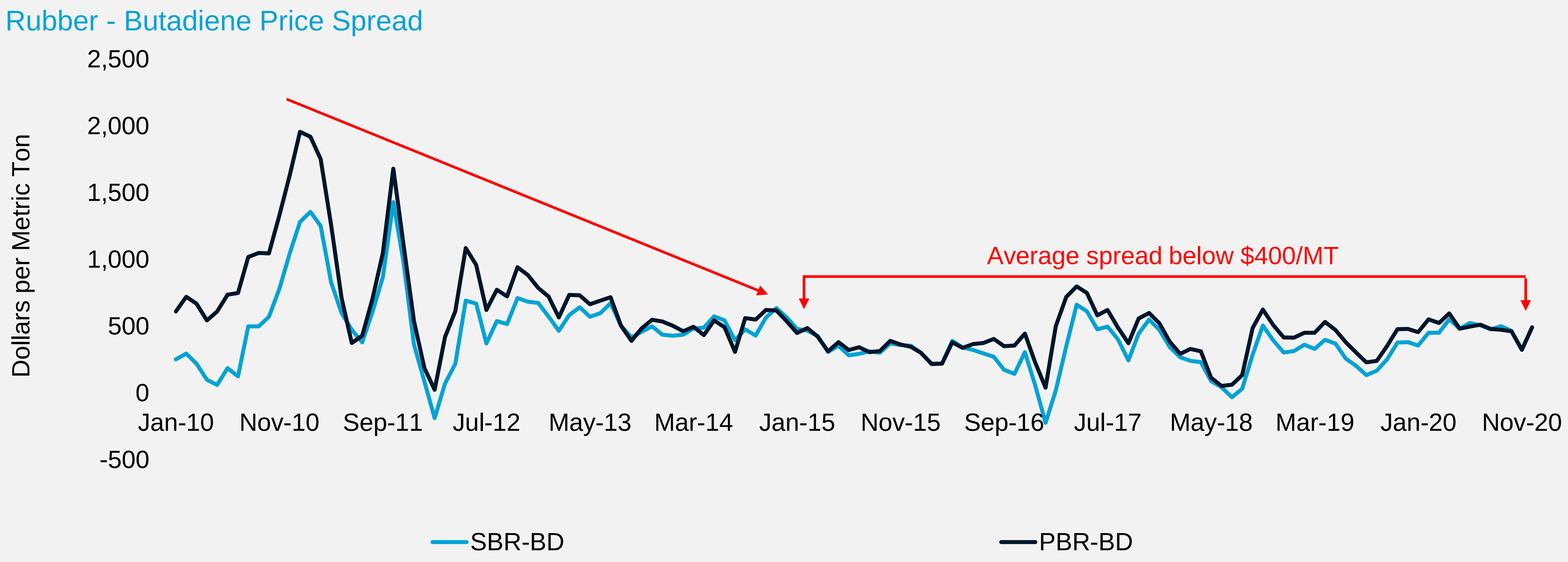
OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS



Source: Chemical Market Analytics by OPIS

Market became unfavorable for new investments

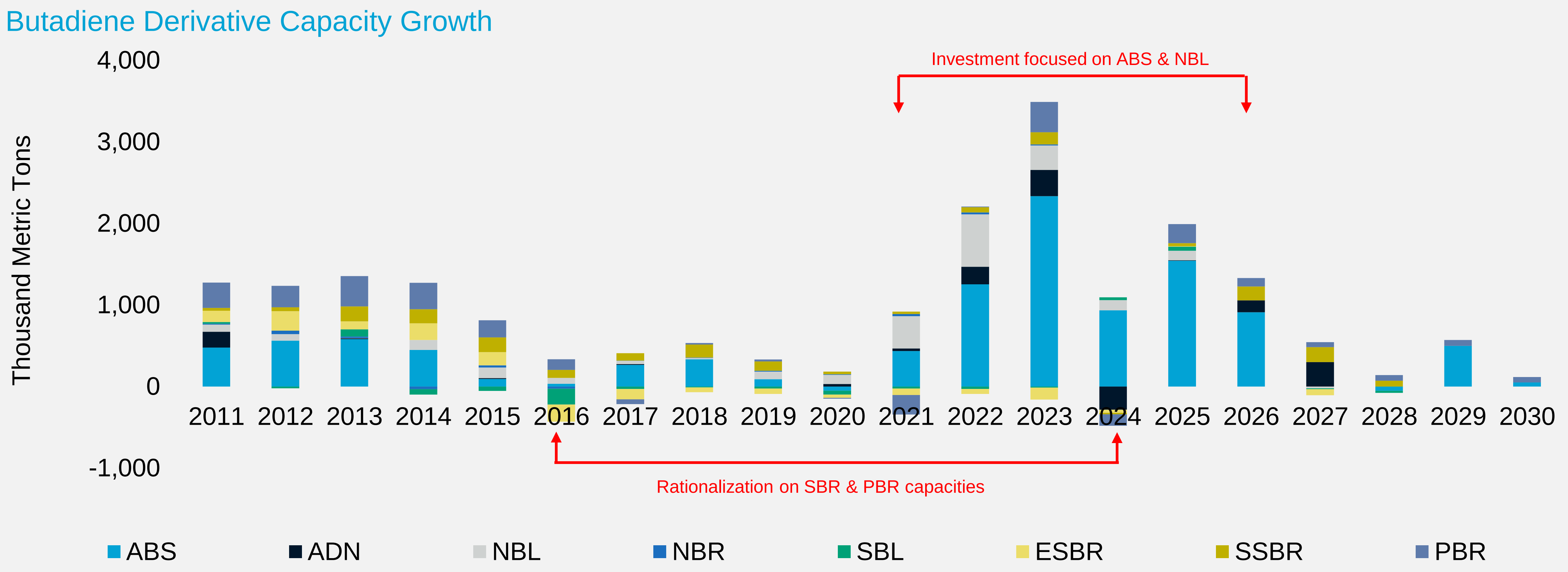
OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS



Source: Chemical Market Analytics by OPIS

Butadiene derivative capacity focused on ABS and NBL since COVID

OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS

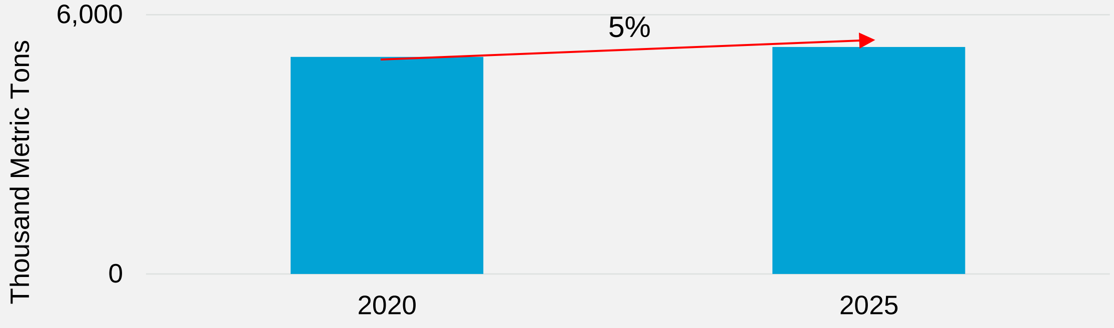


Source: Chemical Market Analytics by OPIS

Selected rubber capacity growth comparison

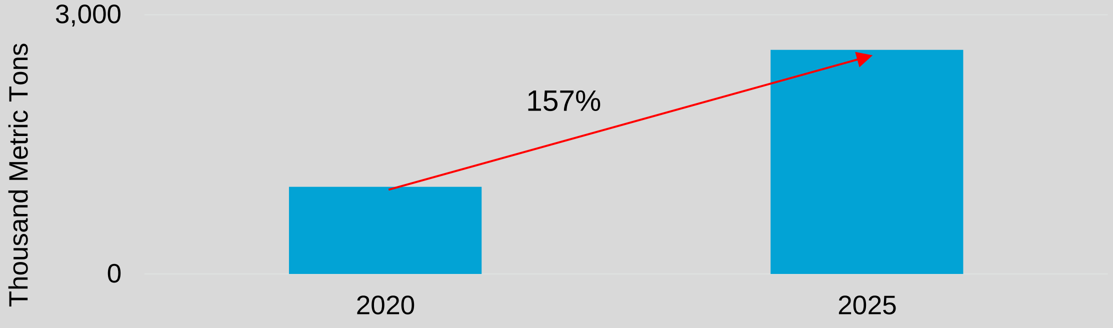
OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS

