16 Sept 2025

Argus *Olefins Margins*

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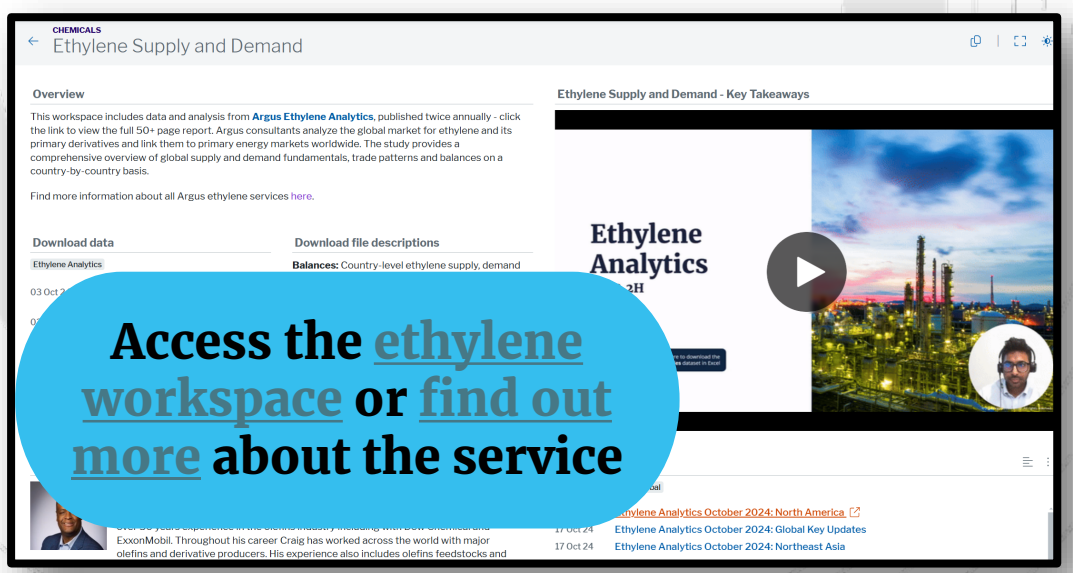

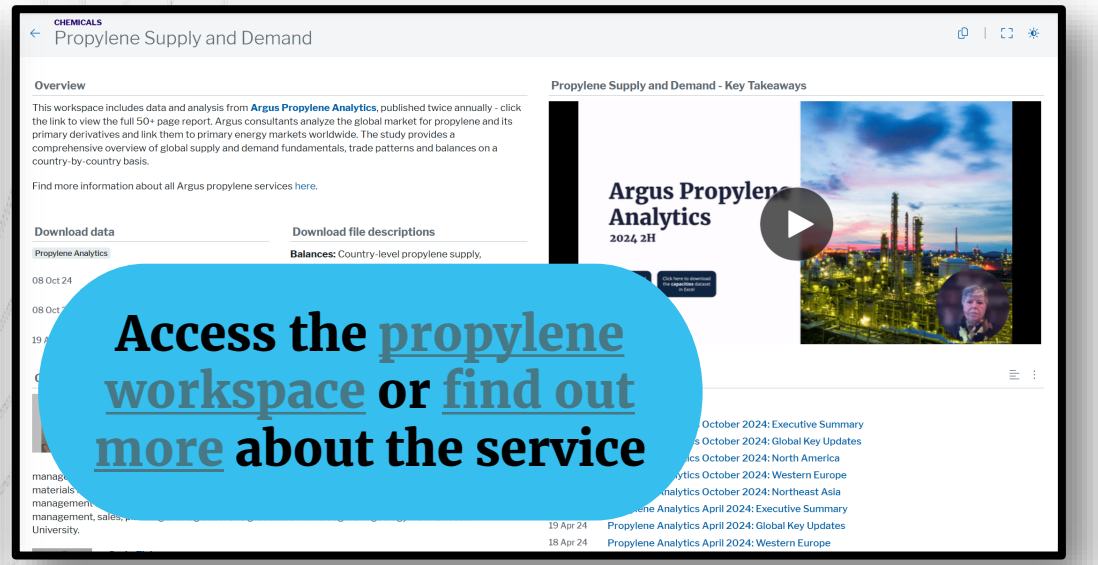

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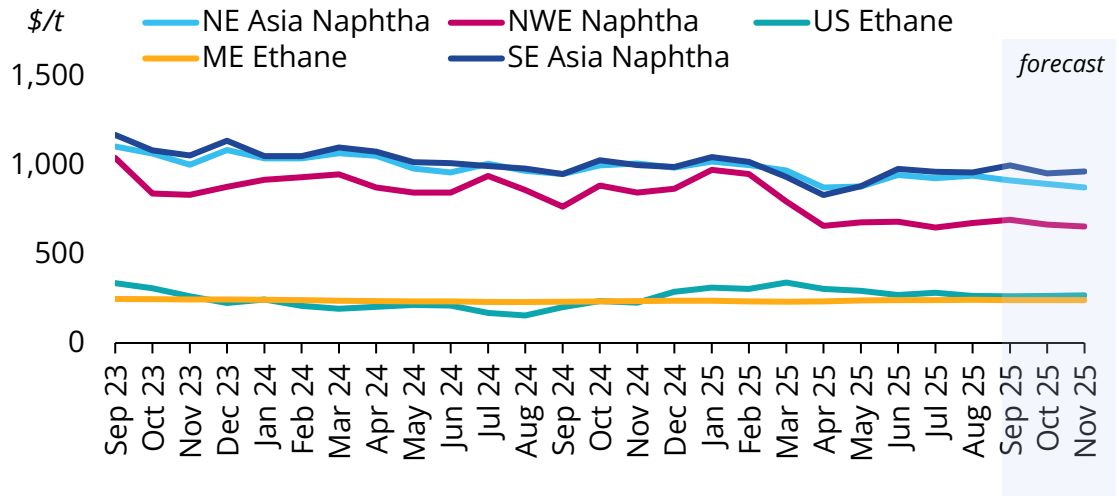
Executive summary

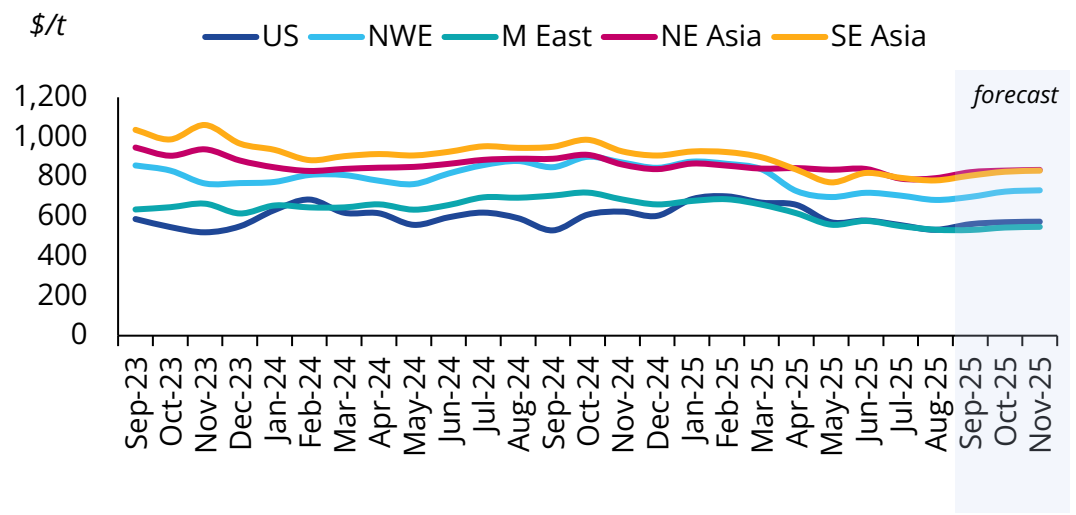
Trade uncertainty continues to affect feedstock and olefins markets

