Argus report sample

Polyethylene Analytics
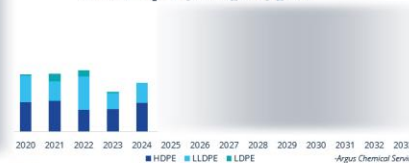
Spring 2024

About this report

Argus Polyethylene Analytics is a data-driven evaluation of supply-demand fundamentals forecasts for HDPE, LLDPE and LDPE markets, published twice a year.

The service includes a 10-year forecast and five-year history covering balances and capacities, organized by country and region.

In this sample, we share insights from Northeast America and Northeast Asia.

Subscribers receive a PowerPoint PDF written by our experts plus the accompanying Excel data files.

To find out more, **click here to get in touch.**

Key features

10-year forecast and a five-year history
Covering capacities, supply and demand, trade, and feedstock forecasts for leading derivatives, by country and region, published twice a year.

Detailed report
In an easy-to-read PowerPoint format focussing on new plant capacities, growth rates in relevant markets, and regulatory concerns.

Regional insight
Covering capacities and operating rates based on global trade and economics.

Downloadable datasets
With data on supply, demand, capacities, operating rates and trade balances, by country and region.

Access to specialists
Speak to the experts behind Argus' long-term analytics forecast services.

Associated data and analysis

Argus Polyethylene Analytics Service

- This presentation is a publication of the *Argus* Polyethylene Analytics 10-year supply/demand forecast. This annual study provides a comprehensive overview of global supply and demand fundamentals, trade patterns and balances on a regional basis.
- *Argus* consultants analyze the global market for polyethylene and its primary grades to derive supply/demand estimates.
- It is a commercially orientated consulting service whose aim is to provide the most accurate and timely analysis of industry trends and events, including supply and demand, and cost drivers for polyethylene including LDPE, LLDPE, and HDPE.
- *Argus* also offers a short-term rolling 24-months price forecast (Argus Polyethylene Outlook) backed by an analysis of future market trends.
- Detailed Excel data downloads of the supply/demand, capacity files and company balances are available to subscribers. To view a sample of this data, **get in touch today**.

Executive summary

Polyethylene analytics

The IMF has revised up projected US growth for 2024, which it now expects to be higher than in 2023. The US is alone among advanced economies in having overcome the effects of several economic shocks this decade. Europe, China and many other emerging economies are still struggling to turn the page from the pandemic and cost-of-living crises. Shipping costs have increased because of Houthi attacks on vessels in the Red Sea but are still below the peaks of 2021-22 and are starting to decline.

New PE operations in global markets will continue   . High operating costs related to energy prices and the smaller production capacity has rendered these assets as non-competitive. Further rationalization is likely with other European producers but the impact in terms of global capacity is not expected to impact global operating rates that will continue in the low to mid 80 percentile ranges for the next several years. 2026 through 2028 will be especially challenging as the overall global capacity increases by more than 20pc over the three-year period.

A growing backlash against environmental, social and governance investing has emboldened the majors oil producers against shareholder activism as the debate has shifted in favor of energy security following the war in Ukraine. As a result, support for climate initiatives and reporting has declined. Environmental pressures on PE have also moderated as legislated alternatives have not achieved expectations, particularly as it relates to bag bans.

Executive summary

- Globally the PE capacity will ▓▓▓▓▓▓▓▓▓ versus 2023 with ▓▓▓▓▓▓▓▓▓ globally.

- Northeast Asia's growth will be primarily in China with ▓▓▓▓▓▓▓▓▓ coming online in 2027 and 2028.

Global capacity shift
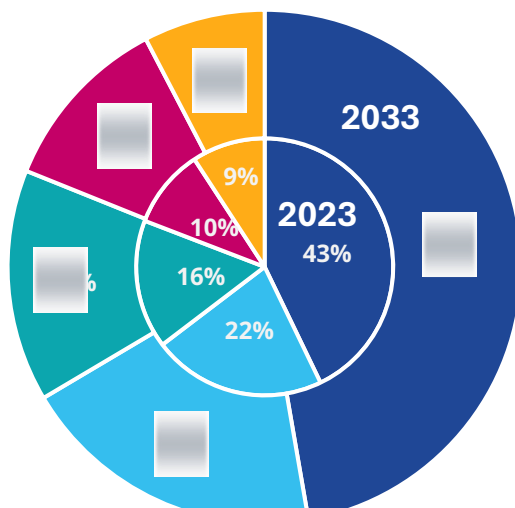
Global capacity by region

- 2027 and 2028 will see ▓▓▓▓▓▓▓▓▓ in PE capacity globally as China continues to move toward self-sufficiency.

- Notably, North America's share ▓▓▓▓▓▓▓▓▓ with other regions ▓▓▓▓▓▓

- SE Asia producers will need to shift exports away from China as China's domestic supply continues to increase.

- No new investments are expected in Latam or Mexico regions given the ample supply of low-cost resin from the NAM / Middle East markets.

Executive summary

Polyethylene analytics.

World production statistics

- Production
- Capacity
- Operating rate, right
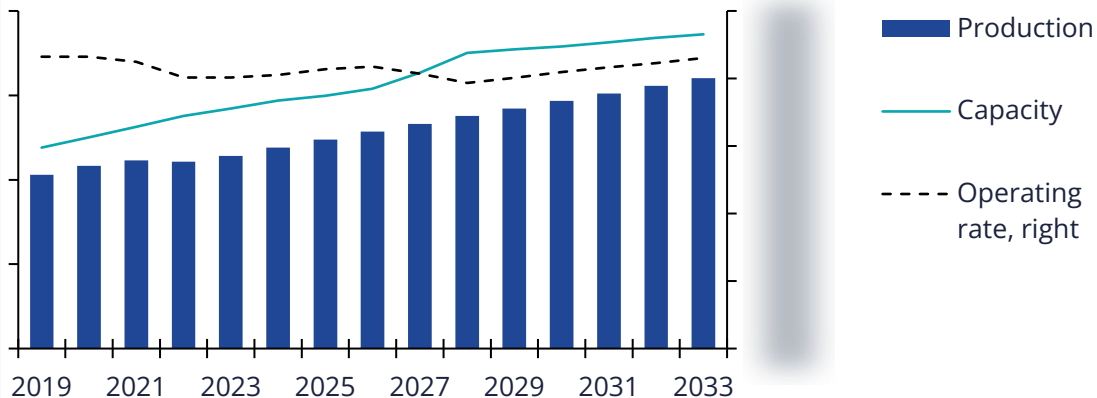
-Argus Chemical Services

