Europe Petrochemicals – megatrends and the transition to a new future

Tom Marzec-Manser
Head of Gas Analytics

Helen McGeough
Senior Analyst & Global Analyst Team Lead, Plastic Recycling

James Wilson
Senior Analyst, Olefins

Nigel Davis
Insight Editor

These checklists are intended for the good conduct of EPCA Organized Meetings but their principles should be complied with also when discussions take place outside the framework of EPCA Organized Meetings. The checklists are non-exhaustive.

EPCA

DO'S

Do ensure strict compliance as follows:

SUPERVISION

- Have an EPCA staff member at each EPCA organized meeting.
- Consult with company counsel/specialized external counsel on all questions related to competition law.
- Limit discussions at the meeting to agenda topics.
- Provide each attendee with a copy of these checklists and have a copy available at all meetings
- Remind meeting participants of the importance of competition law compliance, also when discussions may continue or occur outside meetings.

RECORD KEEPING

- Have an agenda and minutes that accurately reflect what is discussed, as well as an attendance list, and ensure that these documents are kept.
- Ensure the review of agendas, minutes and other important documents by appropriate staff and/or external legal counsel, in advance of distribution.
- Fully describe the purposes, structures and authorities of the groups, meetings and specific projects.

VIGILANCE

- Immediately protest against any discussion or meeting activities that appear to violate these checklists and may raise competition law concerns.
- Have this protest recorded in the minutes
- Ask for those discussions/activities to be stopped so that appropriate legal checks can be made by external counsel
- Actively dissociate yourself from any such discussion or activities.
- Leave any meeting in which these activities continue despite protest and have your departure minuted.

DON'TS

Do not attend EPCA organized meetings if no EPCA staff member is present.
Do not discuss or exchange with competitors any sensitive competitive information that would normally not be publicly disclosed by a company, including for example information on:

PRICES

- Individual company/industry prices, price changes, price differentials, discounts, allowances & credit terms
- Individual company data on costs, production, capacity (other than nameplate capacities), inventories & sales

PRODUCTION

- Plans/strategy of individual companies concerning the design, production, distribution or marketing of particular products, including proposed territories of customers
- Changes in production capacities (other than nameplate capacities) or inventories

TRANSPORTATION RATES & POLICIES

- Rates or rate policies for individual shipments, including basing point systems, zone prices & freight

MARKET PROCEDURES

- Company bids on contracts for particular products; company procedures for responding to bid invitations
- Matters relating to actual or potential individual suppliers or customers
- Plans to discriminate against or blacklist or boycott customers, suppliers or competitors
- Prohibited discussion topics apply equally to social gatherings incidental to EPCA Organized Meetings.

epca.eu/dos-donts

Independent Commodity Intelligence Services

European gas and global LNG outlook

Tom Marzec-Manser
Head of Global Gas Analytics
EPCA – *September 2023*

Natural Gas | Where is it used in the chemicals industry?

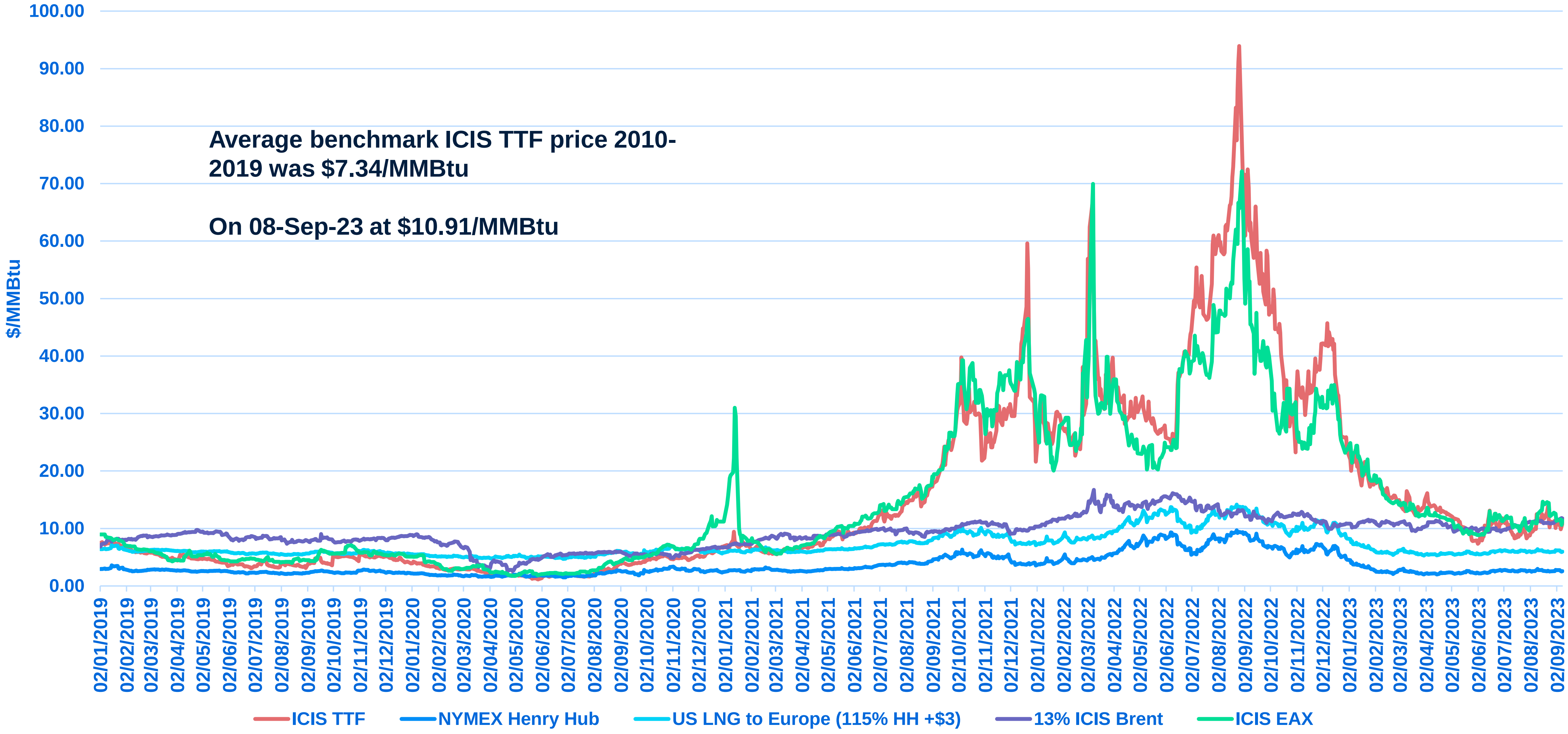
Chemical Feedstock

- Methanol
- Ammonia
- Isocyanates

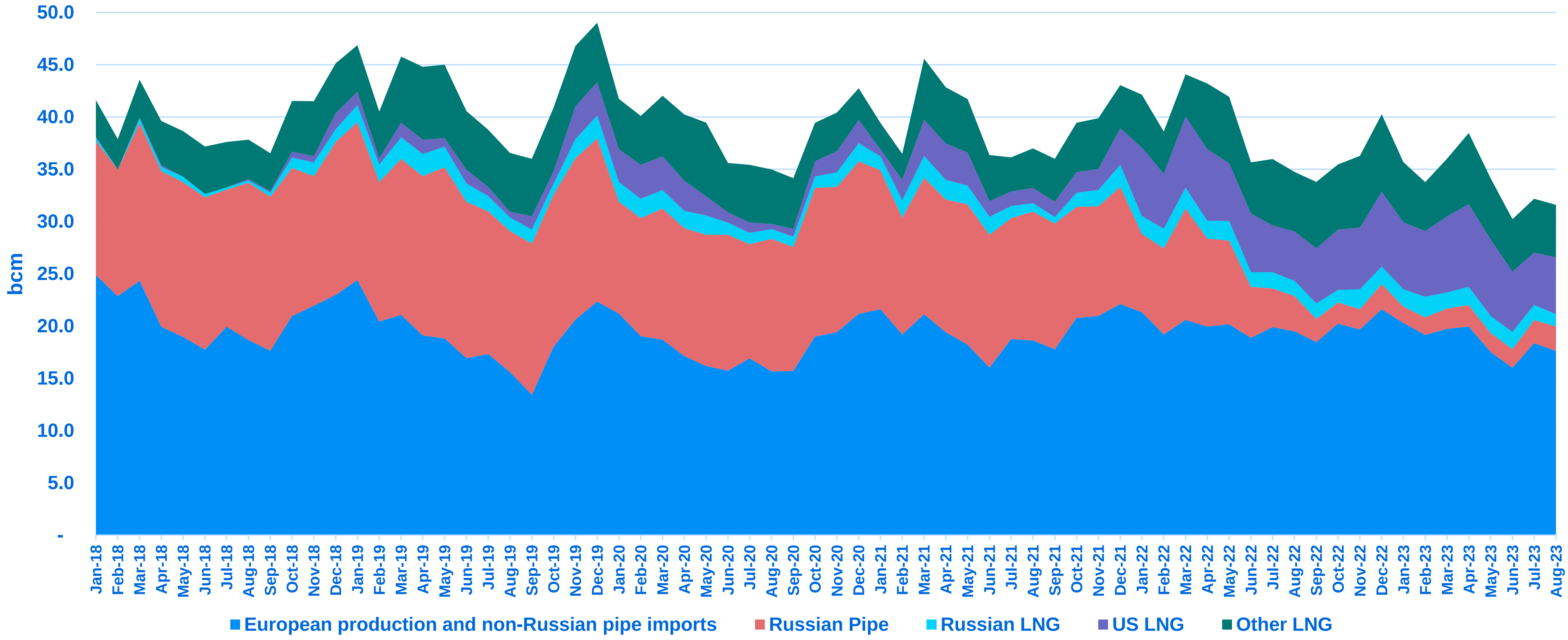
Utility / Energy input

- Fuel (eg, steam cracking)
- Steam (eg, styrene)
- Electricity (eg, chlorovinyl)

European gas down, but still high priced



Greater reliance on LNG leads to increased gas volatility



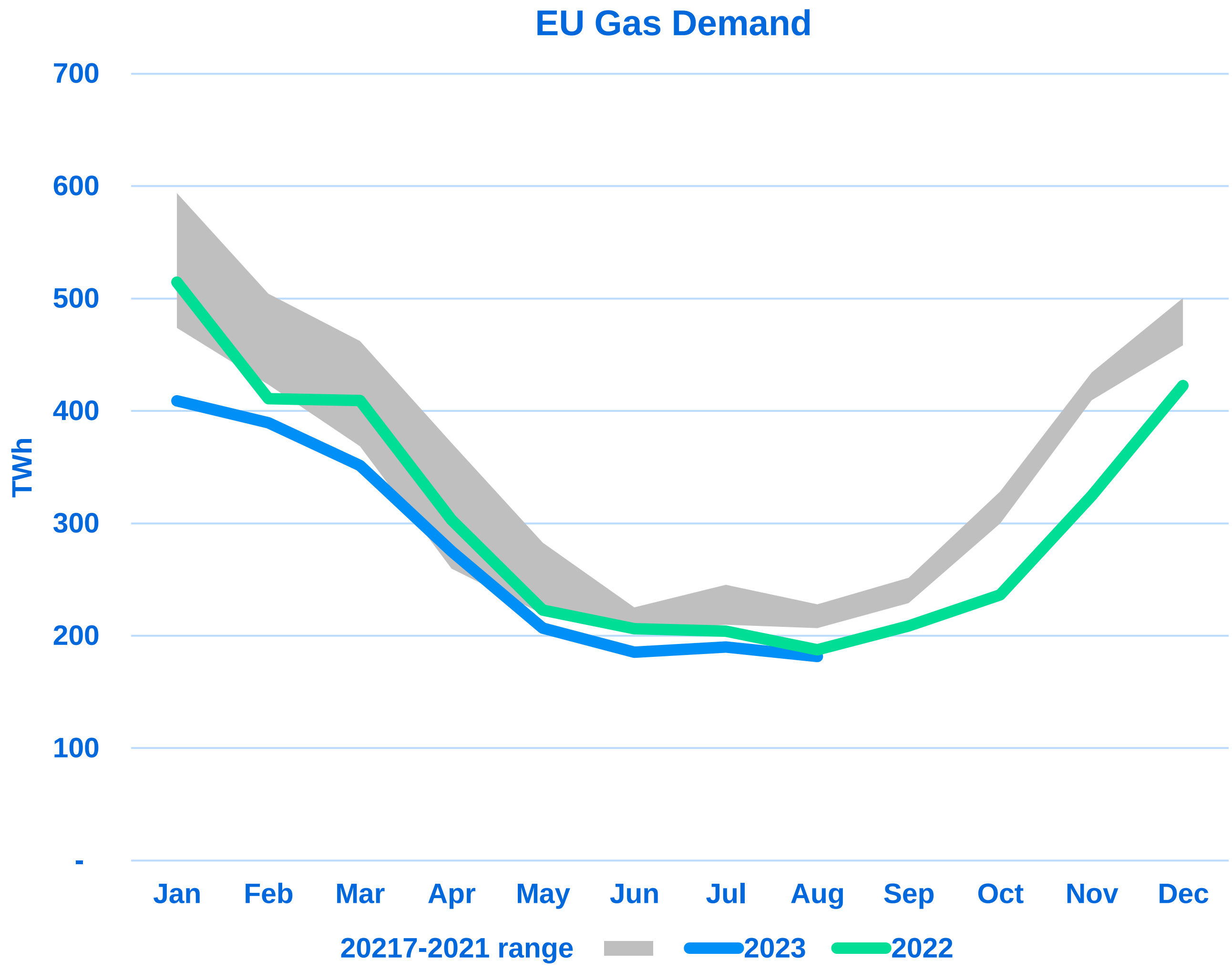
Europe continues to save gas vs 2017-21

18% saved in winter 2022-23
17% saved in August

- Price response key for industry
  - Lower prices have not fully led to recovery
  - Forward prices a barrier