- **US:** PDH feedstock costs could be relatively moderate this winter
- **Northwest Europe:** Uncertainty on trade deal with US weighs on olefins demand
- **Asia-Pacific:** Margins squeezed for ethylene and propylene

Steam cracker cash costs



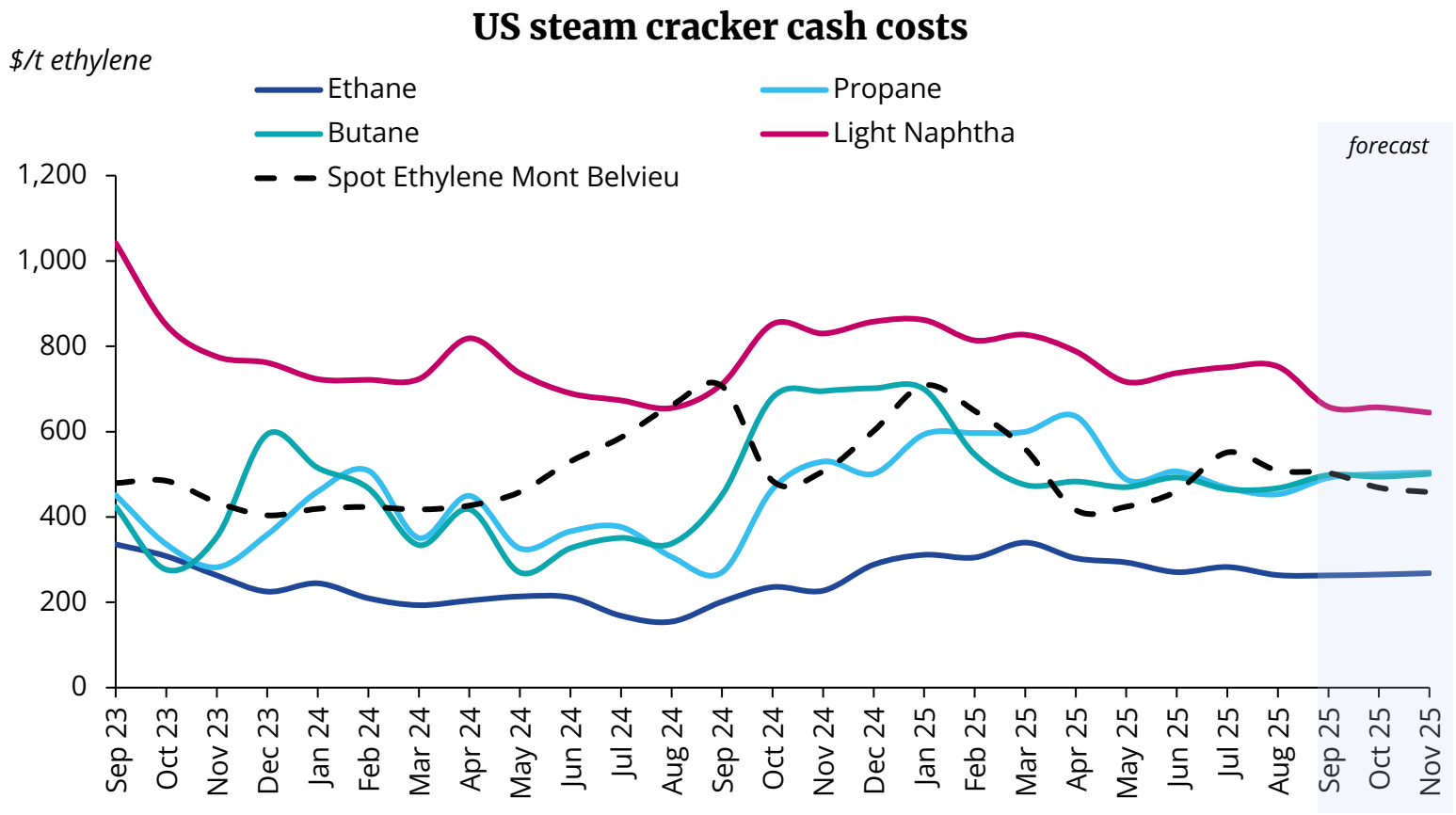
PDH cash costs



Click here to download the price dataset in Excel

US: Steam cracker cash costs

Ethane to remain feedstock of choice in near term

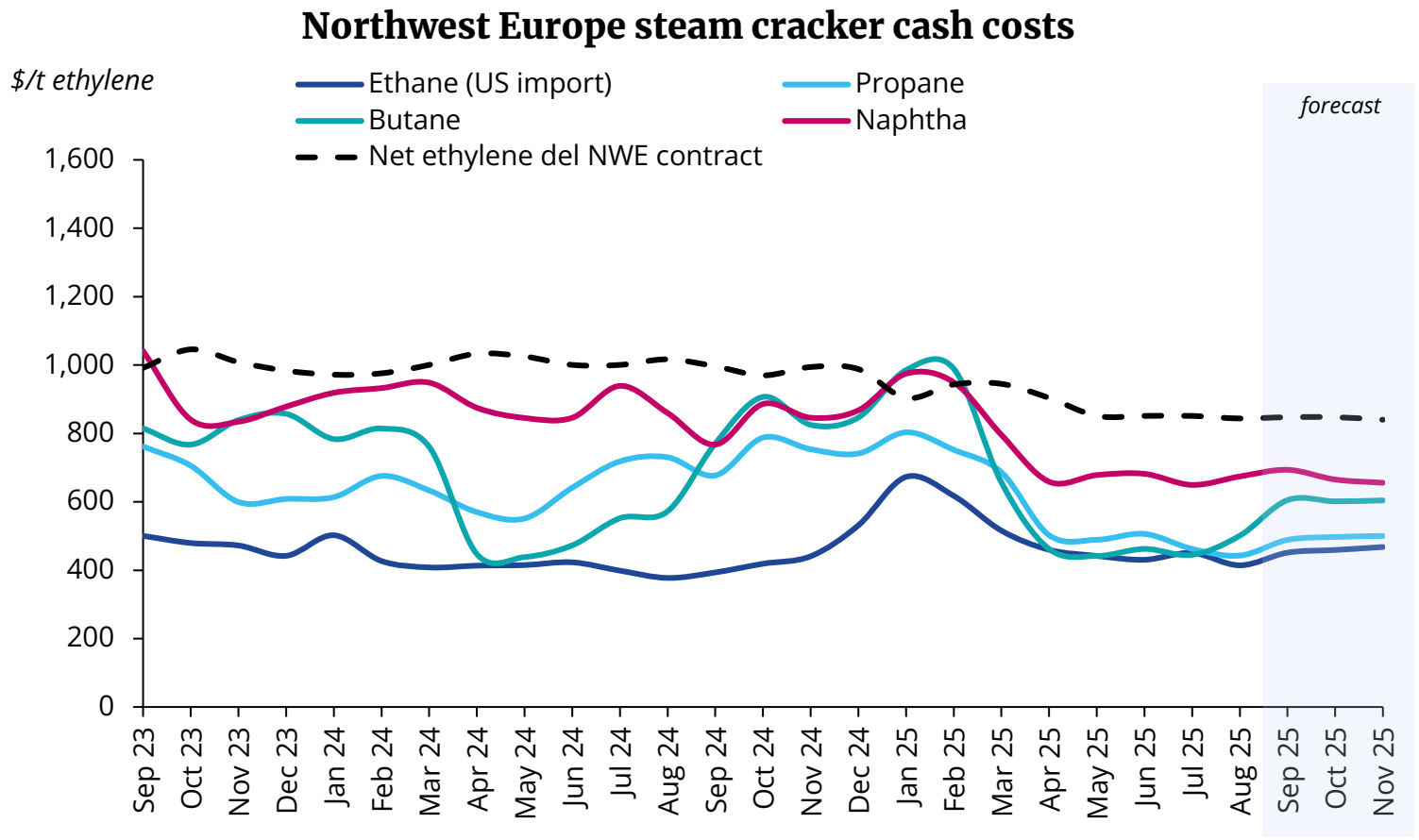


- Ethane will remain the feedstock of choice as margins are expected to be stronger than those for LPG.
- Propane and butane costs are expected to slowly increase in preparation for winter heating demand.
- The hurricane season has started in the US, and any export disruption could lead to lower LPG prices.
- Despite the opening of the Nederland terminal expansion, exports of LPG have yet to increase. This has caused large amounts of product to enter storage.

Based on *Argus*' models. See page 18 for assumptions

Northwest Europe: Steam cracker cash costs

Rising feedstock cost to pressure margins

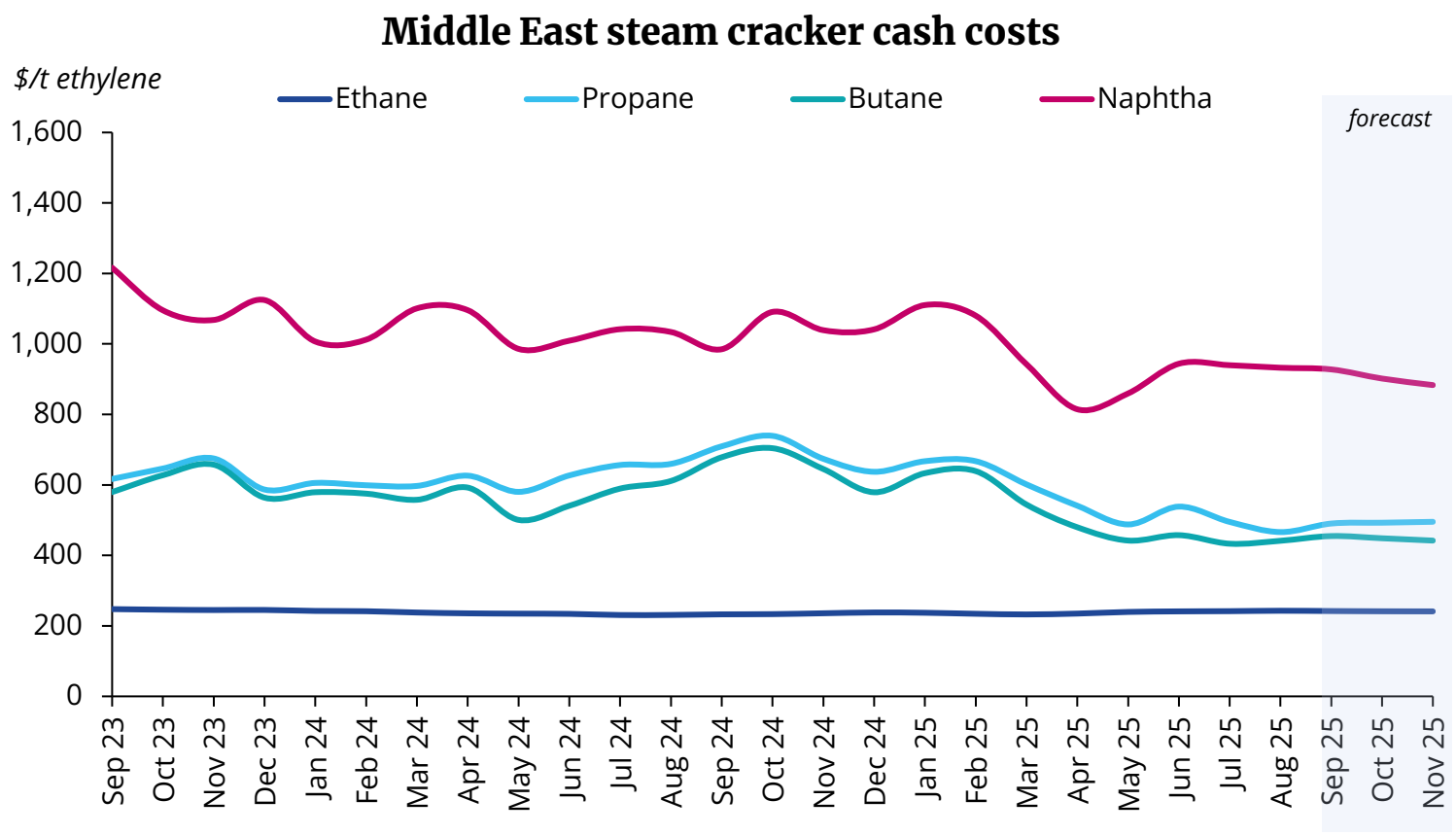


- Argus-modelled margins for naphtha and butane declined by an average of 20pc and 18pc, respectively, in August compared with the previous month. In contrast, margins for US-imported ethane and propane remained relatively stable. These changes were driven by shifts in feedstock costs. Although naphtha's average price rose by only 1pc in August, the combination of higher feedstock costs and lower product prices led to reduced modelled naphtha margins.
- The decline in August propane prices was driven by a combination of high LPG imports from the US, weak seasonal demand and increased crude production from Opec+ nations. US exports to Europe are expected to continue to leave the market oversupplied as long as Asian demand remains subdued. In contrast, butane prices rose because of strong blending demand and tight supply conditions. LPG prices are forecast to remain weak, trading at a discount to naphtha, which will continue to encourage steam cracker operators to maximise LPG feedstock use.
- Naphtha demand is expected to strengthen as winter approaches, driving up LPG demand and prices.
- The forecast for higher US-imported ethane is being driven by expectations of increased US LNG exports. While this is likely to reduce ethane margins over the forecast period, ethane is still projected to remain the most cost-competitive feedstock.

