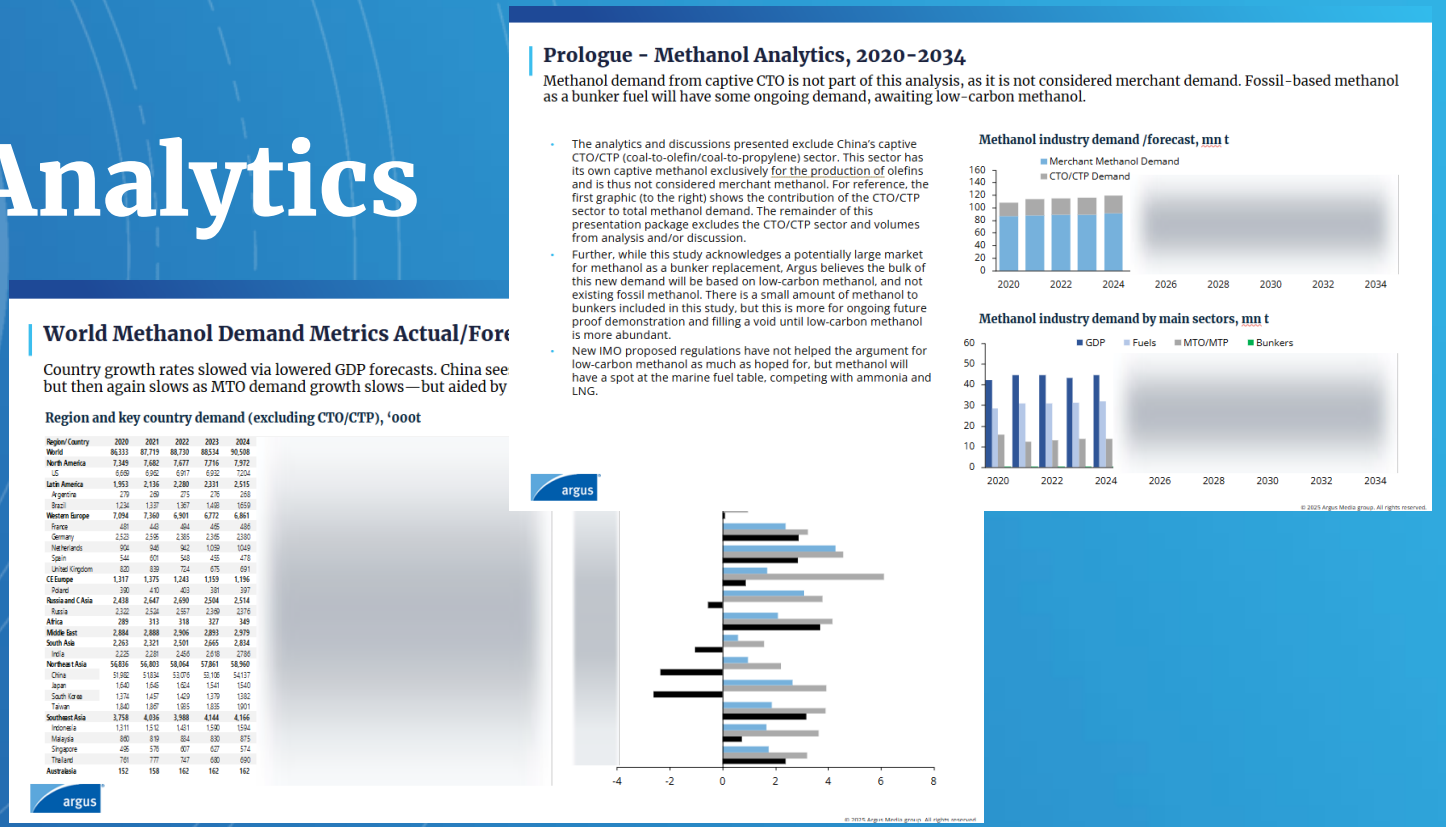
Argus report sample

Argus Methanol Analytics

27 June 2025



Prologue - Methanol Analytics, 2020-2034

Methanol demand from captive CTO is not part of this analysis, as it is not considered merchant demand. Fossil-based methanol as a bunker fuel will have some ongoing demand, awaiting low-carbon methanol.