World PE demand by grade

HDPE LLDPE LDPE

■ 2019 ■ 2023 ■ 2028 ■ 2033

-Argus Chemical Services

Annual capacity changes by grade

2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033

■ HDPE ■ LLDPE ■ LDPE
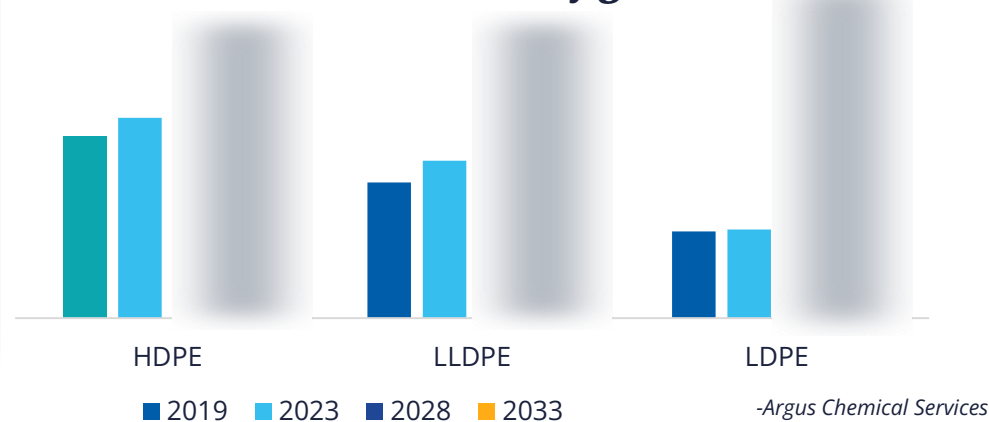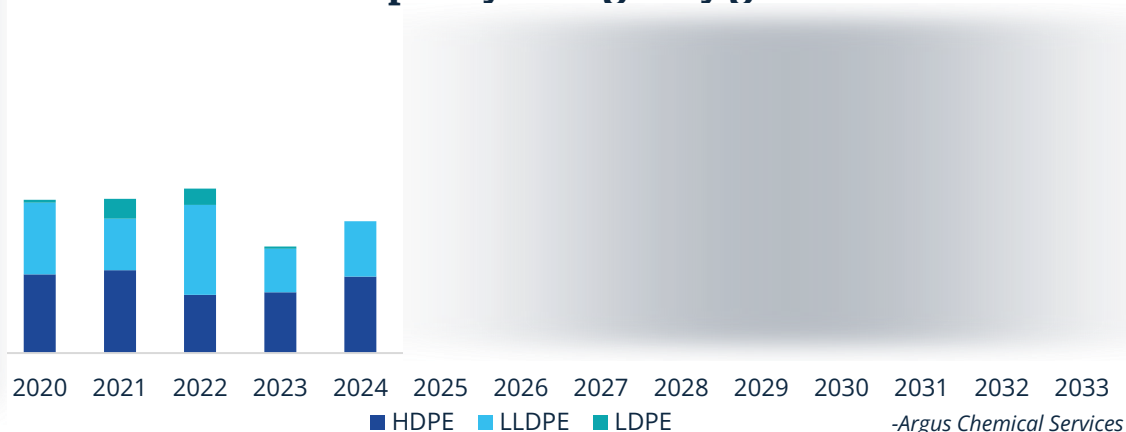
-Argus Chemical Services

- Global PE operating expected to average ▩▩▩ with 2026 – 2028 the low at around ▩ pc.
- HDPE and LLDPE capacities ▩▩▩ with LDPE ▩▩▩ over the same 10-year period.

Global economy

Central banks appear to have tamed inflation for now. Global GDP forecast continues to be revised lower for longer as growth in China continues to be revised lower.

World annual GDP growth

Legend:
- North America
- Western Europe
- Northeast Asia
- World
- Latin America and Caribbean
- Middle East
- Southeast Asia

(x-axis: 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033)

— *Argus Chemical Services, Oxford Economics*
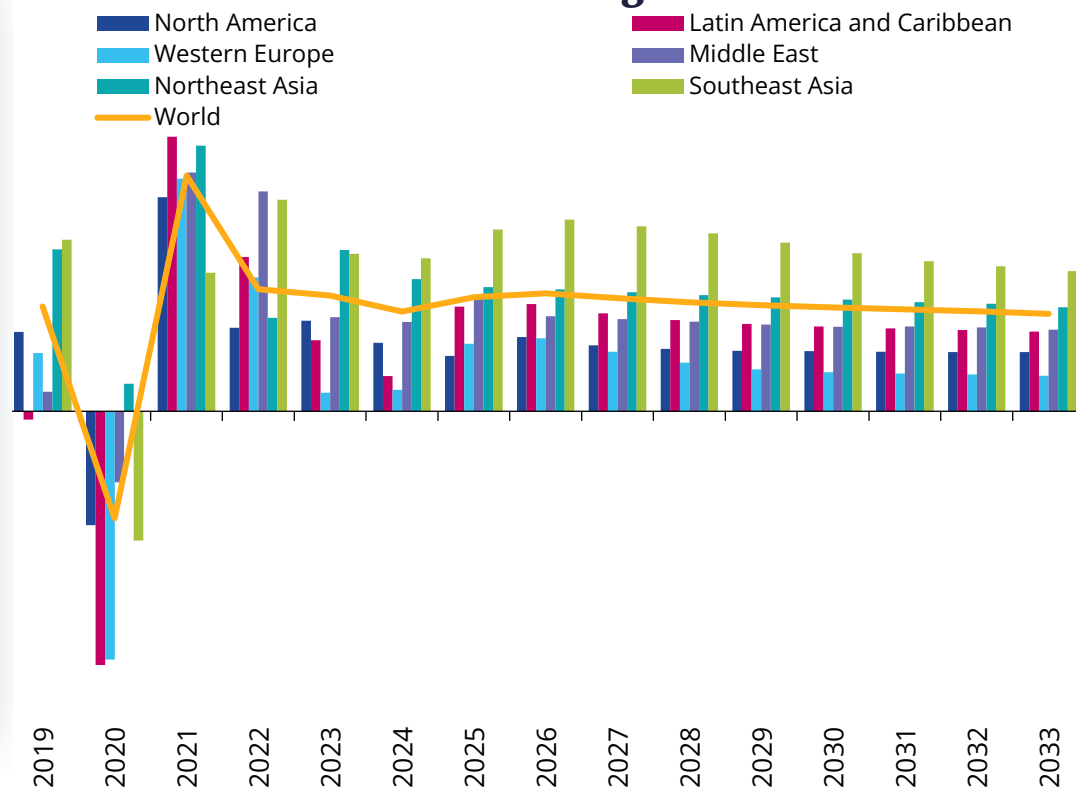
Regional GDP data is a USD GDP weighted average of all countries in the region

GDP forecast assumptions

Inflation

Inflation to be more volatile than before the pandemic. Central banks likely to keep inflation close to target in the medium and long term.

Monetary policy

Central banks to cut rates this year. They will move cautiously to bring rates down slowly.

War in Ukraine

Russia sanctions stay in place long after any cease-fire. Europe avoids any future energy problems during winter months.

Globalization

No meaningful change in the global trading system or US/China relationship. Recent tariffs and other trade barriers stay in place.

Polyethylene demand by process
Global PE demand to increase by 65pc by 2033 versus 2023.

