

Back To The Futures – Implied Chemical Cost Curve Flattens To 2017/18 Levels, Europe Would Continue To Face Biff

Key Findings:



General Thoughts: We discuss chemical feedstock futures markets and implied chemical cost curve developments through 2025 to loosely gauge sector sentiment toward global fundamentals and growth capital deployments.



Supply Chain/Commodities: We highlight US spot ethylene and propylene values and futures prices through 2025, considering current global spot prices and the substantial US ethylene chain advantage relative to Asia and Europe.



Energy/Upstream: We look at Brent Crude and US natural gas, propane, and ethane prices and their futures prices through 2025, which suggests lower global chemical prices and downward US petrochemical margin pressure.

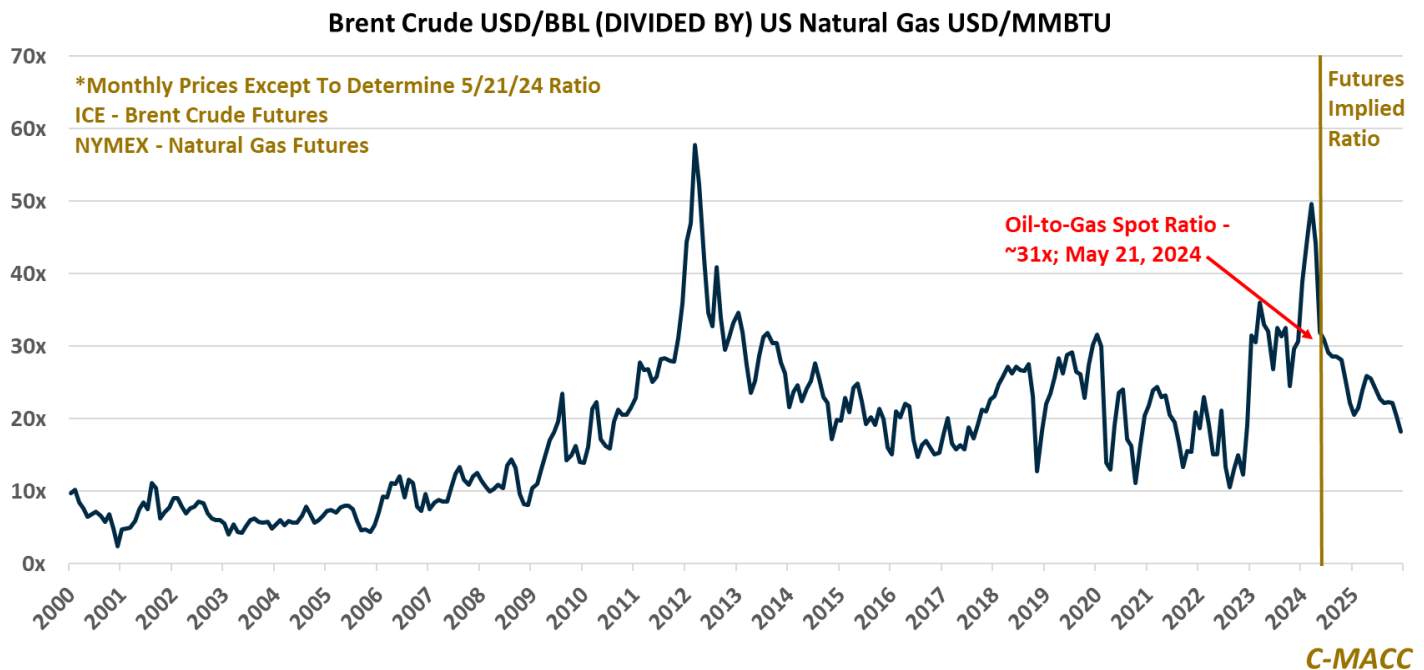


Sustainability/Energy Transition: We see power and offtake challenges keeping many clean product projects, such as hydrogen, from positive FIDs, and challenges limiting timely electricity grid growth lacking appreciation.



Downstream/Other Chemicals: Despite recent cost relief, we discuss the drop off in European manufacturer competitiveness as its mature domestic markets and limited export capabilities keep its industry in a tough spot.

Exhibit 1: The Brent Crude and US Natural gas futures market suggests a substantial oil-to-gas ratio drop by YE 2025.



Source: Bloomberg, C-MACC Analysis, May 2024

General thoughts: Our daily research at C-MACC strives to highlight relevant data points and trend indicators across global chemical and associated industries consistently, which also involves evaluating drivers of sentiment towards the sector, which can play a significant role in implied growth project returns and related capital deployments. Sell-side estimates of company fundamentals and related profit outlooks are examples of forward views we evaluate and discuss regularly.

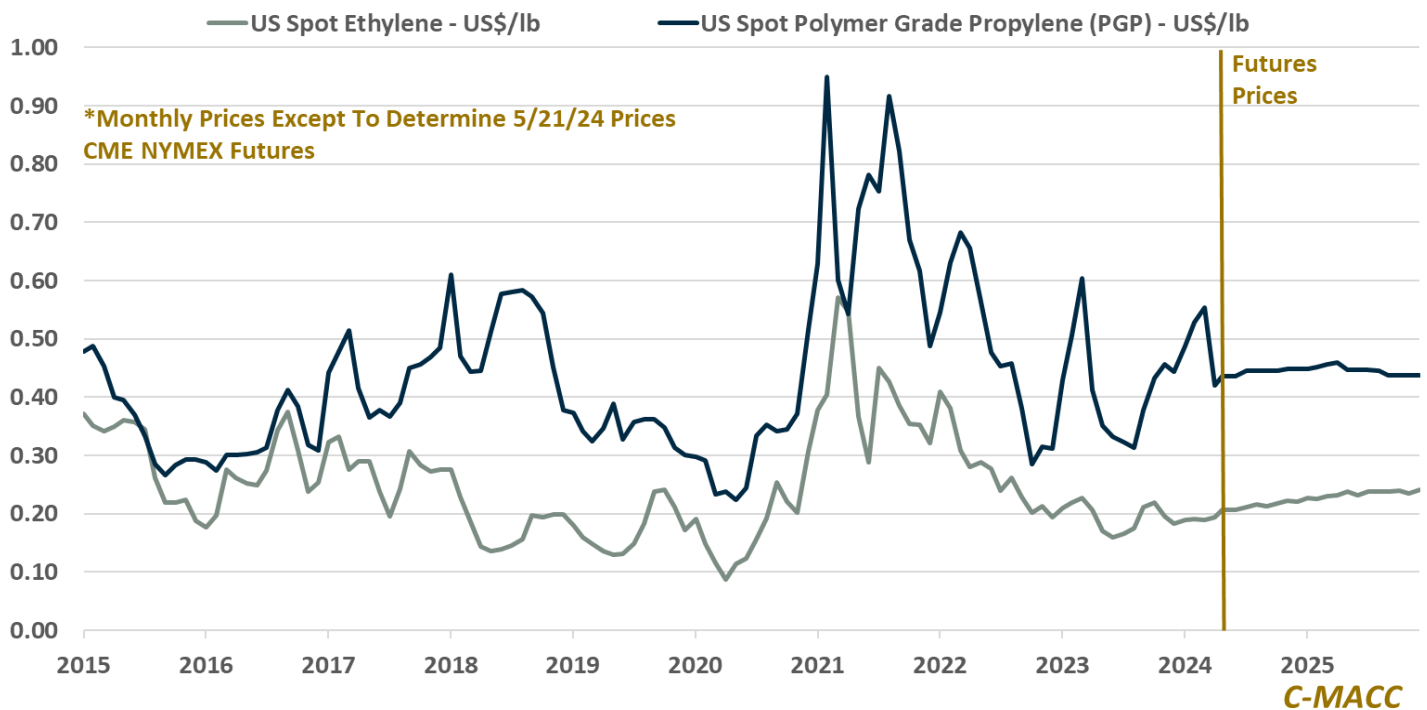
However, these views usually lag chemical sector fundamental market shifts and do not adjust until quarterly corporate report releases, including business outlook updates/guidance/handholding. Another general data set that we evaluate regularly comprises energy and chemical futures markets, but this also has limitations, as a futures contract is simply a legal agreement to buy or sell a particular commodity asset or security at a predetermined price at a specified time in the future. Futures contracts are standardized for quality and quantity to facilitate trading on a futures exchange, such as [ICE](#). See more detail in [LINK](#). There is no crystal ball looking into the futures, though deployers of growth capital look for any gauge of price/fundamental trends to evaluate risk-adjusted returns, and that is our focus today: 1) what are available energy and chemical futures prices telling us; and 2) what would it mean for US (and global) chemical industry fundamentals. With this in mind, we turn your attention to Ex. 1, which depicts the Brent Crude Oil price relative to US natural gas. The most significant driver of the oil-to-gas ratio collapse implied by futures markets between the time of this report through 2025 is primarily the result of increased US natural gas prices, as the CME NYMEX futures price for US natural gas in December 2025 is US\$4.21/mmbtu, which compares to a US\$2.62/mmbtu price at the close of business yesterday, May 21, 2024, while the ICE futures price for Brent Crude oil in December 2025 is US\$76.92/bbl, which compares to a US\$82.88/bbl level at yesterday's market close. Generally, this implies a flatter global petrochemical production cost curve, favoring producers in Asia and Europe in terms of cost relief that will put downward pressure on global petrochemical prices. In contrast, the upward movement in US natural gas prices implied by the futures market will shrink but not eliminate the US petrochemical cost advantage. This trend suggests lower margins due to higher costs for its domestic petrochemical producers and lower global product prices during the next ~18 months. The exhibits below provide a view of futures for US spot ethylene and propylene and upstream feedstocks. We also look at European energy transition efforts and continued challenges facing European manufacturers as other regions target its premium prices.