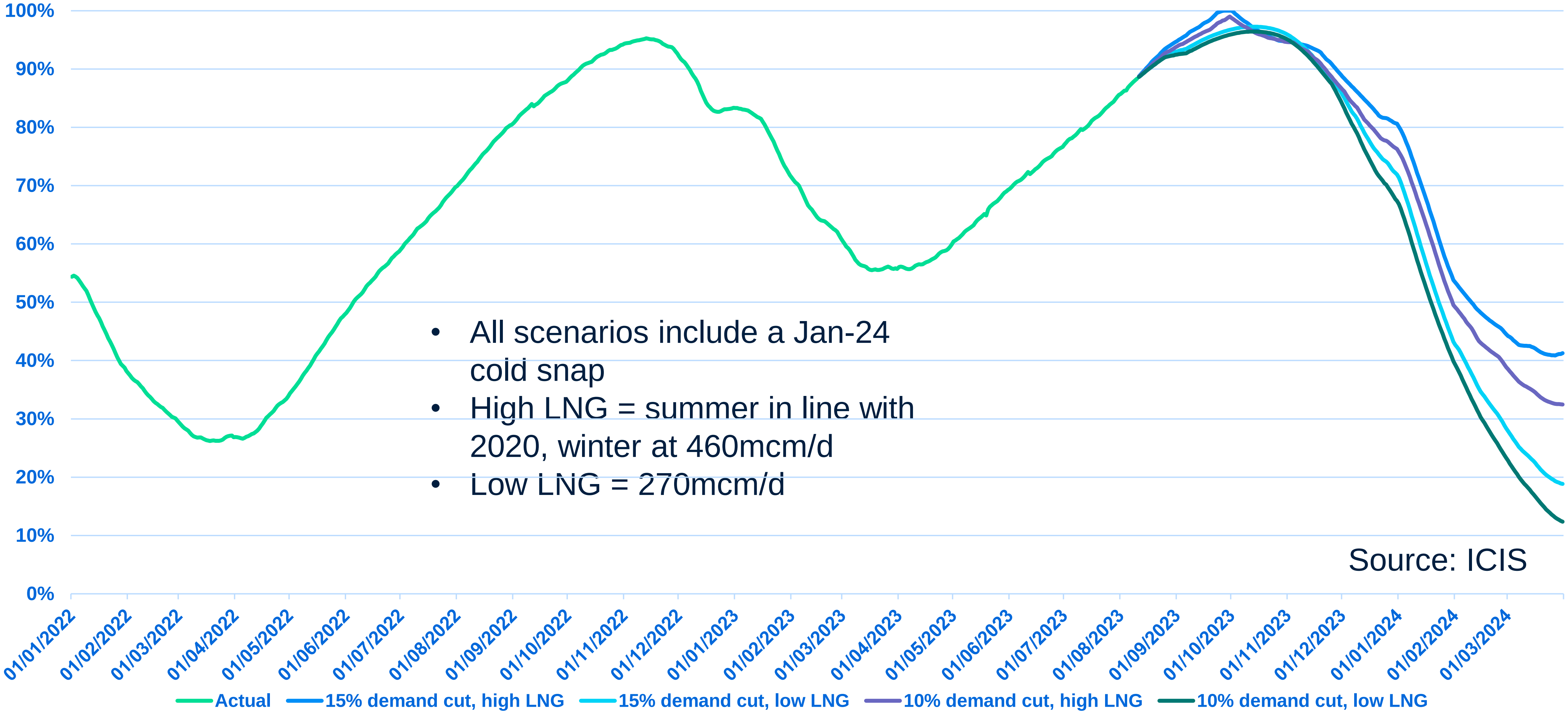
- Weather-driven demand a factor for commercial/residential, as well as price

- Expect less gas-to-power demand in 2023:
  - Improved nuclear and hydro outlook
  - Increased wind and solar availability
  - But gas now more profitable than coal in power generation



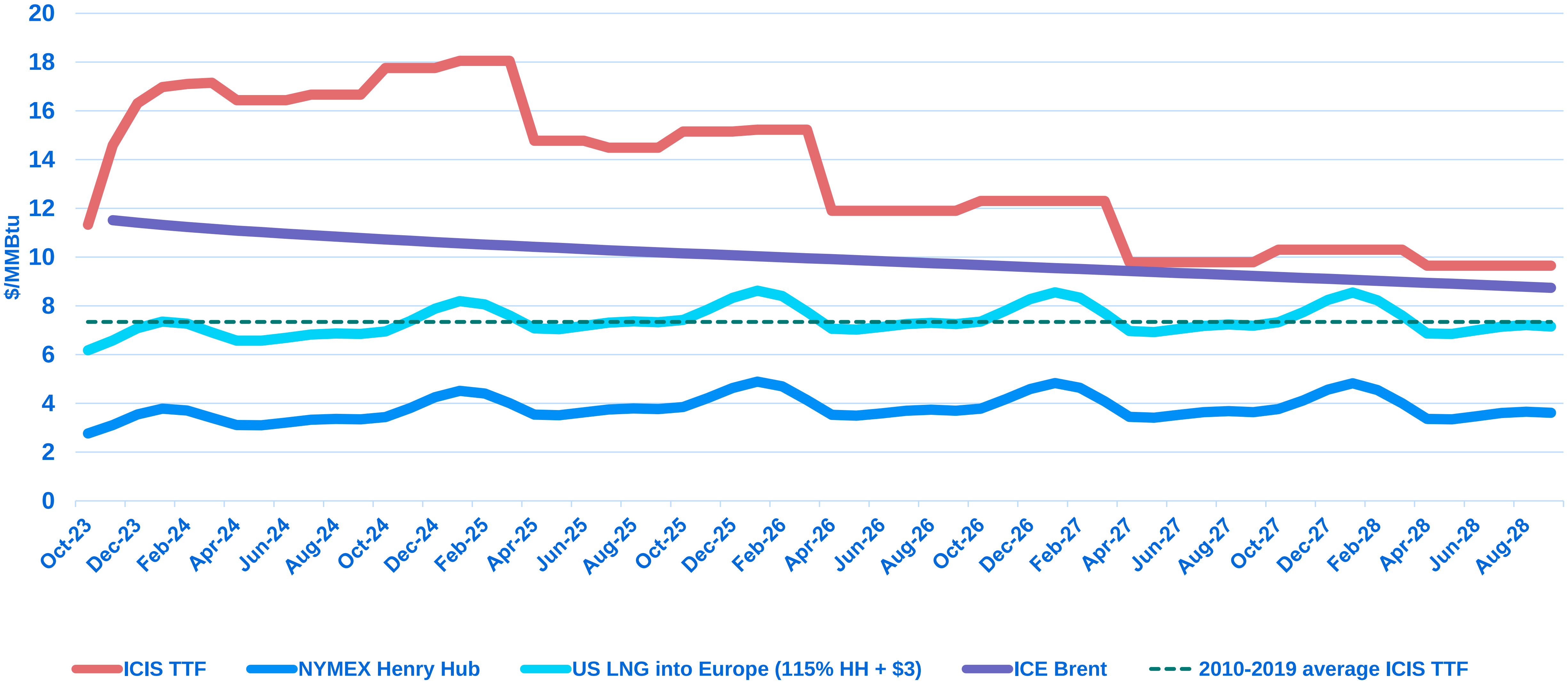
European storage scenarios

Mid-August update

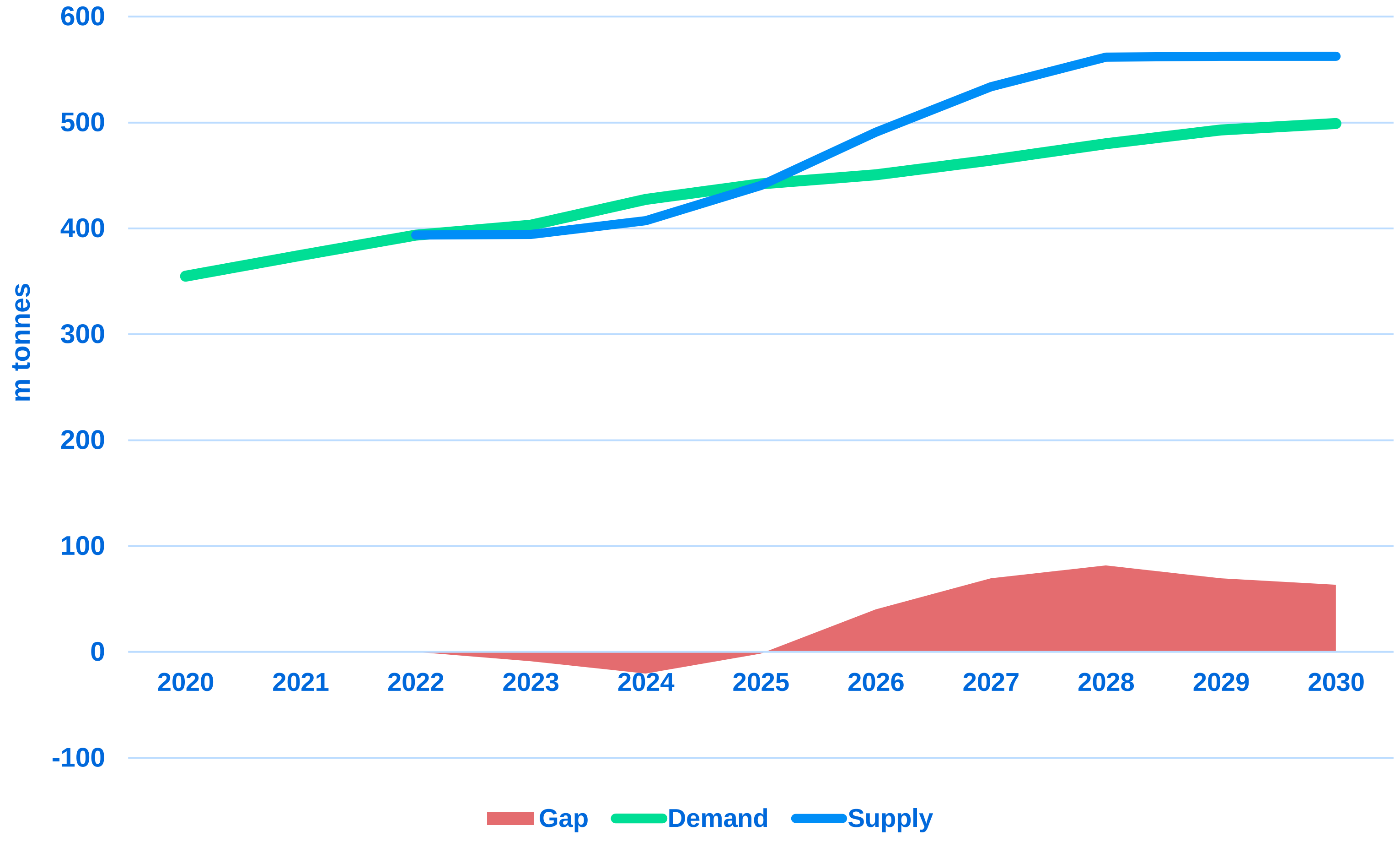


Euro gas forward curve: not back to historical levels

1 September 2023



Looking to the second half of the decade



	Africa & MidEast	Europe	N&C Americas	S America	NE Asia	S Asia	SE Asia	**Global**
2023	2%	5%	19%	-23%	1%	1%	7%	**2%**
2024	-9%	5%	12%	24%	4%	15%	22%	**6%**
2025	-4%	4%	5%	1%	0%	9%	24%	**3%**
2026	15%	-5%	7%	23%	1%	14%	12%	**2%**
2027	11%	-5%	22%	12%	3%	10%	13%	**3%**
2028	8%	-5%	3%	8%	5%	11%	11%	**3%**
2029	8%	-5%	4%	0%	4%	8%	12%	**3%**