Film
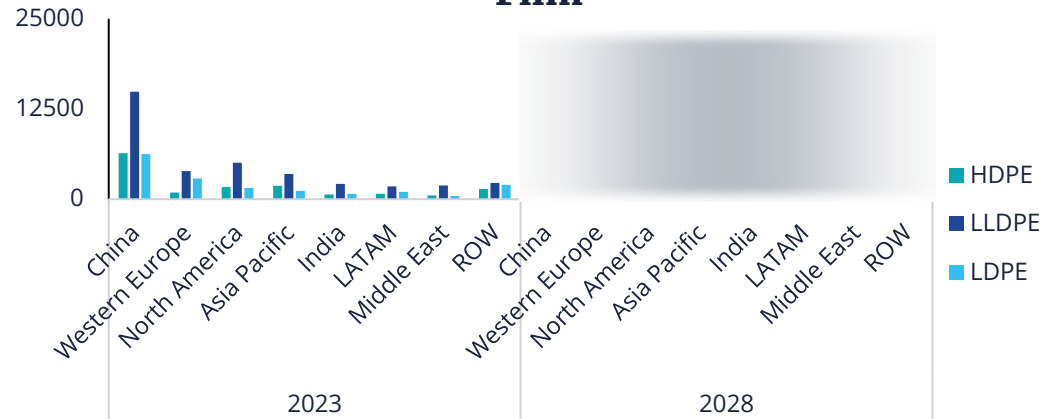
Injection Molding
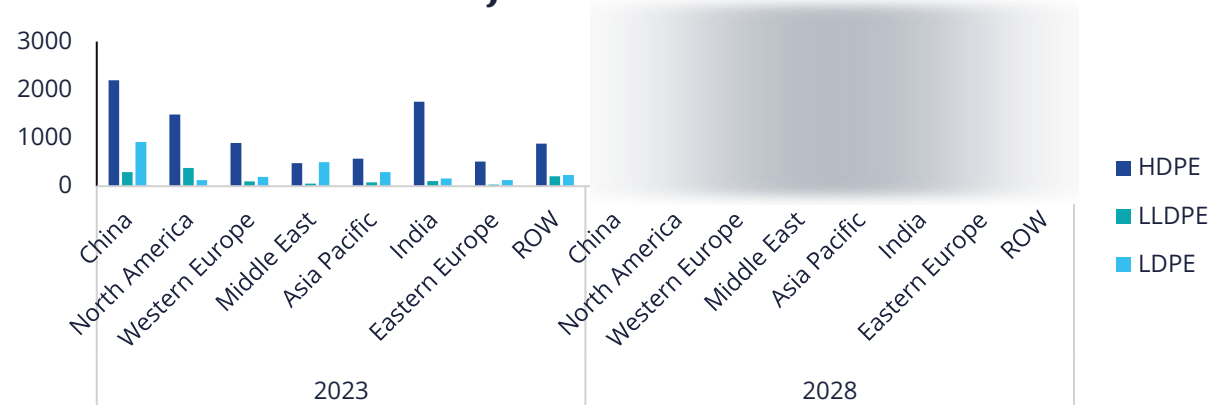
Blow Molding
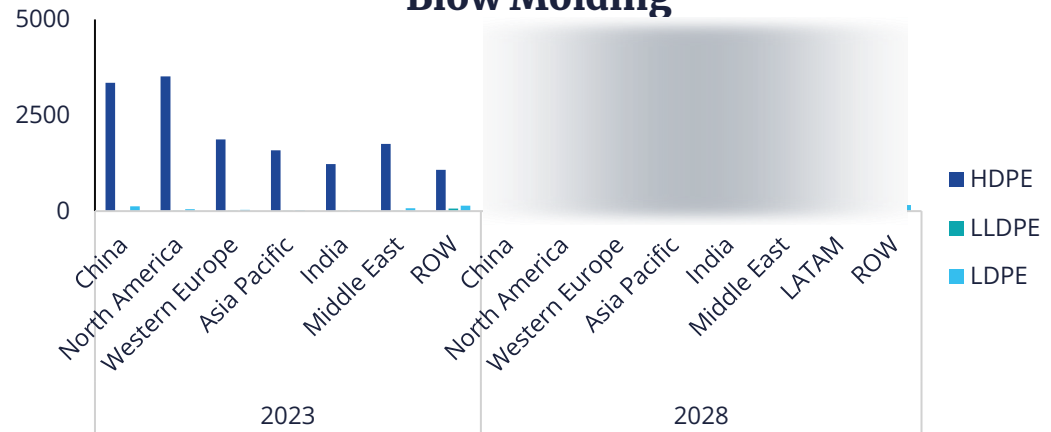
2028 Demand Growth vs. 2023 Demand

LLDPE to ▓▓▓▓▓▓ in Film Applications

HDPE to ▓▓▓▓▓▓ in Blow Molding Applications

China Injection Molding Segment to ▓▓▓▓▓▓ across all three PE grades

North America: Economy

Economic growth in 2025 questionable.

North America GDP

Legend: US (dark blue), Mexico (teal), Canada (light blue), North America (orange line)

X-axis: 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033
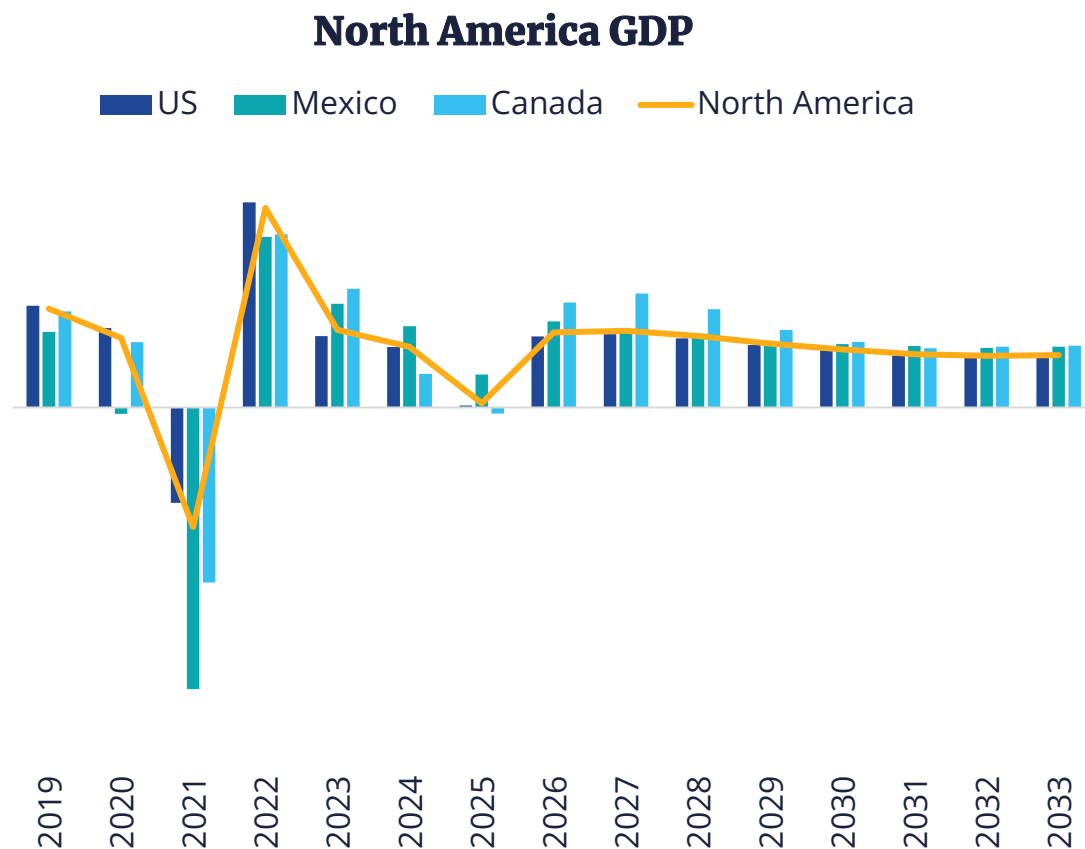
— Argus Chemical Services, Oxford Economics

Regional GDP data is a USD GDP weighted average of all countries in the region

- IMF upgraded global economic growth due to a stronger than expected US economy and a steady growth in multiple markets. A growth rate of _____ for 2024 is up slightly from the Jan. forecast but 2025 is estimating a decline to _____, The US is alone among advanced economies that overcame several economic shocks including high interest rates as the economy has already surged past its pre-pandemic trend, but high consumer credit remains a key concern.

