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C4 Olefins Market Overview

Lengthening C4s and its impact on derivatives

May 2025

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APIC
2025

Asia Petrochemical Industry Conference
Bangkok, Thailand

Agenda

- Tariff & Automotive Trends
- Crude C4 (Ethylene)
- Butadiene
- Natural Rubber
- Price Outlook



What we know about U.S. Tariff so far

National-level US import tariffs

25% tariffs on Canada imports

- March 4
- Excluding energy at 10%
- USMCA exemption, March 6:
 - 38% Canadian exports
- Exemptions will remain in place indefinitely
- 25% retaliation tariffs:
 - C\$30bn effective March 4, excludes chemicals but includes steel and aluminum and a wide range of downstream finished products; C\$125bn 21 days later
- Considering non-tariff measures

25% tariffs on Mexico imports

- March 4
- USMCA exemption, March 6:
 - 49% Mexican exports
- Exemptions will remain in place indefinitely
- Mexico will likely retaliate, unclear yet how

145% tariffs on China imports

- 10% February 4; another 10% March 4; another 34% on Liberation Day
- Due to retaliation, increased to 145% on April 11
- China retaliated:
 - February 10: Energy products to individual companies (inc. 15% coal and LNG, 10% crude oil), other targeted downstream products
 - March 10: 10-15% tariffs \$21bn food and agricultural products; export, investment controls on 25 US firms
 - April 10: 84% blanket tariffs on all US imports; restricts rare earths' exports; adds 18 firms to controls list
 - April 11: raised to 125% tariffs

National-level US import tariffs

Universal Tariffs and Retaliatory Tariffs (Liberation Day)

- April 5: 10% blanket tariffs on all imports
- Due April 9: Higher tariffs for select countries (up to 50%, excluding escalation with China)
- Different effective dates could mean the announced tariffs could yet change or exemptions announced, which could result in a massive negotiation wave between the US and its trading partners; This fosters uncertainty
- Canada and Mexico exempt from additional retaliatory tariffs
- Automotive and auto parts exempt from additional tariffs, subject to sector-specific tariffs
- Aluminium, steel, and their derivatives exempt from additional tariffs, subject to sector-specific tariffs
- Oxford Economics already expects the global GDP to plausibly fall under 2% this year (was forecast 2.8% in Jan 2025)
- US Q2 imports are now on track to decline massively; Retaliatory tariffs from foreign countries will weigh on US exports

Sectoral US import tariffs

25% tariffs on steel and aluminum imports

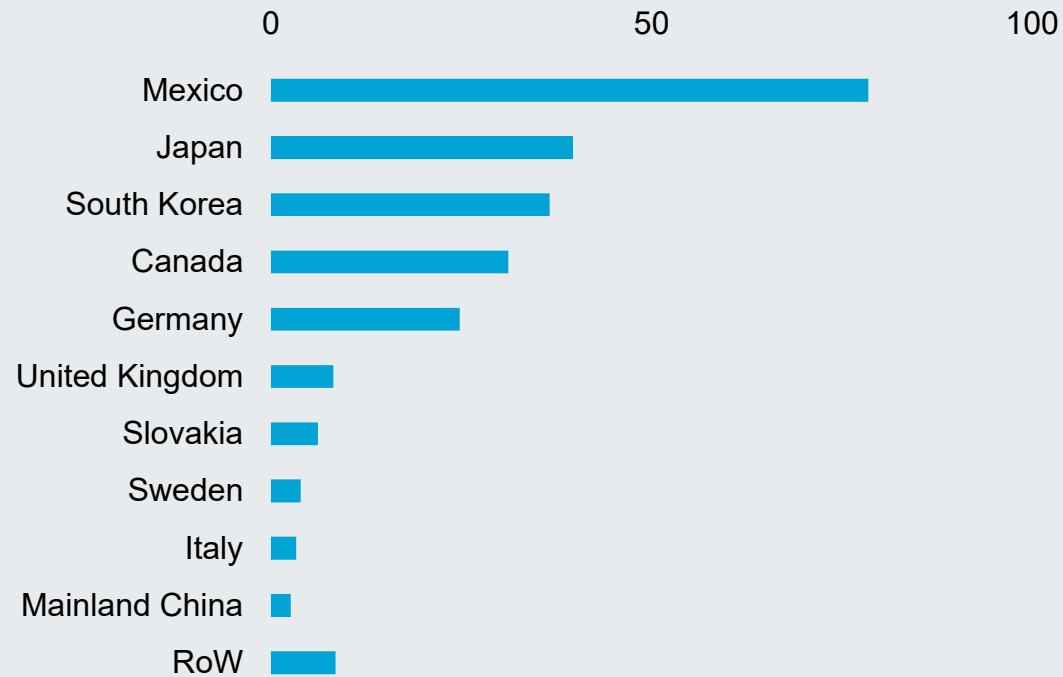
- March 12
- Industry-wide implications:
 - Inflationary pressures to end-users
 - Reduced construction and automobile activity
 - Could erode chemicals consumption
- EU retaliated:
 - €21 bn US imports (as of April 9 announcement) [basically removed US dairy and alcoholic drinks from the March preliminary list]
 - 25% tariffs on a wide range of US products, including almonds, orange juice, poultry, soybeans, steel and aluminium, tobacco and yachts. 1680 HS codes.
 - Timeline adjusted: retaliation will come into force in batches on April 15, May 16, and December 1, to allow room for negotiations
 - EU signaled openness to expand Canada partnership; the US threatened to escalate further
 - Tariffs above **paused on April 10**, for 90 days

25% tariffs on automotive

- April 3 (finished vehicles)
- Due May 3 (major auto parts)
- Canada and Mexico exempt until non-US content in autos and auto parts can be identified
- Major vehicle exporters to the US: Mexico, Japan, South Korea, Canada, Germany
 - 2024 US light vehicle production ~15-16 million units; imports ~8 million vehicles
- Inflationary pressures on autos are likely despite partial replacement of imports with domestic supply, especially after tariffs on parts
- Less automotive output in exporter countries would mean less domestic chemicals demand

Top 10 exporters to U.S.

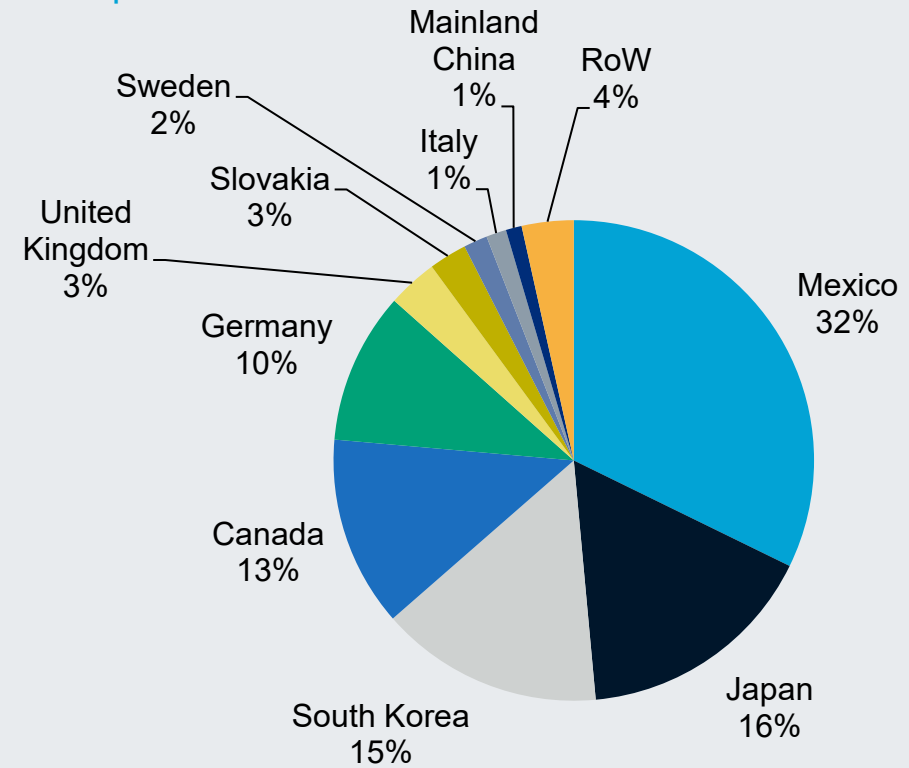
US Imports of Passenger Vehicles and Light Trucks (\$Billion)



Source: International Trade Administration

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US Imports Share

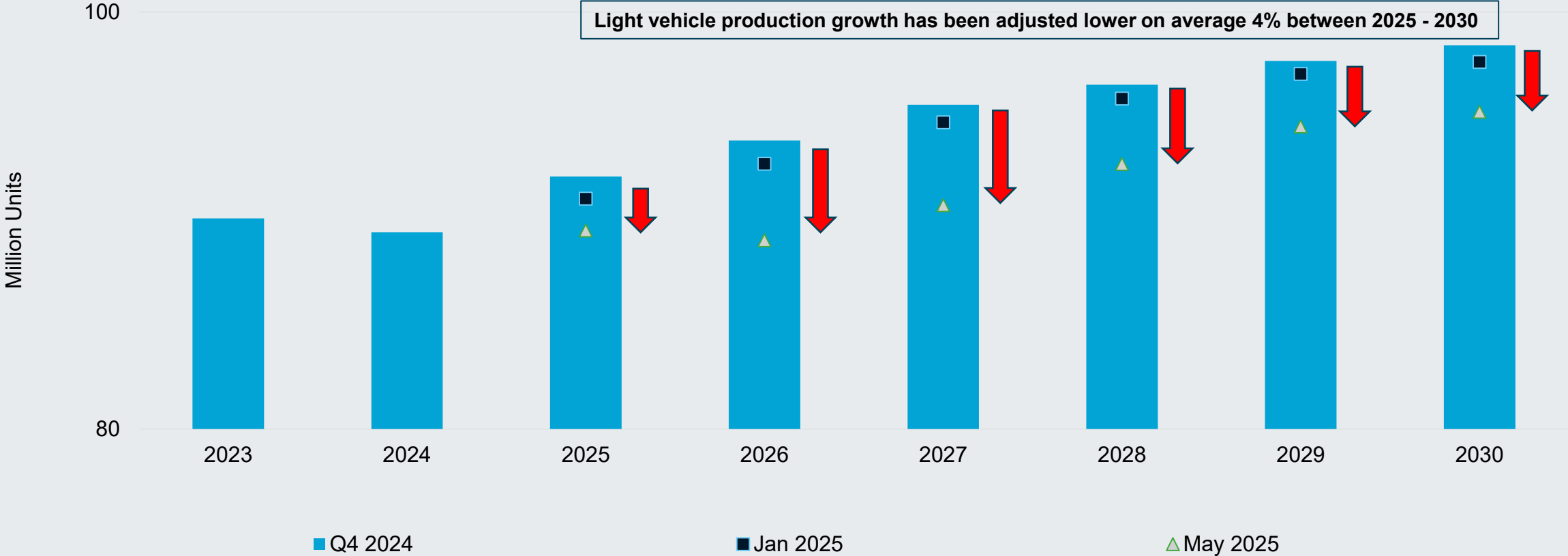


Source: International Trade Administration

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Big impact on production by tariff