ICIS TTF forward curve steps lower in 2025

Final thoughts

- European gas benchmark, ICIS TTF, has finally returned to the top of its historic range
  - Price response in both Europe and Asia
  - A mild winter in Europe and Asia
- But forward curve highlights risk for coming winter

- Demand savings in Europe will need to continue
- Power fuel-switch curve suggesting gas could run, but all thermal squeezed
- ICIS observes industry cautious to ramp-up gas offtake due to steep contango

- Risk of colder-than-normal temperatures and surging Asian demand
- LNG supply risk always remains

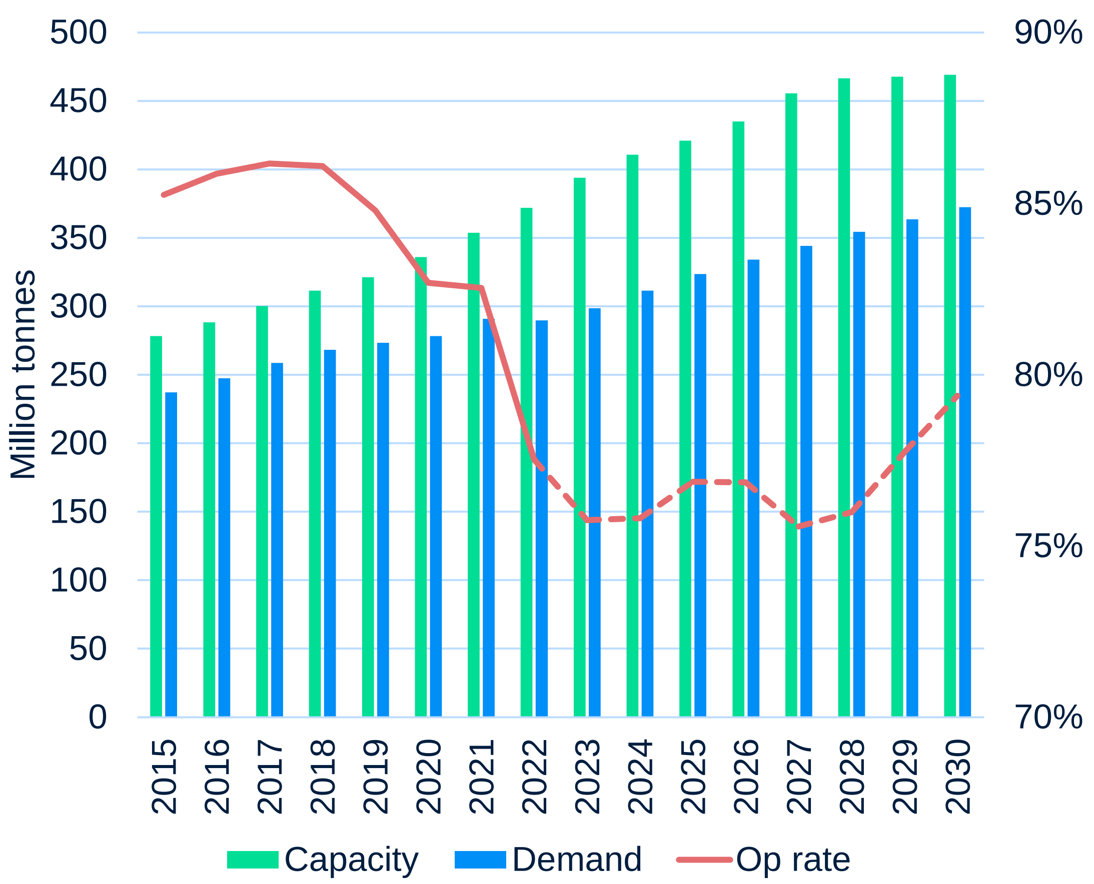
I·C·I·S
Independent Commodity Intelligence Services

EPCA Petrochemical Market Update

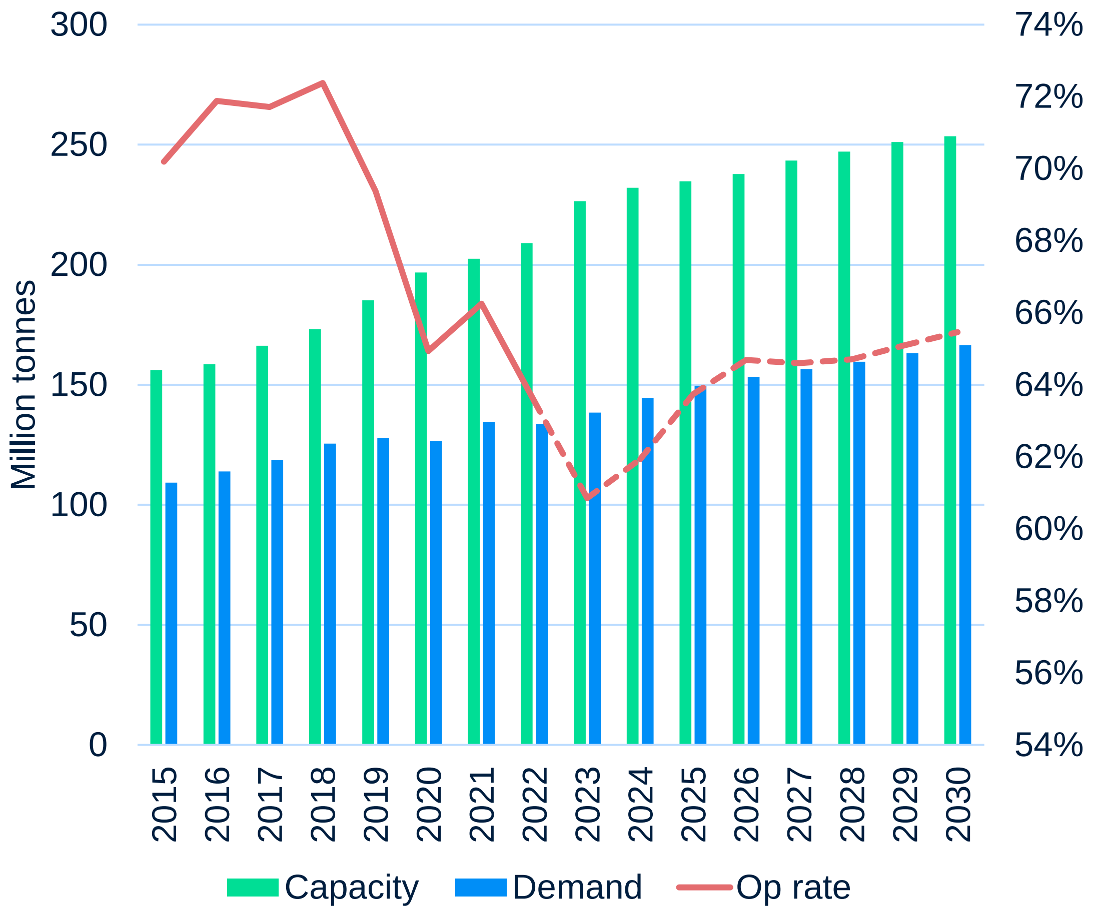
James Wilson
Senior Analyst, Olefins
james.wilson@icis.com

Global Petchem Operating Rates – Multi-year lows forecast 2023

Olefins Supply & Demand (Global)



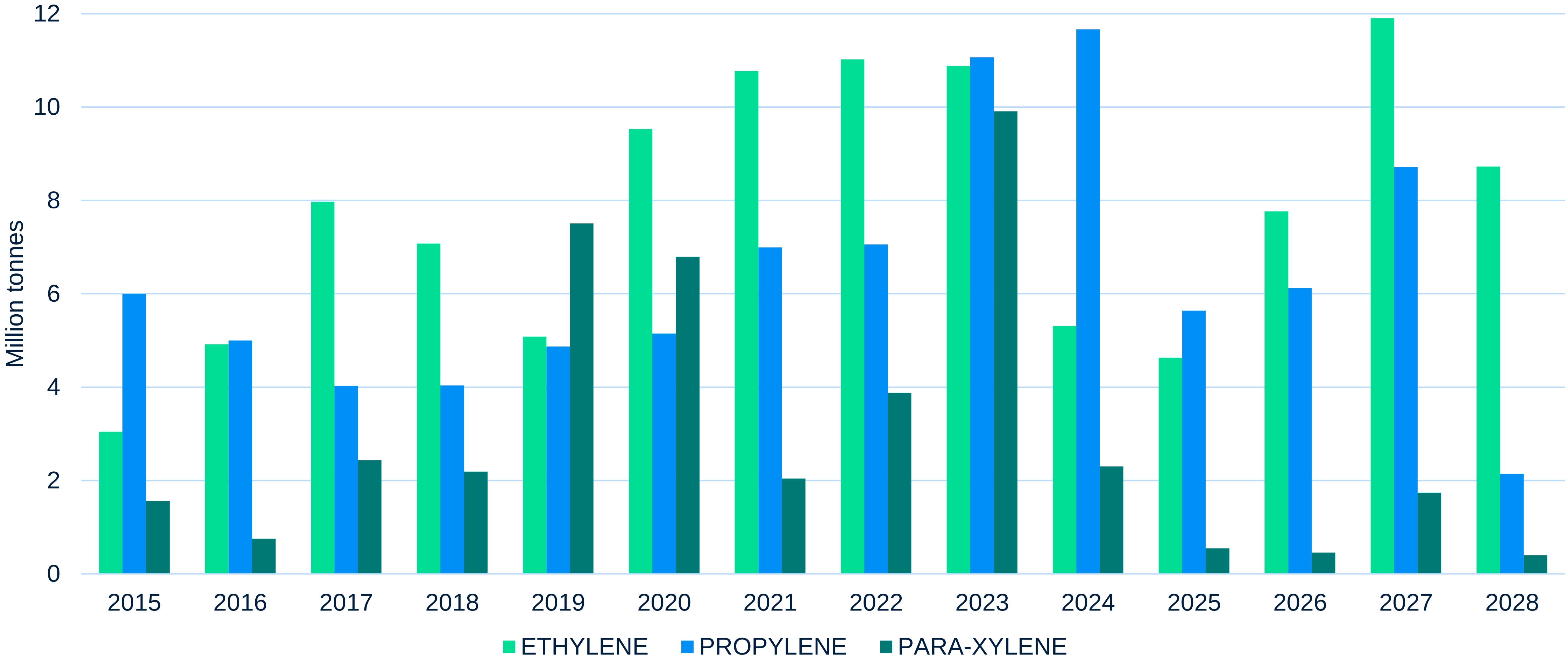
Aromatics Supply & Demand (Global)



Source: ICIS Supply & Demand Database

Global Capacity Investments – Peak in 2023, but more to come

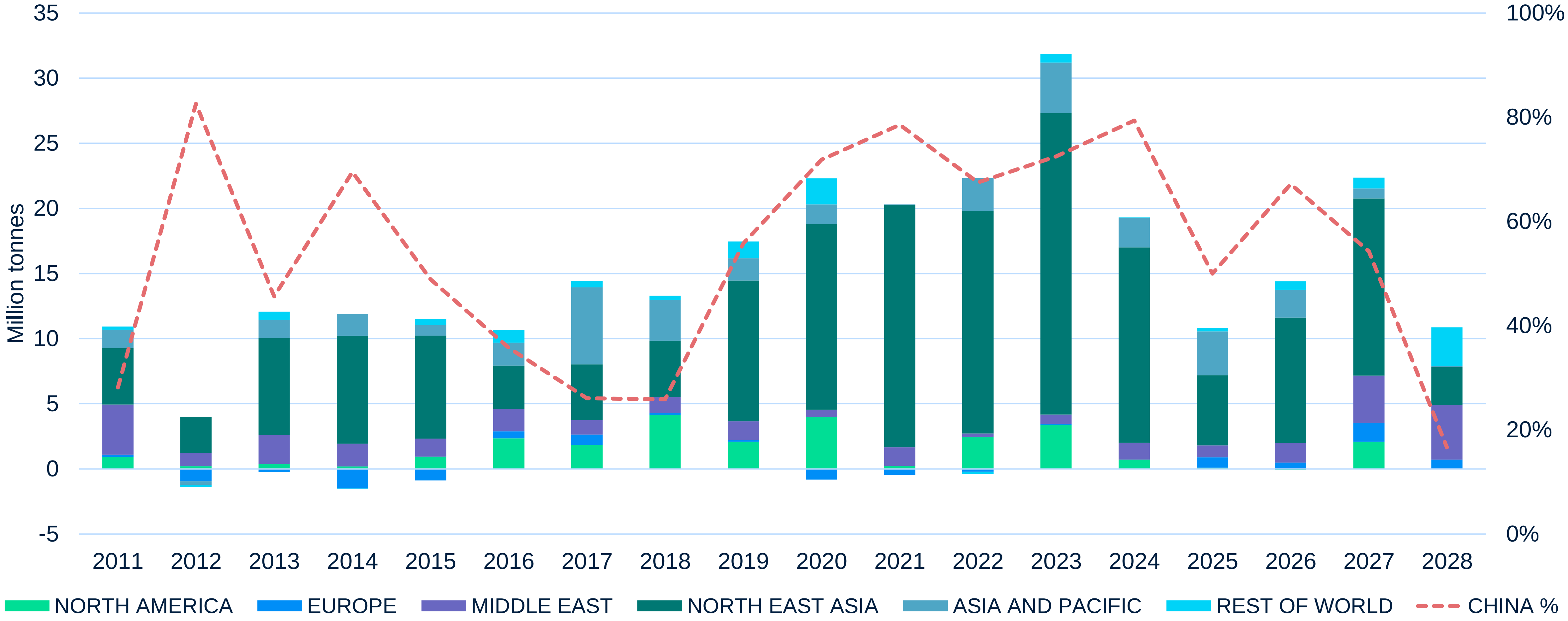
Incremental Capacity Growth by Product



Source: ICIS Supply & Demand Database

Global Capacity Investments – China driving additions

Incremental Capacity Growth by Region (Ethylene, Propylene, Paraxylene)