Supply Chain, Commodity Chemicals, & Chemical Sector News:

Evaluating the US polymer grade propylene (PGP) and ethylene futures market to evaluate the global setting provides more of a current sentiment gauge than a crystal ball. It is tricky to look at any region in isolation and determine the health of its chemical industry, given that most feedstocks and downstream chemical products are globally traded. Thus, a global perspective is needed, and we highlight the exhibits in our latest Global chemical market update, [North American Spot PE Margins Fall Below 1Q24 Average Levels; Domestic Natural Gas Feedstock Costs Surge WoW](#), that contains relevant chemical and feedstock price trends to consider with the exhibits in this report and our commentary. With this noted, futures markets suggest largely unchanged US polymer-grade propylene (PGP) prices through 2025 but anticipates a modest downtrend in USGC propane (see in the energy section exhibit), which would prove positive for US PDH unit operators, such as Dow, Enterprise Products and Invista. However, it is important also to highlight that SE and NE Asia PGP spot prices are currently lower than US PGP levels, and though NW Europe prices reflect a premium, high Western propylene prices would prove harmful for non-integrated buyers, such as Braskem and Pinnacle Polymers in polypropylene, PPG in coatings, OQ Chemicals in Oxos, among others faced with buying expensive base chemicals to convert into products that compete with those reflecting lower base chemical values abroad, and notably so in Asia. US spot ethylene is significantly cheaper than NW Europe and Asia. Thus, despite the modest strength shown in the exhibit below, US non-integrated buyers, ranging from Celanese to OxyChem, continue to benefit. However, a lower Ex-US ethylene production cost position, implied by lower crude oil prices, would pinch derivative prices. This setting suggests lower margins but will likely keep them much higher than most peers in Europe and Asia, and we view mostly integrated US petrochemical producers, ranging from Exxon to Dow, as still broadly well positioned globally.

- **Supply Chain & General Thoughts Companies Discussed: Dow, Enterprise Products, Invista, Braskem, Pinnacle Polymers, PPG, OQ Chemicals, Celanese, Oxy, ExxonMobil, Shree Pushkar Chemicals & Fertilisers**
- **Commodities: Propylene, Ethylene, Propane, PDH, Polypropylene, PVC, Polymers**
- [Amid Weak Feedstock Prices and Long Supply, US o-Xylene Prices Decline](#)
- [Asian PVC Prices Edge Higher in lieu of Expensive Imports and Logistical Challenges](#)
- [China launches antidumping probe into polyoxymethylene copolymer imports](#)
- [LLDPE Prices See Mixed Trends as Europe and US Market Ease, While Asia Sees Rise](#)
- [Polypropylene Gains Bearish Momentum in the USA, Stability Persist in Asia and Europe](#)
- [Shree Pushkar Chemicals & Fertilisers reports higher sales and profit](#)
- [US chemical makers increasingly optimistic, ACC survey finds](#)

Exhibit 2: CME NYMEX futures show US PGP prices most unchanged through 2025 but higher US ethylene prices.



Source: Bloomberg, C-MACC Analysis, May 2024

Energy/Upstream:

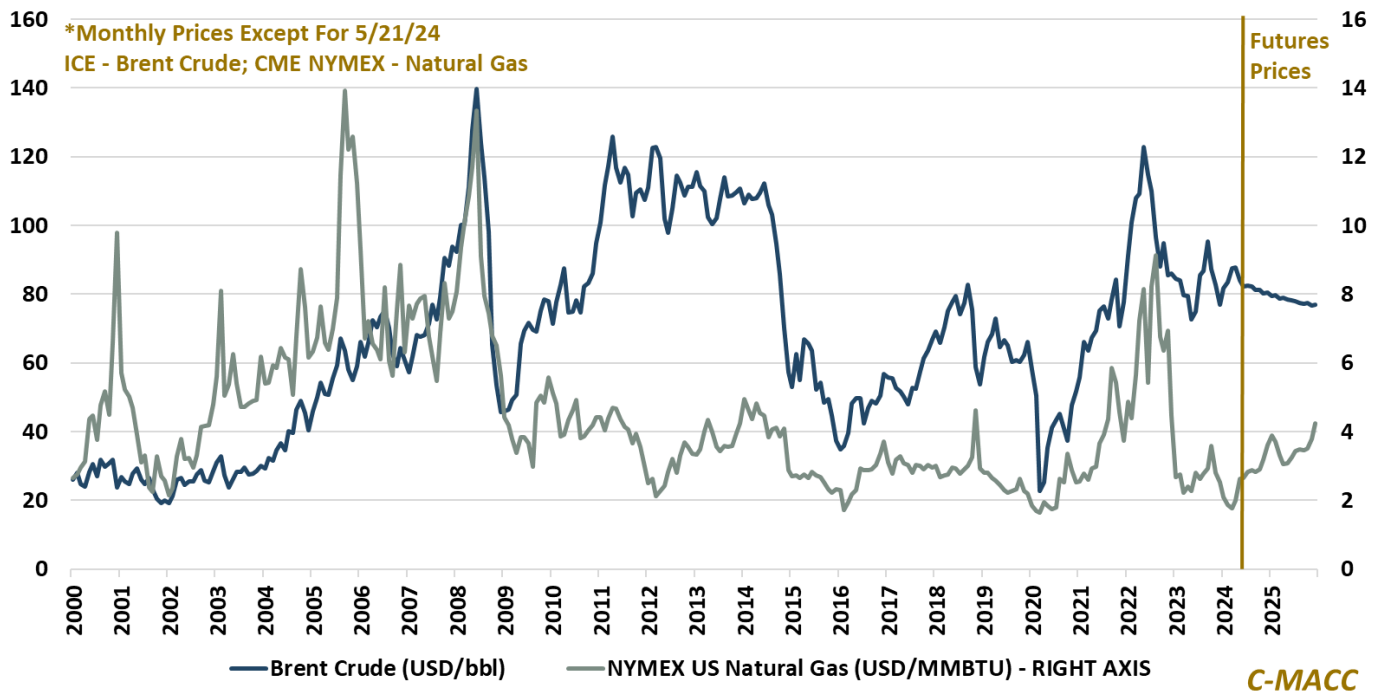
Looking to feedstock futures as a chemical sector sentiment indicator. The exhibits below depict futures prices for Brent Crude Oil, US natural gas, and Mt. Belvieu ethane and propane. We highlight out of the gates that these prices could shift notably relative to this view, with drivers ranging from shifts in demand to the [forecast for a strong hurricane season presenting risks for US oil and natural gas](#). Still, as we look at the futures prices today, it implies higher US chemical producer costs for US natural gas and ethane during the next 18 months, while many chemical producers abroad will get feedstock cost relief due to lower crude values. This outlook suggests to us that the oil-and-gas producer efforts to further push their upstream products into the chemical arena will remain strong, as we do not see Aramco, ExxonMobil, and others with these benefits slowing their efforts to push toward growth in chemical markets and away from slowing fossil fuel demand. However, this general feedstock setting could stall expansion among more non-integrated chemical producers downstream, as falling crude could give some producers hope in high-cost regions, such as Europe and Asia Ex-China, which could keep capacity online longer than planned. With this considered, and the prospect of lower global prices ahead, North American chemical producers, ranging from Dow, LyondellBasell, and Nova Chemicals in Polyolefins to Westlake, Olin, and Occidental in Chlor-Vinyls, among others, hold a still significant feedstock advantage relative to Asia and Europe if the futures market today materializes into the actual trajectory of feedstocks during the next 18 months.