PBR Capacity



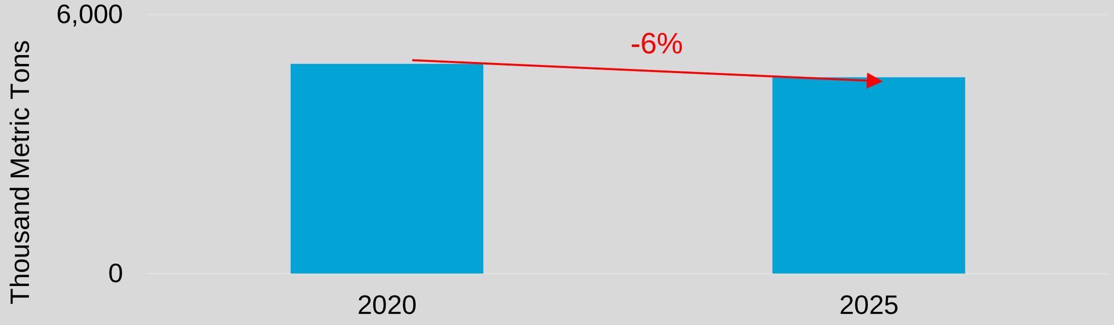
Source: Chemical Market Analytics by OPIS

NBL Capacity



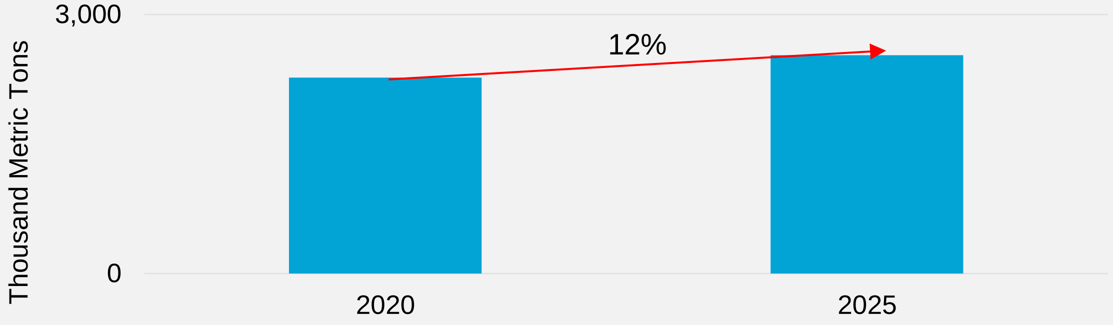
Source: Chemical Market Analytics by OPIS

ESBR Capacity



Source: Chemical Market Analytics by OPIS

SSBR Capacity

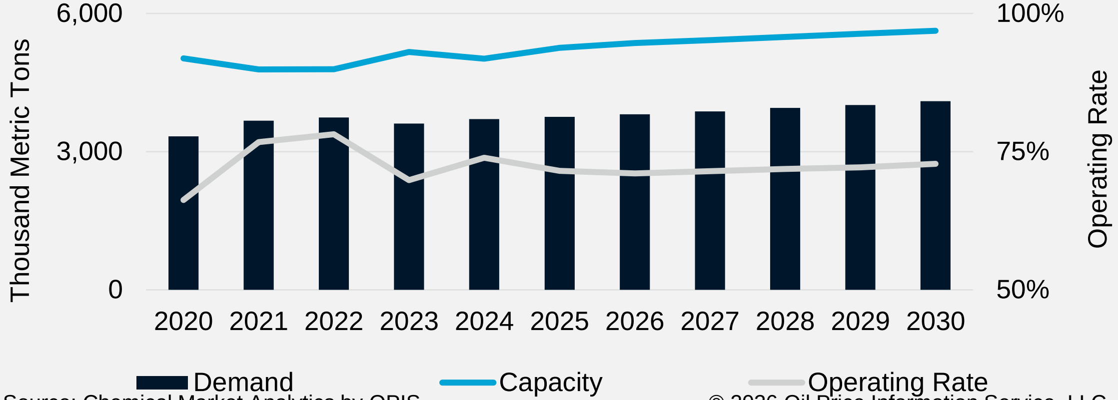


Source: Chemical Market Analytics by OPIS

Steady growth expected except for ESBR

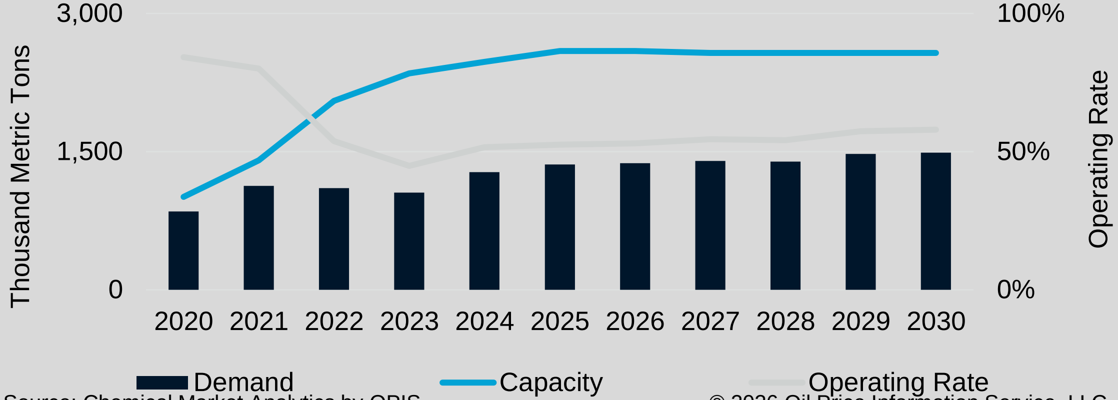
OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS

Global PBR Balance



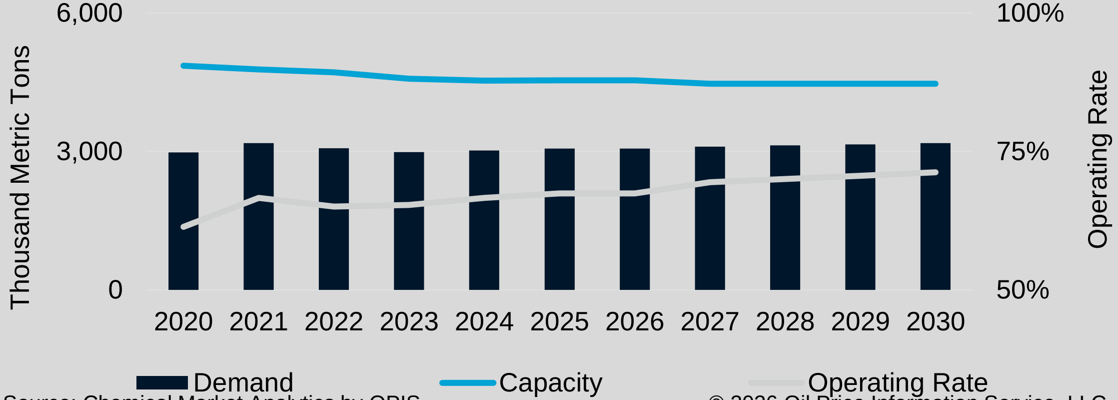
Source: Chemical Market Analytics by OPIS