Global Light Vehicle Production

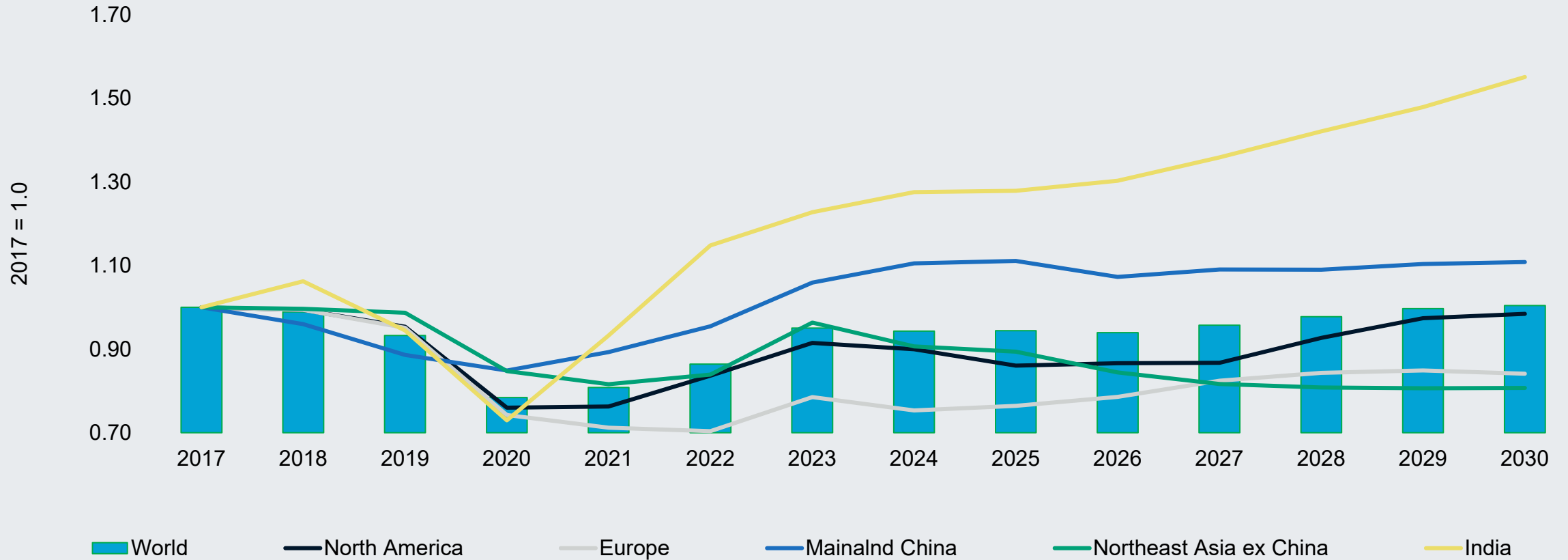


Source: Oxford Economics

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Regional tariff impact is different

Light Vehicle Production Trends

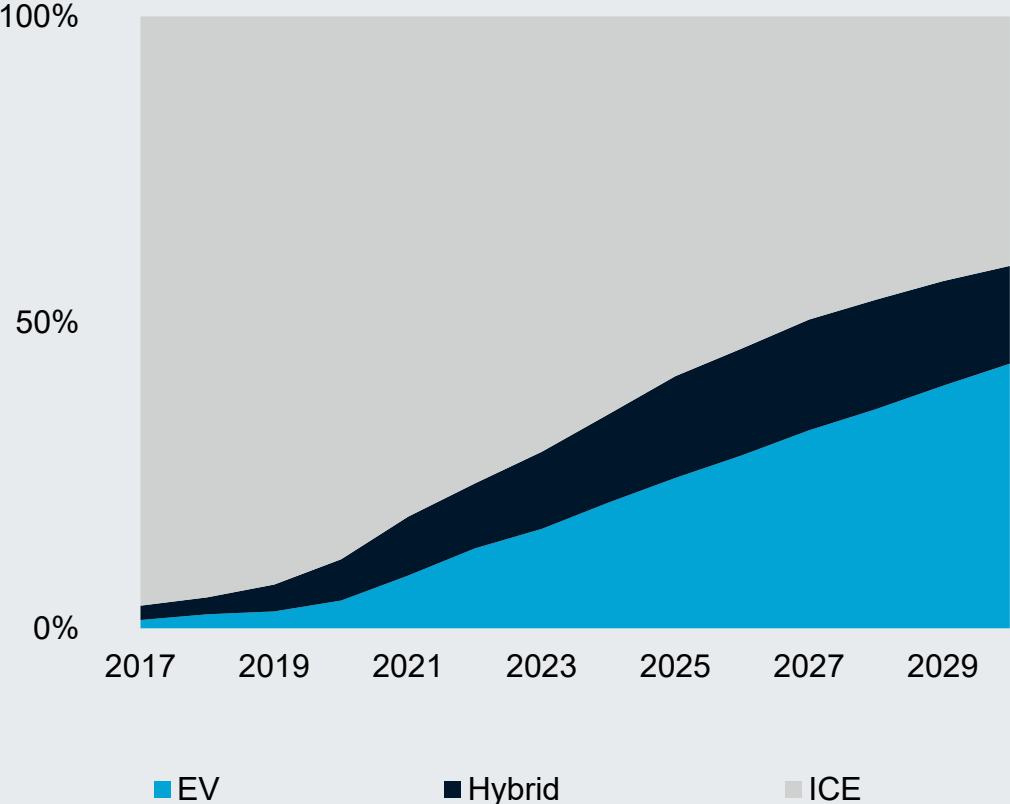


Source: Oxford Economics

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Mainland China drives EV production growth

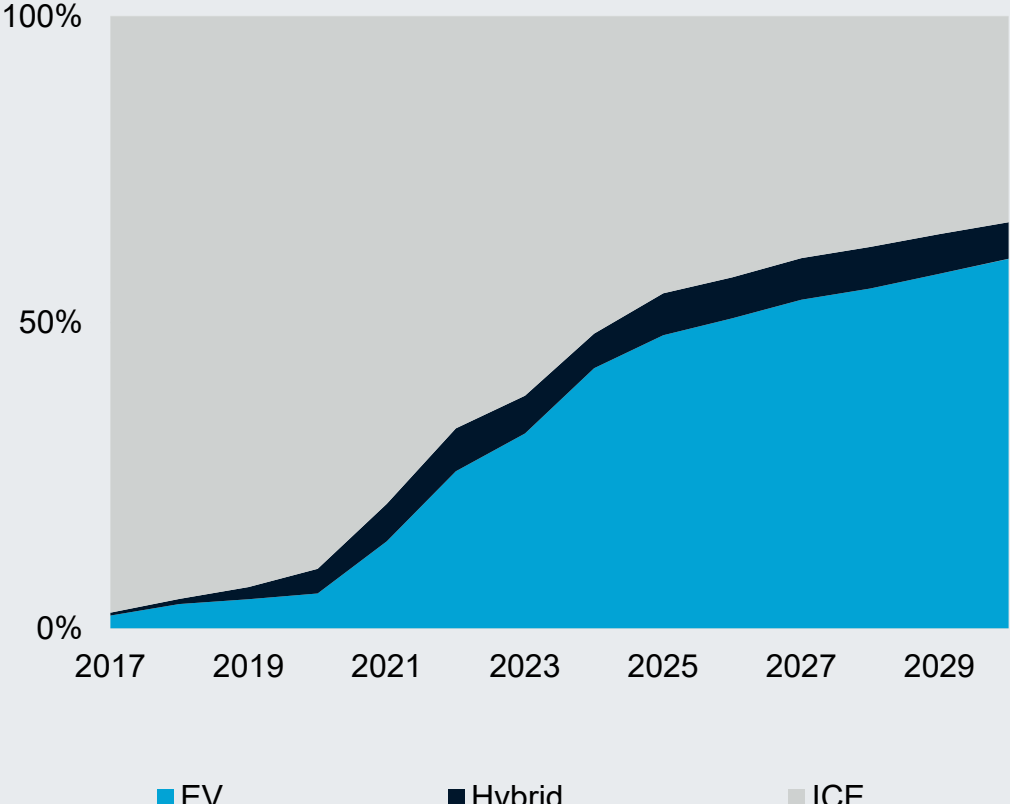
Global EV, Hybrid, ICE Production Share



Source: Oxford Economics

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Mainland China EV, Hybrid, ICE Production Share