- The analytics and discussions presented exclude China's captive CTO/CTP (coal-to-olefin/coal-to-propylene) sector. This sector has its own captive methanol exclusively for the production of olefins and is thus not considered merchant methanol. For reference, the first graphic (to the right) shows the contribution of the CTO/CTP sector to total methanol demand. The remainder of this presentation package excludes the CTO/CTP sector and volumes from analysis and/or discussion.
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- New IMO proposed regulations have not helped the argument for low-carbon methanol as much as hoped for, but methanol will have a spot at the marine fuel table, competing with ammonia and LNG.

Methanol industry demand /forecast, mn t

Methanol industry demand by main sectors, mn t

World Methanol Demand Metrics Actual/Fore

Country growth rates slowed via lowered GDP forecasts. China see
but then again slows as MTO demand growth slows—but aided by

Region and key country demand (excluding CTO/CTP), '000t

Region/Country	2020	2021	2022	2023	2024
World	86,333	87,719	88,730	88534	90,508
North America	7,349	7,682	7,677	7,716	7,972
US	6,669	6,962	6,917	6,932	7,204
Latin America	1,963	2,136	2,280	2,331	2,515
Argentina	279	289	273	276	288
Brazil	1,234	1,337	1,367	1,488	1659
Western Europe	7,094	7,360	6,901	6,772	6,861
France	481	448	484	485	486
Germany	2,523	2,598	2,385	2,395	2380
Netherlands	904	946	942	1,059	1049
Spain	544	601	548	435	478
United Kingdom	820	839	724	675	691
CE Europe	1,317	1,375	1,243	1,159	1,196
Poland	390	410	403	381	397
Russia and C Asia	2,438	2,647	2,690	2,504	2,514
Russia	2,321	2,524	2,567	2,389	2376
Africa	289	313	318	327	349
Middle East	2,884	2,888	2,906	2,893	2,979
South Asia	2,263	2,321	2,501	2,665	2,834
India	2,225	2,281	2,456	2,618	2786
Northeast Asia	56,836	56,803	58,064	57,861	58,960
China	51,982	51834	53,076	53,106	54137
Japan	1,640	1,646	1,624	1,541	1540
South Korea	1,374	1,457	1,429	1,379	1382
Taiwan	1,840	1,867	1,955	1,835	1901
Southeast Asia	3,758	4,036	3,988	4,144	4,166
Indonesia	1,311	1,512	1,481	1,590	1594
Malaysia	840	819	854	880	875
Singapore	458	578	607	627	574
Thailand	761	777	747	680	690
Australasia	152	158	162	162	162

About this report

Argus Methanol Analytics is a data-driven evaluation of supply-demand fundamentals forecast for methanol markets, published twice a year.

The service includes a 10-year forecast and 5-year history covering balances and capacities, organized by country and region.

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

This is a sample of the full report only.

To find out more about the full Argus Methanol Analytics service, 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.