Global NBL Balance



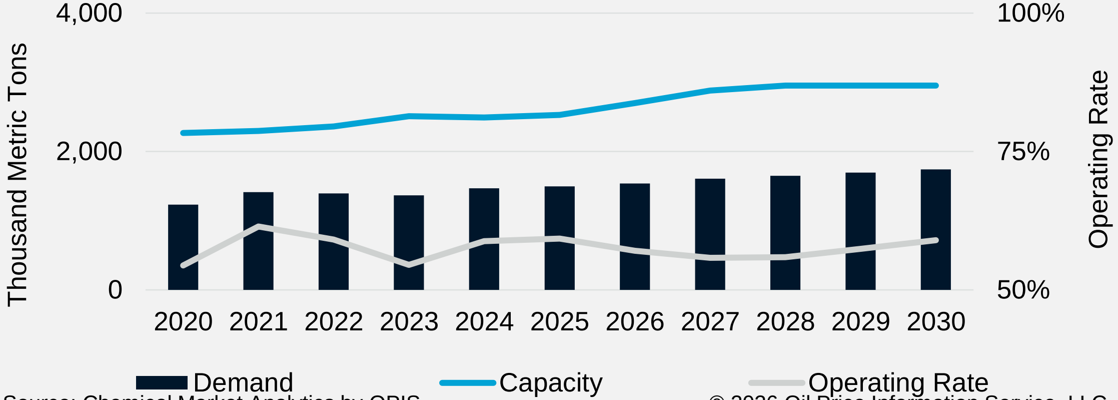
Source: Chemical Market Analytics by OPIS

Global ESBR Balance



Source: Chemical Market Analytics by OPIS

Global SSBR Balance

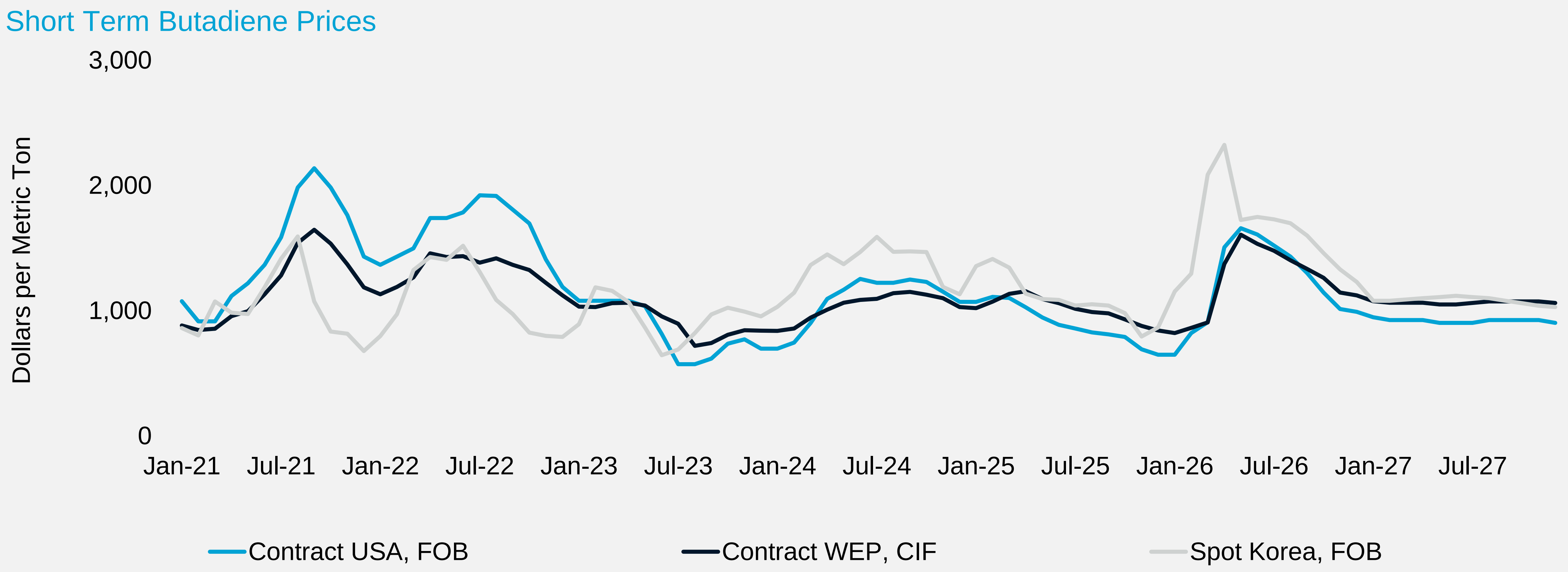


Source: Chemical Market Analytics by OPIS

Price Outlook

Short-term prices have surged due to the Middle East crisis

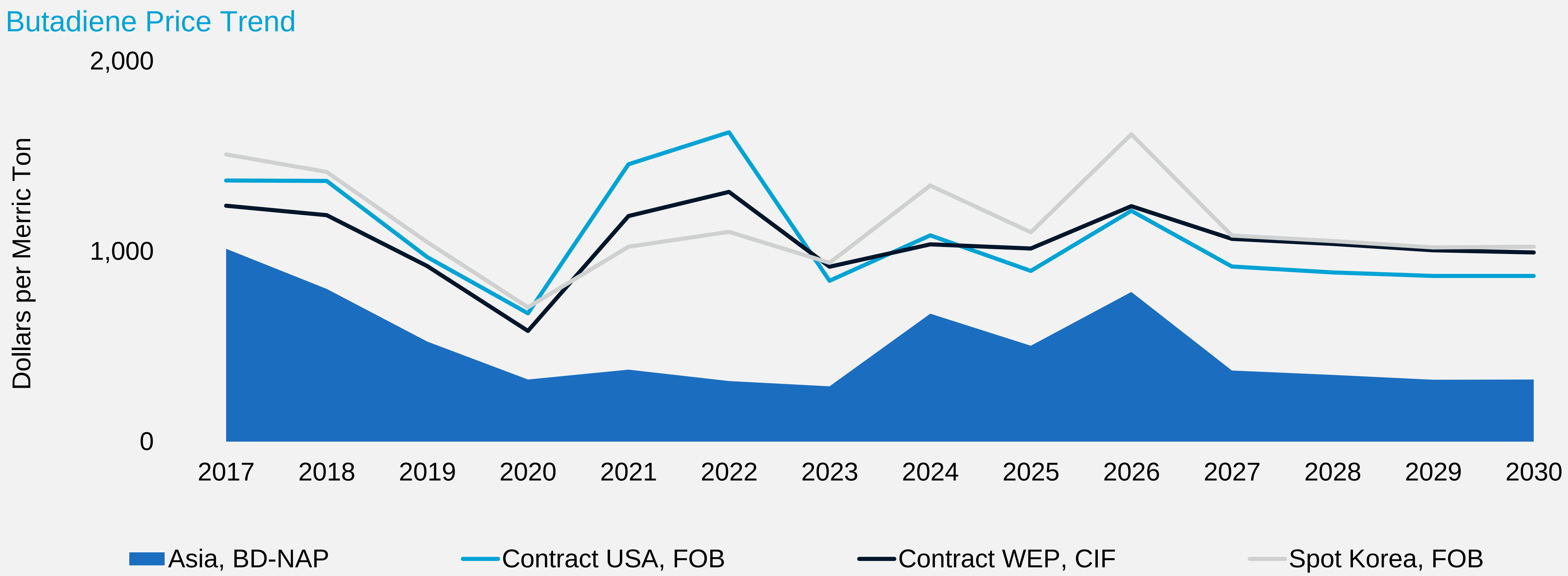
OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS