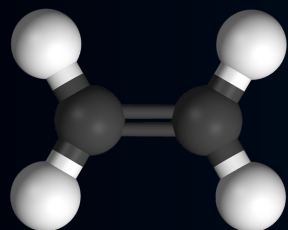


Source: Oxford Economics

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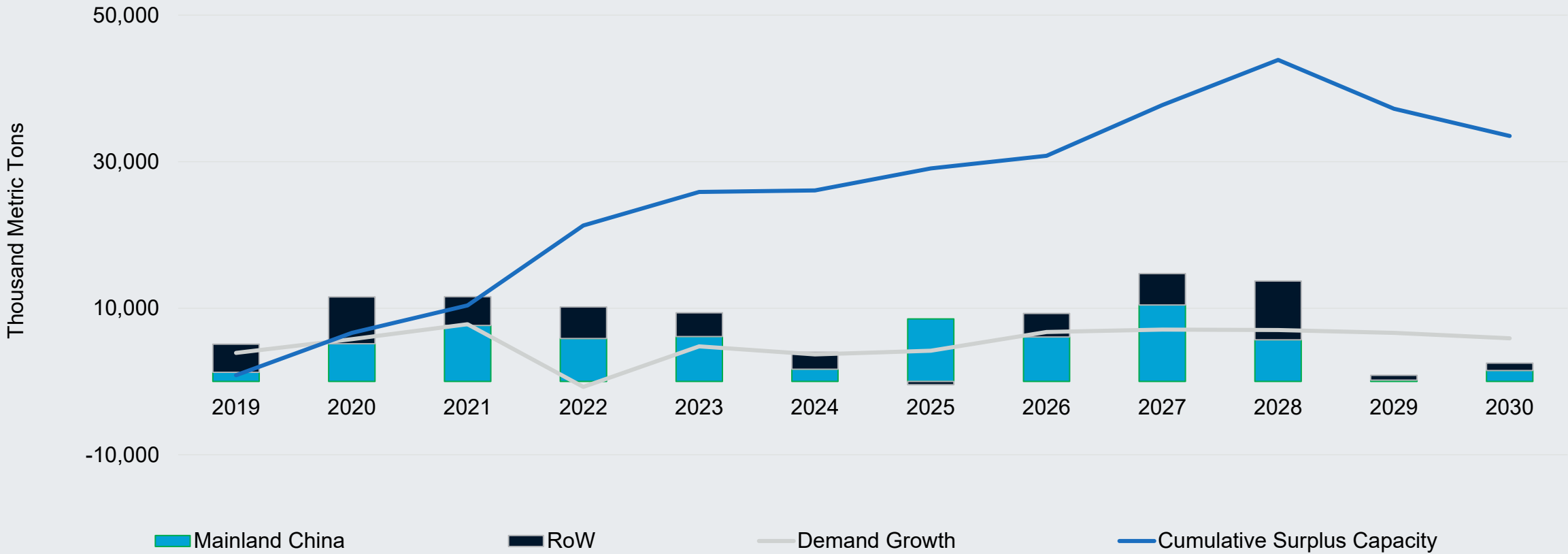
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Crude C4 (Ethylene)

Surplus Production Capacity Controls Near-Term Market

Global Ethylene Capacity vs Demand Growth

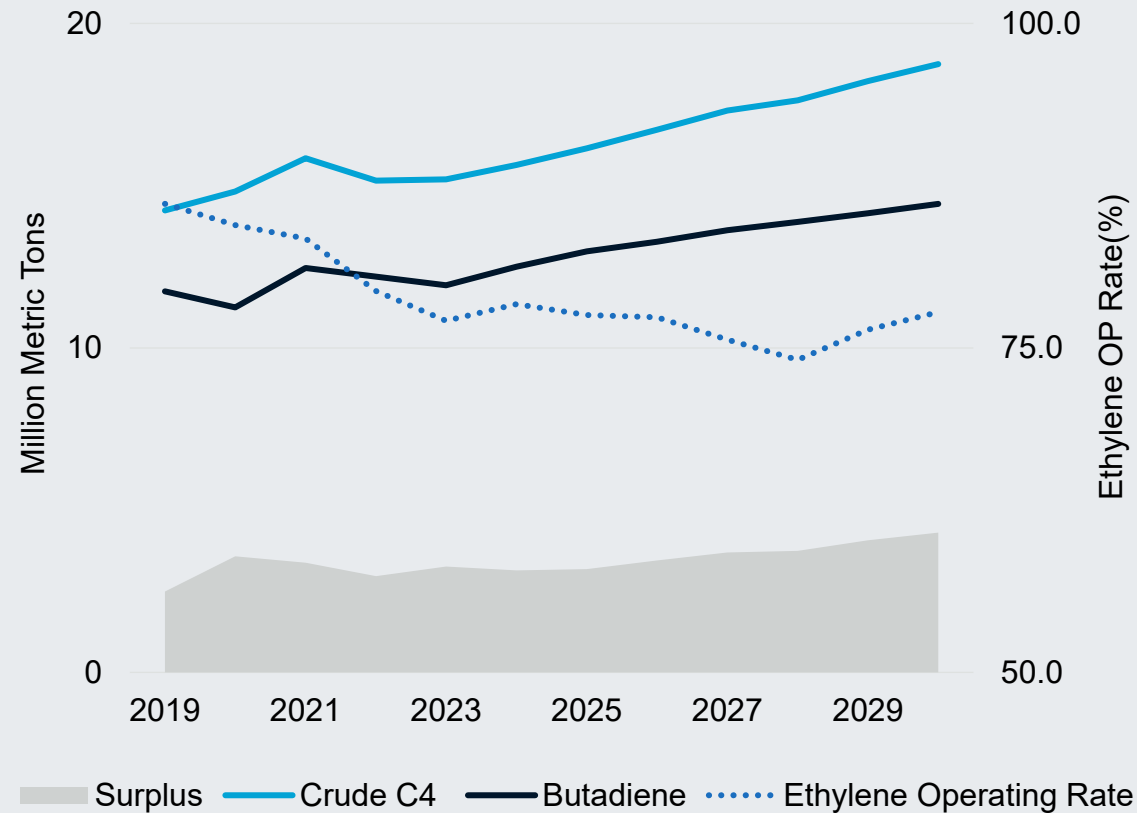


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What to do with all of the Crude C4?

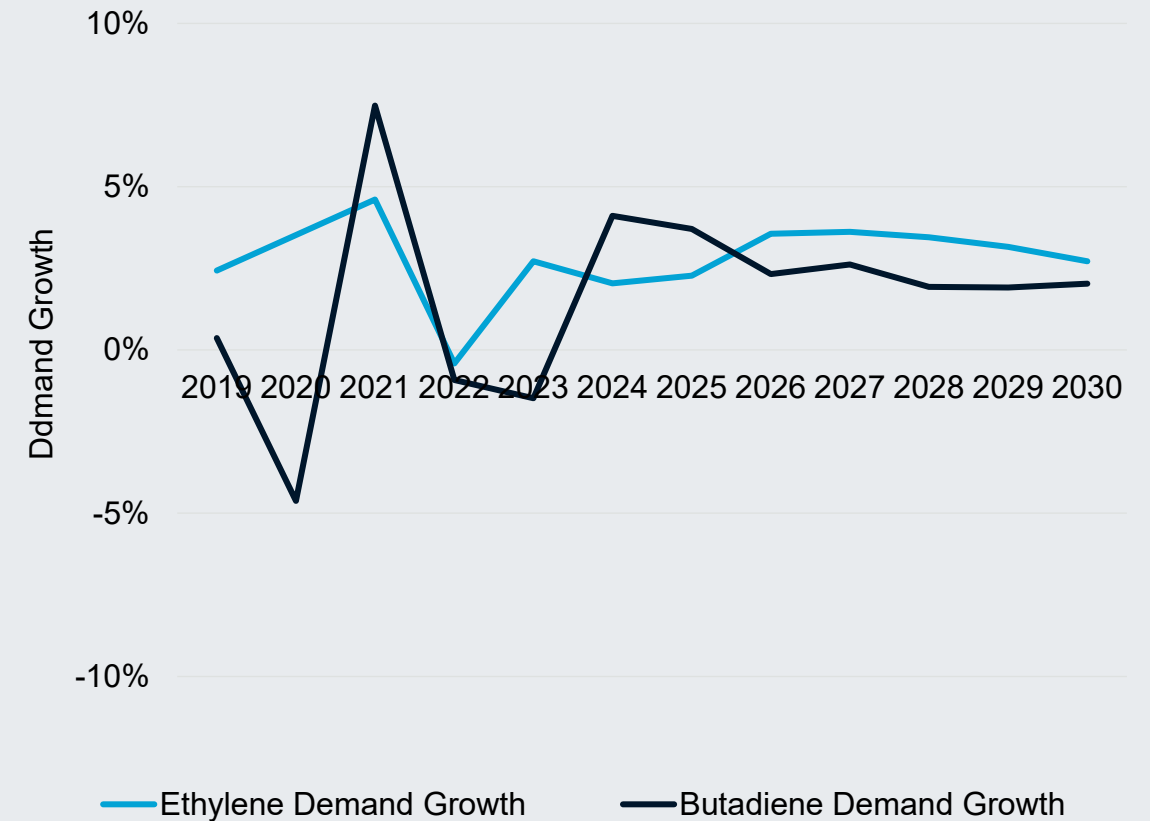
Global Crude C4 (Contained Butadiene) and Butadiene Production



Source: Chemical Market Analytics by OPIS

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Ethylene and Butadiene Demand Growth