- The IMF for some time has warned of growth risks from "geo-fragmentation" – the division of once global markets for commodities with other products based on political affiliation. Trade growth between economies in politically distant blocks has been ___ percentage points slower that between politically aligned countries since Russia's invasion of Ukraine.

- Oxford Economics revised their economic growth estimates to _____ for 2024 but show little growth in 2025, suggesting a more recessionary environment, somewhat aligned with the IMF forecasts that 2025 will be lower than 2024.
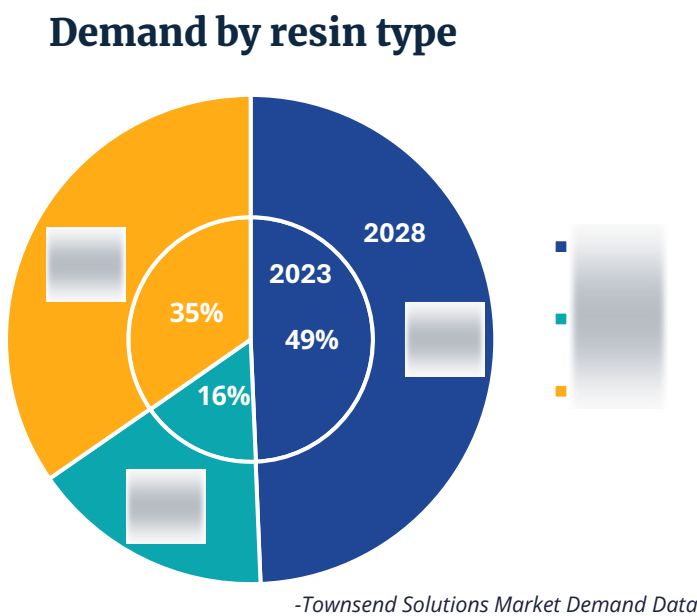
North America: Key updates

Domestic demand remains steady in 2024 with exports ▓▓▓▓▓▓▓▓▓▓▓▓▓ of domestic production.

Key Market Changes					
Supply	New startups from 2023 will reach full rates in 2024 and ▓▓▓▓▓▓▓ supply in the domestic market.	**Demand**	Markets in the US ▓▓▓▓▓▓▓▓▓▓ the 10-year avg., but no domestic markets are expected to increase in volume over the next several years.	**Trade**	▓▓▓▓▓▓▓▓▓▓▓▓ to operating rates in the US, with China demand the key wildcard.

Production statistics

Legend:
- Production
- Capacity
- --- Operating rate, right

X-axis: 2019, 2021, 2023, 2025, 2027, 2029, 2031, 2033

-Argus Chemical Services

Demand by resin type

2023 (inner ring): 35%, 16%, 49%

2028 (outer ring)

-Townsend Solutions Market Demand Data
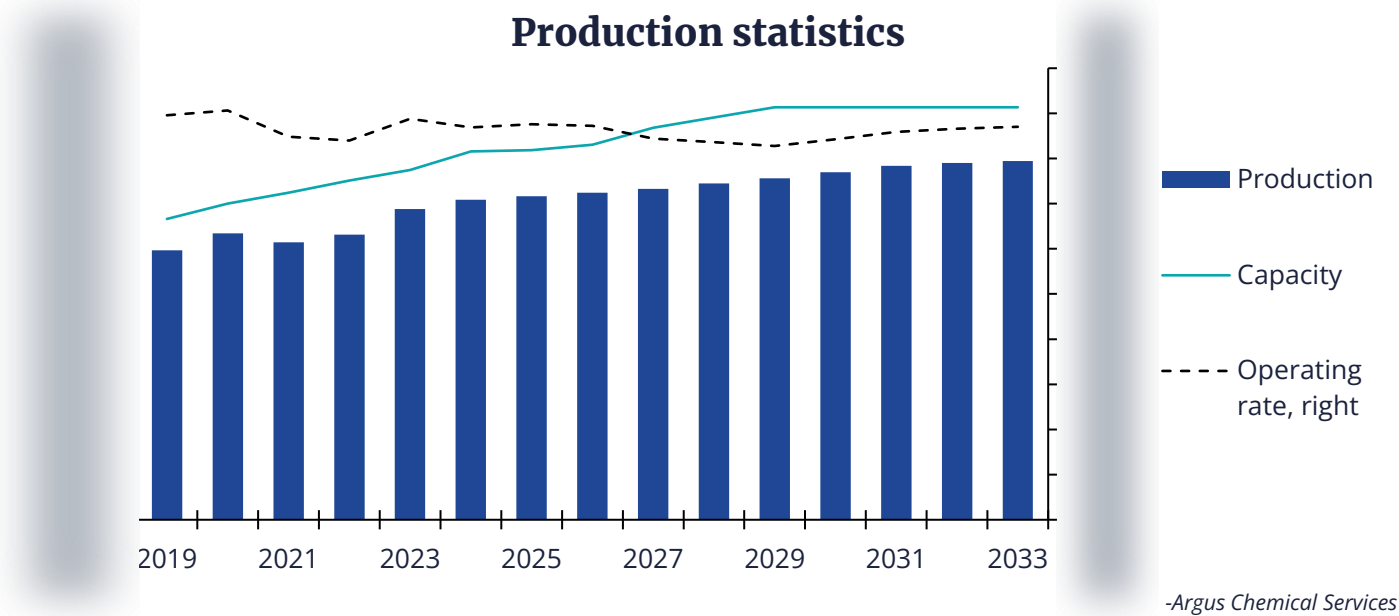
North America: Demand versus supply
Domestic demand will have little impact on operating rates through 2033.