Source: Chemical Market Analytics by OPIS

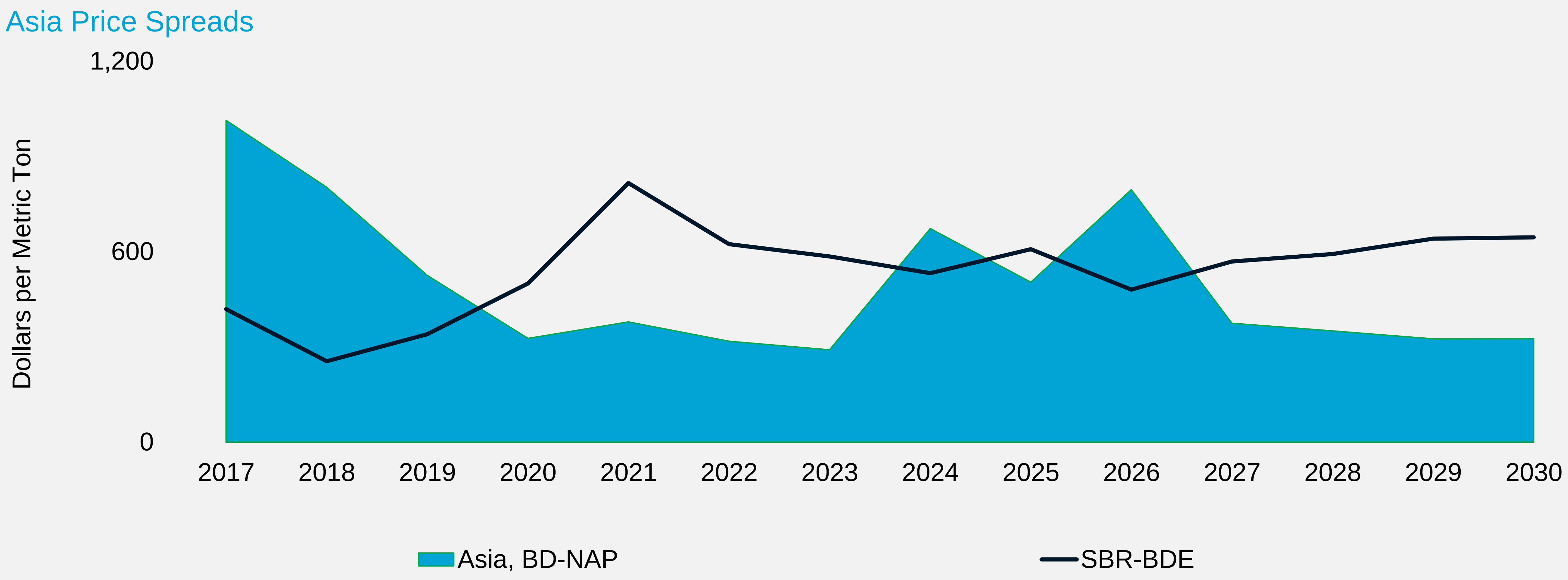
Fundamentals should drive stable prices and low margins in longer term

OPIS A DOW JONES COMPANY
CHEMICAL MARKET ANALYTICS



Source: Chemical Market Analytics by OPIS

Rubber margins to steadily increase in longer term



Source: Chemical Market Analytics by OPIS

OPIS A DOW JONES COMPANY

CHEMICAL MARKET ANALYTICS

Questions

OPIS A DOW JONES COMPANY

CHEMICAL MARKET ANALYTICS

Customer Service

support@chemicalmarketanalytics.com

North America: +1 888.301.2645 (toll-free within the U.S.)

https://www.opisnet.com/contact/contact-us/

Lane changes: How butadiene derivative closures will impact future global trade flow

Angie Joe
Vice President, Crude C4s and derivatives

May 2026

Argus Media group notices

- The information or opinions contained in this presentation are provided on an “as is” basis without any warranty, condition or other representation as to its accuracy, completeness, or suitability for any particular purpose and shall not confer rights or remedies upon the recipients of this presentation or any other person. Data and information contained in the presentation come from a variety of sources, some of which are third parties outside Argus’ control and some of which may not have been verified.
- All analysis and opinions, data, projections and forecasts provided may be based on assumptions that are not correct or which change, being dependent upon fundamentals and other factors and events subject to change and uncertainty; future results or values could be materially different from any forecast or estimates described in the presentation.
- To the maximum extent permitted by law, Argus expressly disclaims any and all liability for any direct, indirect or consequential loss or damage, claims, costs and expenses, whether arising in negligence or otherwise, in connection with access to, use or application of these materials or suffered by any person as a result of relying on any information included in, or omission from, this presentation and related materials or otherwise in connection therewith.
- The information contained in this presentation and related materials is provided for general information purposes only and should not be construed as legal, tax, accounting or investment advice or the rendering of legal, consulting, or other professional services of any kind. Users of these materials should not in any manner rely upon or construe the information or resource materials in these materials as legal, or other professional advice and should not act or fail to act based upon the information in these materials.
-
-

A view of Argus

Headquartered in the UK, Argus has over 1,300 staff working in 29 offices in the world's principal commodity trading and production centres.

Argus publishes more than 42,000 daily and weekly spot and forward price assessments, along with commentary, news and analysis for global commodities and energy markets.

Coverage includes markets for:

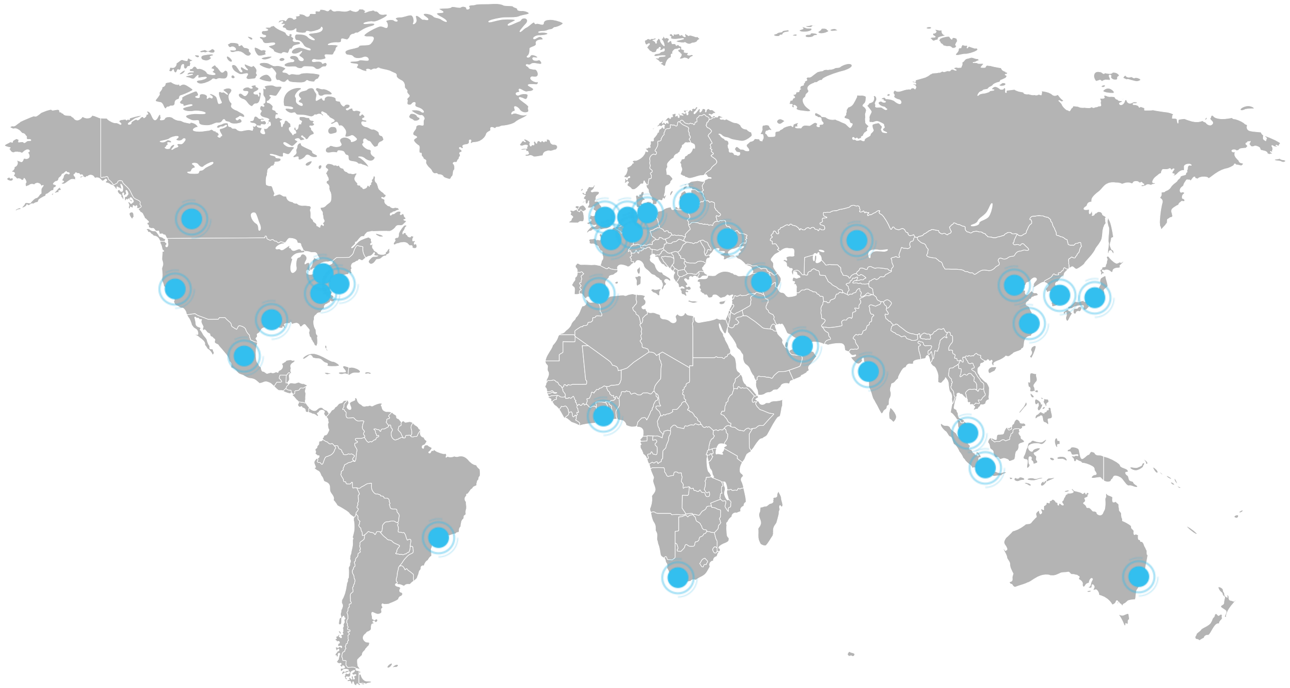
- Oil, natural gas, power, hydrogen, coal, biomass, asphalt, base oils, emissions and carbon
- Biofuels
- Fertilizers
- Agriculture
- Chemicals, including petrochemicals and oleochemicals
- Metals, ferrous, non-ferrous, battery materials, and scrap