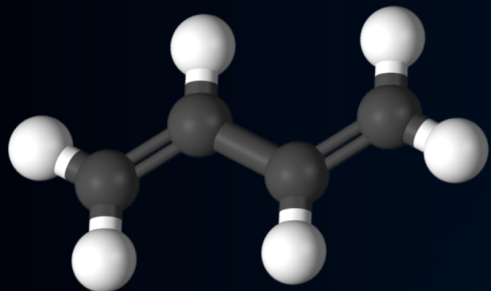


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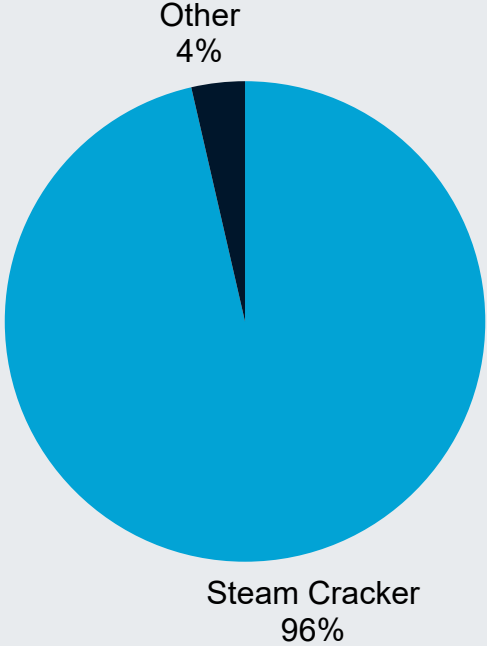
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Butadiene

Feedstock tied to ethylene production and feedslate

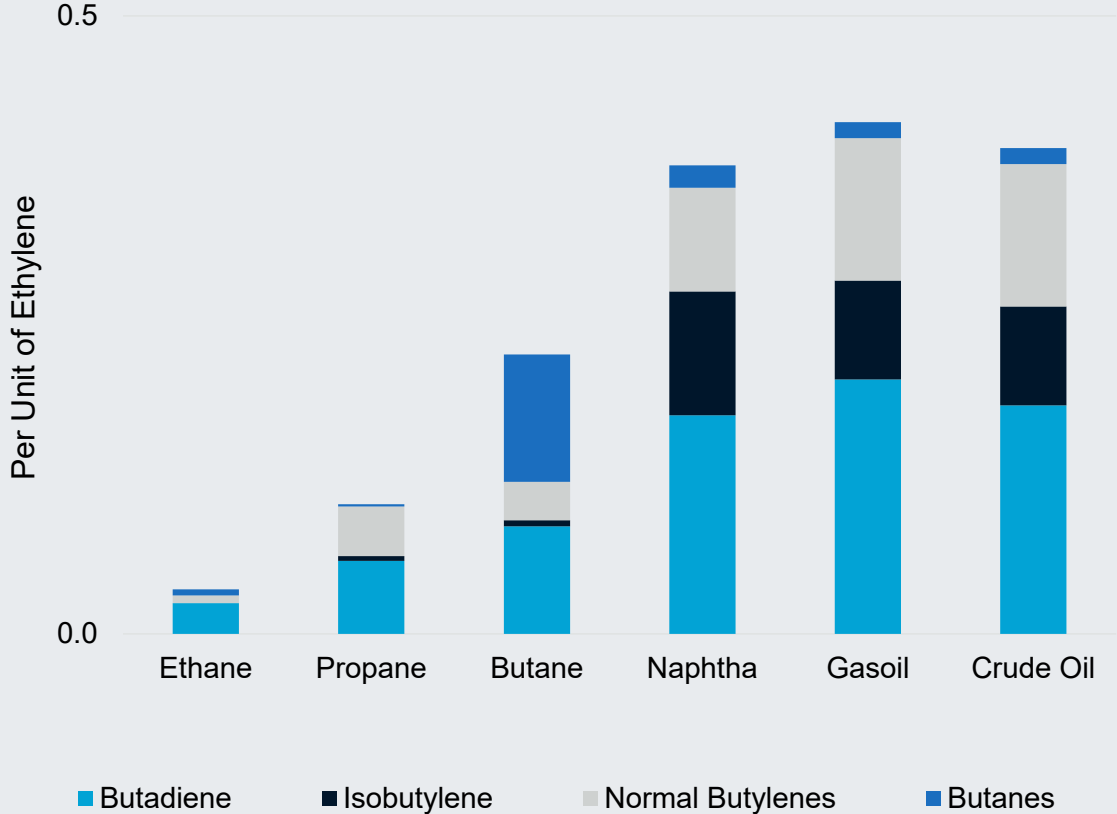
2024 Global Butadiene Feedstock Source



Source: Chemical Market Analytics by OPIS

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Ethylene Cracker C4 Yields

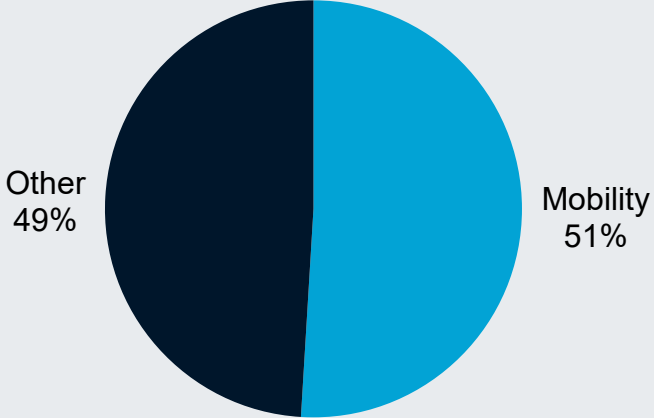
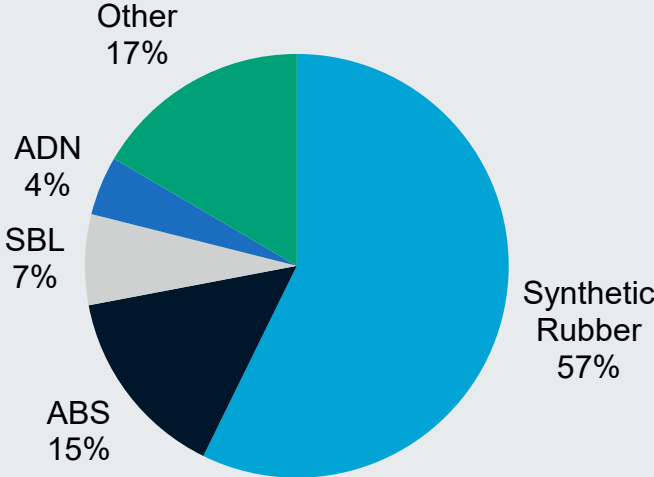
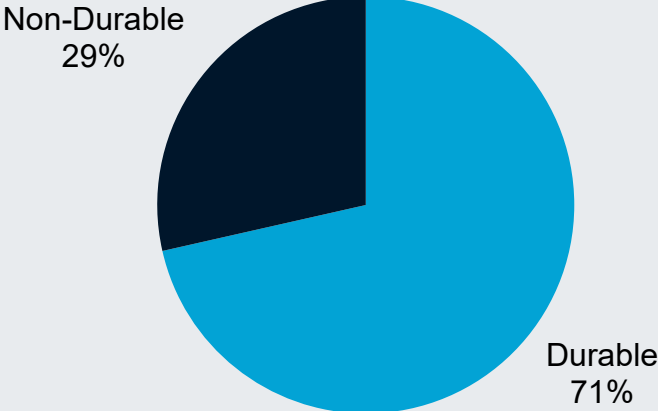


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Demand focused on durable goods, especially mobility

2024 Butadiene Demand

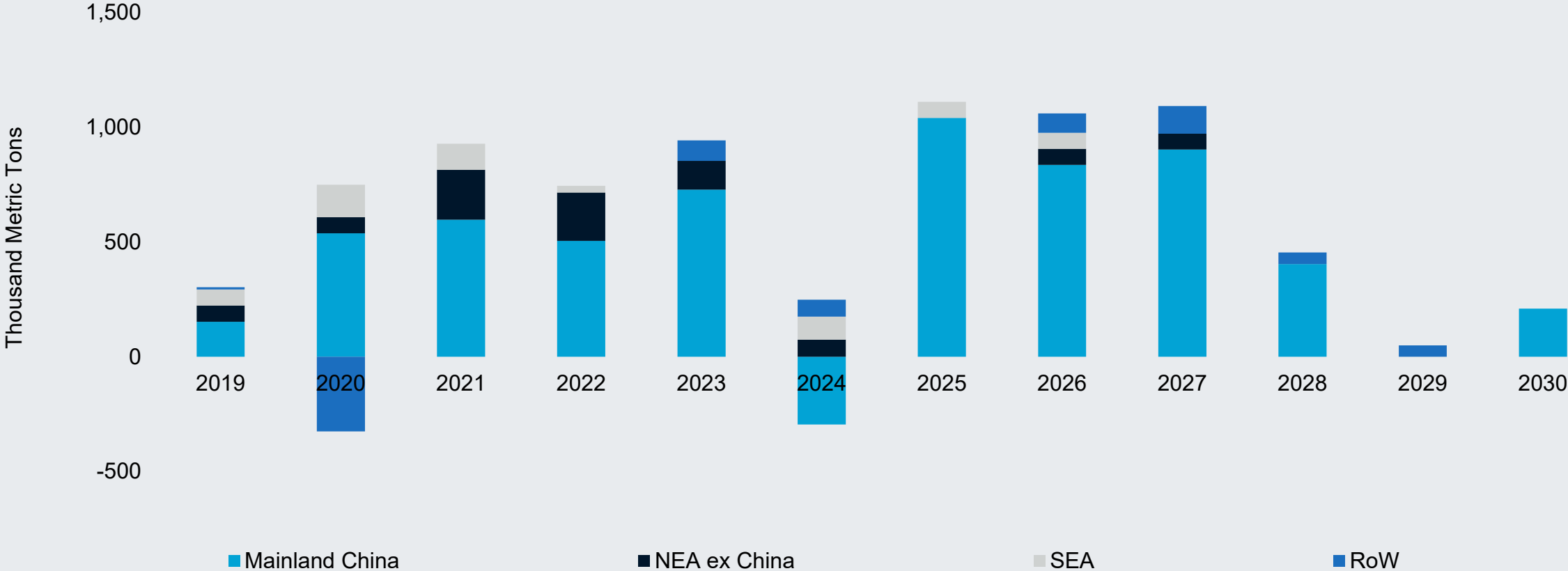


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Butadiene capacity addition focused in mainland China