- Domestic consumption is ⬛⬛⬛⬛⬛⬛⬛⬛⬛ GDP in 2023 – 2028 with CAGR percent estimated at 2.3pc vs. GDP average of 1.8pc.
- Plant rationalizations are not expected within the US as feedstock/ethylene costs are strongly advantaged versus rest of the world.
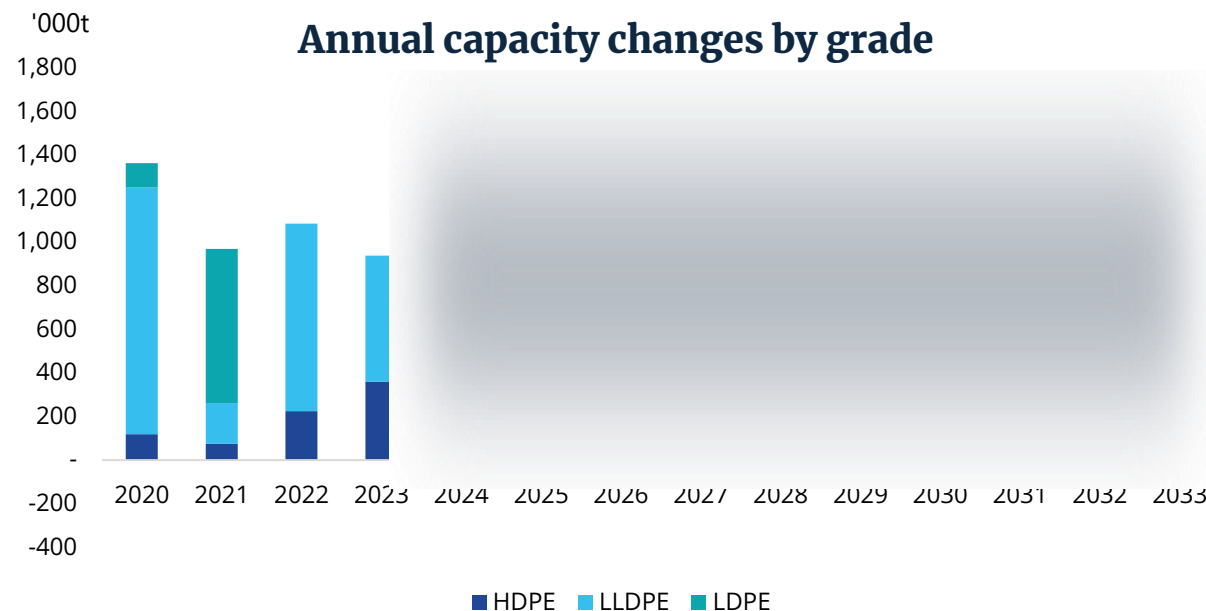- ⬛⬛⬛⬛ of domestic production will be exported going forward, resulting in a shift in the domestic market to more spot trading and less "ratable" volumes.
- ⬛⬛⬛⬛⬛⬛ and ⬛⬛⬛ are the primary North America ethylene derivatives that will be exported into global markets however, ⬛⬛⬛⬛⬛⬛⬛⬛ are expected to increase in 2025 that could affect domestic prices.

Consumption vs. Production

74% (HDPE 2019)
63% (LLDPE 2019)
76% (LDPE 2019)
74% (HDPE 2023)
51% (LLDPE 2023)
71% (LDPE 2023)

2019 | 2023 | 2028 | 2033

■ HDPE ■ LLDPE ■ LDPE

-Argus Chemical Services

Annual capacity changes by grade

'000t

2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033

■ HDPE ■ LLDPE ■ LDPE
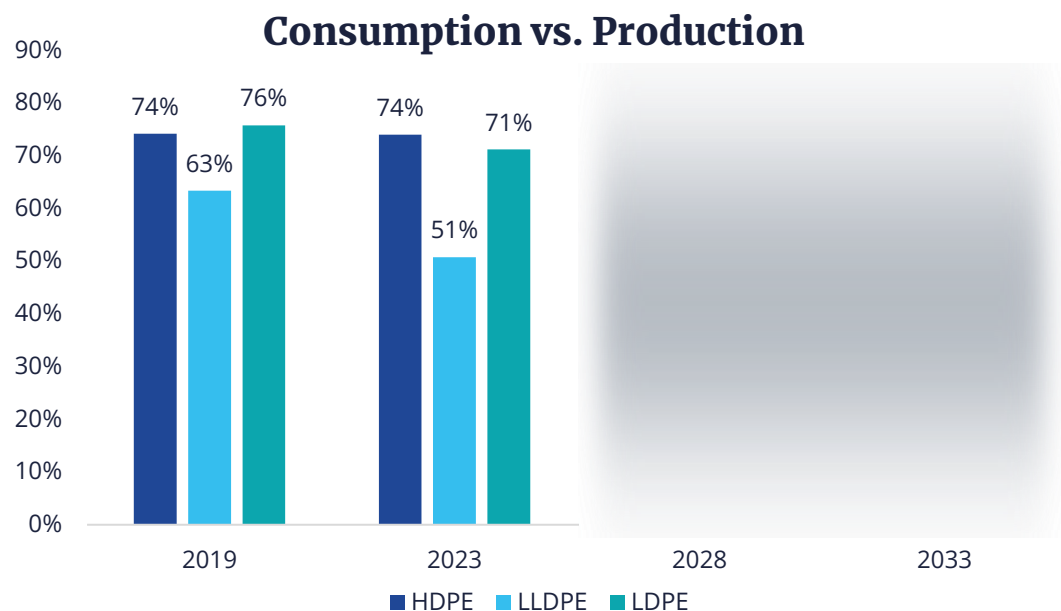
-Argus Chemical Services

North America: Trading activity

Despite lower global demand growth, the region's ethylene cost advantage will enable producers to

Export / import trade activity

Legend: ■ 2019 ■ 2023 ■ 2028 ■ 2033
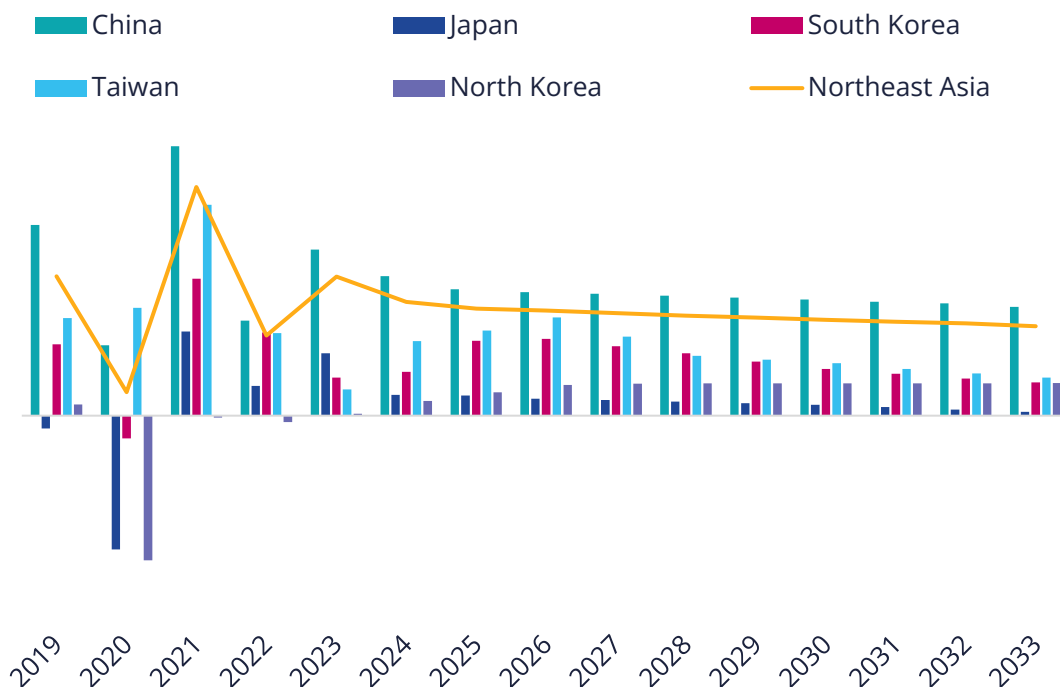
-Argus Chemical Services

- LLDPE Exports █████████████████ as world scale plants come online in 2024 and 2025. A slowdown in new capacity additions in 2025 and 2026 will help rebalance the excess supply versus demand but 2027 – 2028 additional capacity coming into the market that will further extend the oversupply of resin and pushing more product into the export markets.