Services:

- Market reporting, news, and analysis
- Consulting and forecasting
- Conferences

Argus prices are used as benchmarks worldwide, including for:

- US crude oil
- European gasoline and biofuels
- Asia-Pacific LPG
- Coal
- European steel
- US and European environmental markets



Contents

1.) Synthetic rubber expansion and rationalization (2020-2026)

Volatile synthetic rubber market pushes suppliers to pivot

Decarbonization initiatives and exposure to unpredictable feedstock costs have prompted a wave of closures and strategic redirection.

2020

Brexit complicates European trade dynamics.

- Trinseo idles PBR capacity at Schkopau, Germany.
- Arlanxeo stops PBR production in Singapore.

2021

- Synthos buys Trinseo's rubber assets in Schkopau, Germany.

2022

- Arlanxeo adds new PBR capacity in Triunfo, Brazil.
- Synthos debottlenecks PBR in Czech Republic.
- Japan's Eneos acquires JSR's elastomers business.

Russia invades Ukraine, disrupting Russian PBR exports to Europe.

2023

- Versalis invests to boost SBR and PBR at Ravenna, Italy.
- Synthos restarts PBR at Schkopau, Germany on the back of limited Russian imports.

- Synthos shuts 100k t/yr eSBR at Kralupy, Czech Republic.
- Goodyear plans to sell chemical business.

Investments | Sales or closures

Volatile synthetic rubber market pushes suppliers to pivot

Decarbonization initiatives and exposure to unpredictable feedstock costs have prompted a wave of closures and strategic redirection.

2024

- Versalis shutters its 105k t/yr PBR and 70k t/yr sSBR production in Grangemouth, UK.
- Arlanxeo said it will close its Cabo, Brazil facility.
- Ube notifies plan to liquidate LUSR Malaysia (sSBR).

2025

- Arlanxeo will expand rubber by 25pc at Triunfo, Brazil (2027).
- TSRC Shenhua begins construction of a 60 kt sSBR unit (targeting 2027).
- Goodyear sold its US eSBR, sSBR and PBR assets to Gemspring Capital Management.

- Japan's Zeon is set to cut elastomers capacity, including eSBR and PBR, in Tokuyama.
- Arlanxeo said it will stop production at its "loss-making" eSBR/PBR facility in Port Jerome, France.
- Lion Elastomers shut sSBR and PBR production in Orange, Texas.

2026

- Kumho brings its +35kt/yr sSBR expansion fully onstream.

Investments | Sales or closures

2.) Focus: Northwest Europe

Spotlight: Operational rationalization and changes across French sites

Consumer **Arlanxeo (4Q25)** intends to stop rubber production at Port Jerome after consultations.

Producer **Exxon (2Q24)** shut its Notre Dame de Gravenchon cracker.

Consumer **Butachimie's (2022)** margins were severely constrained with the Russia-Ukraine conflict.

Producer **LyondellBasell (2025)** is negotiating the sale of the Berre cracker with German industrial investment firm Aequita.

Producer **Ineos (4Q25)** invested €250mn ($290mn) to regenerate and modernize its Lavera cracker.

Consumer **Kraton (4Q25)** plans to halt hydrogenated styrene block co-polymers (HSBC) production in Berre.

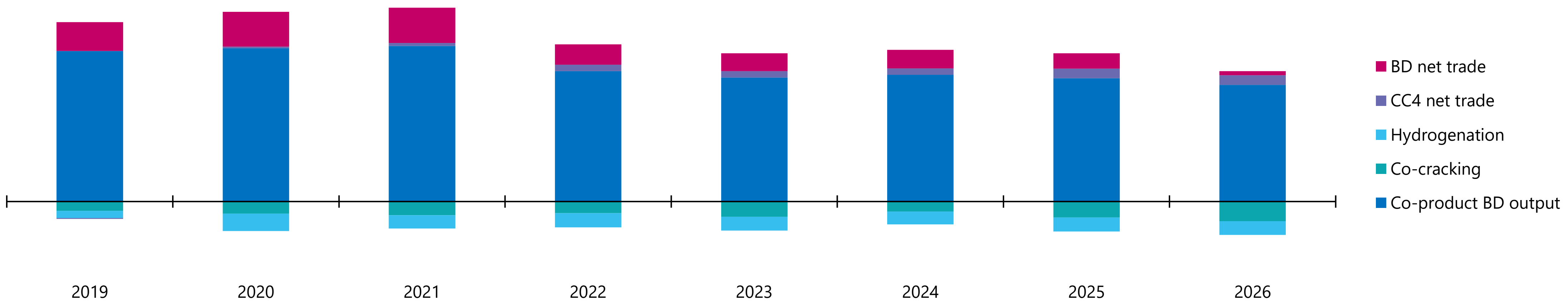
Producer **Ineos (2023)** took full control of the Naphtachimie site from TotalEnergies.

Source: Argus Media - Consulting Services

Western Europe crude C4 supply

New and upcoming projects will not compensate for the closures.

Western Europe Butadiene Supply



-Argus Media

3.) Focus: US

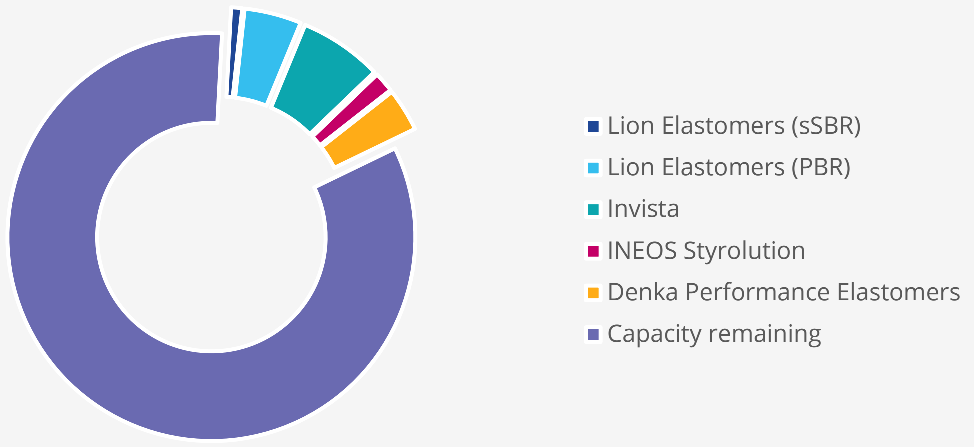
US derivative closures

Almost 20pc of BD consumption on a nameplate capacity basis was shut from 2022-2025.