➤ **Key Companies: Aramco, ExxonMobil, Dow, LyondellBasell, Nova Chemicals, Westlake, Oxy, Olin, ADNOC, Shell, TotalEnergies, Phillips 66, Chesapeake**

➤ **Commodities: Crude Oil, Natural Gas, Ethane, Propane, LNG**

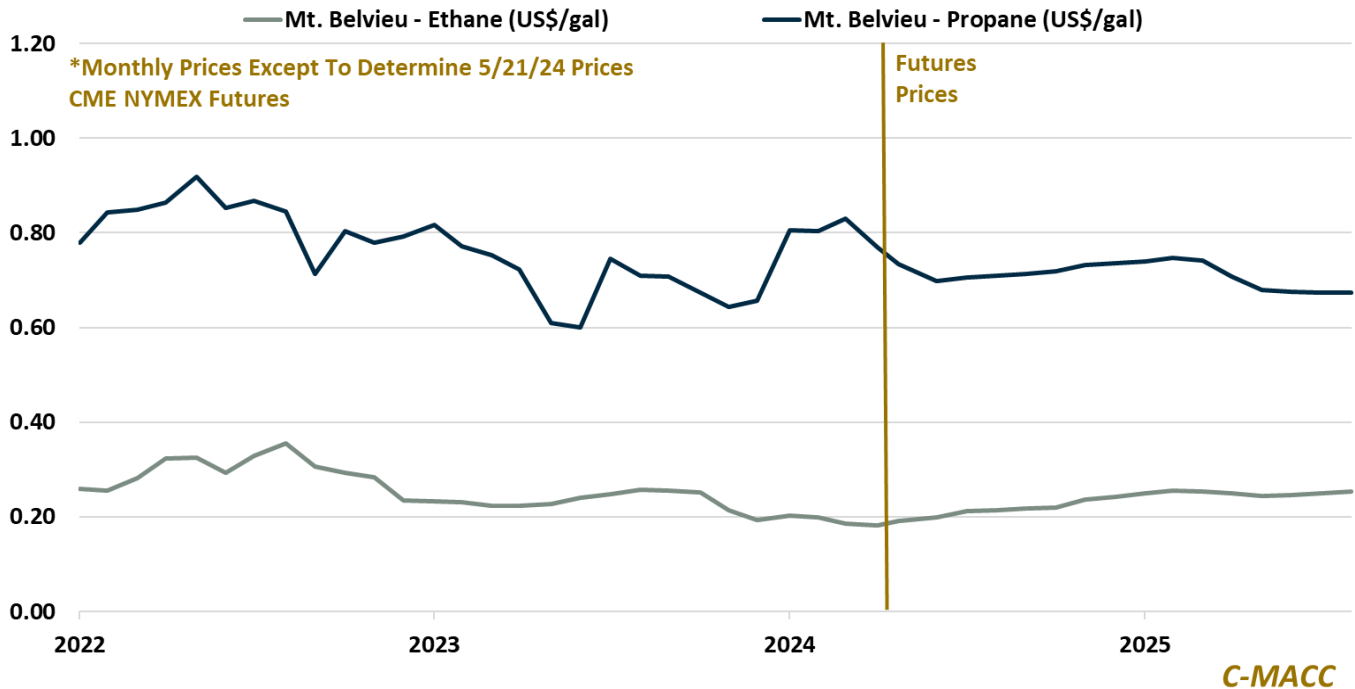
- [ADNOC Continues LNG Expansion With Stake in Mozambique Project](#)
- [Biden releasing 1 million barrels of gasoline from Northeast reserve in bid to lower prices at pump](#)
- [EU gas sendout from LNG facilities drops to 7-month low](#)
- [Natural Gas Giant Chesapeake Begins Layoffs](#)
- [Phillips 66 to Acquire Midland Basin Midstream Player for \\$550 Million](#)
- [Shell sees emerging Asian markets taking more of world's growing LNG supply](#)
- [TotalEnergies to Develop \\$6-Billion Oil Project Offshore Angola](#)
- [U.S. Crude Oil, Gasoline Inventories See Sizable Gains](#)

Exhibit 3: Futures markets reflect lower Brent Crude Oil prices and higher US natural gas prices in 2025...



Source: Bloomberg, C-MACC Analysis, May 2024

Exhibit 4: ...and reflect mostly unchanged US spot Mt. Belvieu propane prices but higher US spot ethane values.