Based on *Argus*' models. See page 18 for assumptions

Middle East: Steam cracker cash costs

Ethane cash costs stable; other feedstocks not widely cracked

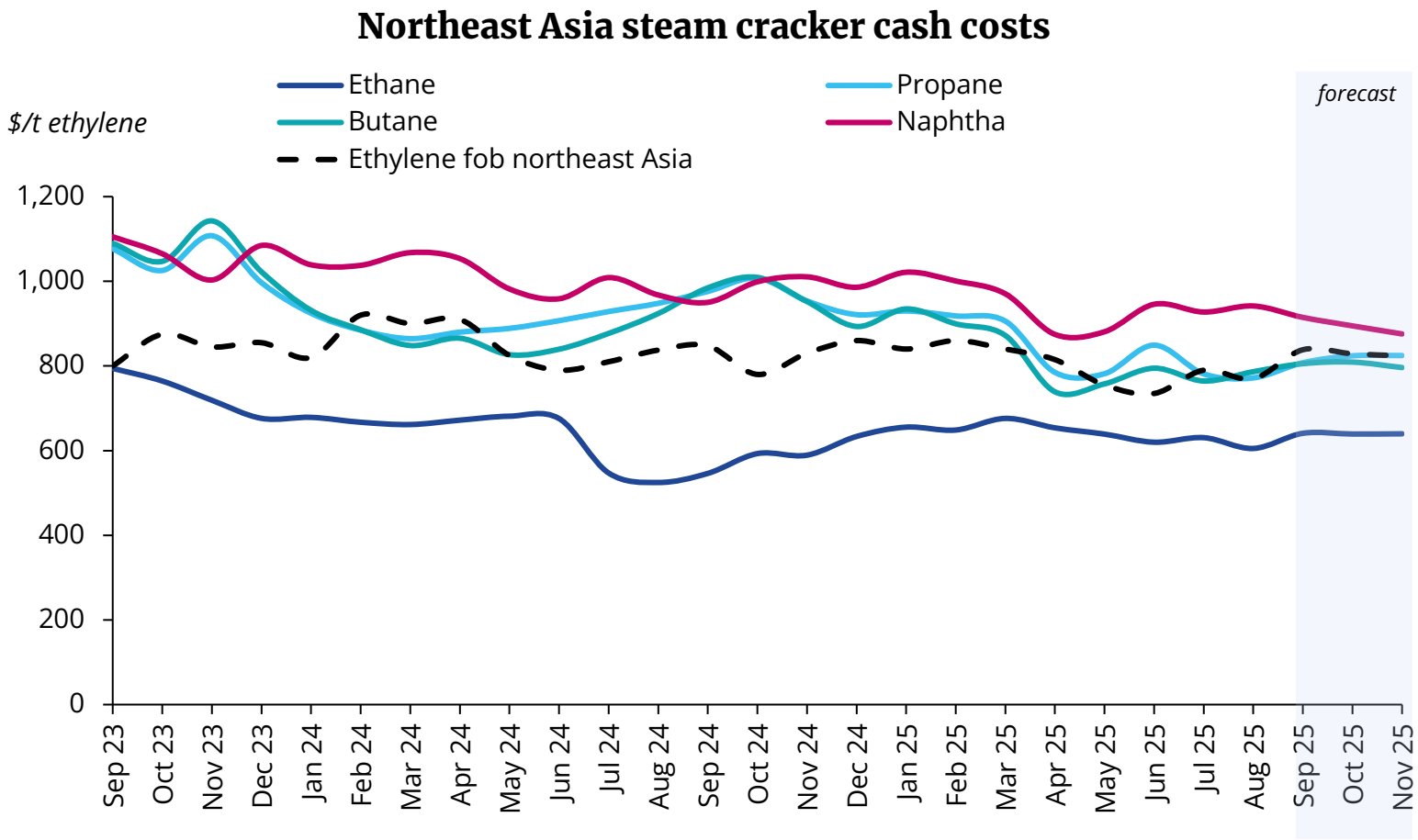


- Middle East ethylene prices generally move in line with southeast Asian prices.
- State-controlled Saudi Aramco increased its ethane prices to $3.00/mn Btu on 1 January from $2.50/mn Btu previously, which only nominally affected ethane cash costs. Ethane cracking margins remain strong.
- Naphtha is not widely cracked in the region.

Based on *Argus*' models. See page 18 for assumptions

Northeast Asia: Steam cracker cash costs

Ethane prices expected to rise after US resumed exports to China

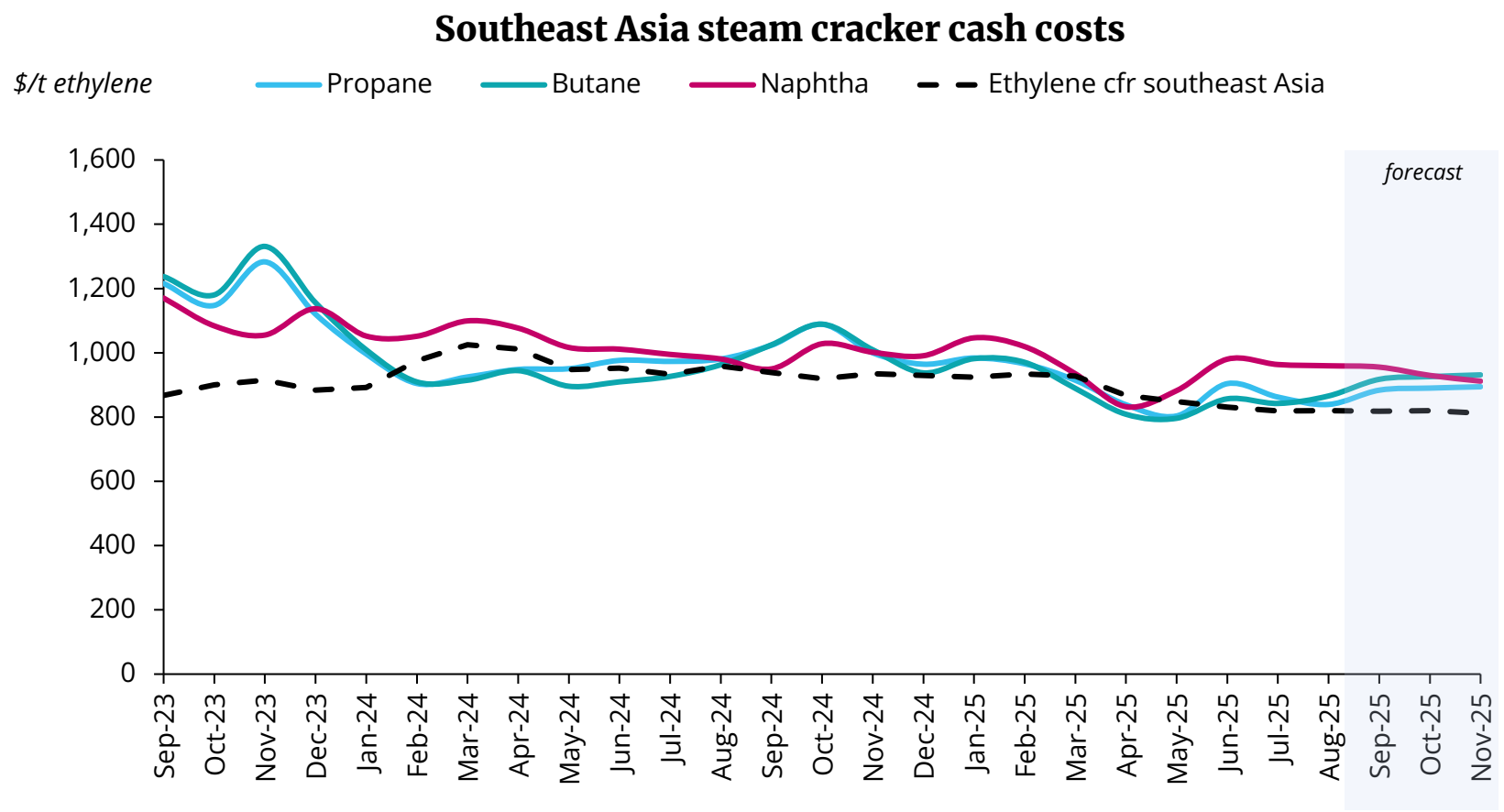


- According to Argus-modelled cracker cash margins, the margin for naphtha feedstock fell in August, driven by lean supplies that pushed naphtha prices higher.
- US-origin ethane prices fell by 9pc in August following the resumption of US exports to China in late July. Ethane prices are expected to rise because of higher US LNG prices, pressuring margins. But US ethane remains the most cost-advantaged feedstock.
- An uptick in August LPG prices was supported by increased demand and stronger crude prices. From September, propane and butane prices are expected to rise due to stockbuilding ahead of the heating season. But compared with typical historical seasonal patterns, LPG feedstock costs are forecast to remain low because of weak underlying fundamentals.
- The Asian naphtha market tightened because of drone strikes on Russian production facilities and refinery maintenance in the Middle East. In the short term, naphtha prices are forecast to remain weak as Opec+ continues its unwinding plan and amid increased propane and US imported ethane feedstock substitution among Chinese crackers. Based on Argus-modelled cracker margins, naphtha is expected to remain the least profitable feedstock.
- Ethylene prices are forecast to remain firm, driven by tight supply as many plants undergo maintenance from September. As more ethylene supply enters the regional market, prices are expected to decline, further depressing margins.