Source: ICIS Supply & Demand Database

China Import Dependency Falling Fast

China import decrease, 2020-2022

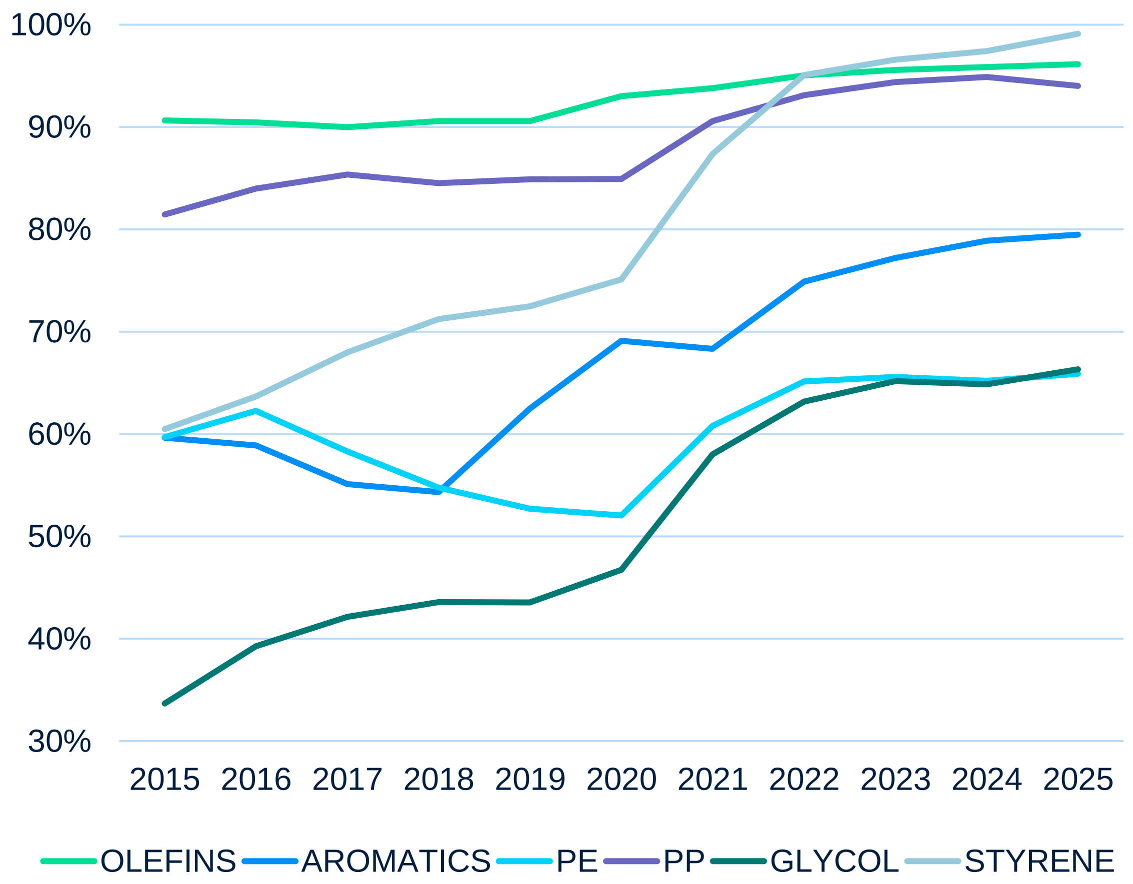
PE
26%
5 MMT

PX
24%
3.3 MMT

MEG
29%
3.0 MMT

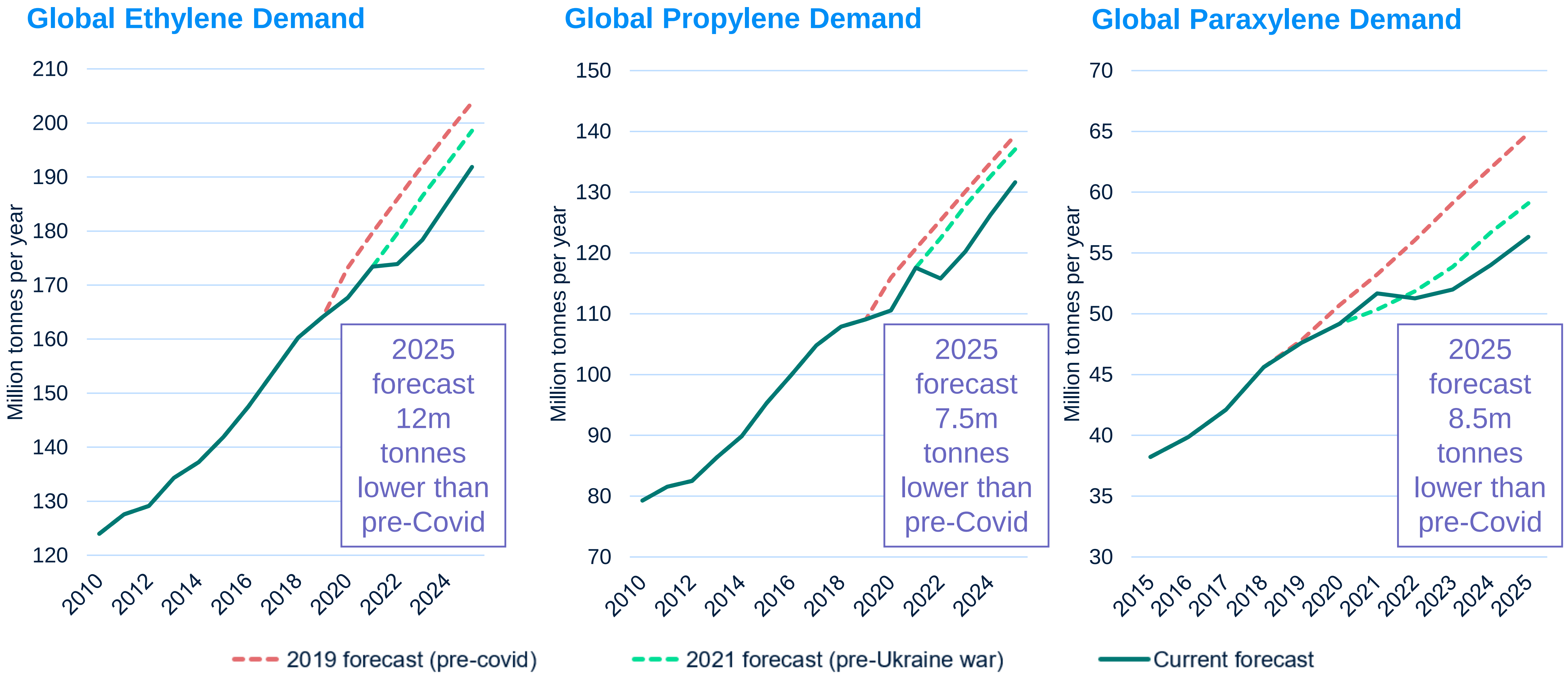
PP
31%
2.0 MMT

China self-sufficiency



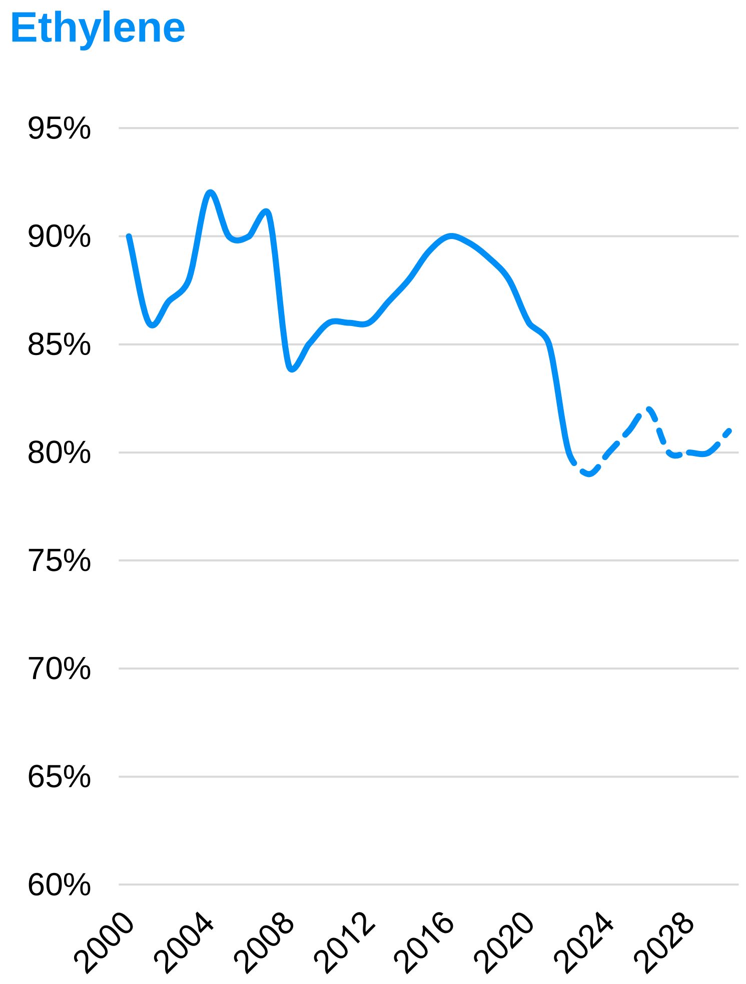
Source: ICIS Analytics

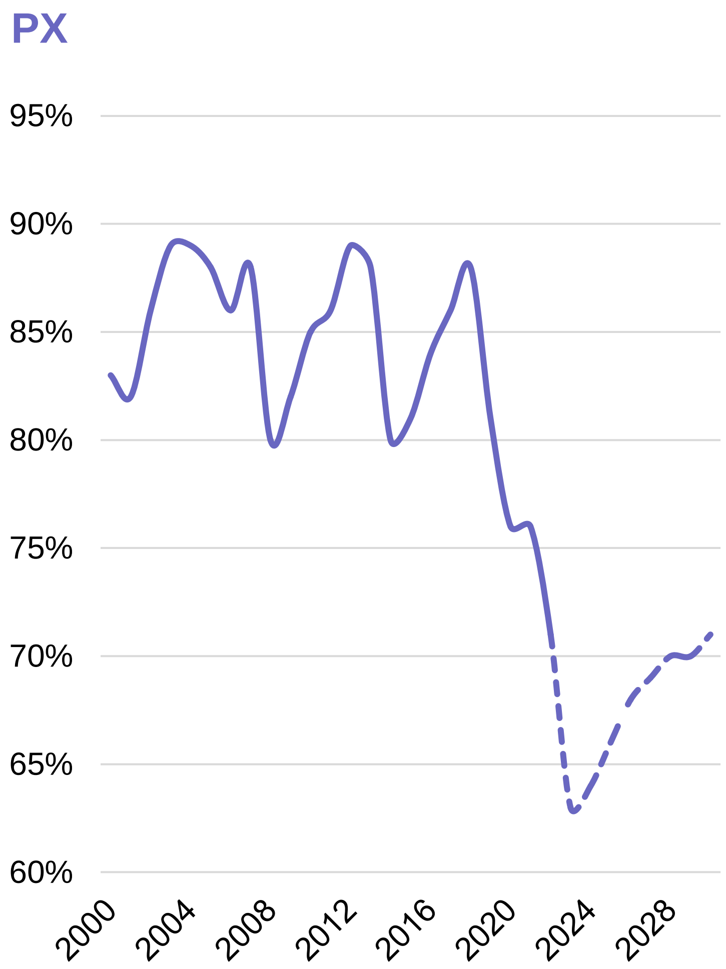
Global Petchem Demand – Robust but growth has been lost