Global Butadiene Capacity Additions

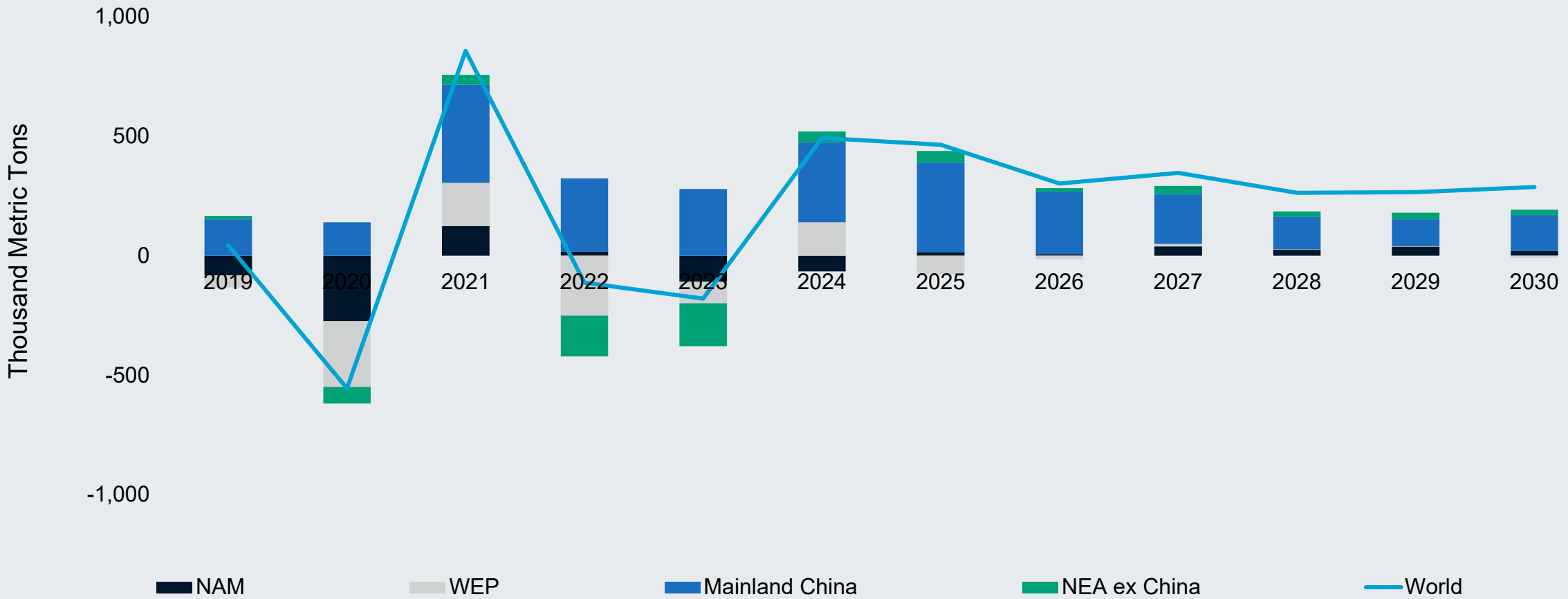


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Butadiene demand growth concentrated in Mainland China

Butadiene Demand Growth

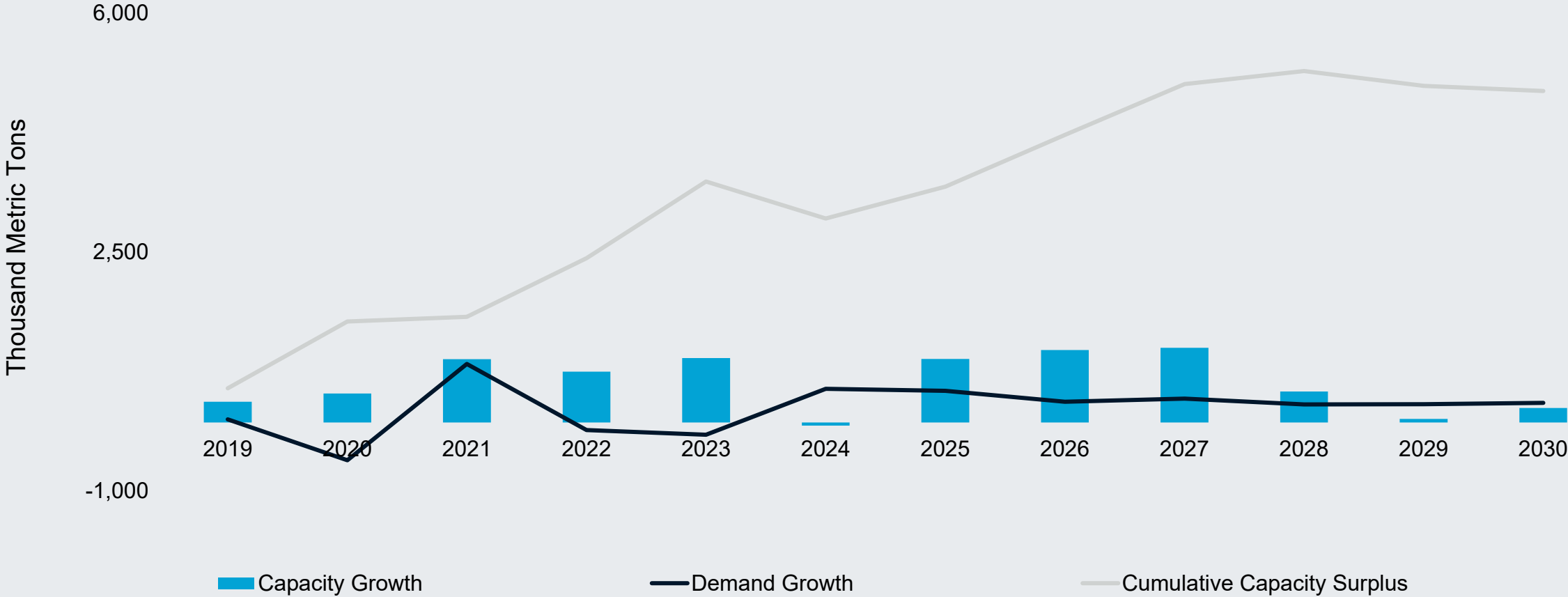


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Surplus butadiene capacity continues to expand

Global Butadiene Capacity vs Demand Growth

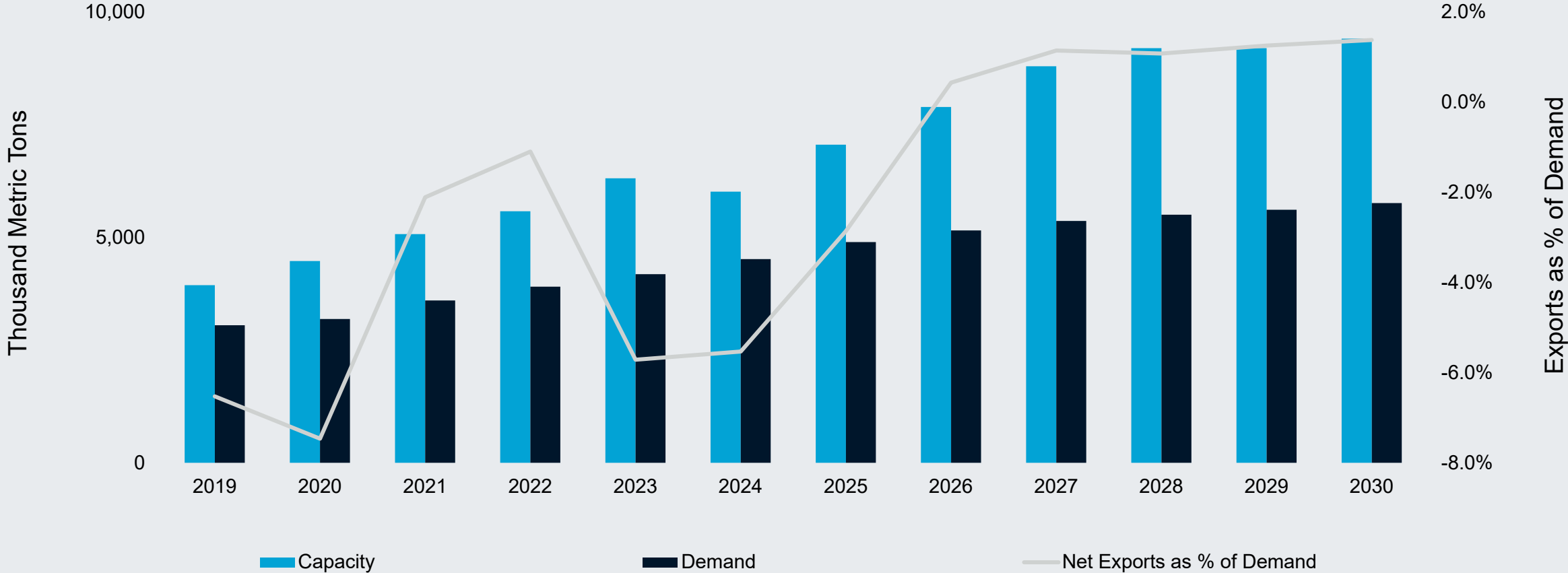


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Mainland China continues to invest to expand extraction