Source: Bloomberg, C-MACC Analysis, May 2024

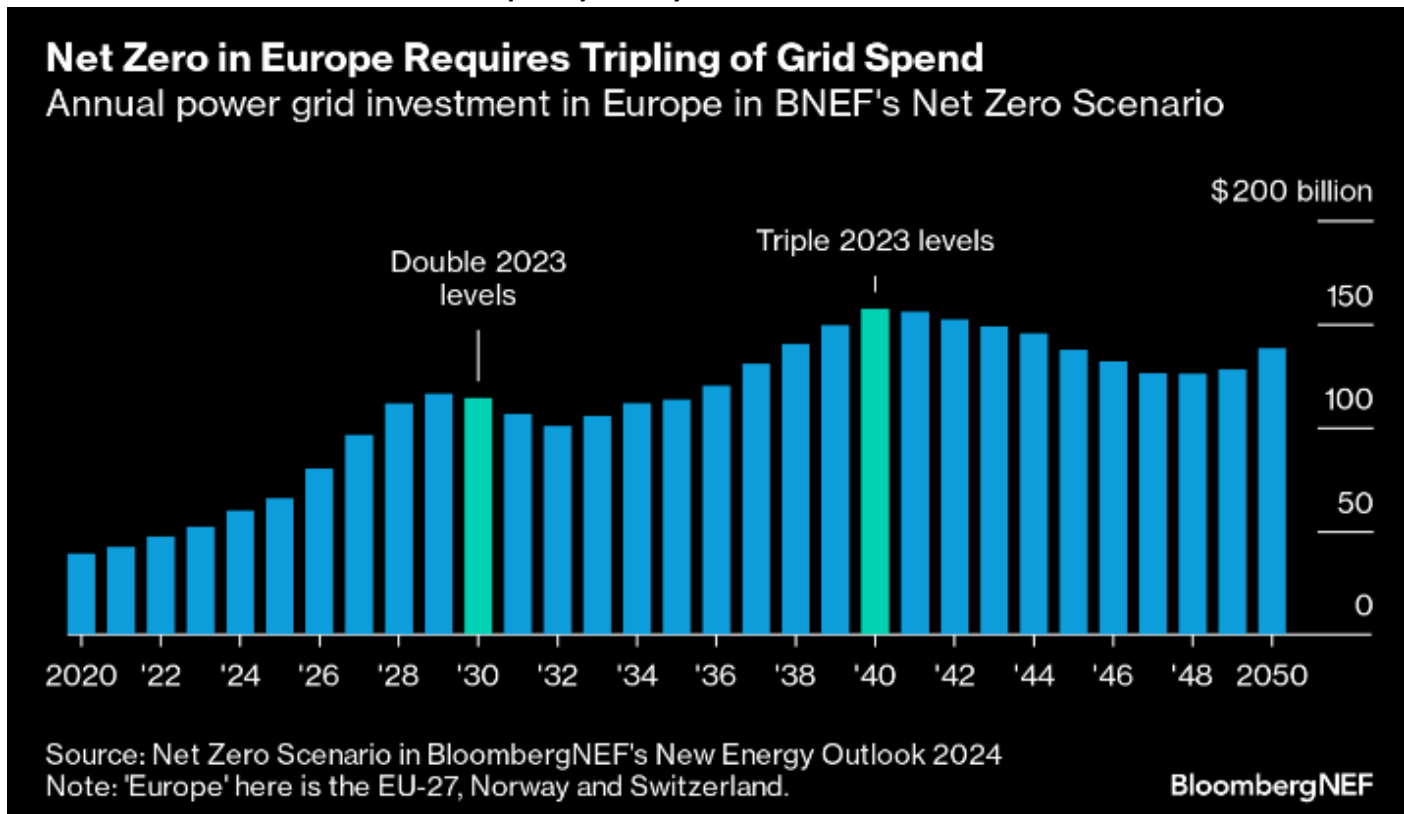
Sustainability, Clean Energy, Recycling & ESG:

Global hydrogen developments face myriad challenges, with sourcing cheap, clean electricity being one of them. Part of the C-MACC team is at the Global Hydrogen North America conference today in Houston, TX, to meet with several hydrogen market participants, ranging from upstream power and related infrastructure suppliers to potential off-takers. With this in mind, we highlight an S&P article from earlier today, [Bright spots for hydrogen project development emerge amid investment delays](#), highlighting the significant amount of pre-FID global hydrogen project announcements that dwarf those that have reached FID and are advancing. As we have discussed regularly in our weekly [hydrogen market research](#),

we observe many challenges that are likely to push out many projects due to a lack of firm offtake agreements for proposed hydrogen production (at likely needed premium prices for hydrogen carrier products, such as ammonia) and due to upstream limitations in some areas, whether it is green power or grid connectivity or CCS permitting for blue production in some areas. While equipment costs, such as electrolyzers, have increased as well, we do not see this as the limiting factor to locking in economics and related risk-adjusted returns for most projects, and we continue to see a setting reflecting delays rather than a rush of supply in the near-to-medium term. The exhibit below ties in well with our recent hydrogen research, [Mandated Expense – Can Europe Afford Its Current Pathway? | C-MACC](#), though we also highlight our latest hydrogen report, [The Biden \\$1 per KG Hydrogen Target, Causing More Problems Than It Solves | C-MACC](#), and recent sustainability research, [Will A Lack of Imagination Maintain Constraints on Affordable Transition? | C-MACC](#), to show a few major constraints likely to keep hydrogen production from surging, relative to some expectations, in Western markets.

- **Key Companies:** Amazon, Deloitte, REPowerEU, Google, Meta, Microsoft, Salesforce, Yara
 - **Commodities:** Hydrogen, Ammonia, SAF
- [Amazon ploughs \\$17bn into renewable energy-powered Spanish data centres](#)
 - [Bright spots for hydrogen project development emerge amid investment delays](#)
 - [Countrywide to secure AUD \\$8m upon hydrogen delivery](#)
 - [Deloitte report outlines challenges in reducing Scope 3 emissions in chemicals](#)
 - [REPowerEU gas reduction is exceeding targets. But that means the same 2025 target can see gas rise again](#)
 - [Tech Giants Google, Meta, Microsoft, and Salesforce Launch 20 Million Ton Nature-Based Carbon Removal Buyers Coalition](#)
 - [UK SAF policies put uptake targets at risk: aviation leaders](#)
 - [Yara inks ammonia supply deal with Indian energy firm](#)

Exhibit 5: Decarbonization efforts in Europe rely heavily on the “clean” electrification of its markets.



Source: BloombergNEF, May 2024

Other Chemical Industry, Demand & Downstream News:

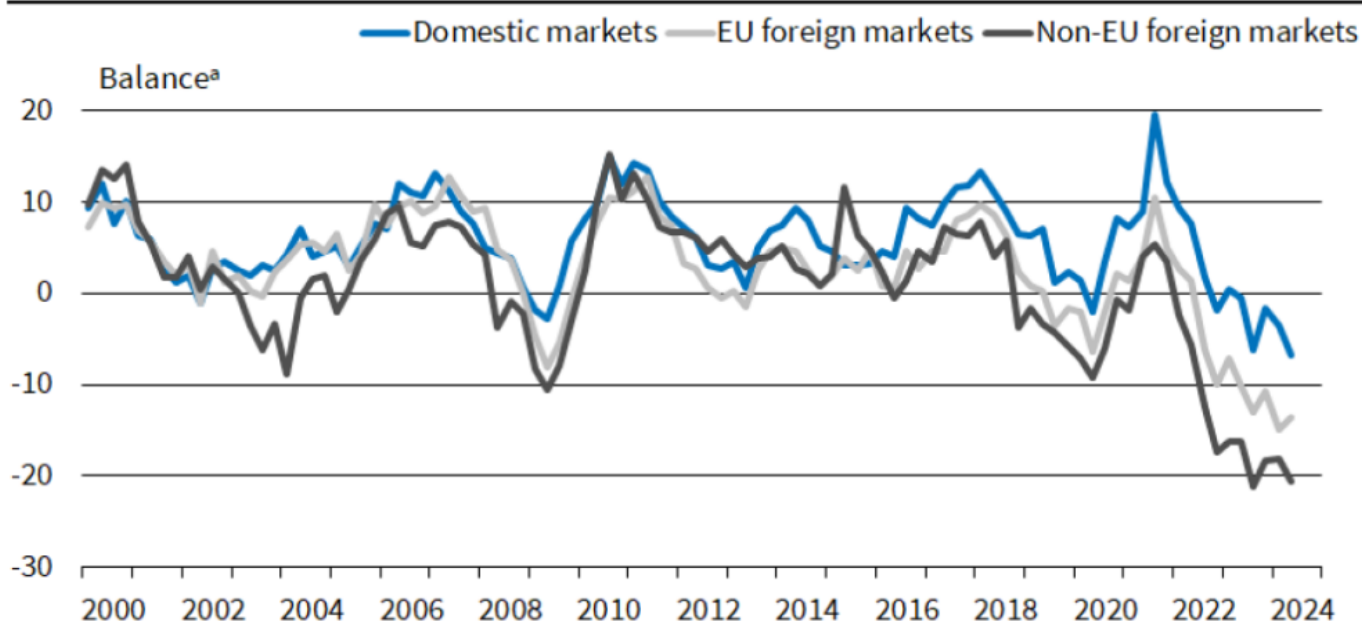
When will European industry catch a significant break!?! During the past ~6 months, we have seen European natural gas prices drop relative to US levels, partly the result of a less harsh winter than planned, and logistic issues from China, notably through the Suez Canal, limit cheap products from China into Europe to the detriment of its industry. However, European manufacturers, as shown in the exhibit below, remain in a challenging competitive position as they compete in a mature demand setting with high-cost feedstocks, which is limiting the prospect for exports and is resulting in production closures, particularly among those not integrated into products downstream or backward integrated into a better-than-average regional cost position. We continue to see Europe as an outlet for North American product flows, based on its low-cost production, and China product flows, amid its unrelenting oversupply, pushing to find premium-priced outlets in Europe but also in some categories in the US, mainly in downstream end-good prices. Overall, we continue to see Europe in a tough spot, even if its petrochemical production cost position improves at the feedstock level as the futures market implies above. We see more of the same in Europe until more capacity cuts come forth and more government-led fortifications surround its domestic industry, which we do not see notably changing its global position through 2025.