- Several ████████████ plants are expected to come online in the 2026 – 2027 time period that will focus on low-cost commodity resins targeted for export markets. These ███████████ plants may impact which market segments resin producers focus on going forward. Example: ██████████ focus may be on Blow Molding, ██████ focus may be on mLLDPE film markets, etc.

- Mechanically recycled PE is ██████████████████ impact virgin resin growth through 2033 without federal government regulations.

Northeast Asia: Economy

Policy measures to support, not stimulate economy.

Northeast Asia GDP

Legend: China, Japan, South Korea, Taiwan, North Korea, Northeast Asia
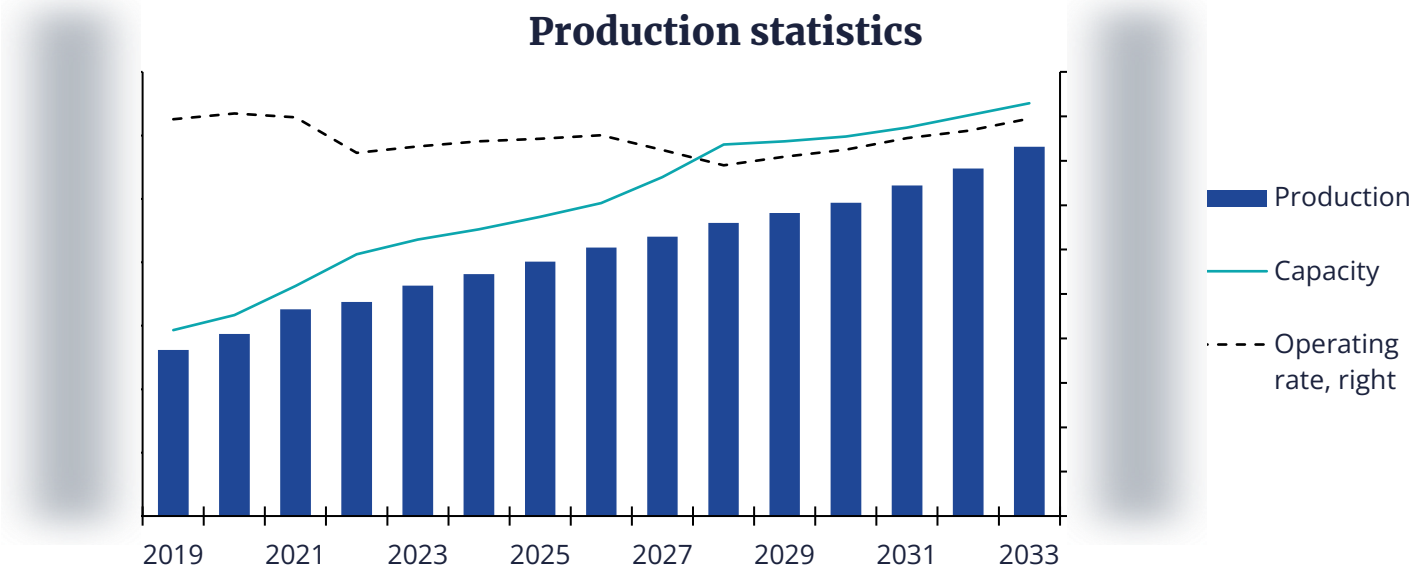

— Argus Chemical Services, Oxford Economics

Regional GDP data is a USD GDP weighted average of all countries in the region

- The economy is expected to [redacted] inflation environment given expectations of [redacted] demand growth and continued supply-side stimulus. As such, in contrast to previous easing cycles where onshore stimulus generated significant growth spillovers to other economies, the current easing cycle is likely to affect the rest of the world mainly through disinflationary impulses.

- A growth target of around [redacted] is based on growth, sustainability, and supporting private sector confidence. A small positive fiscal impulse, is expected to hold the GPD at around [redacted] (from a revised [redacted] in 2023). To the extent that a higher target is announced, this will drive upside to growth forecasts as China rarely misses its growth target. Overall GDP is expected to average between [redacted]

- 2024 has seen a meaningful drop in the average spending value by each consumer domestically ("spending per head"), underscoring the structural trend of consumption downgrading onshore.
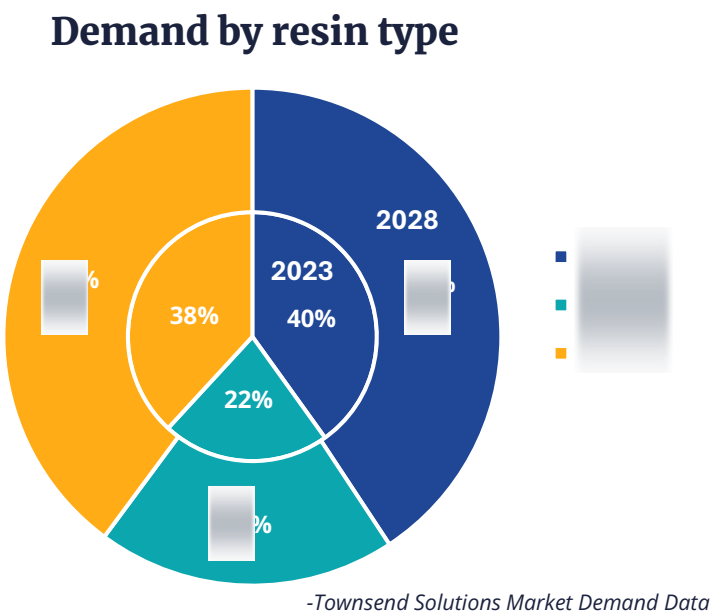
Northeast Asia: Key updates

Polyethylene capacity expansion will ████████████ in 2024-2025 before another ████████████ in 2026-2028.

Key Market Changes

Supply	Demand	Trade
The region will experience ████████████ of ████████████ in 2026-2028. Operating rate is expected to ████████████ ████████████ and ████████████ by 2028.	Demand recovery ████████████ than expected as the region struggles with weak ████████████	China ████████████ importer while import growth rate are ████████████ capacity expansion. More imported influx are expected from the ████████████ benefitting from their cost advantages.