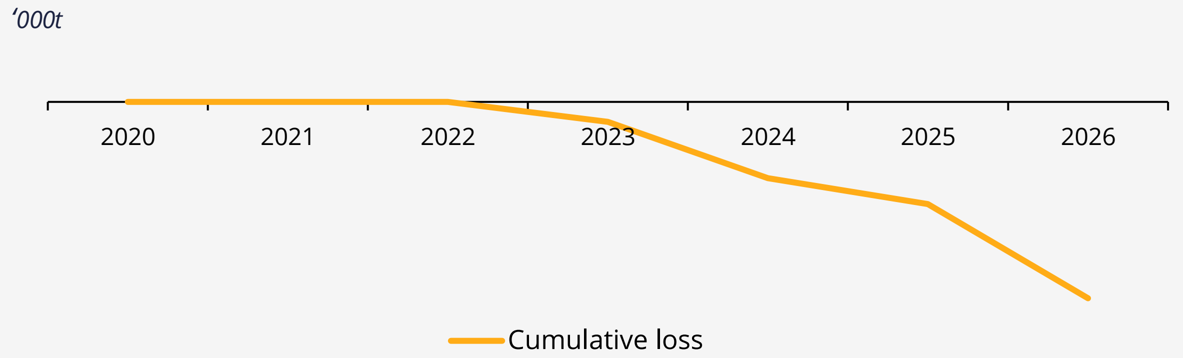
From 2023-2025, 17pc of US BD consumption capacity has been permanently shut.

- **October 2023**: Adiponitrile (ADN) producer Invista closed its 250,000 t/yr facility in Orange, Texas.
- **May 2025**: Denka Performance Elastomer (DPE), a US subsidiary of Japan's Denka, suspended chloroprene rubber production as it considers selling its LaPlace, Louisiana plant following three years of losses.
- **Summer 2025**: Ineos permanently shut down its acrylonitrile butadiene styrene (ABS) plant in Addyston, Ohio, because the facility could not compete with imported material.
- **End 2025**: Lion Elastomers ceased production of synthetic rubber at its Orange, Texas, plant as declining demand resulted in challenging market conditions.

Capacity status and losses by company (%)



Butadiene cumulative consumption losses (2020-2026)

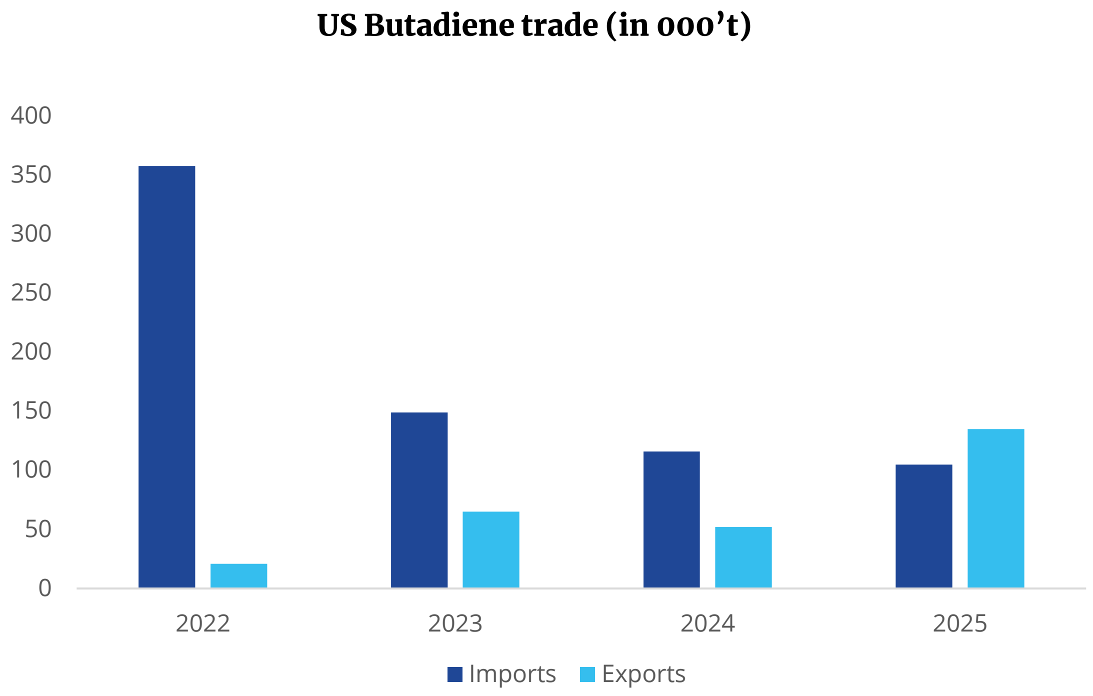


Source: Argus Media - Consulting Services

US trade flow 2022-2025

Trade data for 2025 indicate that US exports outpaced 2024 levels.

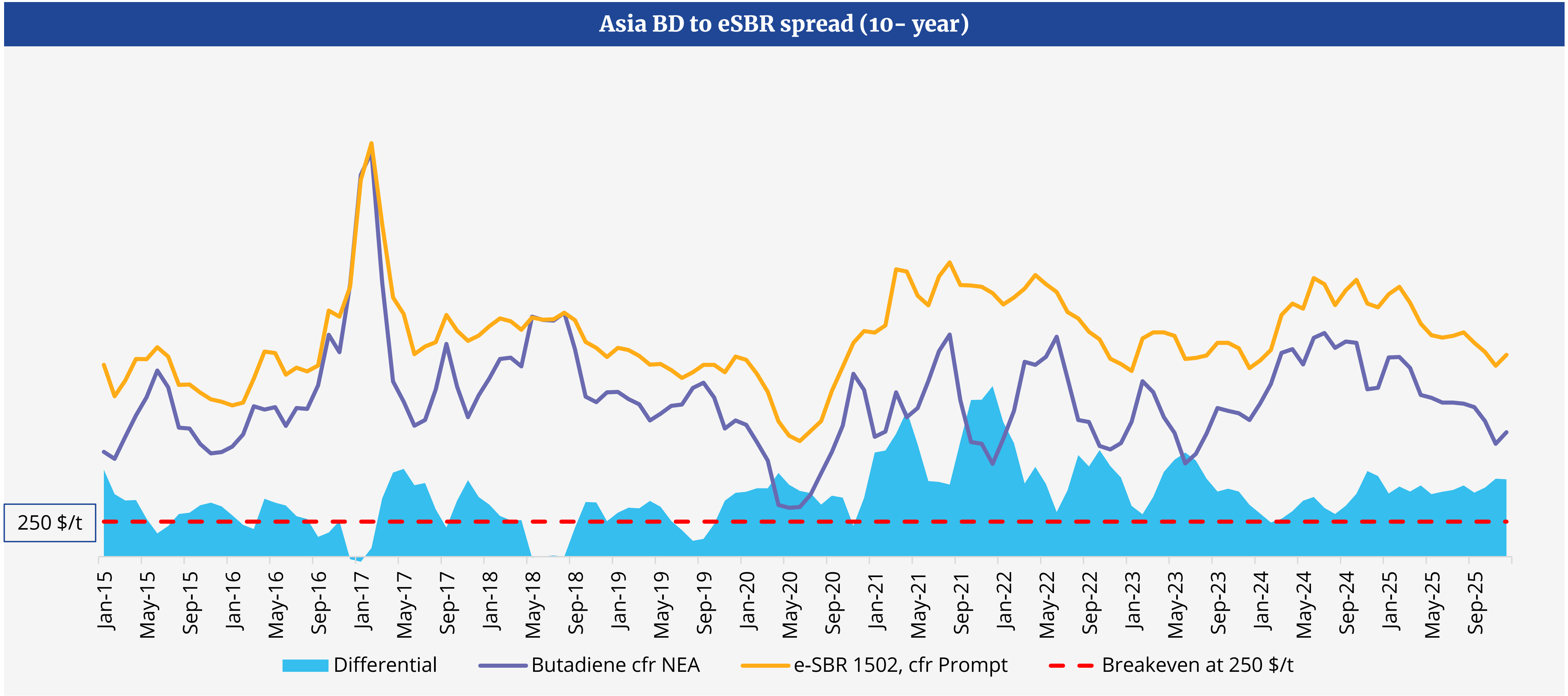
- In 2022, there was a flux of imports on a covid recovery, cracker maintenance and US crude C4 exports.
- By the end 2023, Invista shut its adiponitrile production in Orange, Texas. In addition, European term imports to North America halted by the fourth quarter.
- In 2024, several unplanned and planned cracker maintenance in the US encouraged imports.
- By 2025, the US found itself long and was on pace to expand and extend its export streak.