Source: ICIS Supply & Demand Database

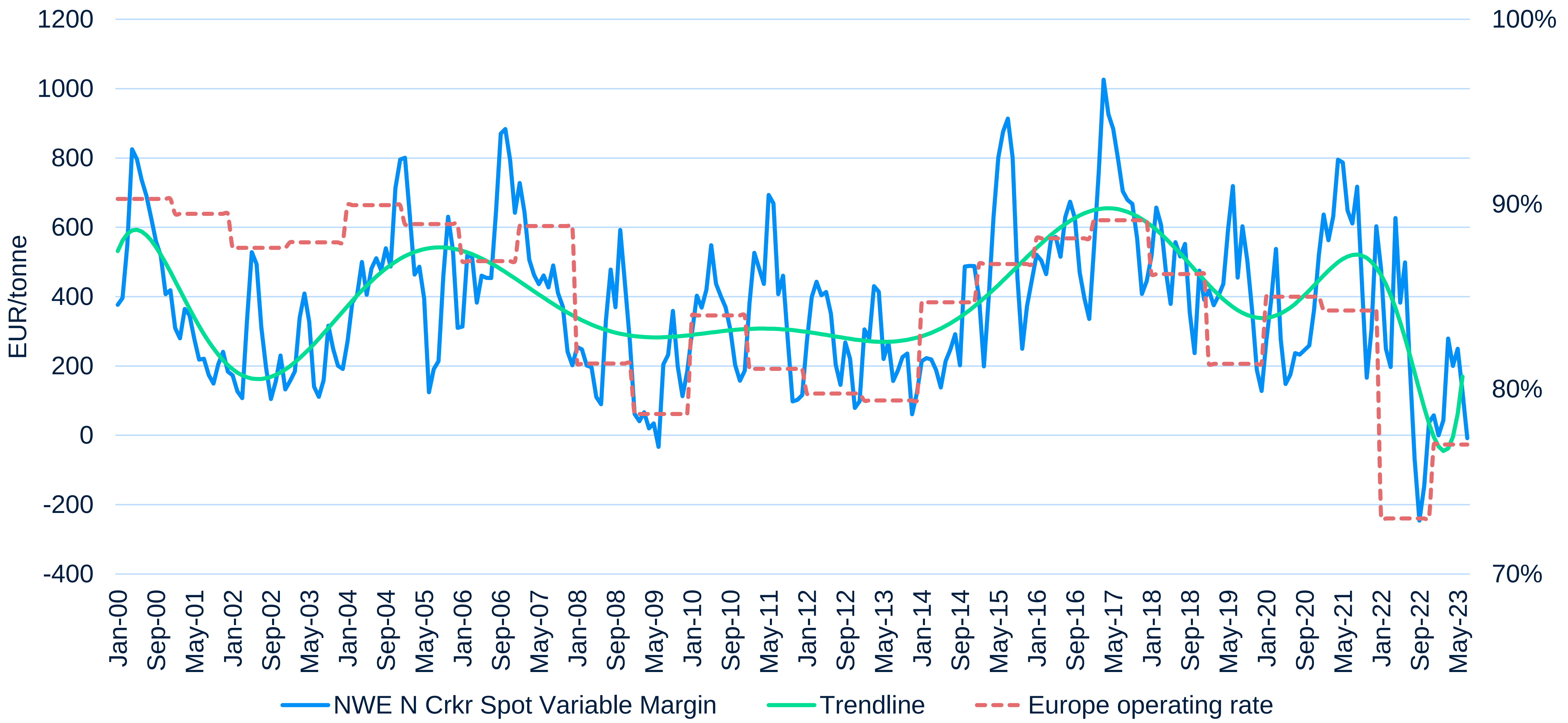
Global Operating Rates – Unprecedented lows





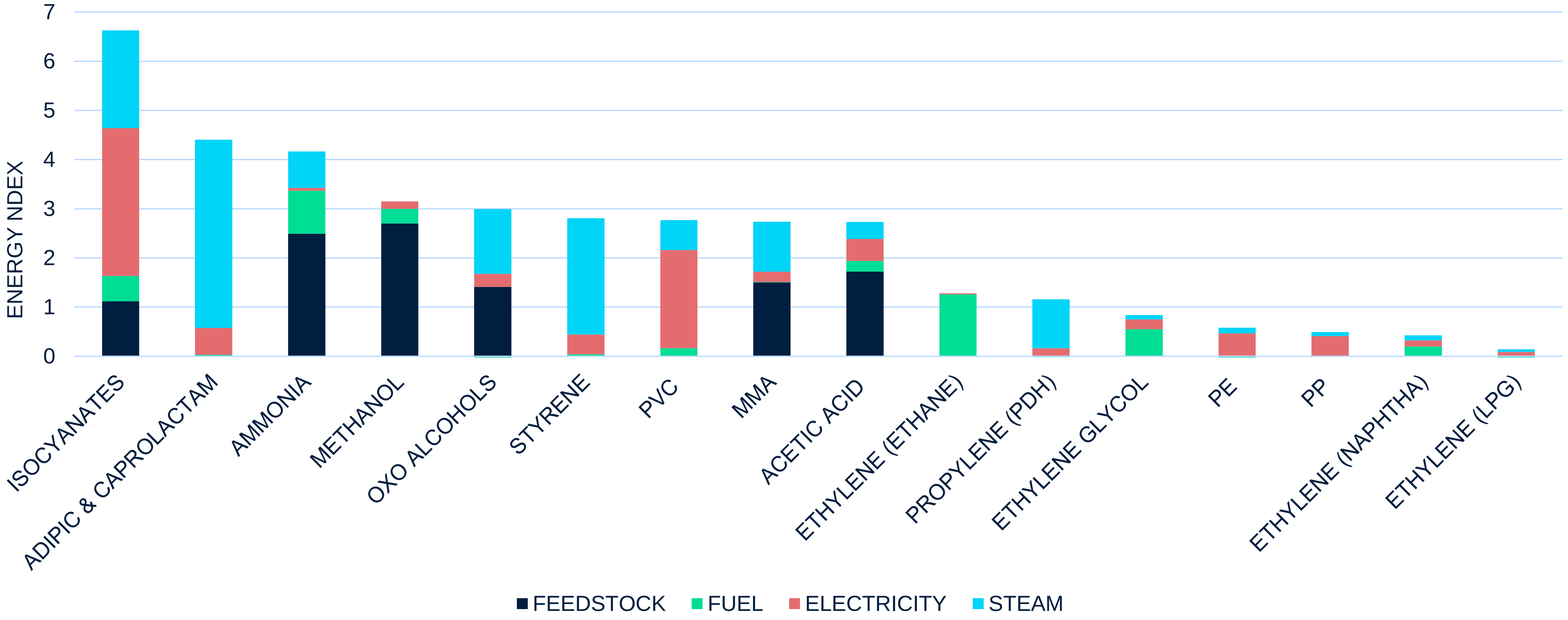
Source: ICIS Supply & Demand Database

Europe Ethylene Margins – Unprecedented lows



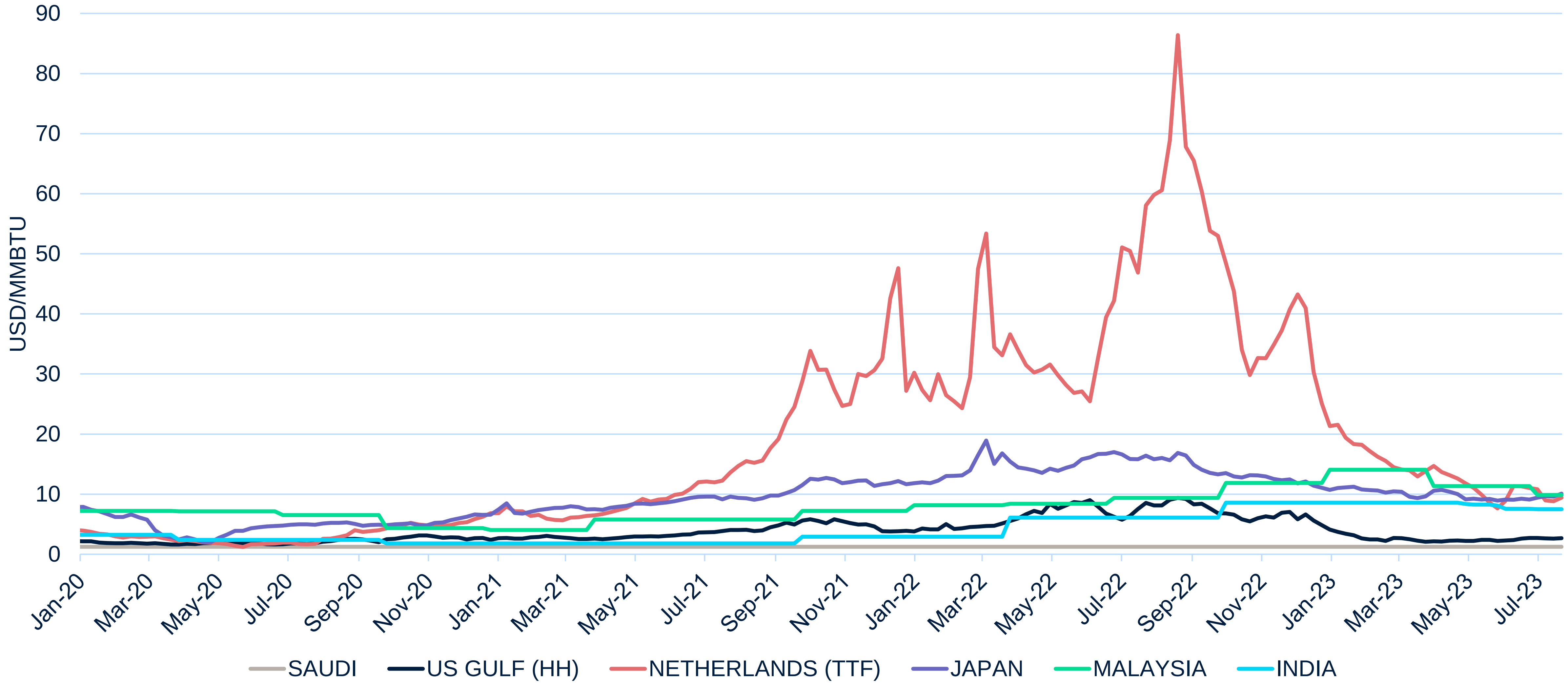
Source: ICIS Supply & Demand Database

Comparing Energy Intensity of Different Chemicals



Source: ICIS Analytics

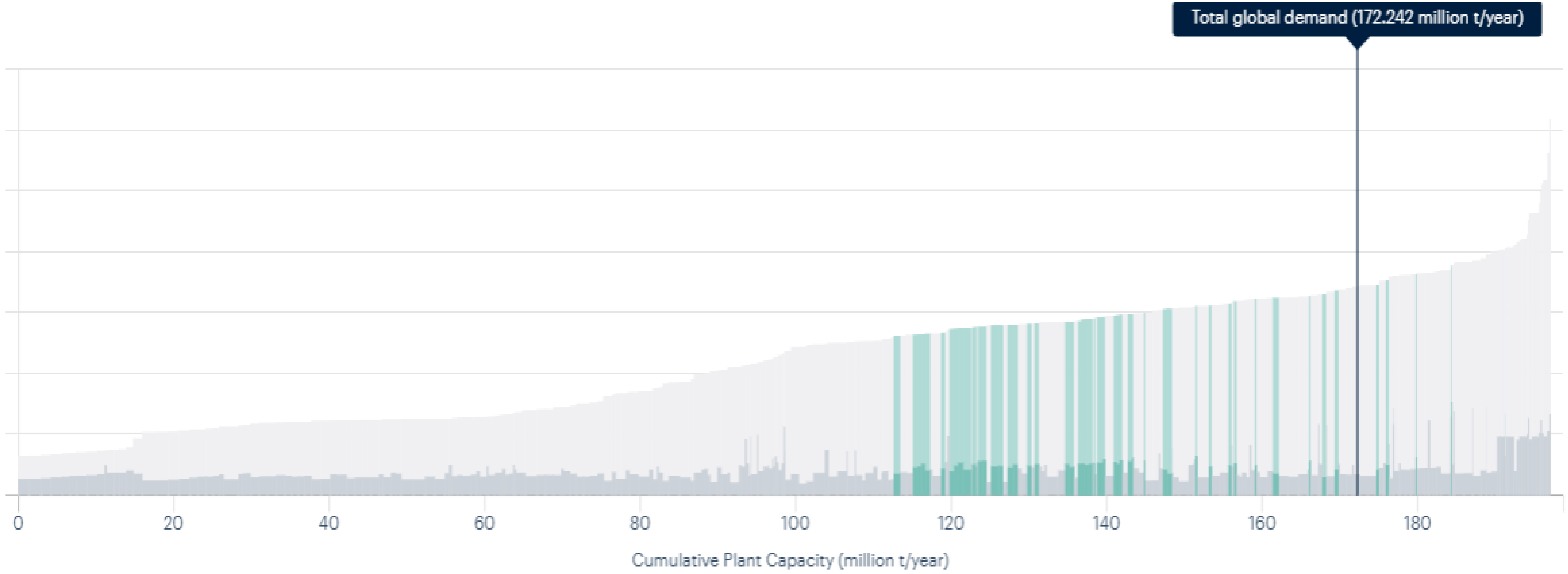
Global Gas Pricing – Structural differences