Mainland China Butadiene Balance

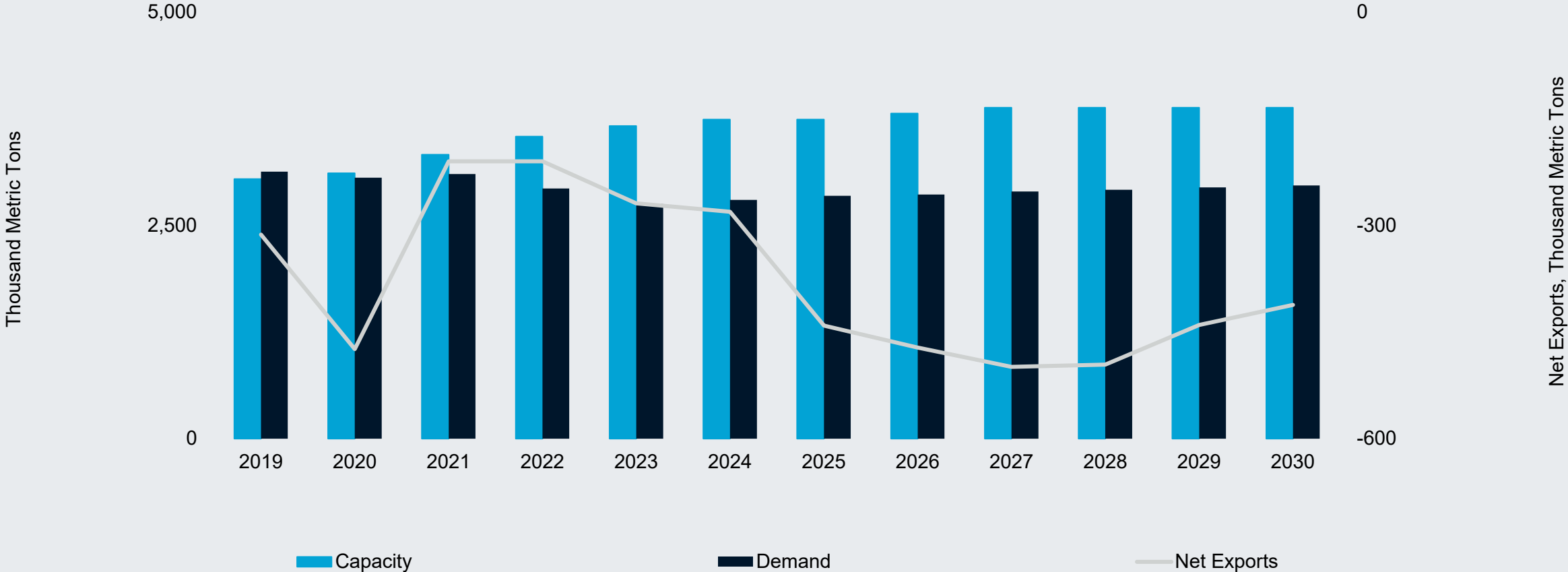


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Other Northeast Asia continues to import

Other Northeast Asia Butadiene Balance

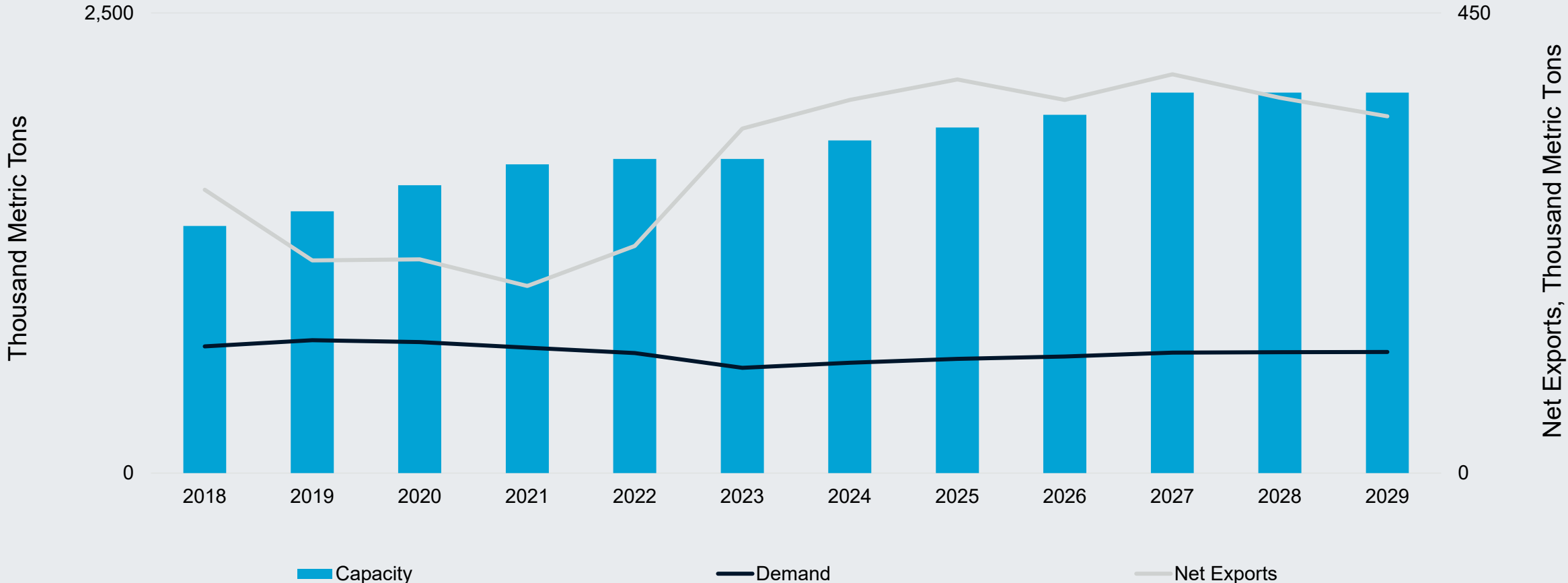


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Exports increase from SEA & ISC