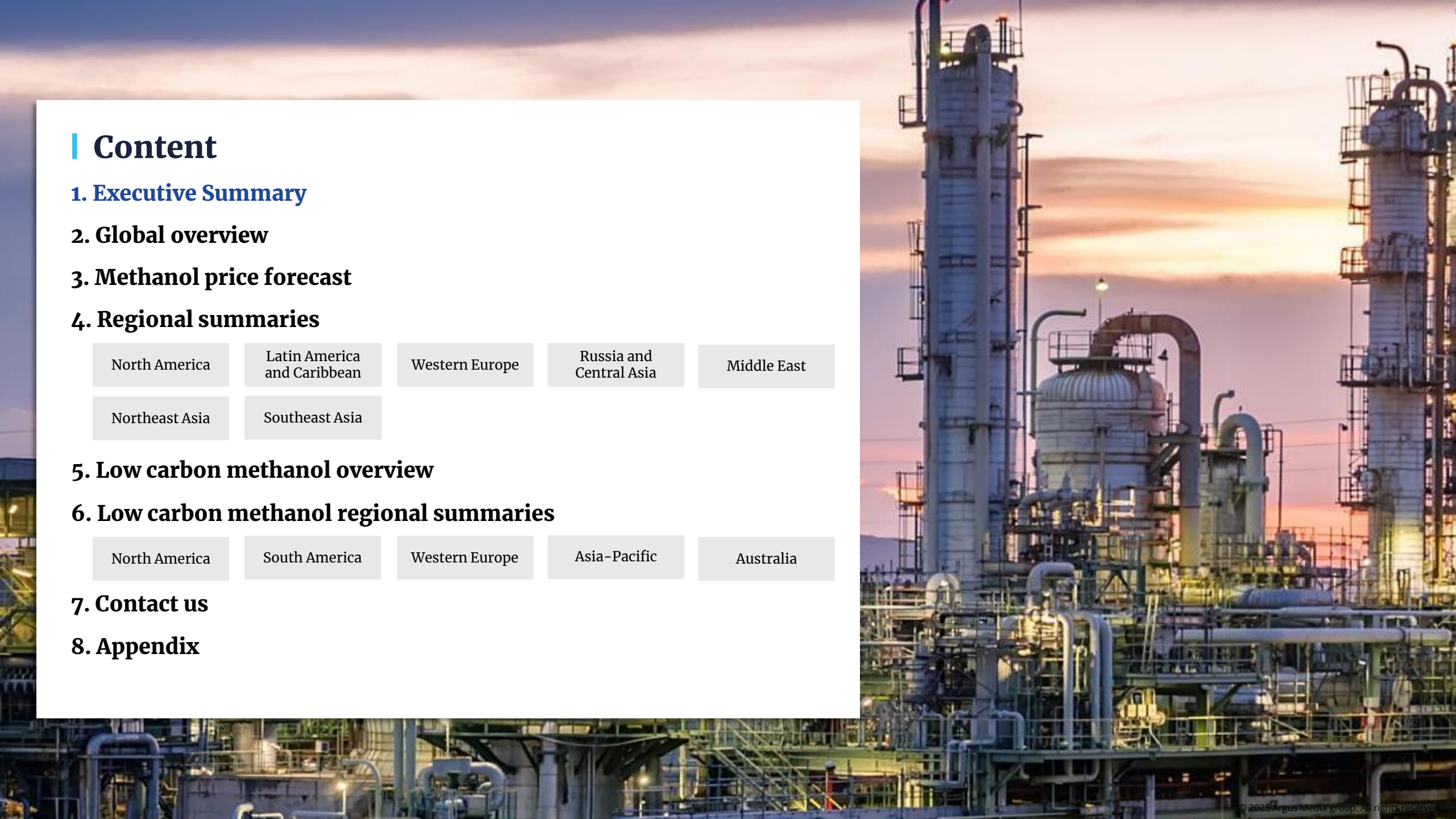
Detailed report
In an easy-to-read PowerPoint format focusing on both supply and demand growth, derivative growth rates in relevant markets, and regulatory concerns.

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.