Source: ICIS Pricing, ICIS Analytics

Global Cost of Production – Before the crisis

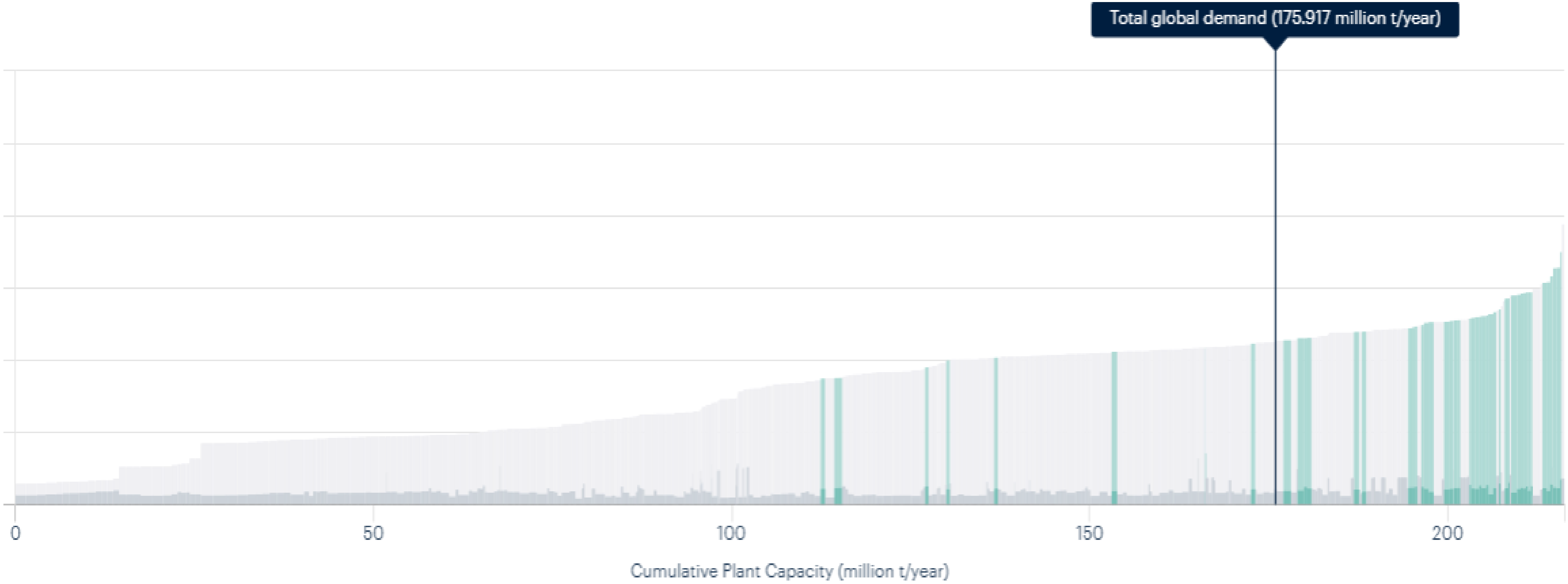
Ethylene, Apr 2021, European producers highlighted



Source: ICIS Cost Curves

Global Cost of Production – At the height of the crisis

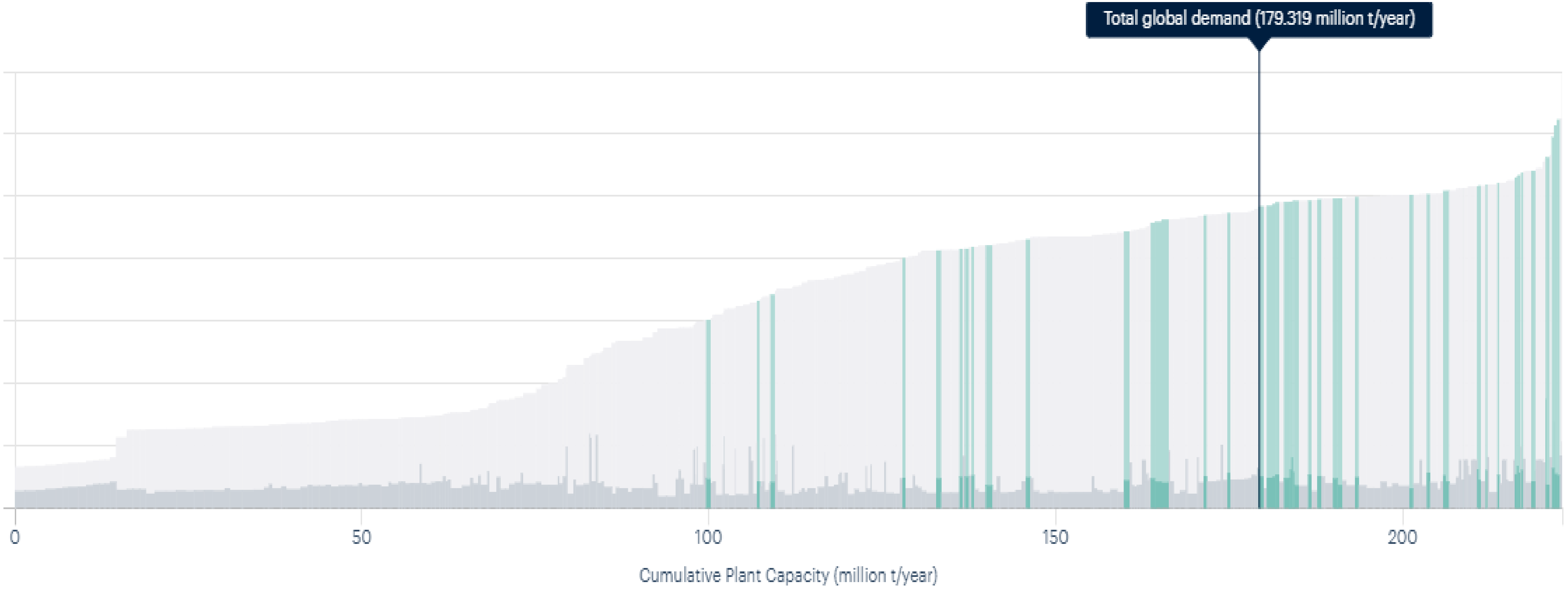
Ethylene, Sep 2022, European production highlighted



Source: ICIS Cost Curves

Global Cost of Production – Current situation

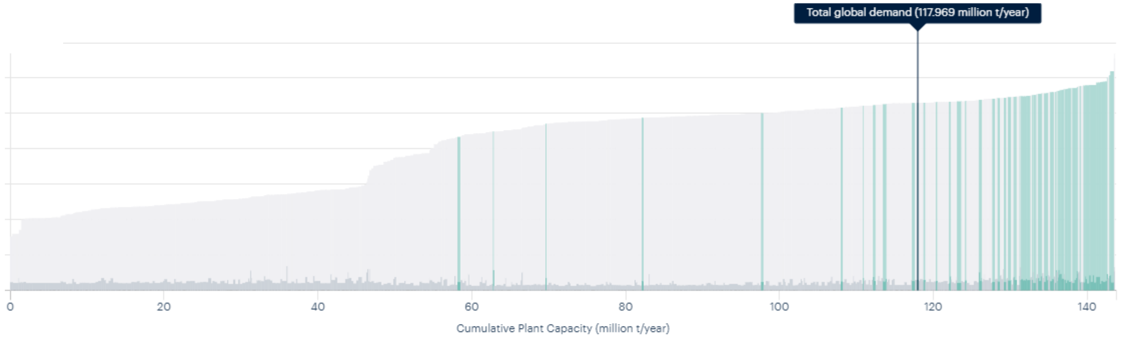
Ethylene, Sep 2023, European producers highlighted



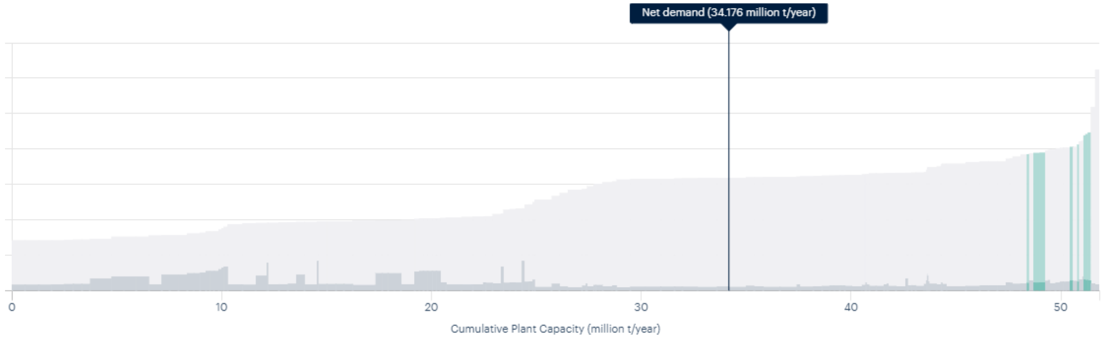
Source: ICIS Cost Curves

Europe is now the high cost region for production

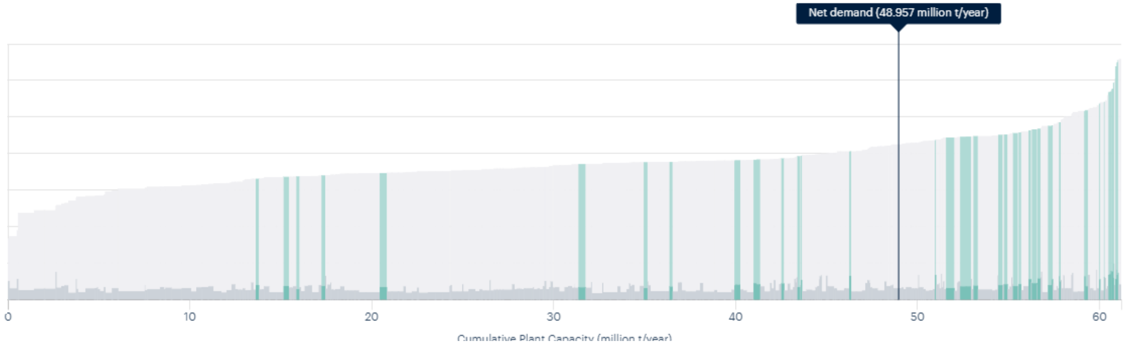
PE (September 2023)



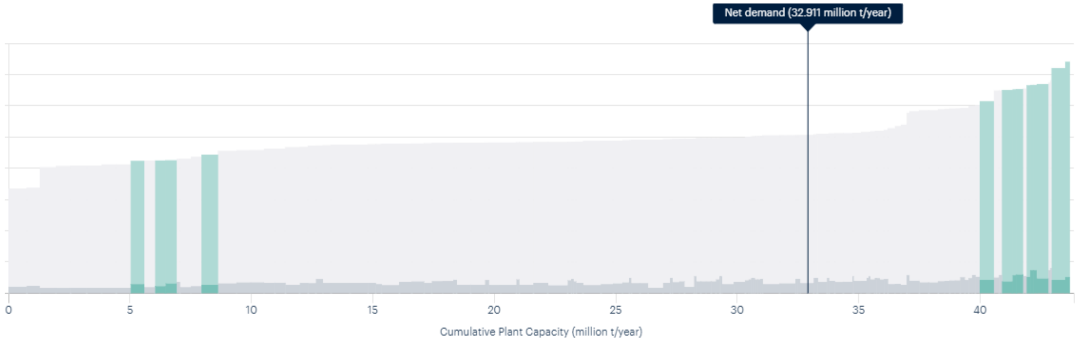
MEG (August 2023)



PVC (July 2023)