SEA & ISC Butadiene Balance

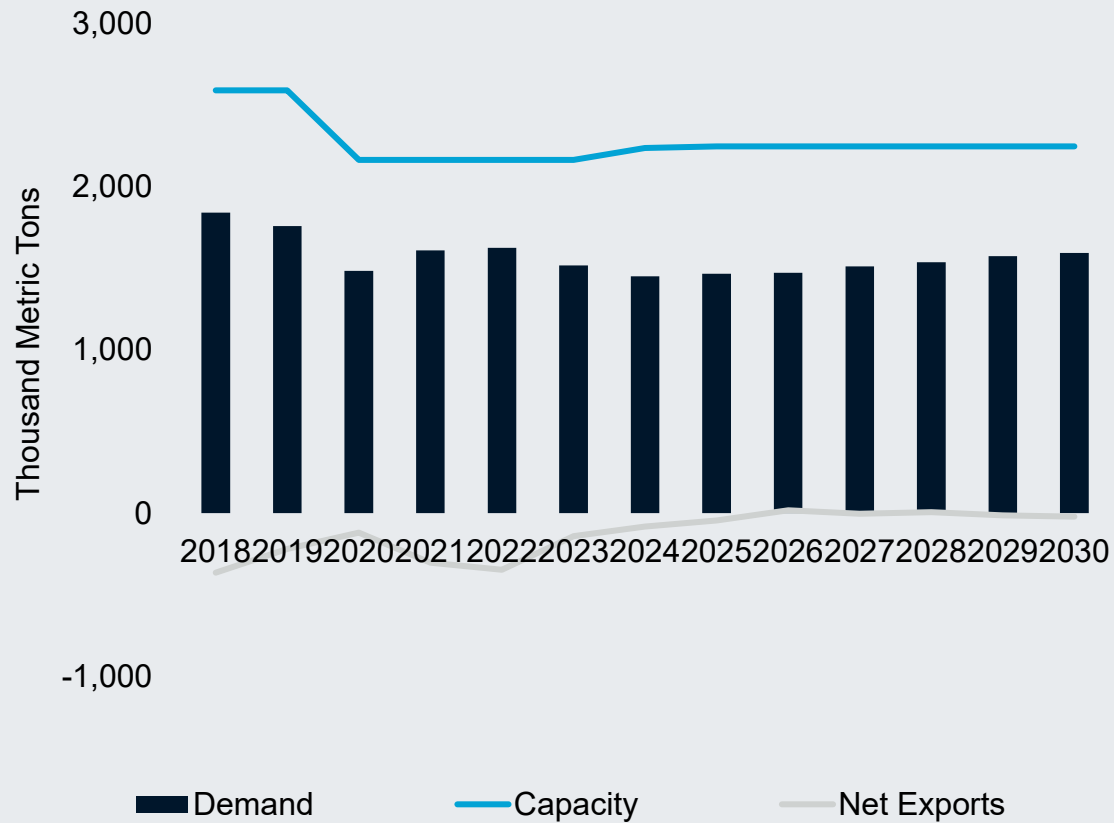


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Imports and exports decline

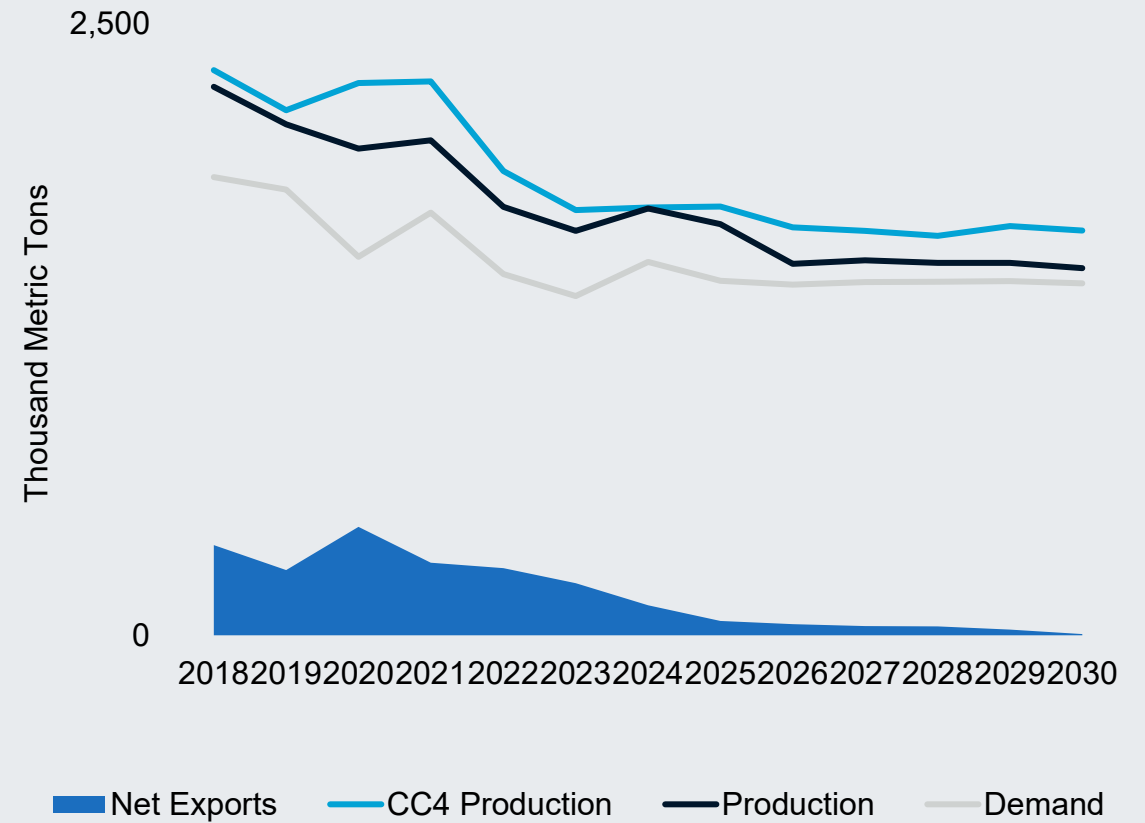
North America Butadiene Balance



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West Europe Butadiene Balance

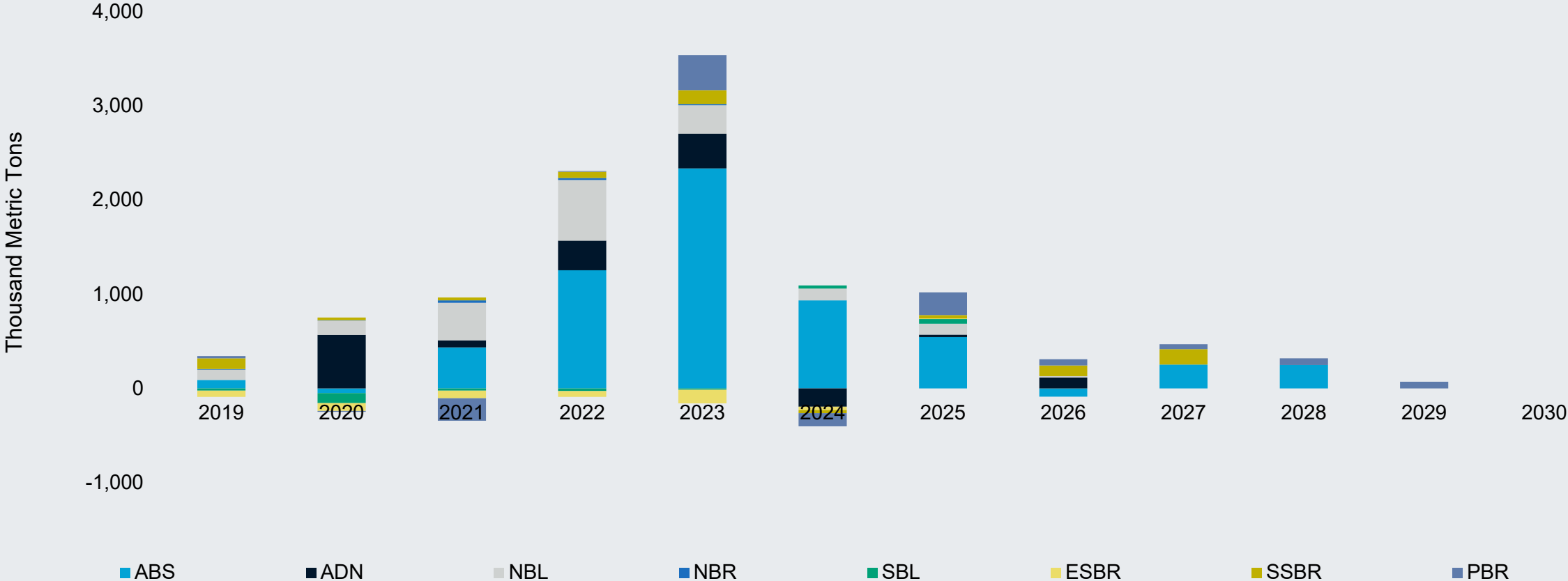


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Derivative capacity focused on ABS

Butadiene Derivative Capacity Growth

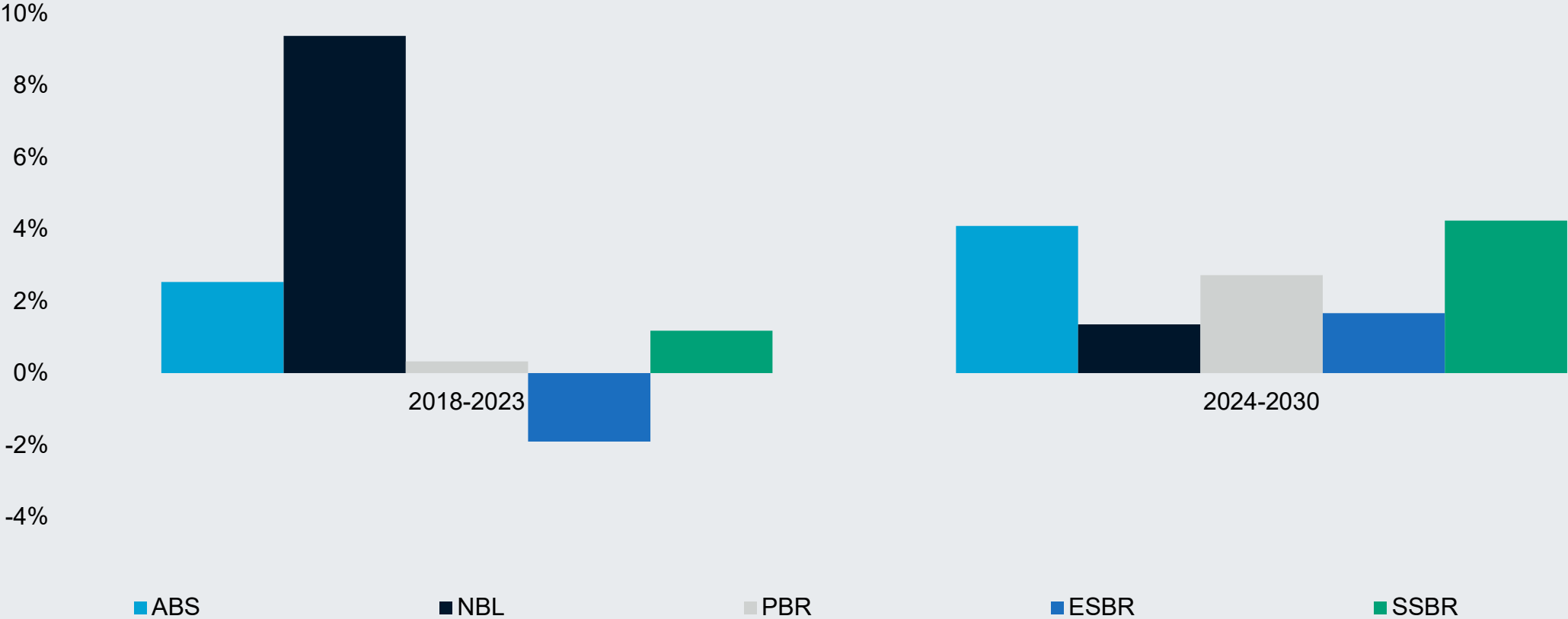


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Derivative demand growth returning to normal

Selected Butadiene Derivative Demand Growth



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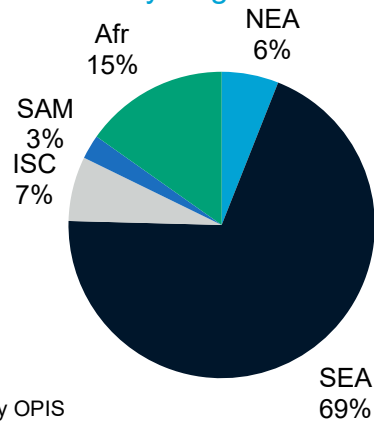
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Natural Rubber



Asia is key center for natural rubber industry

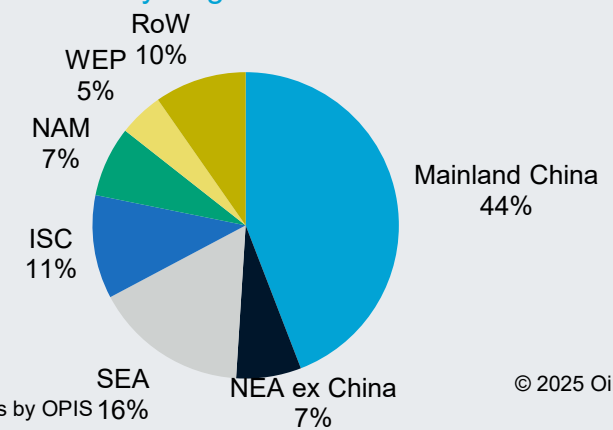
Natural Rubber Production Share by Region



Source: Chemical Market Analytics by OPIS

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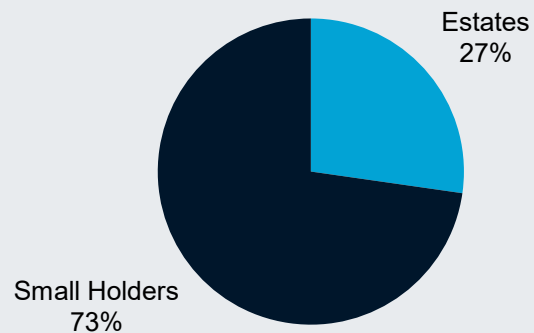
Natural Rubber Demand Share by Region