Content



Prologue - Methanol Analytics, 2020-2034

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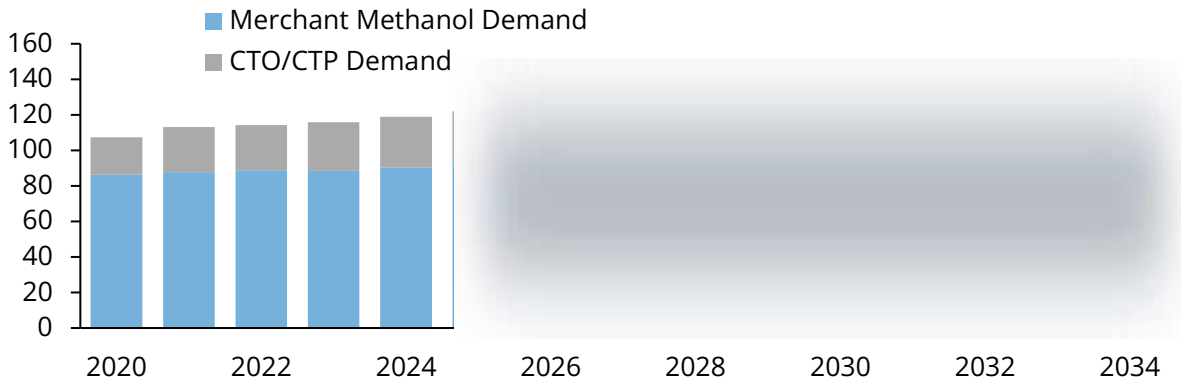
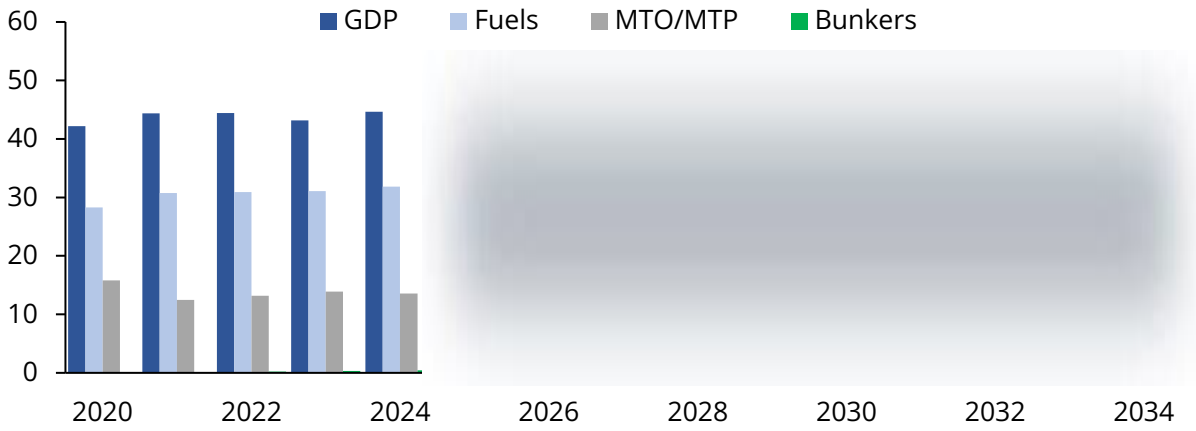
Methanol industry demand /forecast, mn t