Based on *Argus*' models. See page 18 for assumptions

Southeast Asia: Steam cracker cash costs

Modelled naphtha cracking margins to remain deeply negative for non-integrated producers on low olefins prices



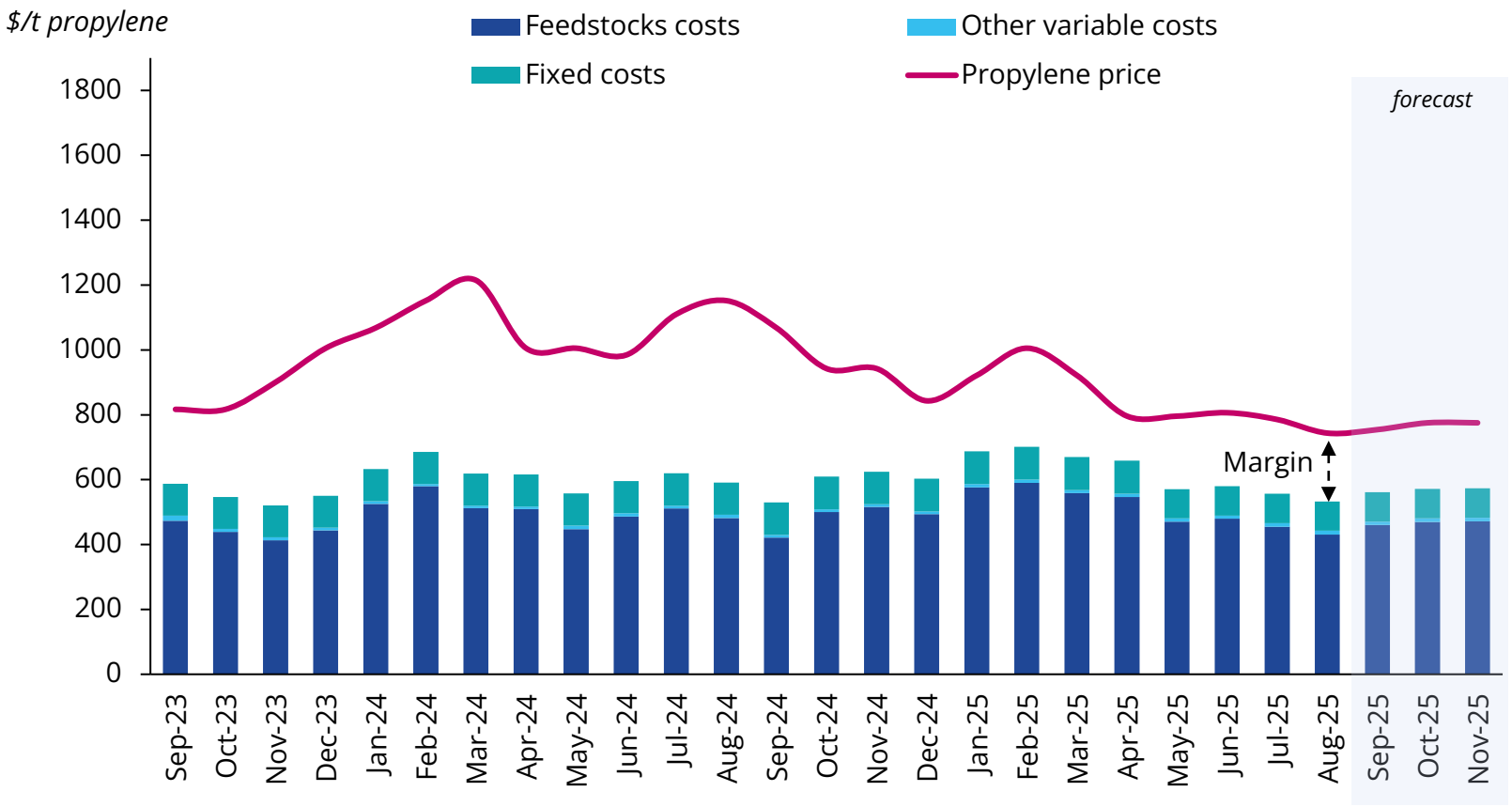
- Naphtha is the most widely used feedstock in the region. *Argus*-modelled naphtha cash margins were stable in June-August after dropping sharply from May. Naphtha cash costs increased by 8.8pc from May to August. At the same time, product ethylene and co-product propylene prices in August slumped by 3pc and 7pc from May, respectively, as fundamentals eased because of Lotte Chemical's new plant in Indonesia and amid weak downstream interest.
- Near-term expectations for feedstock naphtha are still weak, as Opec+ continues to unwind its crude output cuts and as the substitution of light propane and ethane feedstock continues to rise.
- Based on *Argus*' model, naphtha cash margins will remain in negative territory over the next three months because of weak products prices for ethylene and propylene in the southeast Asian region.
- Regional olefins prices are set to remain low on plentiful supply from new start-ups in northeast Asia and restart plans. The traditional peak demand season in September and October and a bearish view on naphtha feedstock will provide limited support to prices and margins.