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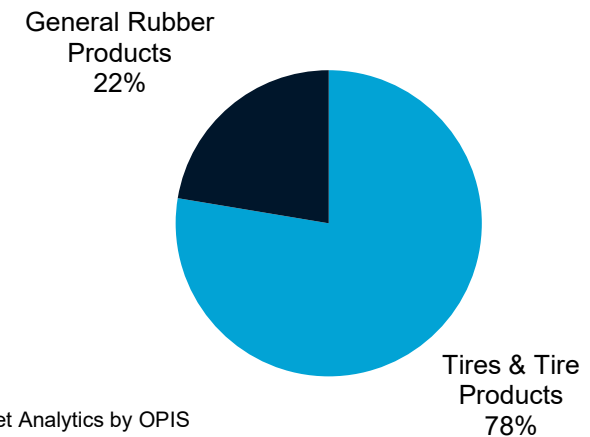
Production Share



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Demand Share

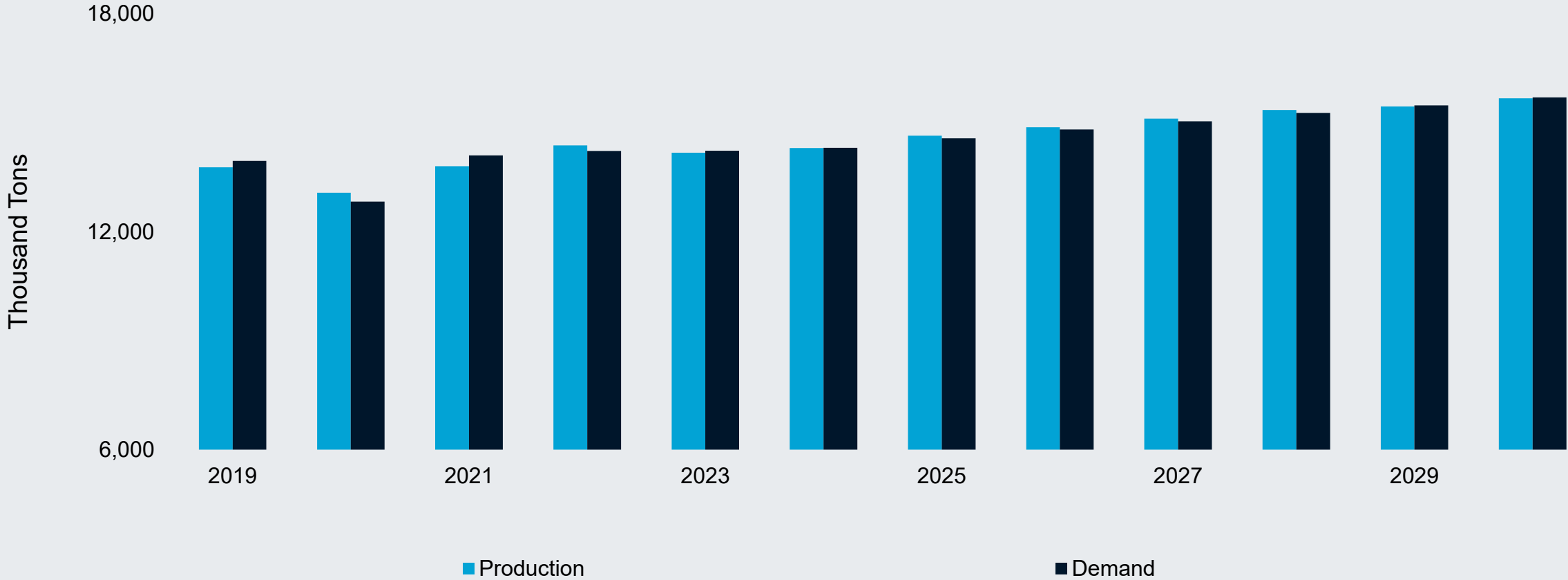


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Global natural rubber nearly stay balanced

Global Natural Rubber Balance



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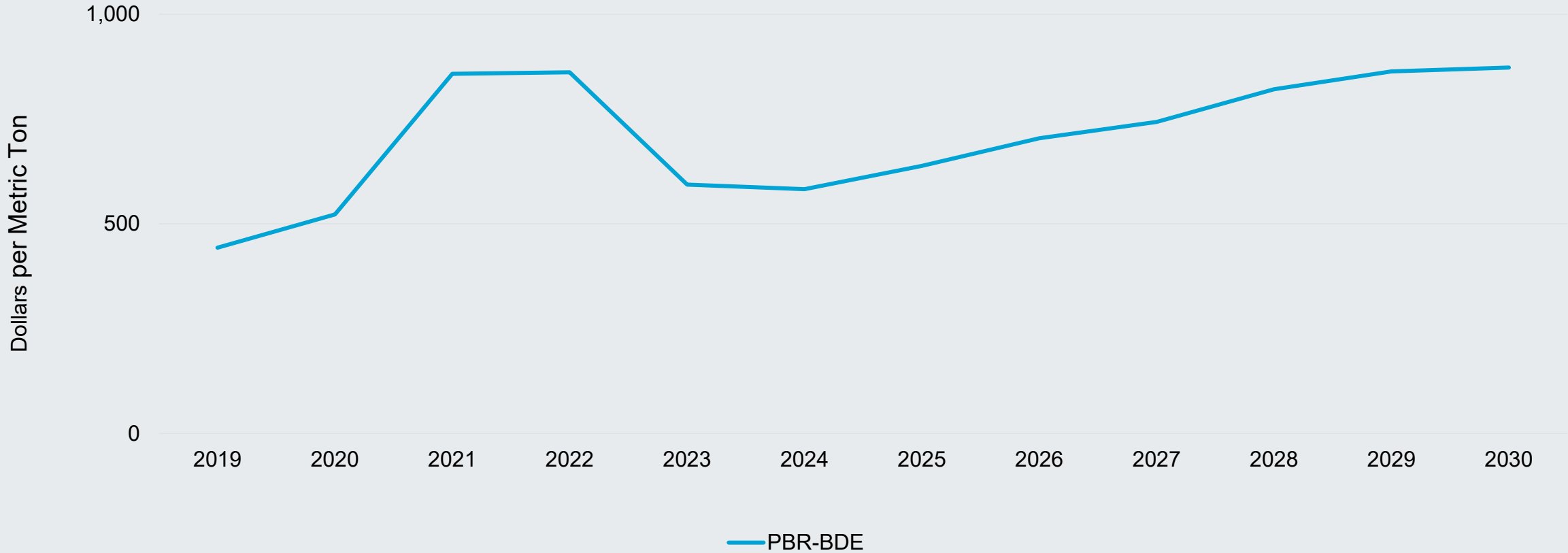
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Price Forecast



Spread gradually increases with lengthening C4

Synthetic Rubbers to Butadiene Spread

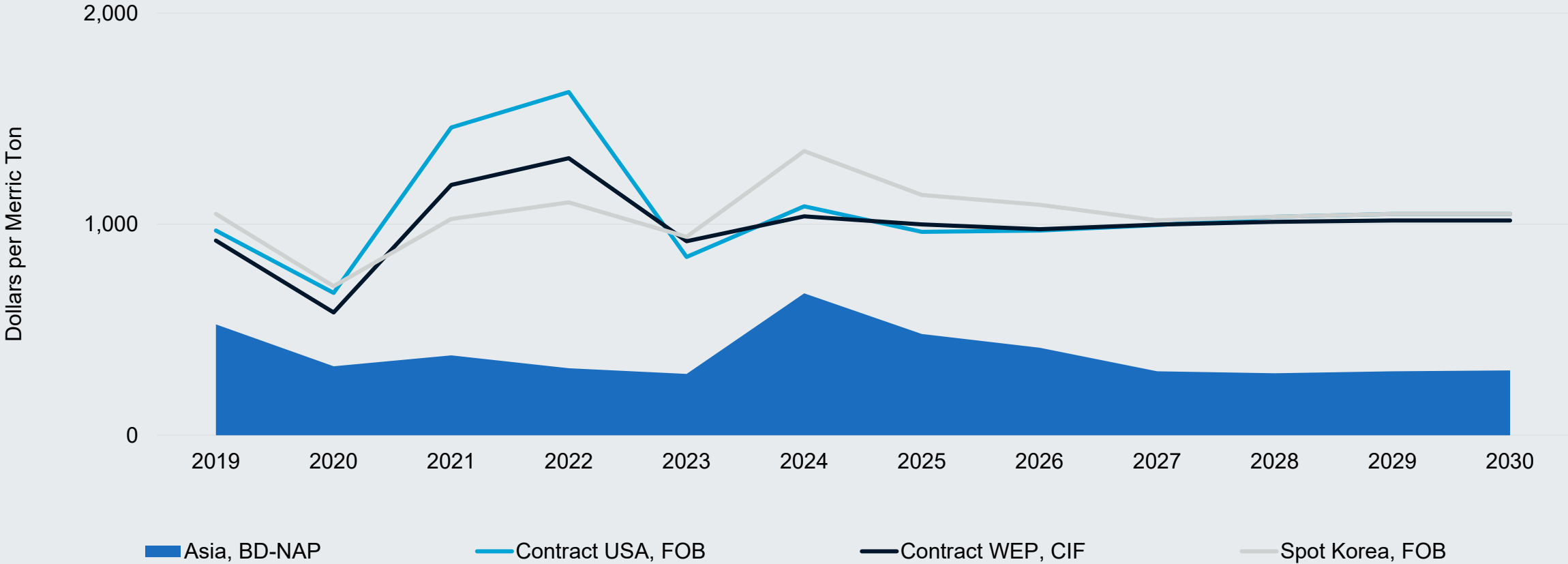


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Fundamentals should drive stable prices and low margins

Butadiene Price Forecast



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