➤ Key Commodities: Natural Gas

- [EU new car sales jump 13.7% in April, industry body says](#)
- [European markets head for higher open as UK inflation misses estimate](#)
- [Freight rates on China exports soar amid Red Sea crisis](#)
- [Inflation setback complicates Bank of England's next rates decision](#)
- [UK inflation drops to 2.3% in April, nearing Bank of England's target](#)
- [US Home Prices Continue Their Ascent, Even as High Costs Deter Homebuyers](#)

Exhibit 6: [German Manufacturing Sees Threat to Its Competitiveness | Facts | ifo Institute](#)

Competitive Position of German Industry



^a Seasonally adjusted.

Source: ifo Business Survey, April 2024.

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Source: [ifo Institute](#), May 2024

Other Relevant Headlines

Supply Chain, Commodity Chemicals, & Chemical Sector News:

- [Anglo rejects BHP's third offer, but leaves door open to engage with rival](#)

- [API revenue at Granules India plummets](#)
- [BHP-Anglo prospects flag more M&A ahead for miners](#)
- [Brazil's Braskem restart at Triunfo to kick off petchem hub normalization](#)
- [Braskem restarts Triunfo petrochemical hub](#)
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- [Corteva Agriscience appoints new South Asia president](#)
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- [China launches anti-dumping probe on acetal resins](#)
- [Covia Acquires Silica Sand Mining Facility, Enhancing Portfolio](#)
- [Calcium Chloride Prices Rise in US Amid Increased Demand From Downstream Construction Industry](#)
- [Calcium Propionate Market Braces for Volatility Amid Global Supply Disruptions](#)
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- [Higher margins boost Polyplex's income](#)
- [LEVERTONHELM and Mangrove Lithium Sign MOU for Europe's Battery-Grade Lithium Refinery](#)
- [Lummus to license, commercialize Sumitomo Chemical's LDPE/EVA, rPMMA technologies](#)
- [PPG to build automotive coatings plant in Tennessee](#)
- [PPG to build new US paint plant, invest in existing two sites](#)
- [Petrochemical company fined more than \\$30 million for 2019 explosions near Houston](#)
- [Rush of fund manager interest drives metals prices to fresh highs](#)
- [Stable PBAT Prices Persist in USA despite Increased Seasonal Demand](#)
- [US Set to Secure Critical Domestic Rare Earths Supply Chain by 2027](#)
- [US Steel, Cleveland Cliffs spar over Nippon deal, misinformation allegations](#)
- [Zimbabwe Looks to Develop Lithium Refining Industry](#)

Energy/Upstream:

- [Americans Set for Near-Record Summer Road Trips as Gasoline Prices Fall](#)
- [Adani suspected of fraud by selling low-grade coal as high-value fuel](#)
- [Australia Risks Blackouts if Urgent Energy Investments Are Delayed](#)
- [Australia's Santos sees strong gas demand, targets 85-15 long term-spot ratio](#)
- [BW Energy Makes Oil Discovery in Gabon Asset](#)
- [China's Coal Industry Group Revises Down 2024 Output Forecast](#)
- [Contractor behind QatarEnergy-ExxonMobil LNG plant files for bankruptcy](#)
- [DOE to sell 1 million barrels of gasoline as it prepares to close Northeast reserve](#)
- [Emirati Tanker Loads First Oil Cargo From Expanded Trans Mountain Pipeline](#)
- [EU Council formally adopts new gas package, allows Russian gas restrictions](#)
- [Exxon, Shell Are Said to Weigh Bids for Galp Namibia Stake](#)
- [Energy Lenders Predicting Natural Gas Price Recovery in 2025](#)
- [Firm building QatarEnergy-Exxon LNG plant in Texas files for bankruptcy](#)
- [German Hot-Rolled Coil Market Shows Stability Amid Industry Challenges in Early May](#)
- [Guyana Is Among Fastest Growing Non-OPEC Producers: US EIA](#)
- [Guyana Has Become a Major Driver of Global Oil Supply Growth](#)
- [Houston \(Means I'm One Day Closer To You\) - Deepwater Port Could Bolster Houston's Status As Oil Hub](#)
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- [OMV Warns Russia's Gazprom May Halt Natural Gas Supply to Austria](#)
- [More state officials oppose Exxon directors over climate lawsuit](#)
- [REPowerEU gas reduction is exceeding targets. But that means the same 2025 target can see gas rise again](#)
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- [US LNG pause opens opportunities to Middle East gas producers, Woodside CEO says](#)
- [U.S. Department of Energy to Release 1 Million Barrels of Gasoline from Reserves](#)
- [US readies sale of 1mn bl gasoline reserve](#)
- [WildFire Energy Buys Apache Assets as U.S. Shale Deals Continue](#)

Sustainability, Clean Energy, Recycling & ESG:

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- [80% of Companies See Sustainability as a Potential Revenue, Profitability Driver: Morgan Stanley Survey](#)
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- [Advanced Energy makes £571m offer to acquire XP Power](#)
- [ArcelorMittal starts up carbon capture unit at Belgium blast furnace](#)
- [Air Liquide launches charter for sustainable biomethane production](#)
- [Biden's \\$7B 'Clean' Hydrogen Dream Faces Pipeline Hurdle](#)
- [Brazil biomethane parity prices R2.43-2.79: Correction](#)
- [Borealis seals renewable energy PPA for Schwechat, Austria, facilities](#)
- [Consumers sue Hershey over deceptive Reese's packaging](#)
- ['Clean technologies key to limiting global warming'](#)
- [Corio, Bord Gais Energy eye Irish offshore opportunity](#)
- [Croatian refinery to adopt green hydrogen with 10MW electrolyser installation](#)
- [CAISO picks SCE and Lotus to build new transmission line in California](#)
- [ChargePoint and Airbnb Partner to Enable Seamless EV Charging](#)
- [China's CNNC begins work on 2GW offshore solar farm in Jiangsu](#)
- [Climate Activists File Involuntary Manslaughter Claim Against Big Oil](#)
- [Diageo to Invest \\$110 Million to Decarbonize Flagship Guinness Brewery](#)
- [EfW and CCS combined 'cannot be overstated'](#)
- [Empire and Heartland unveil waste-to-hydrogen site plans in West Virginia](#)
- [Eastman and Pact Collective link on coloured PET waste recycling](#)
- [Ethanol production and sales up in late April](#)
- [European Council signs off gas and hydrogen market package](#)
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- [First steel in the water for RWE at Sofia](#)
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- [Far East Asia leads global blue ammonia price gains in April](#)
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- [SMRs cost-effective in hydrogen production – report](#)
- [Saudi Arabia claims world's cheapest ever wind power after Marubeni deal](#)
- [Sun king solar leaves wind and gas in dust with almost 90% of new US grid power](#)
- [Saudi Arabia eyes Bill Gates-backed 'brick battery' to help green its oil giant](#)
- [Sulapac reusable bioplastic cups debut at Burger King Finland](#)
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- [Turning talk into terawatts: elevating the electrolyser](#)
- [The Hydrogen Stream: Jera to invest up to \\$13 billion in hydrogen, ammonia by 2035](#)
- [Tesla’s Sales in Europe Fall to a 15-Month Low](#)
- [‘The window of opportunity is starting to close for Scottish floating wind assembly ports'](#)
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- [UK will not bank ‘surplus’ from third carbon budget](#)
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- [Vestas secures contract to supply turbines for project in Austria](#)
- [Verra suspends registry account of Rimba Raya project's proponent](#)
- [Werner Enterprises adds hydrogen fuel cell truck to fleet](#)
- [Zeolyst installs lab-scale pyrolysis unit to develop zeolites for advanced recycling](#)

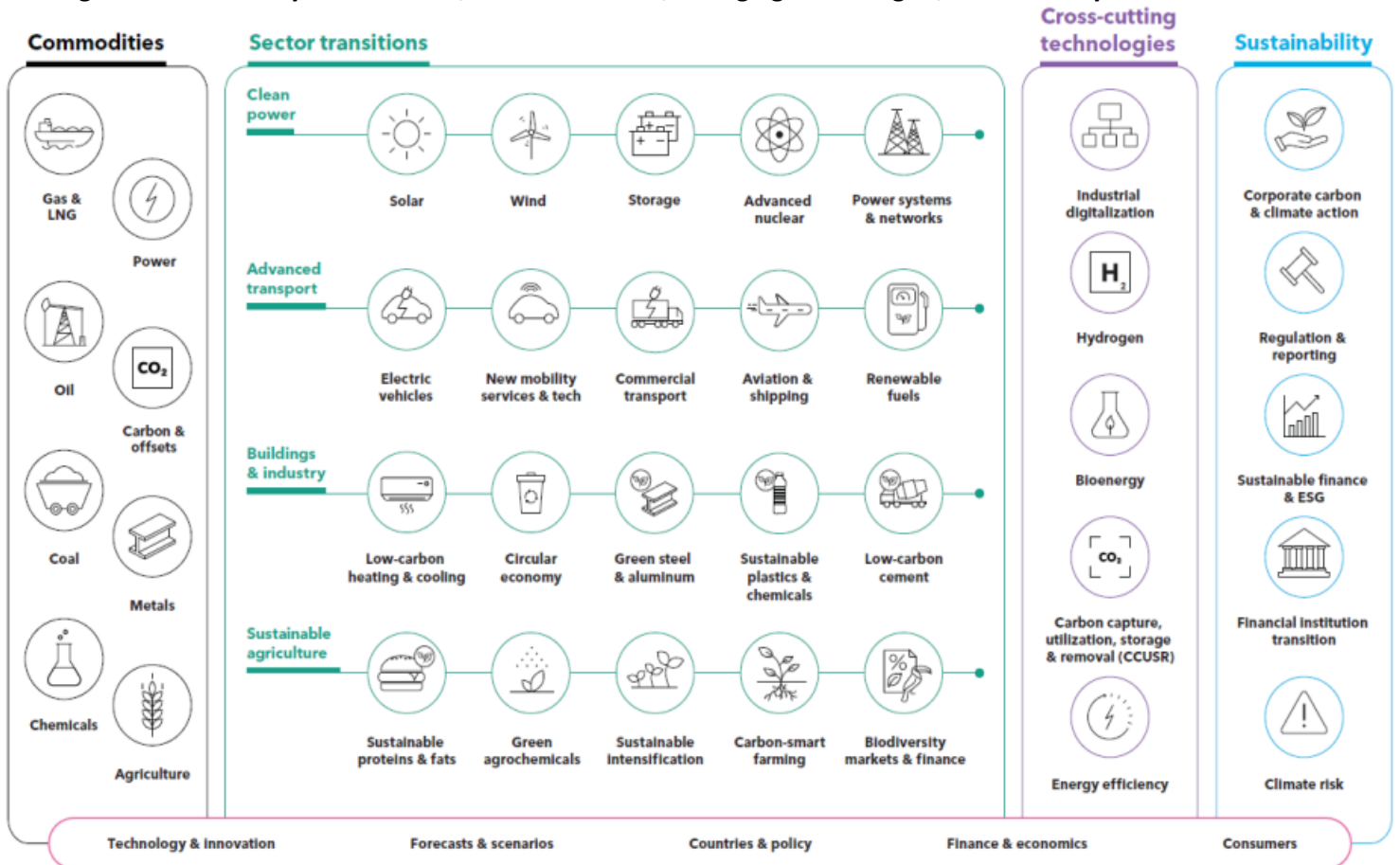
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- [Target, Walmart shoppers seek home goods, grocery delivery online](#)
- [UK regulators fine Citigroup £62mn for trading control failures](#)
- [UniCredit chief Orcel backs French president's call for bank deals](#)
- [US existing home sales fall for second straight month in April](#)
- [US retailers trim prices as shoppers show signs of inflation fatigue](#)
- [UK rental price growth pulls back from peak](#)
- [US consumer watchdog will apply credit card rules to buy now, pay later companies](#)
- [US existing home sales fall for second straight month in April](#)

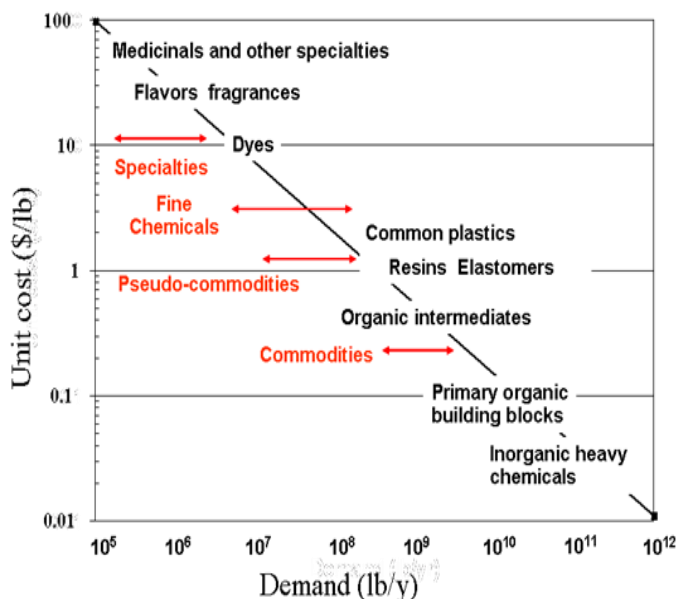
Flow Charts & Ancillary Data

Ex. 7: A general view of key commodities, sector transition, emerging technologies, sustainability markets & themes.