Production statistics

- Production
- Capacity
- Operating rate, right

2019 2021 2023 2025 2027 2029 2031 2033

-Argus Chemical Services

Demand by resin type

2028
2023
40%
38%
22%

-Townsend Solutions Market Demand Data

argus

Northeast Asia: Demand versus supply

NE Asia capacity will reach ███████████████████████████ by 2033.

- Northeast Asia capacity is expected to ████████████████████ at a 5-year CAGR of ██ pc. China leads the expansion by adding an average of ███████ t/yr into their capacity by 2028. South Korea will also add an additional project in 2027. *Argus* forecasts NEA operating rates to ██████████ in 2024 similar to 2023. Forward expectations are for long term run rates to hover ██████ as the biggest challenge China is facing is that the speed of capacity addition far exceeds demand growth.

- Most new capacities are integrated based on naphtha, which is ████████████ in terms of capital expenditure and operational costs, but still won't be able to compete with the ███████████████ in terms of feedstock cost competitiveness.

- Outdated and small-scale facilities will either need to be upgraded or eliminated ████████████ alone cannot solve the issue of ███████████████ Some new crackers are moving towards high value-added products such as UHMWPE and POE, but the rest of the downstream will still be concentrated at common PE grades.

Regional demand as a percent of production

-Argus Chemical Services

Annual capacity additions by grade

-Argus Chemical Services
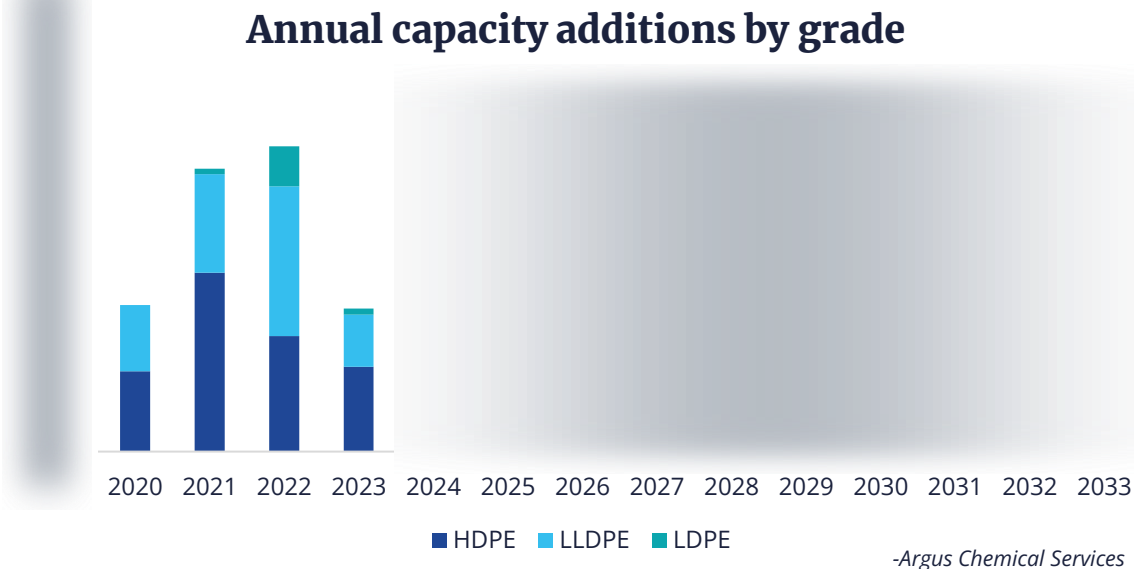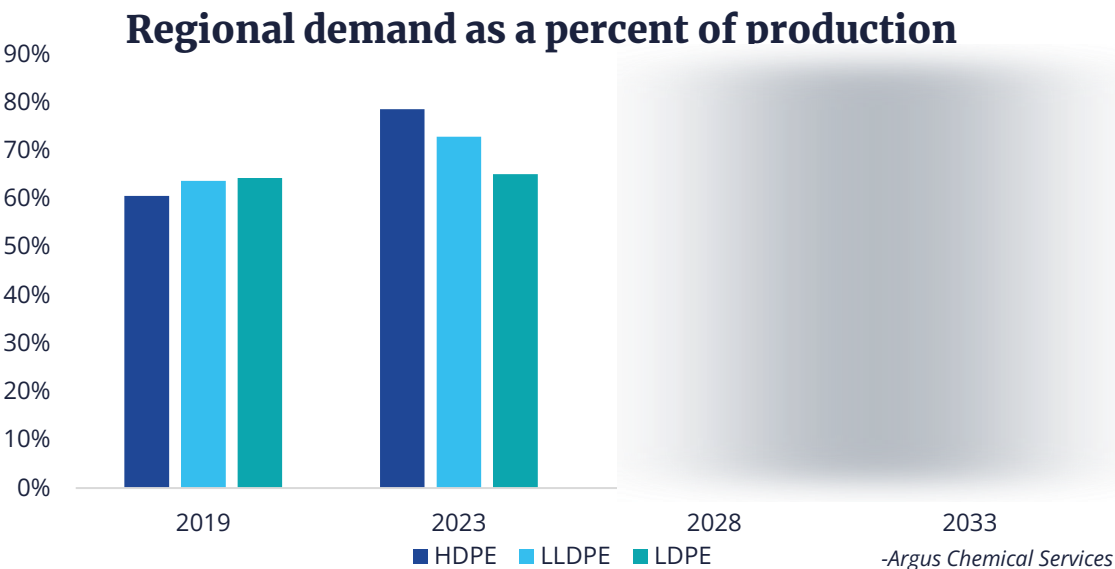
Northeast Asia: Trading activity

China PE imports will recover from 2024 onward, after shrinkage during 2021-2023, but may not see noticeable increase because of rapid expansion.

Export / import trading activity
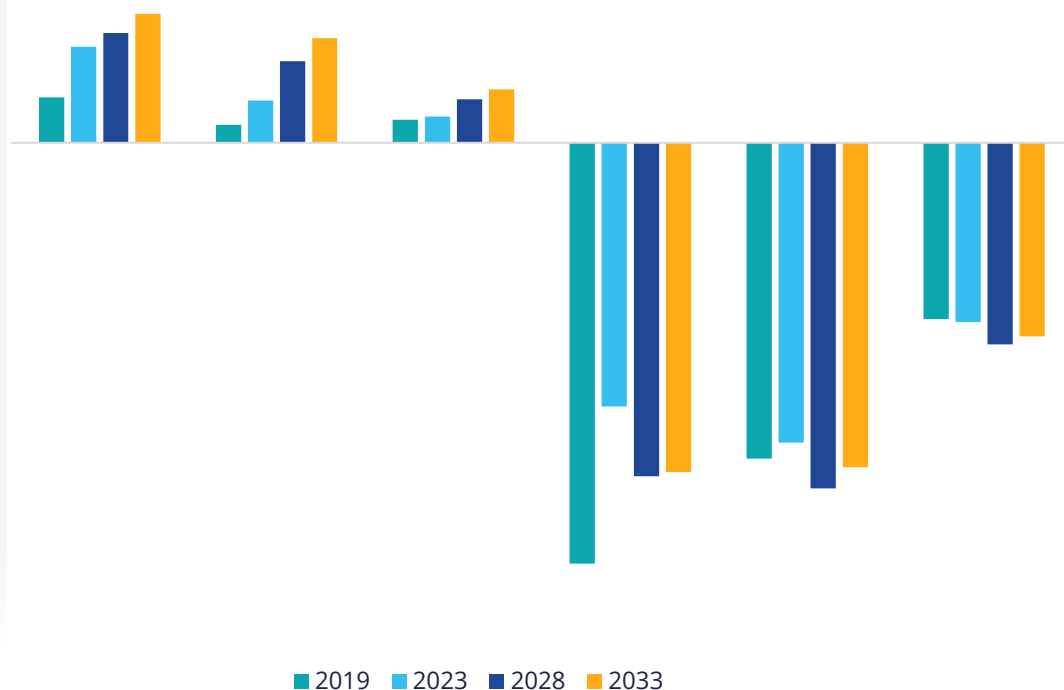
Legend: ■ 2019 ■ 2023 ■ 2028 ■ 2033