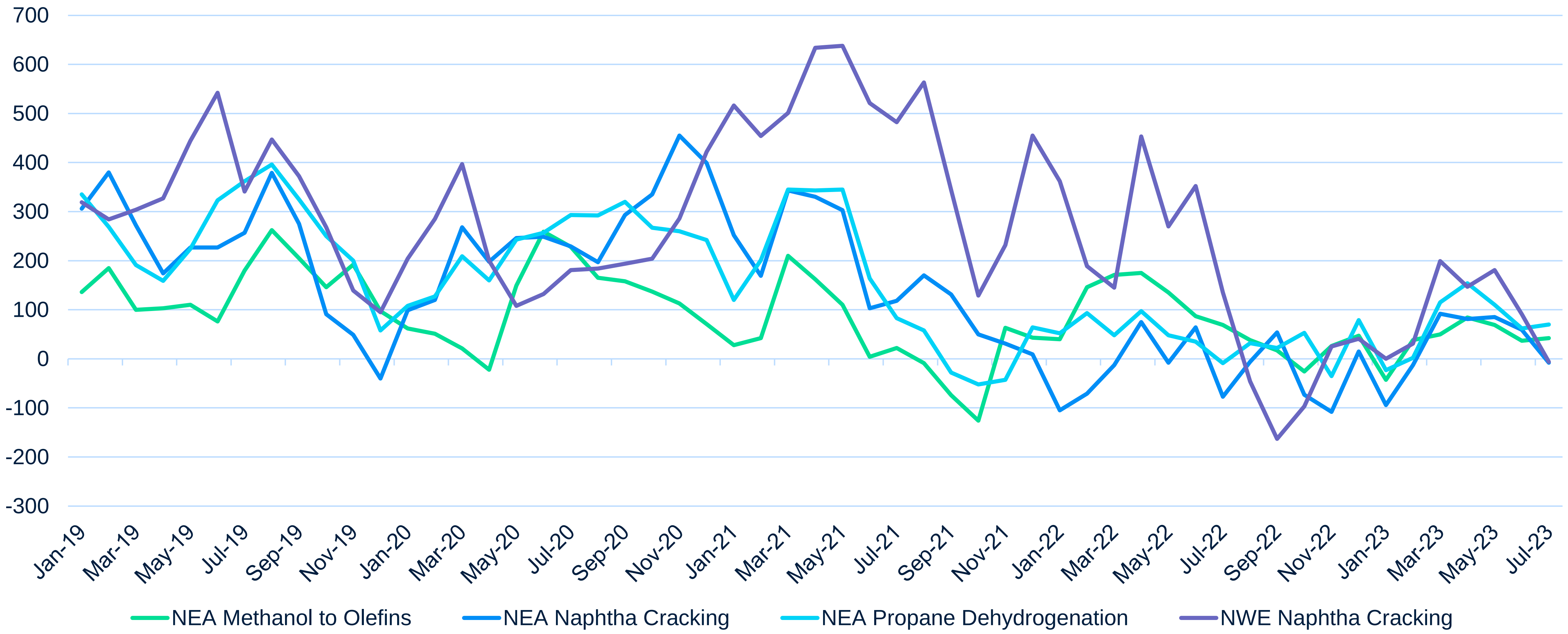
Styrene (June 2023)



Source: ICIS Cost Curves (European producers highlighted)

Olefin Margins – Asian margin pressure not a new development

Light Olefin Variable Margins (USD/MT)



Source: ICIS Margin Analytics

Ethylene Capacity Rationalisation – Potential scale

Global operating rate (2028)

Demand CAGR (2022-2028)	82%	83%	84%	85%
3.6%	2.6	5.8	8.9	11.9
3.1%*	**10.0**	**13.0**	**16.0**	**19.0**
2.6%	17.5	20.4	23.4	26.2

Required reduction in global capacity to achieve target operating rate (million metric tonnes)

Source: ICIS Analytics

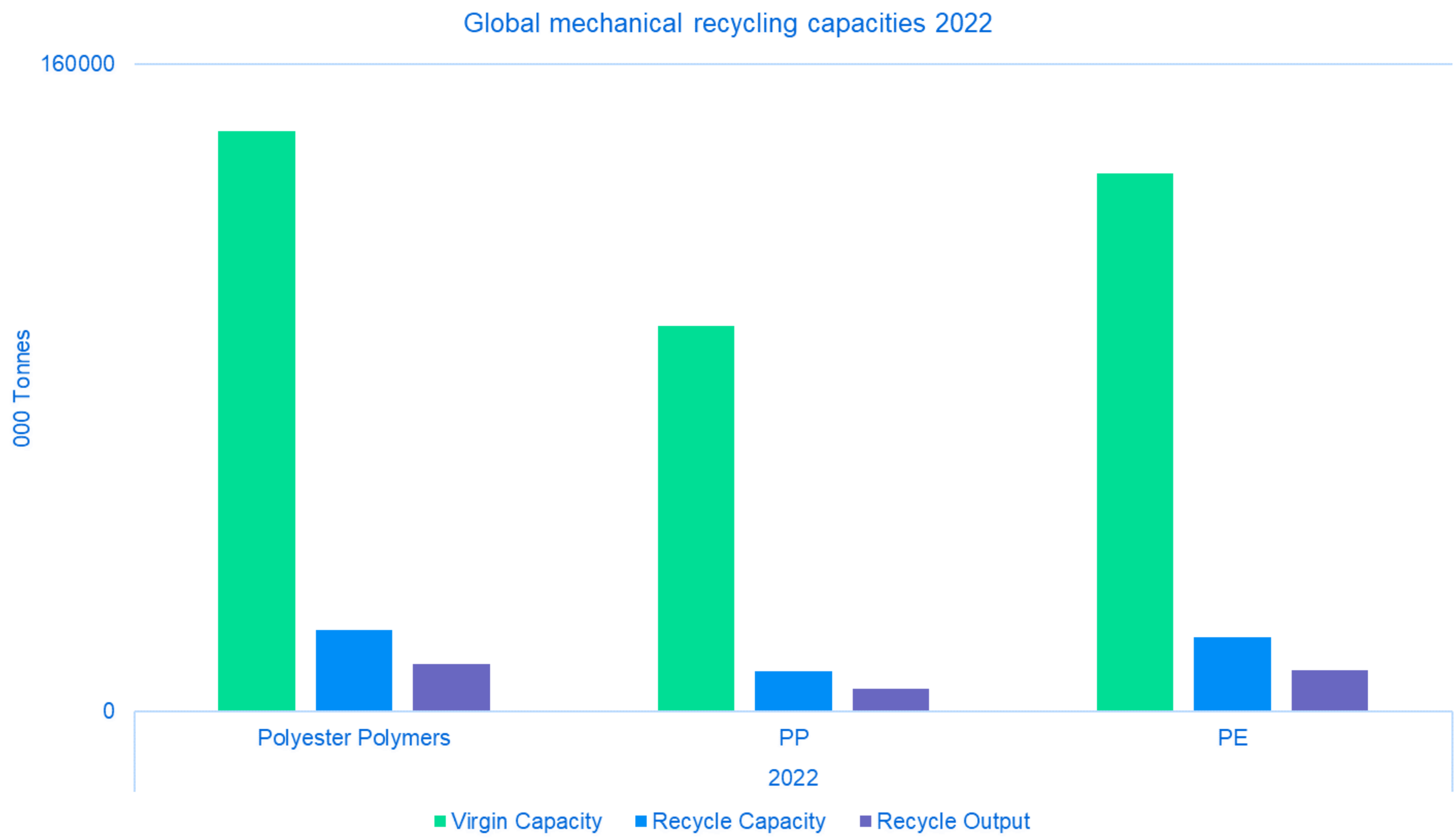
I·C·I·S
Independent Commodity Intelligence Services

Plastics Circularity Outlook

Helen McGeough
Senior Analyst (Plastics Recycling)
helen.mcgeough@icis.com

Structural supply-demand imbalance in plastics recycling

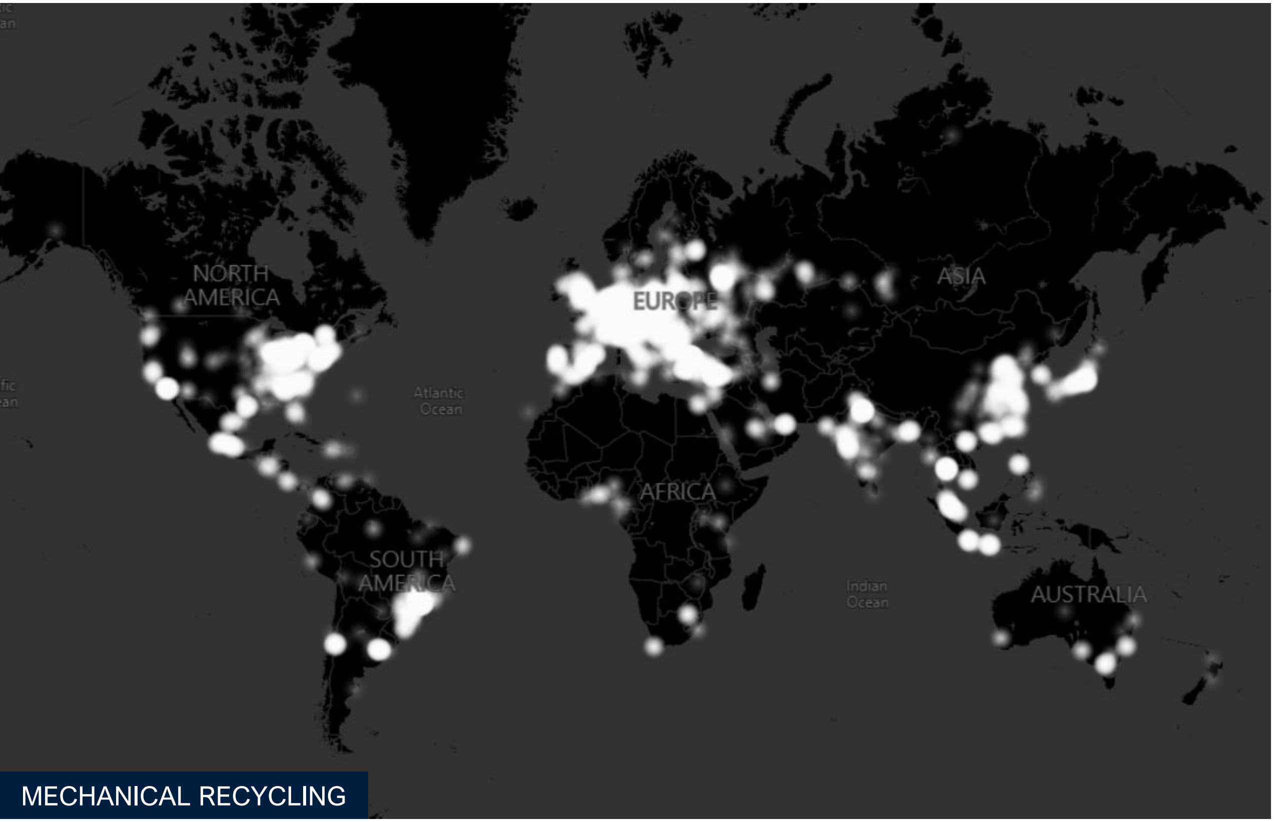
Recycled polymer capacity holds marginal share in virgin markets today