Based on *Argus*' models. See page 18 for assumptions

US: PDH

Margins stable in the forecast period

US PDH cash costs



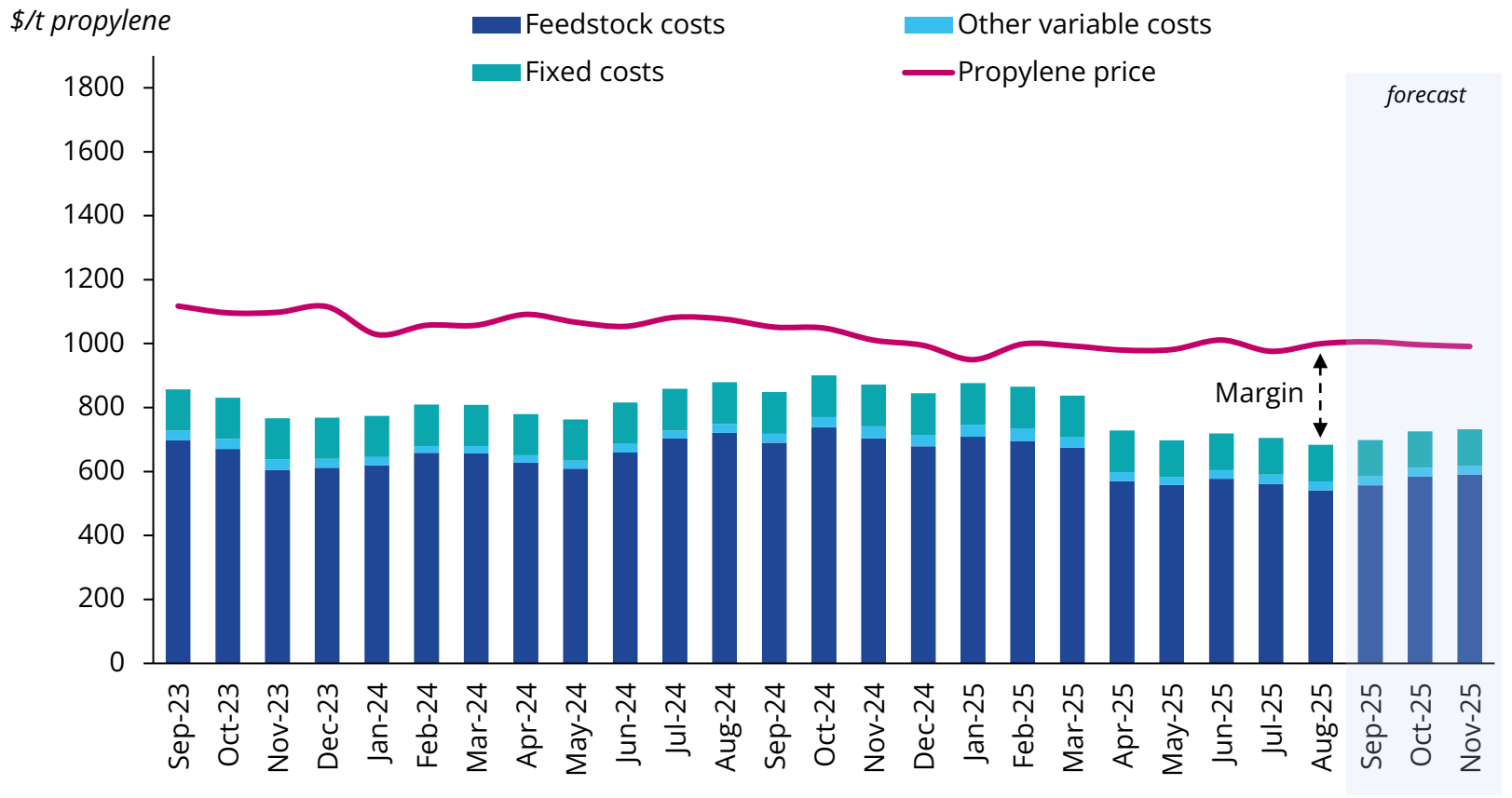
- Feedstock costs continued to dip in August on global oversupply owing to changes in trade patterns.
- US propane inventories are up by 5pc compared with the same time last year, which is expected to keep some downward pressure on prices even as propane demand begins to rise seasonally.
- The regional propylene supply balance has improved despite the loss of some refinery propylene supply earlier this year. Low derivatives demand and high stocks have offset supply issues.

Based on *Argus*' models. See page 18 for assumptions

Northwest Europe: PDH

PDH margins estimated at $300/t for September

Northwest Europe PDH cash costs



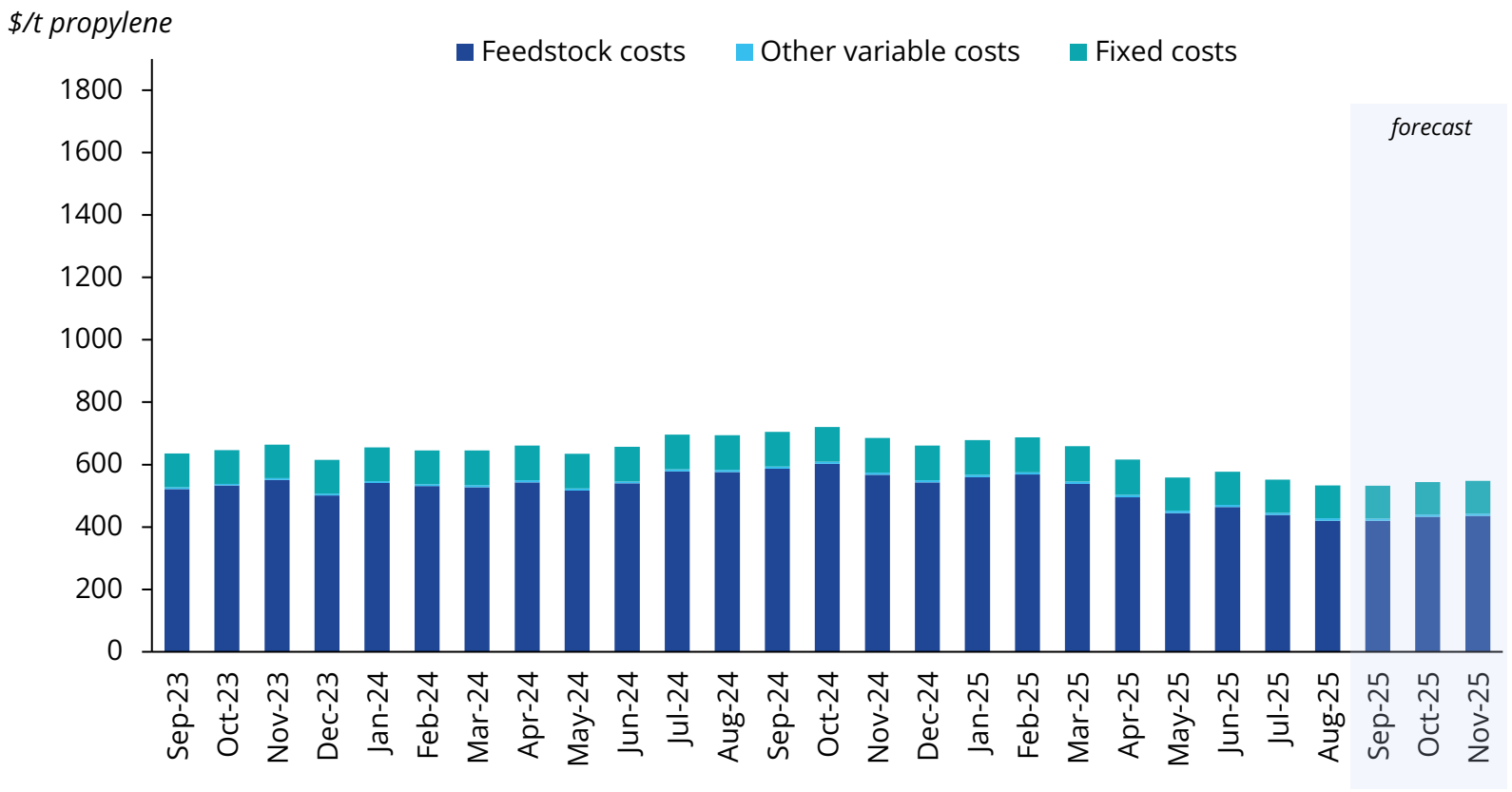
- Propane prices fell in August but are expected to tick up in September. Feedstock costs are expected to remain lower than average during the forecast period.
- Propylene market oversupply has been exacerbated by unplanned derivative shutdowns, but propylene prices are expected to dip only slightly in the forecast period.
- Western Europe's third PDH unit is expected to start up in 2026.