-Argus Chemical Services

- *Argus* forecasts total PE import to northeast Asia wil ▓▓▓▓▓▓▓▓▓▓▓▓▓▓ ▓▓▓▓▓▓▓▓▓▓▓ Total PE export will gradually improve with expanding capacity at a CAGR of 7.4pc by 2028.

- Although China's import is ▓▓▓▓▓▓▓▓▓▓▓ to over the forecast period, the growth rate is slowing down. As a long-term strategy, China will gradually increase its self-sufficiency in all polymers. Import dependency was ▓▓▓▓▓▓▓▓▓▓▓▓▓▓ Expanding capacity especially in China is expected to curb this rate to ▓▓▓▓▓▓▓▓▓▓▓▓ by 2032 with imports holding steady at around ▓▓▓▓▓▓▓▓▓▓

- ▓▓▓▓▓▓▓▓▓▓ will continue to be the largest suppliers to China because of their cost advantage causing other Asia-Pacific nations to face export pressure into China.

- Export may continue to grow in the future. ▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓▓ ▓▓▓▓▓▓▓▓▓▓ will be the main destinations. But China remains as a net PE importer as production cost are less competitive compared with major PE exporters.

- ▓▓▓▓▓▓▓▓▓▓▓▓▓ the largest exporter in NEA. The majority volume goes into China and southeast Asia. Its export will steadily increase at ▓▓▓▓▓▓▓▓▓▓

- ▓▓▓▓▓▓▓▓▓▓▓ a net importer because of its stagnated capacity growth. Its import demand will gradually increase at ▓▓▓ per annum by 2028.

We hope you found this sample report for Argus Polyethylene Analytics valuable.

The Argus Polyethylene Analytics service is for anyone engaged in the polyethylene market and seeking insight into the fundamentals driving key trends, including global supply, China's demand growth, exports and operating rates etc.

If you want to learn more about becoming an Argus subscriber and receiving full PDF reports complete with accompanying Excel data files twice a year, click below:

> **Find out more**

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Meet our experts

Terry Glass
Vice President Polymers

Terry is responsible for the expansion of Polymer Report services in strategic regions. He has over 40 years' experience relating to the plastics industry, working with converters, brand owners, and resin producers. Before joining Argus, Terry worked at Dow Chemical, Braskem, and Sasol. He holds a Chemistry degree from the University of Houston and 26 patents across a variety of market applications.

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Cassidy Staggers
Analyst, Polymers and Methanol

JCassidy is an analyst in Houston focused on polymers and methanol markets, data science initiatives, product development and content creation. Prior to joining the Chemicals team, she led various operation roles at Argus and McKinsey. Cassidy holds a degree from The University of Michigan and an MBA from University of Houston.

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Sarah Rae
Vice-President Propylene and Derivatives

Sarah Rae is Argus' propylene consultant focusing primarily on Europe and the Middle East. For 17 years prior to joining Argus, Sarah held senior strategic purchasing management positions at Ineos, Tessenderlo Chemie and Rhodia, responsible for a wide range of materials including olefins, fertilizers and commodity raw materials. Before this, Sarah held various management and project roles covering most aspects of the chemical business, including business management, sales, planning and logistics. She graduated with a degree in geology from Leicester University.

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Craig Barry
Lead Consultant Ethylene and Derivatives

Craig leads the global ethylene team focused on integrated global forecasts. He has over 30 years experience in the olefins industry including with Dow Chemical and ExxonMobil. Throughout his career Craig has worked across the world with major olefins and derivative producers. His experience also includes olefins feedstocks and refinery integration with the petrochemical industry. He holds a chemical engineering degree from The Ohio State University and an MBA from Rice University.

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Josie is an analyst in Shanghai focused on olefins and polyolefins markets. Her experience includes working at Pacific Gas as a market analyst in the strategic department, focusing on LPG, ethane, shipping and financial markets. Josie is a chartered financial analyst and holds a bachelor's degree in economics, and a master's in finance and investment from the University of Bristol.

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Polyethylene analytics methodology

Period presented

The annual period for this study is the historical years 2019 through 2023, and forecast data for 2024 through 2033, inclusive.

Analysis and forecasting

The Analytics service contains detailed information such as capacities, production, demand and trade for most producing and consuming countries in the world. Demand forecasts are based on relationships to derivative and end-use consumption trends and expected country-by-country economic growth projections. Argus uses data, market opinions and views on market trends to develop the medium-term supply and demand and corresponding price and margin forecasts. When appropriate, Argus makes adjustments to published data, for example trade data reported by countries or government-reported statistics. Although data gathering is essential to understanding the ethylene market's history and potential future trends, Argus believes the interpretation of this data is the most valuable part of this analysis.

Weights, currencies and percentages

Unless explicitly stated, all weights are given in metric tons and all references to dollars are to US dollars. Currency conversions have been made either at a current or relevant historical exchange rate, as required by the context. Numbers may be rounded. This means that table totals may differ from the sum of the individual figures, and percentages may sometimes appear not to total exactly 100pc.

Your feedback is welcome

Argus thanks our valuable clients and contacts for sharing opinions and expertise during the compilation process. Data verification is the cornerstone of to the quality of the analysis, and the input received from global market participants is critical to arriving at logical and realistic conclusions. It is important that this product meets client's expectations, and we encourage feedback to ensure continuous improvement. If additional company-specific or more detailed long-term analysis is desired regarding ethylene or other petrochemicals, please contact the Argus team.

Appendix: *Argus* acronyms

PE Types	Units	Regions	Process	Financial
HDPE – high density polyethylene	'000t – thousands of tons	WE – Western European		GDP – Gross domestic product
LDPE – linear density polyethylene	kt – kilo tons	LATAM– Latin America and Caribbean		CAGR – cumulative annual growth rate
LLD-HDPE – linear low density-high density polyethylene	kta – kilo tons / annum	ME – Middle East		CPI – Consumer price index
LLDPE – linear low density polyethylene	mn – million	NAM – North America		EU – European Union
PE - polyethylene	t – tons	NEA – Northeast Asia		YTD – year to date
IM – injection molding	pc – percent	SEA – Southeast Asia		

Disclaimer

Argus Polyethylene Analytics Service

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