Source: BloombergNEF, C-MACC, May 2024

Ex. 8: Specialty versus commodity



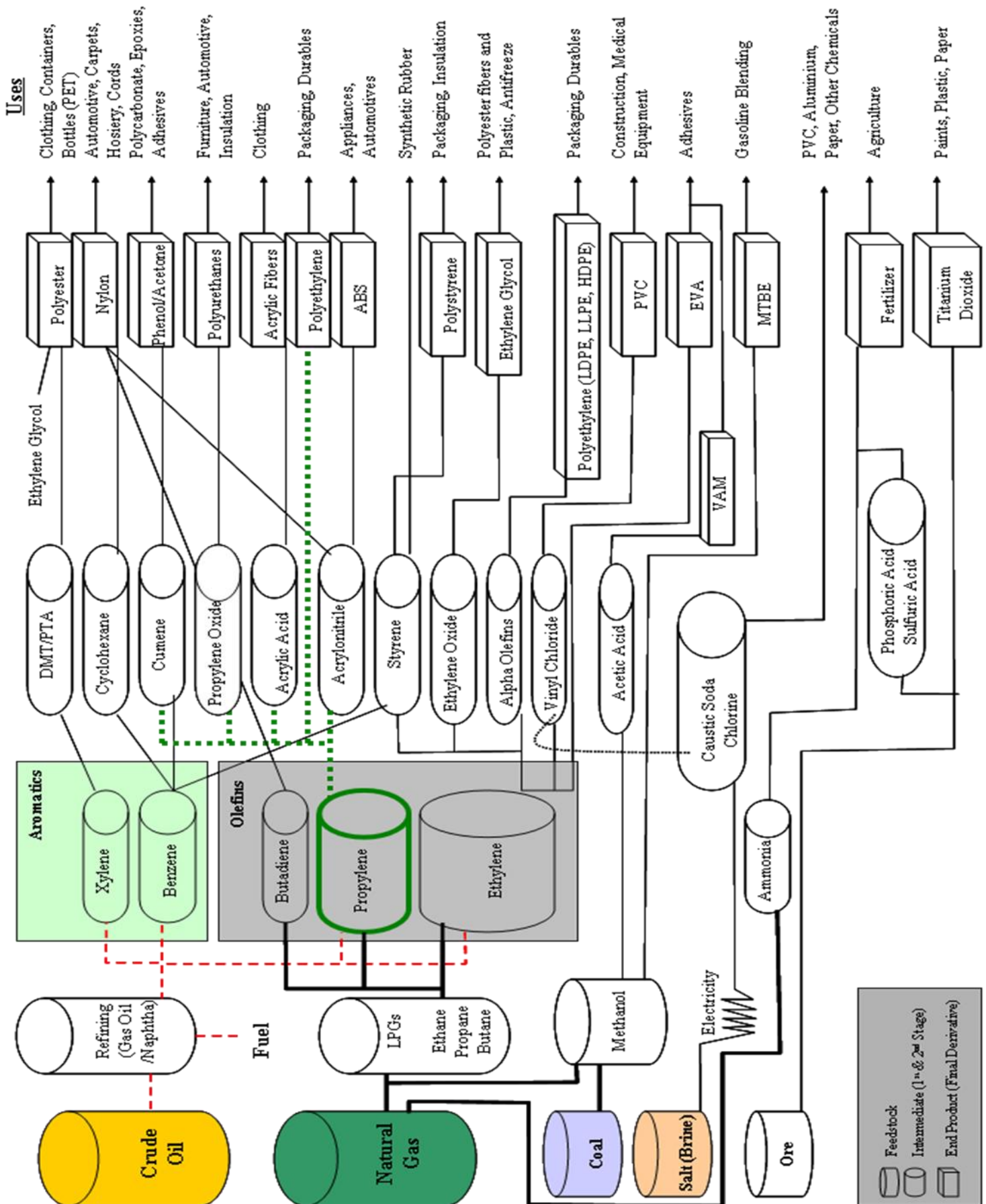
Source: SRI consulting, C-MACC, May 2024

Ex. 9: Chemical industry characteristics

	BULK CHEMICALS	FINE CHEMICALS	SPECIALTY CHEMICALS
Product life cycle	Long	Moderate	Short/moderate
# of products	00's	000's	0000's
Product volumes	>10,000t/y	<10,000t/y	highly variable
Product prices	<5US\$/kg	>5US\$/kg	>10US\$/kg
Product differentiation	none	very low	high
Value added	low	high	high
Capital intensity	high	moderate	moderate/low
R&D focus	process improvement	process development	application/product
KEY SUCCESS FACTORS			
• cost	✓ ✓ ✓	✓ ✓	✓
• technical service	-	✓ ✓ ✓	✓ ✓ ✓
• links with customer	-	✓ ✓	✓ ✓ ✓

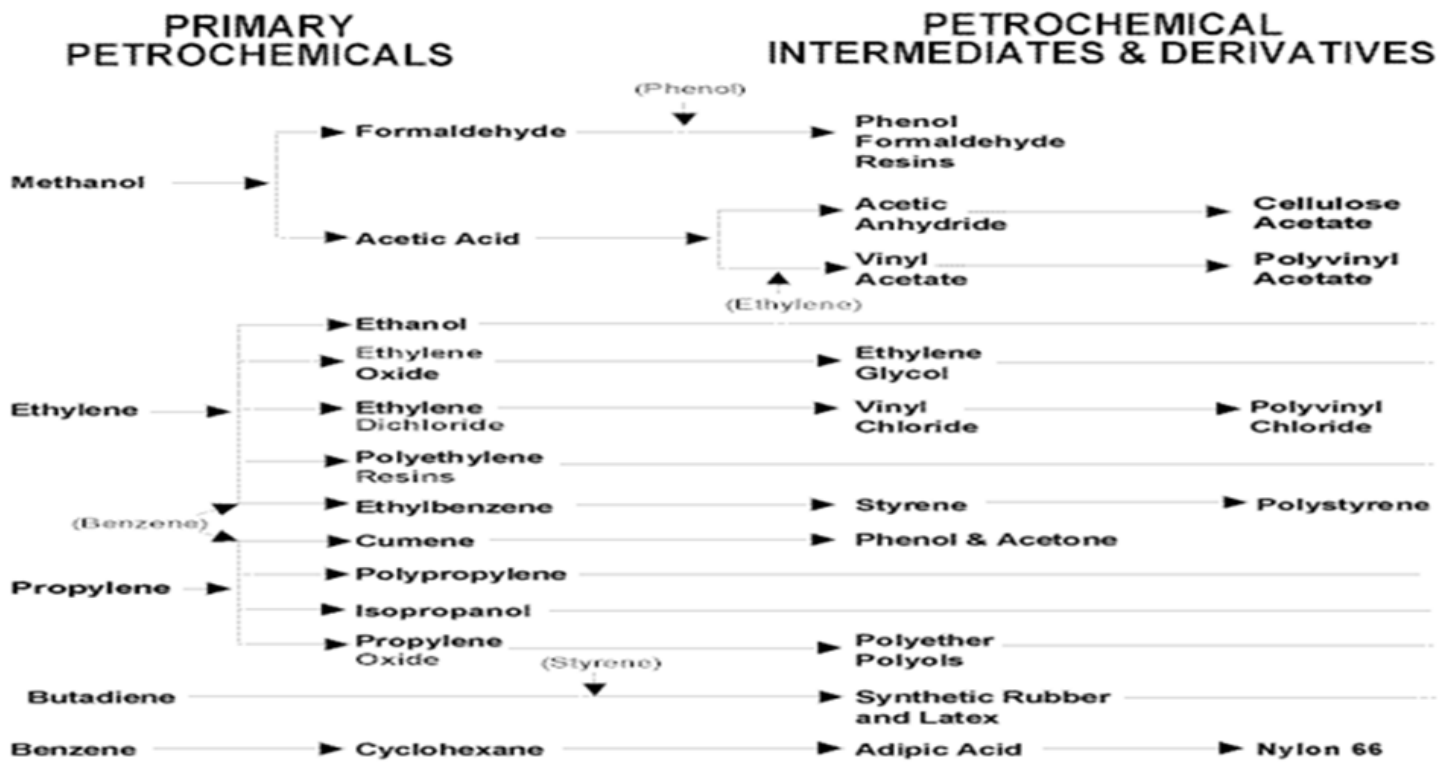
Source: C-MACC, May 2024

Ex. 10: Petrochemical Industry Production Flow – a look at the commodities and their end use