Source: Argus Media - Consulting Services

4.) Focus: Asia-Pacific

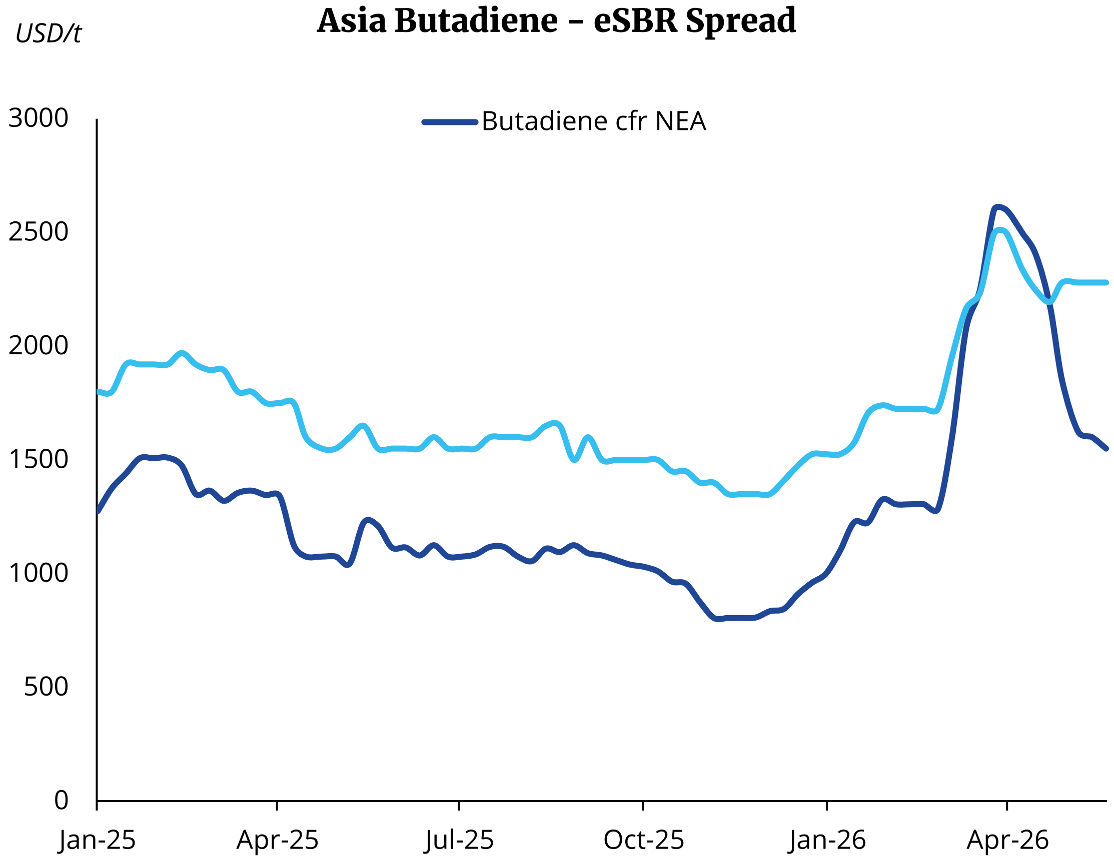
Ten-year historical spread between BD and eSBR



Source: Argus Media - Consulting Services

Asia-Pacific: Demand

Derivates struggled to keep pace with the BD price surge in March.

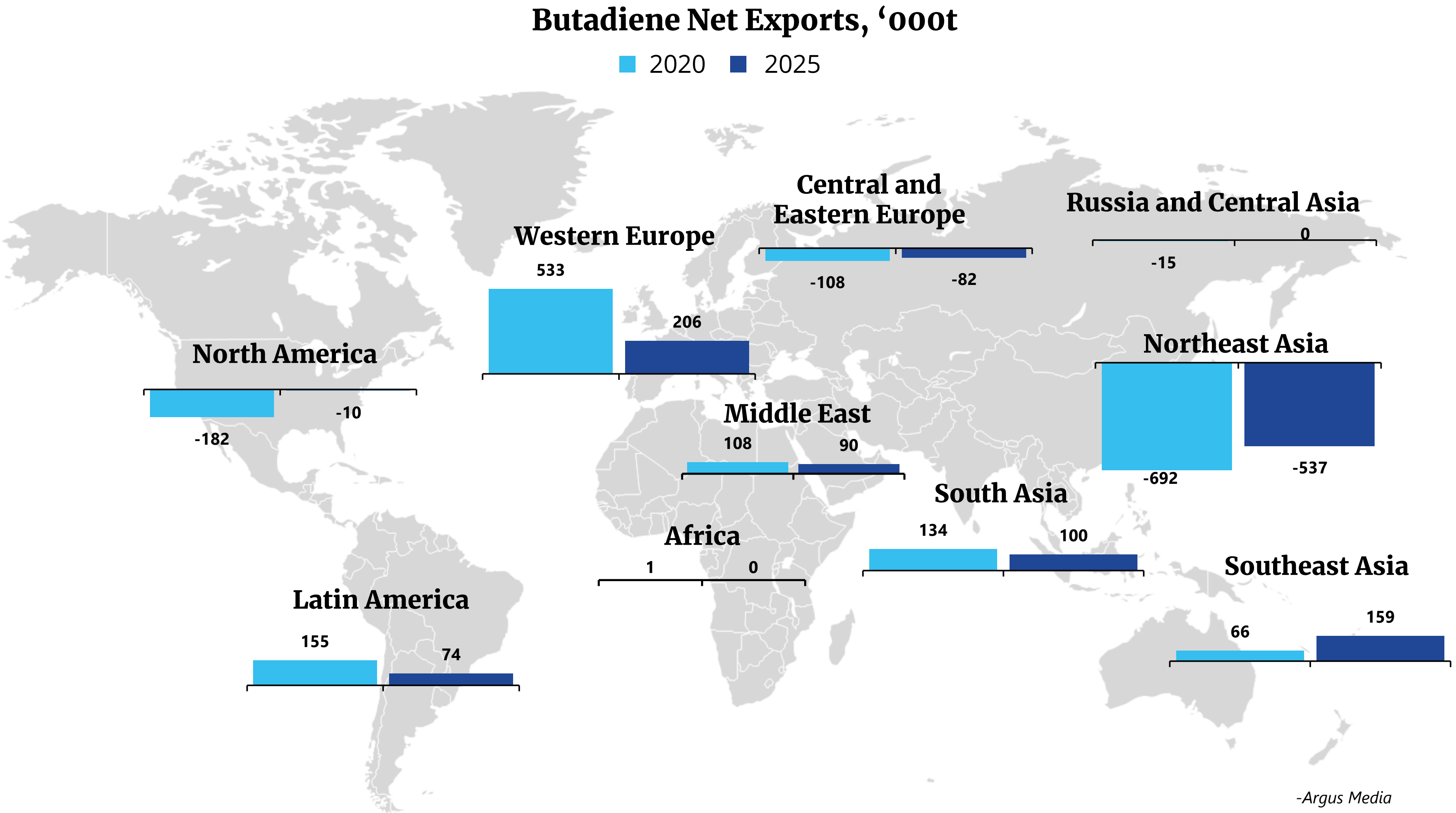


- Emulsion styrene butadiene rubber (eSBR) peaked on 2 April, declined until 30 April when it has stabilized through 22 May.
- Acrylonitrile butadiene styrene (ABS) prices have declined after peaking on 9 April.
- Chinese PBR plant operating rates might see incremental increases in the short term given the recovery in production margin because of rapid declines in feedstock BD.
- China's tire demand is expected to stay stable in second-half May, with potentially limited reduction in run rates in June according to market players because of low inventories.
- Japanese BD derivatives in prefectures with cracker closures will face pressure as raw material supply shrinks. So far, Asahi Kasei's styrene butadiene latex production in Kawasaki will shut by end of 2027. Additional rationalization is likely as reduced raw material availability will squeeze margins.