Based on *Argus*' models. See page 18 for assumptions

Middle East: PDH

Forecast propane costs remain low

Middle East PDH cash costs

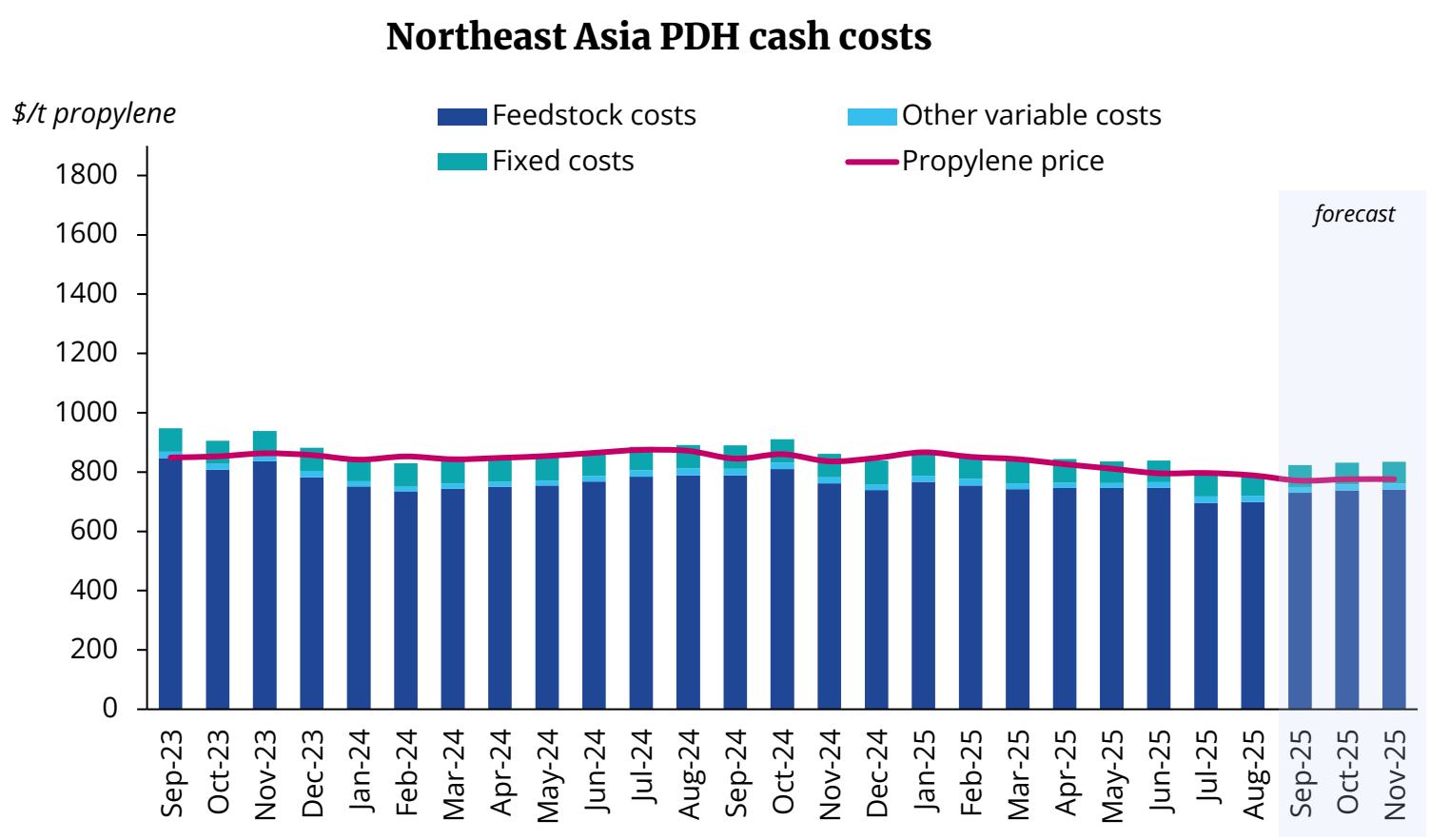


- Middle East spot propane prices are driven by Asian market dynamics, as most Middle East propane is exported.
- All Middle East PDH operators are integrated downstream with polypropylene.

Based on *Argus*' models. See page 18 for assumptions
Propylene price is not shown as most producers are integrated downstream.

Northeast Asia: PDH

PDH margins to turn negative throughout year end with rising propane costs



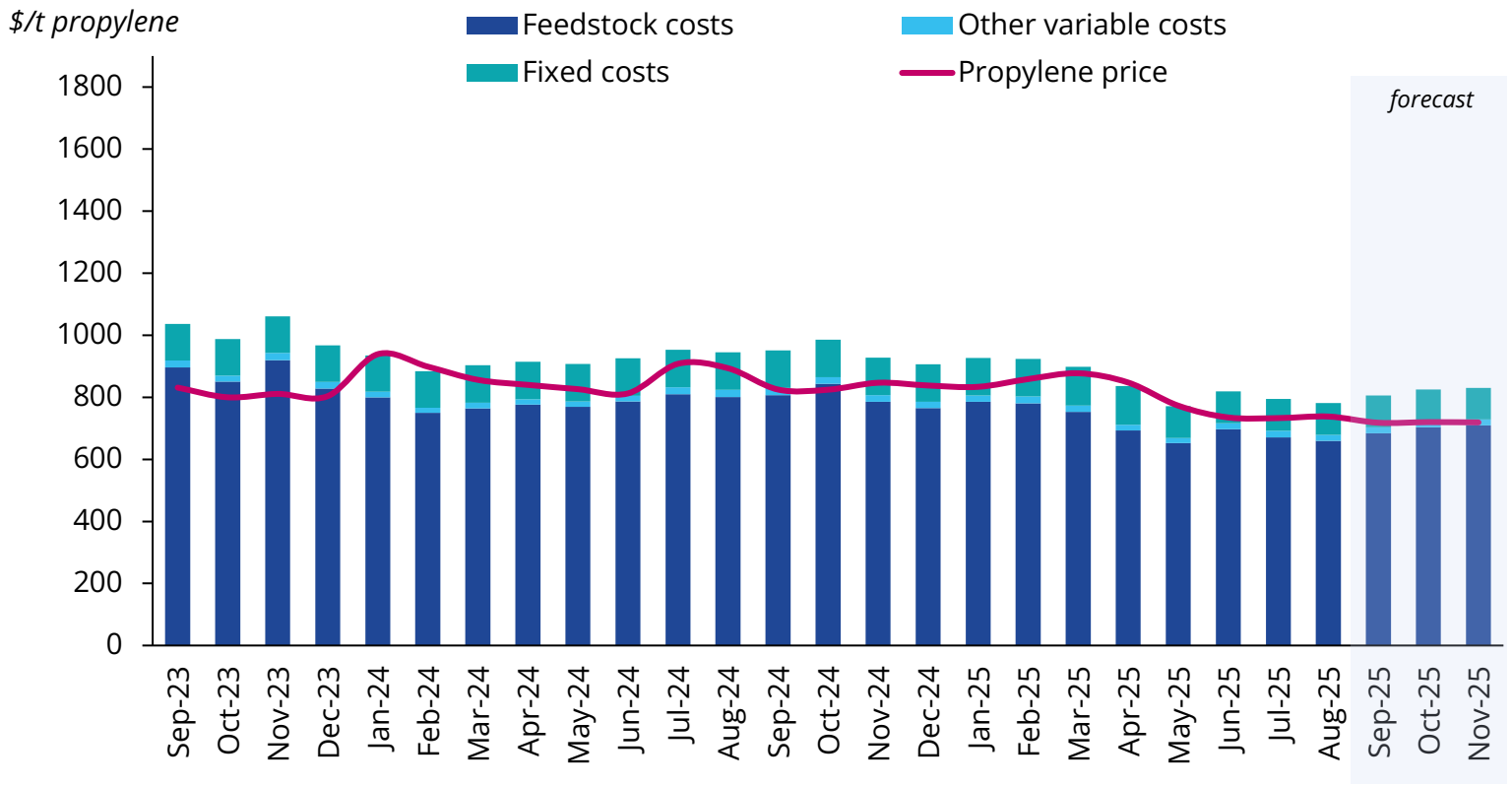
- PDH cash margins dropped into negative territory again in August. This was driven largely by weaker product propylene prices, with propylene prices the lowest since July 2023 in China, down by 1pc from July. Meanwhile, sluggish PP demand is squeezing downstream margins. Both are adding pressure to PDH production in China. PDH run rates in the first half of September dropped to 70pc from 74pc in mid-July.
- *Argus* forecasts a further narrowing of margins in the last quarter, driven mainly by weak propylene fundamentals and the winter heating season for propane. Propane feedstock costs are expected to increase due to the import tariff on US LPG alongside winter heating demand. Propylene prices are expected to fall on weak downstream polypropylene values and poor margins.
- But weak propane demand in Asia is causing oversupply globally, which will keep propane prices weak against naphtha, according to *Argus*' latest LPG outlook published on 11 September.
- In this update, we have included China's 10pc tariff on US-imported propane starting from April 2025. Although tensions have eased, continued uncertainty surrounding negotiations between the US and China is keeping the market cautious.