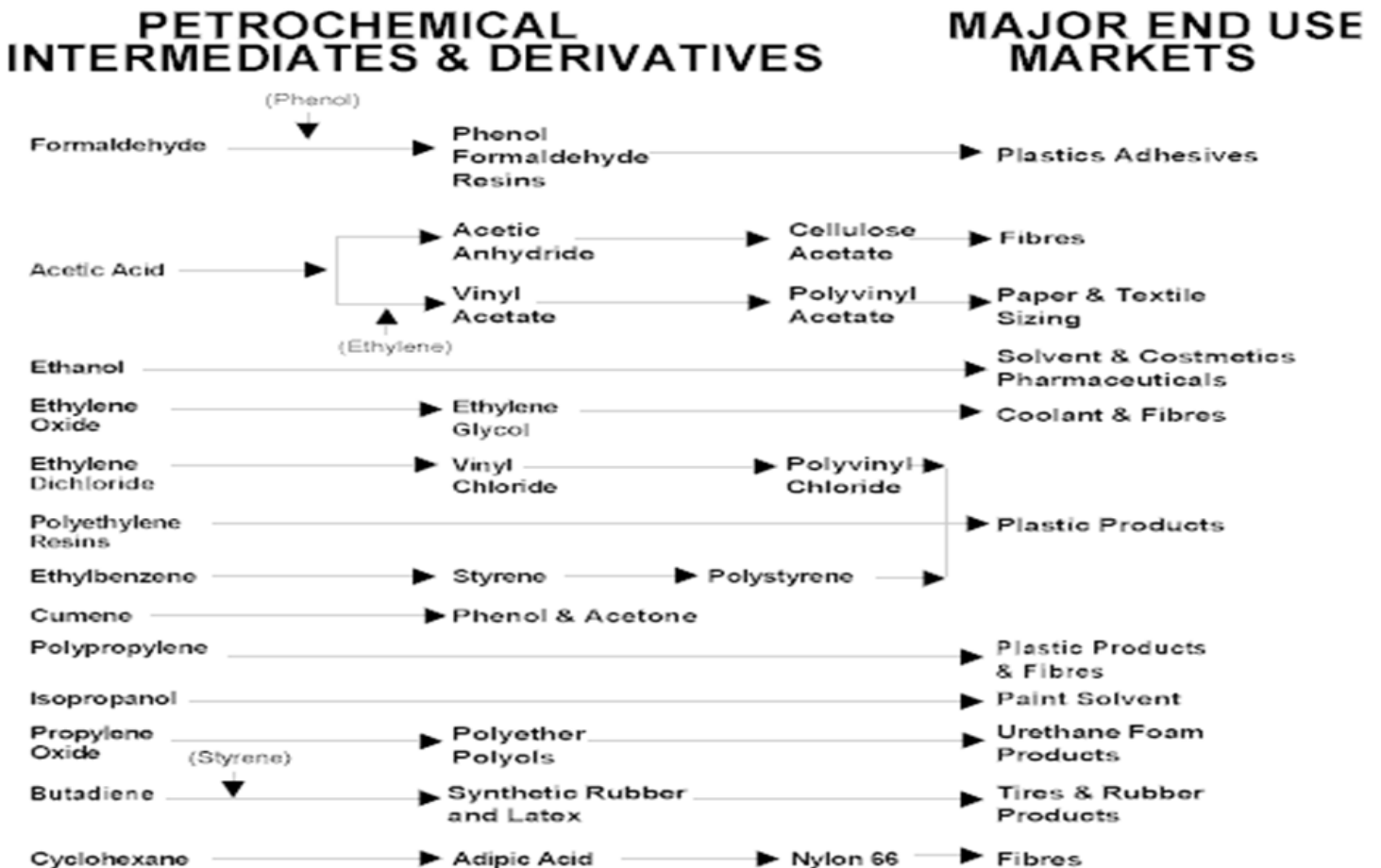
Source: C-MACC, May 2024

Ex. 11: The conversion of petrochemicals to primary intermediates/derivatives



Source: C-MACC, May 2024

Ex. 12: Intermediates & derivative conversion to end markets



Source: C-MACC, May 2024

BROAD SUBSCRIPTION

Thematic, Strategic, and Investment Interpretation of Real Time Data - EVERY DAY!

SERVICES

Value-added analysis, advice and consulting services on a consistent basis to enable informed decision making.



NEW PROJECT APPRAISAL



RISK ANALYSIS



BUSINESS PLAN STRATEGY & OPTIMIZATION



M&A CREATION & DUE DILIGENCE

COVERAGE

PRODUCT PRICING & PROFITABILITY



Commodity Chemicals, Specialty Chemicals, Basic Chemicals

CORPORATE STRATEGY REVIEWS



Earnings Reviews, Strategy Analysis, Investor Relations

ESG & SUSTAINABILITY



INDUSTRIES

• Petrochemicals



• Polymers

• Chlor-Alkali

• Polyurethanes

• Intermediates & Derivatives

• Paints, Adhesives & Coatings

• Agricultural Chemicals

• Industrial Gases

• NGLs & Other Feedstocks

• Water



CONSULTING SERVICES

Work done in the last ten years, including at prior companies



Consulting | Advisory



GENERAL STRATEGY

- Advised an Industrial Gas company on changing market dynamics and competitive positioning.
- Worked extensively with two new energy/materials start-up companies on strategy, communication, project costs, etc.
- Competitive analysis for large corporates in the US and Europe. Broad scope and narrow scope.
 - Repeat business from both subsequently.
- Interpreted the competitive nature of the IRA and its impact on trans-Atlantic competition for base chemicals.
- Retained work with an independent in the US CCS business
 - Business plan development - Potential customer vetting
- Advised on the competitive nature of chemical recycling, mechanical recycling, waste to syngas, and incineration.
- Advising the largest run-of-river hydro project in the US
 - All aspects of business development.



M&A

Full financial and market-based analysis:

- Advised a possible buyer of Dow's Chlorine Products business with specific emphasis on the value of the epoxy resins business.
- Advised the same buyer in an unsuccessful attempt to acquire a large business from another major chemical company.
 - The seller ultimately chose an IPO.

Market-based analysis:

- Advised the successful bidder on Dow's rail assets in the US and Canada
- Advised on strategy around divestment of large US assets for non-US client.
- Due diligence for a SPAC on several potential targets in clean energy.



LEGAL CLIENT

- Expert Witness
- Market Briefs for Litigation



NEW PROJECT APPRAISAL

- Wrote and presented the business plan, through FID, for one of the newer ethylene investments in the US.
 - Countless projects in Southeast Asia like this in the early 1990s.
- Multiple Hydrogen Engagements
- US Renewable Fuels Projects

OTHER

- Map of the renewable/recyclable/biodegradable polymer markets and their likely evolution.



More About Chemical Market Analysis & Consulting Company (C-MACC) - www.c-macc.com

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