Source: Argus Media - Consulting Services

5.) Impacts to Global Trade

Butadiene trade

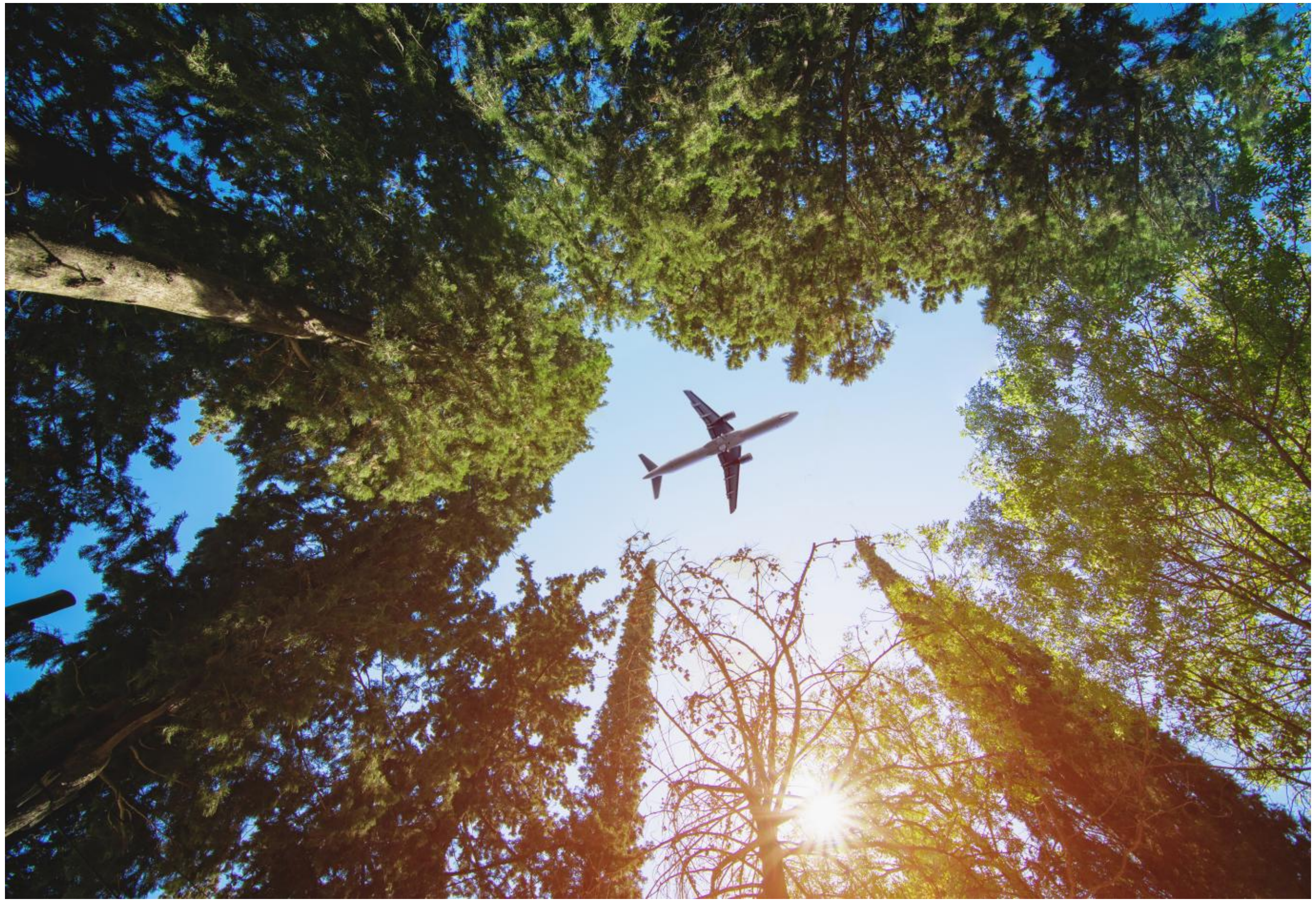


- North America is becoming more balanced with derivative rationalizations and cracker expansions.
- European crackers have shut at a faster pace than BD and derivatives. We anticipate fewer exports from Europe not immediately but over the long-term.
- Asia-Pacific continues to import as its demand has the greatest growth trajectory.

Source: Argus Media – Consulting Services

Key takeaways

Where are we headed?



- Geopolitics have drastically changed with the US-Israeli-Iran war.
- We still affirm further consumption reductions in the medium term. However, the conflict could push these rationalizations further out. Unless the European Commission can provide policies that ease financial burdens, the region will struggle against cheaper derivative imports.
- The most serious risk to the European projection is evaluating whether supply or demand will shrink at a quicker pace.
- Europe will not be alone. Derivative assets outside of China could eventually idle once the market normalizes. The most at-risk assets are mature acrylonitrile butadiene styrene (ABS) and styrene block copolymer (SBC) assets, as China has modern, more efficient assets coming online.
- Derivative units in Japan are also at risk given looming ethylene cracker rationalizations.

6.) Argus Butadiene Methodology

Argus Butadiene methodology

	fob NEA	cfr NEA	fob SEA	cfr SEA
Locations	Korea, China, Taiwan or Japan	Korea, China, Taiwan or Japan	Indonesia, Thailand, Malaysia, Philippines or Singapore	Indonesia, Thailand, Malaysia or Singapore
Timing	2-6 weeks from assessment date	2-8 weeks from assessment date	2-6 weeks from assessment date	2-6 weeks from assessment date
Minimum trade size	2000t	2000t	2000t	2000t
Price assessment basis	Survey of bids, offers, and deals in the market.	Survey of bids, offers, and deals in the market.	Survey of bids, offers, and deals in the market. In the absence of fixed price discussions, ocean freight differential to cfr NEA is applied.	Survey of bids, offers, and deals in the market. In the absence of fixed price discussions, ocean freight differential to cfr NEA is applied.
Frequency	Weekly (Friday)	Weekly (Friday)	Weekly (Friday)	Weekly (Friday)

Argus Butadiene methodology

Key features:

- Two weeks forward for starting laycan means we exclude distressed cargoes.
- Eight weeks forward for ending laycan means we include some deep-sea cargoes.
- 2,000t of minimum trade size is aligned with market norms and exclude distressed cargoes.

	Argus fob NEA	Argus cfr NEA	Friend 1 fob Korea	Friend 2 cfr NEA
Locations	South Korea, China, Taiwan, or Japan	South Korea, China, Taiwan, or Japan	South Korea only	South Korea, China, Taiwan
Timing	2-6 weeks from assessment date	2-8 weeks from assessment date	3-6 weeks from assessment date	0-6 weeks from assessment date
Cargo size	2,000t minimum	2,000t minimum	1,500-5,000t	1,000-7,000t
Frequency	Weekly (Friday)	Weekly (Friday)	Daily + Weekly (Friday)	Weekly (Friday)

Thank you!

Scan the QR code to access our resources

Explore related services and download sample reports.