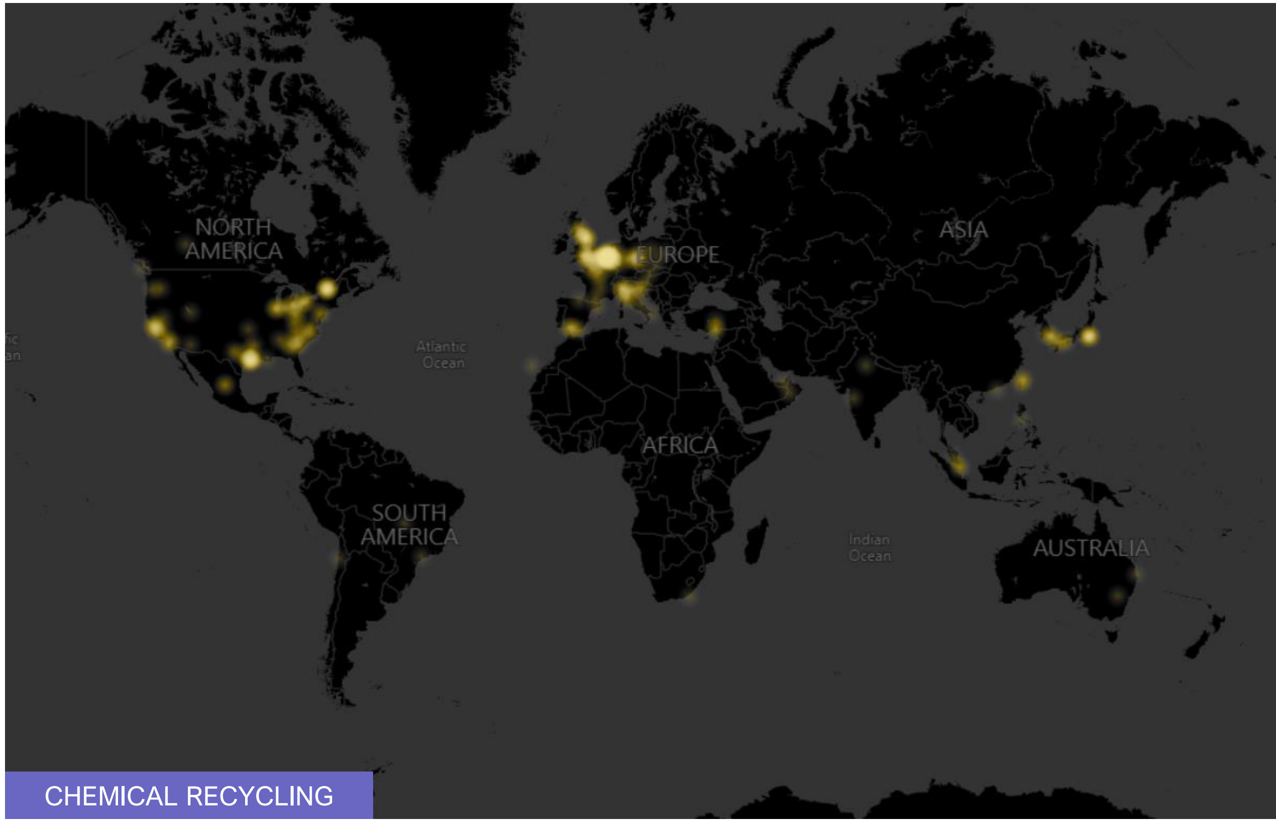


Source: *ICIS Mechanical Recycling supply Tracker, 2023*

Global recycling capacity | Mechanical higher scale

Europe advanced development in capacity

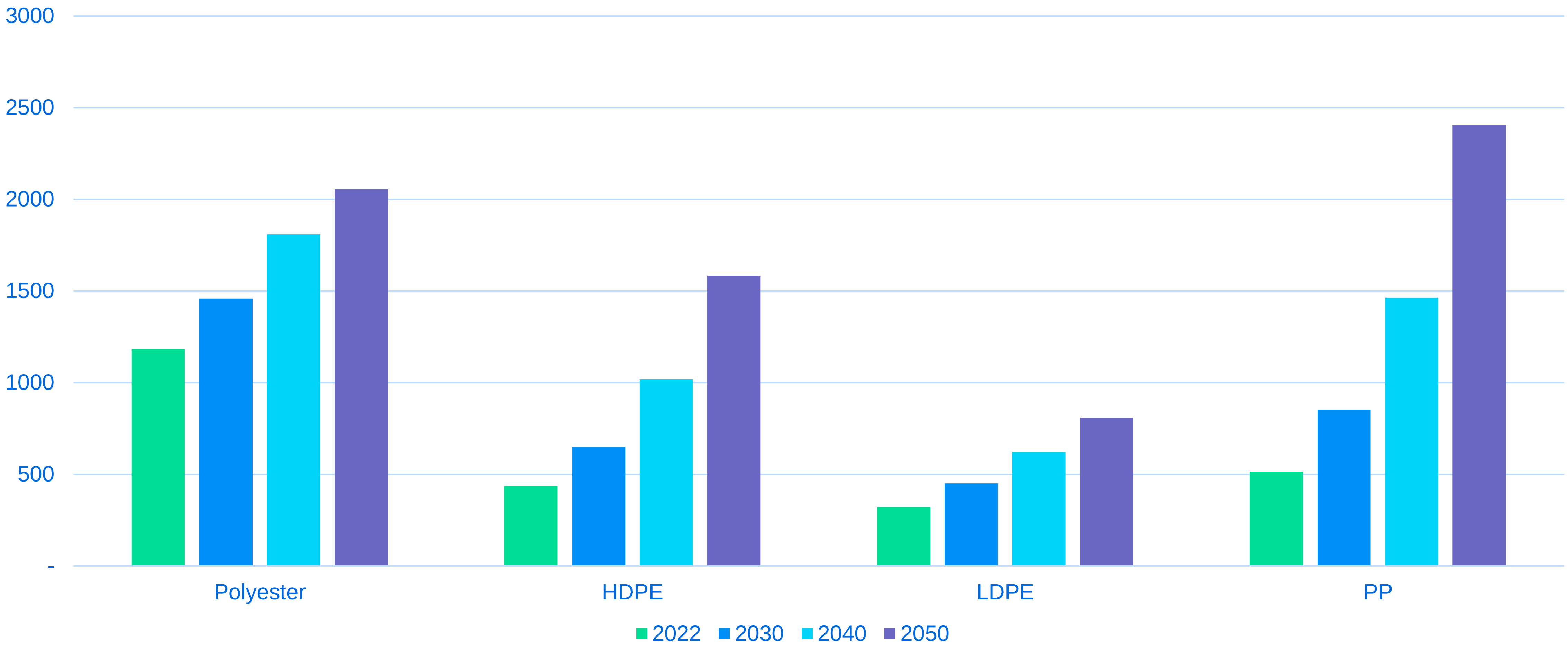




Source: *ICIS Mechanical and Chemical Recycling Tracker, 2023*

Europe Recycle Outlook | Growth outpacing other regions

Europe recycle production



Source: ICIS Supply Demand Database

Legislation | Driving change in the plastics industry

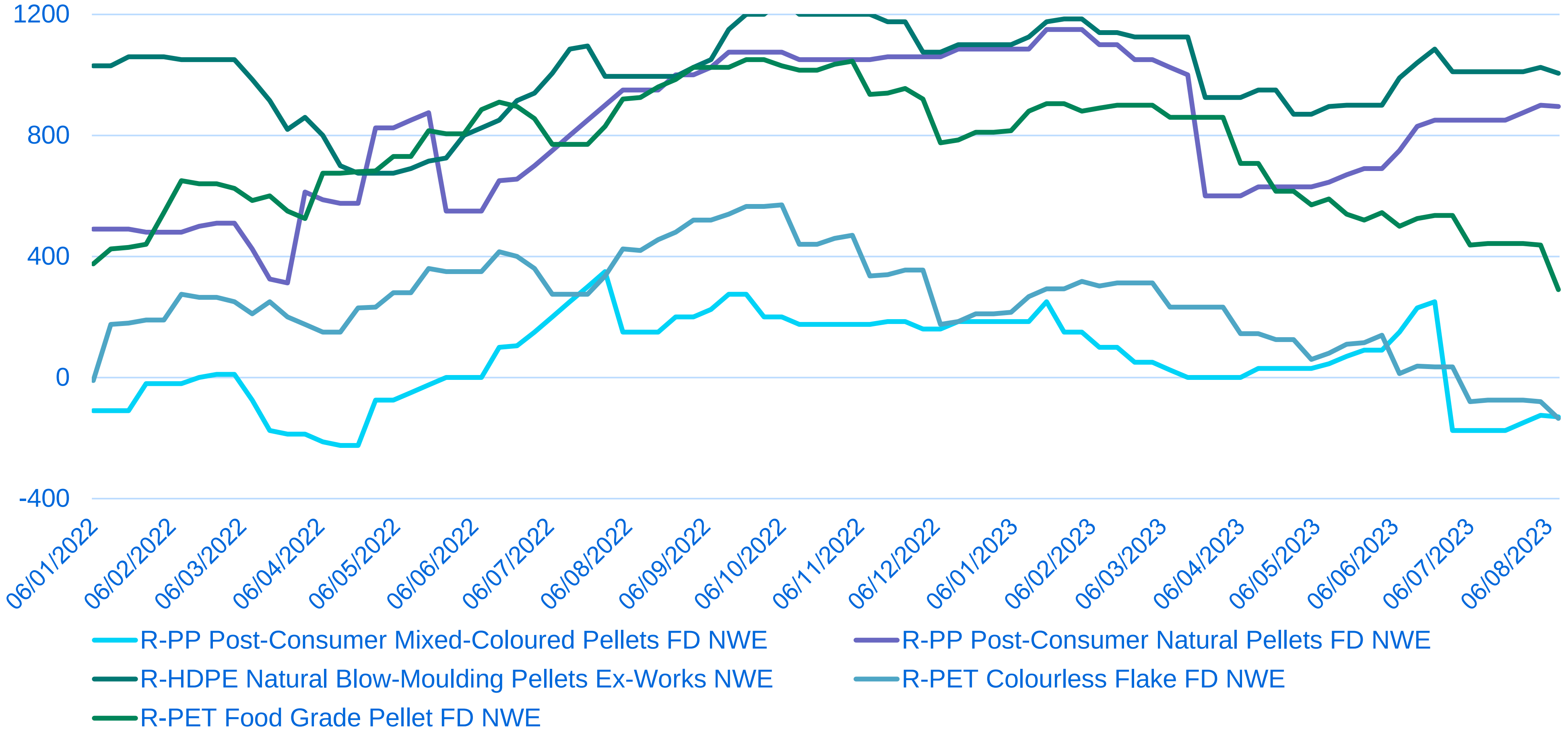
Recycling targets in Europe

	2020	2021	2025	2029	2030	2035	2040
Municipal waste recovery for recycle/reuse	50%		55%		60%	65%	
Plastic waste recyclability					100%		
Plastic waste recycled			50%		55%		
Plastic bottles collection			77%	90%			
Mandatory recycled content in PET bottles (2025) / in plastic bottles (2030)			25%		30%		
Single-use plastics ban (*)		100%					
Recycle content - all plastic packaging					*10-35%*		*50-65%*

(*) Single-use plastic cutlery, plates, straws; cotton bud sticks made of plastic; plastic balloon sticks; EPS cups

Europe Recycle Spread on Virgin | Encourages supply capacity

Positive spread in favour of recycle



Source: ICIS

Roadblocks

Feedstock availability

- Stagnant collection rates
- Lack of advanced sorting capacities
- High processes losses
- Trade restrictions

Macroeconomics

- Decreasing polymer demand
- Switch to virgin
- Volatile project economics
- Slowdown of investments

Regulation

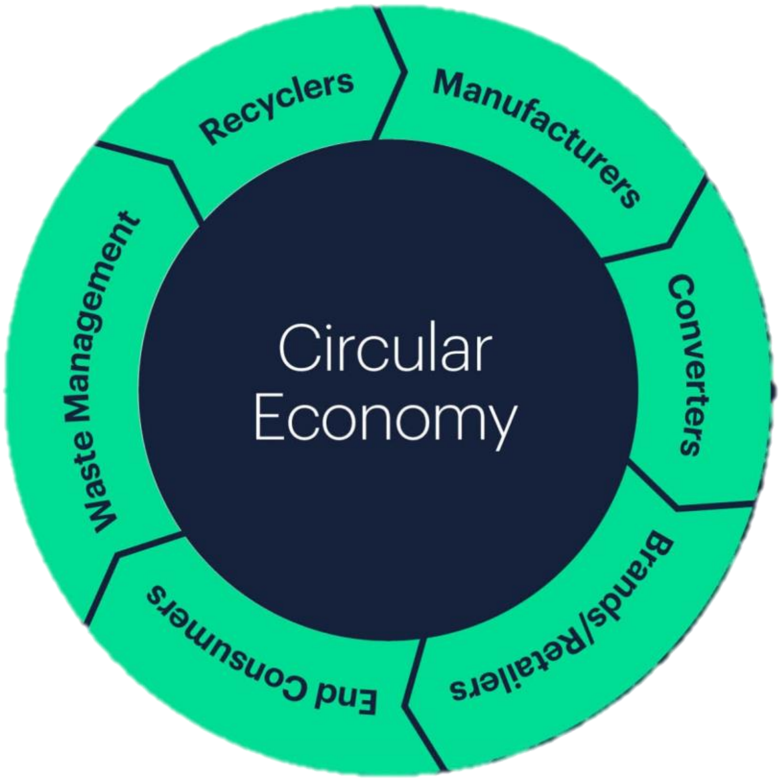
- Uncertain regulation
- Chemical recycling status
- Mass balance
- Food grade
- Traceability

Collaboration

- Low data transparency
- Mechanical and chemical recycling complementarity required
- Low consumer awareness

Collaboration | Key to progress

- Plastics **circularity** is a key focus for legislators and end markets
- **Europe has strongest focus** and action plan on circularity globally
- **Feedstock challenges remain**; waste infrastructure and sorting advances are key, short-term **opportunity for imports** of recycle polymers
- Potential for broader system level changes, **new thinking** emerging – role for entire value chain to play
- **Collaboration** key to development of circular economy and is the **opportunity for producers** to contribute



Our presenters

Tom Marzec-Manser

Head of Global Gas Analytics

tom.marzec-manser@icis.com

Regular updates on Twitter and LinkedIn!

James Wilson

Senior Analyst (Olefins)

james.wilson@icis.com

Helen McGeough

Senior Analyst (Plastics Recycling)

helen.mcgeough@icis.com

Connect with all the speakers at the ICIS stand

Scan to access expert insights exclusive to EPCA attendees

Thank you