Based on *Argus*' models. See page 18 for assumptions

Southeast Asia: PDH

Modelled margins to improve on low propane feedstock costs but remain deeply negative, driven by weak propylene prices

Southeast Asia PDH cash costs



- Propane feedstock costs are expected to increase alongside winter heating demand, but overall slim demand in Asia will still make propane prices weak against naphtha, according to Argus' latest LPG outlook published on 11 September.
- Southeast Asia's propane import cost for PDH is less stable than the cost in northeast Asia, owing to less efficient terminals and smaller volumes. But Chinese producers will suffer from high costs after adding tariffs.
- Regional propylene prices are expected to stay firm as several producers carry out maintenance, including Vietnam's Hyosung at its PDH-PP complex, leading to tighter-than-expected supply.
- No new PDH capacity is expected on line in southeast Asia in 2025-34. Existing units in the region are located in Malaysia, Thailand and Vietnam.
- Local propylene prices are sensitive to fundamentals in China, and the region is vulnerable to propylene derivative imports from the Middle East and northeast Asia.

Based on *Argus*' models. See page 18 for assumptions

Assumptions

Argus Western Europe Steam Cracker Model is based on a fully flexible mixed-feed cracker located on the ARG pipeline with nameplate capacity of 500,000 t/yr and fully integrated downstream.

Net product prices are based on monthly contract prices; average discounts are based on market consultation. Pygas modelled as equivalent to 35pc benzene cif NWE contract/65pc naphtha 65 para NWE minus $84/t. Raffinate-1 is taken as 1.1*naphtha 65 para NWE.

Argus US Steam Cracker Model is based on a fully flexible mixed-feed cracker with capacity of 700,000 t/yr located on the Texas grid, fully integrated downstream.

Product prices are based on spot values. US pygas = (0.35 x benzene US Gulf coast $/t) + (0.65 x gasoline 87 conv USGC waterborne fob lowest RVP not 7.8 or 7.0) minus $84/t (the $84/t is a discount). Raffinate-1 is taken as 1.1*naphtha full-range USGC waterborne del.

Argus Northeast Asia Steam Cracker Model is based on a fully flexible mixed-feed coastal Chinese cracker with nameplate capacity of 600,000 t/yr and fully integrated downstream.

Product prices are based on spot values. Pygas modelled as equivalent to 35pc benzene fob South Korea/65pc naphtha Japan c+f minus $70/t. Raffinate-1 is taken as 1.1*naphtha Japan c+f.

Argus Middle East Steam Cracker Model is based on a fully flexible mixed-feed cracker with capacity of 1mn t/yr.

Product prices are assumptions calculated based on spot values for Europe and Asia. Pygas modelled as equivalent to 35pc benzene/65pc naphtha minus $70/t. Raffinate-1 is taken as 1.1*naphtha LR1 Mideast Gulf fob.

Argus Southeast Asia Steam Cracker Model is based on a fully flexible mixed-feed cracker with capacity of 800,000 t/yr.

Product prices are based on spot values. Pygas modelled as equivalent to 35pc benzene/65pc naphtha minus $70/t. Raffinate-1 is taken as 1.1*naphtha Singapore fob.

Argus Western Europe PDH Model is based on a 450,000 t/yr PDH unit.

Propane price assumption is ARA large cargo.

Propylene price assumption is PGP contract; average discount is based on market consultation.

Argus US PDH Model is based on a 750,000 t/yr PDH unit.

Propane price assumption is Mt Belvieu Enterprise.

Propylene price assumption is PGP contract; average discount is based on market consultation.

Argus Northeast Asia PDH Model is based on a 600,000 t/yr PDH unit.

Propane price assumption is based on ANI price.

Propylene price assumption is ex-tank east China domestic price.

Argus Middle East PDH Model is based on a 450,000 t/yr PDH unit.

Propane price assumption is based on discounted AFEI price.

Argus Southeast Asia PDH Model is based on a 600,000 t/yr PDH unit.

Propane price assumption is based on AFEI price.

Propylene price assumption is PGP cfr.

For full details, download:

Reference and Modelling Approach

Contact us

craig.barry@argusmedia.com

Craig Barry

Lead Consultant, Ethylene and Derivatives

Craig leads the global ethylene team, focused on integrated global forecasts. He has more than 30 years of 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 includes olefins feedstocks and refinery integration within the petrochemical industry. He holds a chemical engineering degree from Ohio State University and an MBA from Rice University in Houston, Texas.

dhanish.kalayarasu@argusmedia.com

Dhanish Kalayarasu

Manager, Chemicals

Dhanish is a manager in the London consulting office, focusing mainly on olefins, polyolefins and chlor-alkali. He earned a degree in chemical engineering from the University of Newcastle and an MSc in finance analytics from King's College London. He has held roles in power generation, project management, agriculture and analytics. He also spent time at an edible oil refinery managing operations and projects with high-pressure biomass boilers, steam turbines, water treatment and fuel management.

sarah.rae@argusmedia.com

Sarah Rae

Vice-President, Propylene and Derivatives

Sarah Rae is *Argus*' propylene consultant, focusing primarily on Europe and the Middle East. For 17 years before 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.

josie.jiang@argusmedia.com

Josie Jiang

Senior Analyst, Olefins and Polyolefins

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

Registered office
Lacon House, 84 Theobald's Road,
London, WC1X 8NL
Tel: +44 20 7780 4200

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Publisher
Adrian Binks

Global compliance officer
Vladas Stankevicius

Chief commercial officer
Martin Gijssel

President, Expansion sectors
Christopher Flook

SVP Chemicals
Chuck Venezia

Customer support and sales:
support@argusmedia.com
sales@argusmedia.com
London Tel: +44 20 7780 4200
Houston Tel: +1 713 968 0000
Singapore Tel: +65 6496 9966