Methanol industry demand by main sectors, mn t

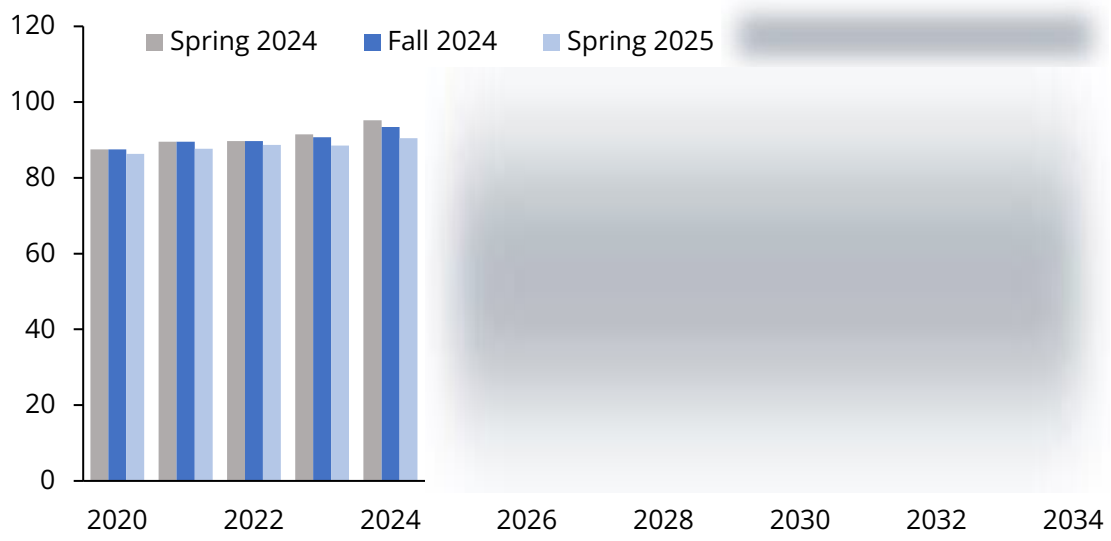


Executive Summary - Methanol Analytics, 2020-2034

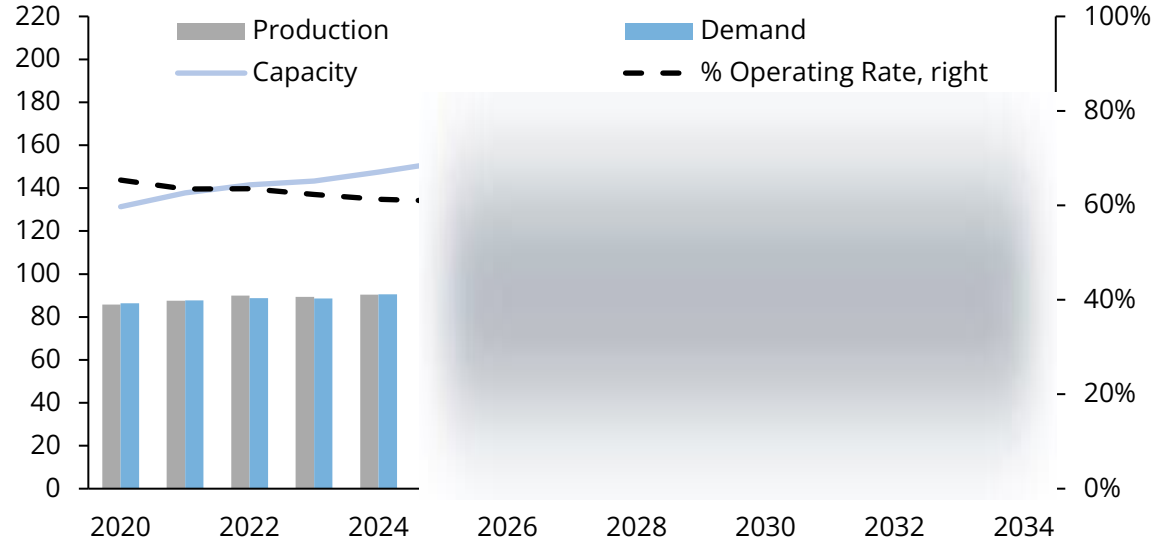
Methanol demand growth slowed as covid-19 and the Russia-Ukraine conflict drove inflation and recession fears. MTO demand slowed but now improving. The industry lacks the next big demand bump to mitigate new capacity.

- outlook for the methanol industry, as by slightly poorer GDP forecasts, but still boosted by and a slight bump from is readily available.
- Industry operating rates have . Operating rates are expected to hover near levels through the forecast, with operating at rates and the rest of the world closer to
- Capacity additions continue, However, capacity excess is ongoing, defining the industry landscape.
- still dominates industry supply and demand, but moving forward, industry growth has to look more to global GDP improvement and non-bunker fuels demand growth.

Methanol industry demand/forecast, *Argus* forecasts, mn t



Methanol industry supply/demand, mn t



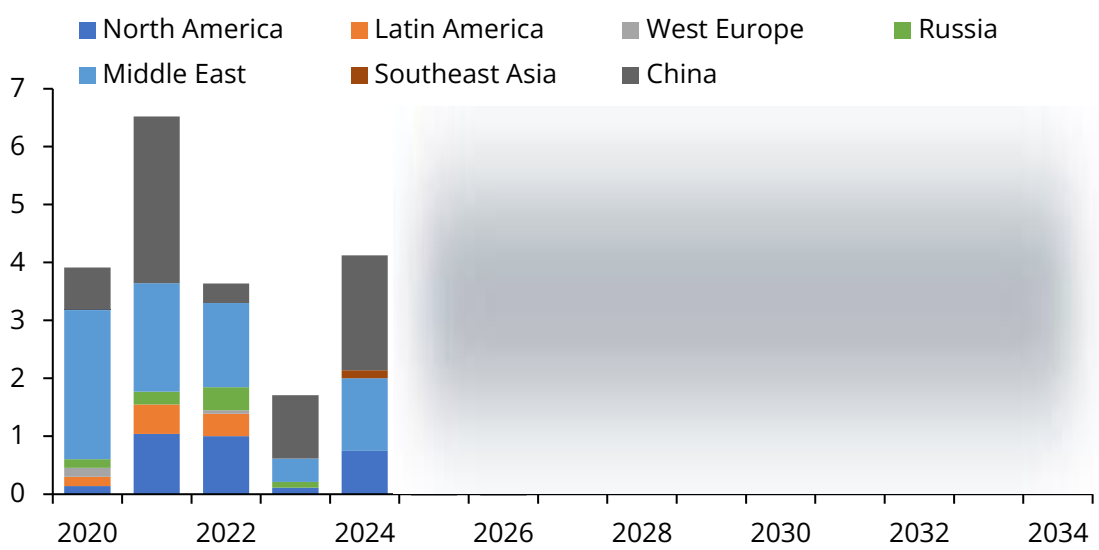
Executive Summary – Methanol Analytics, 2020-2034

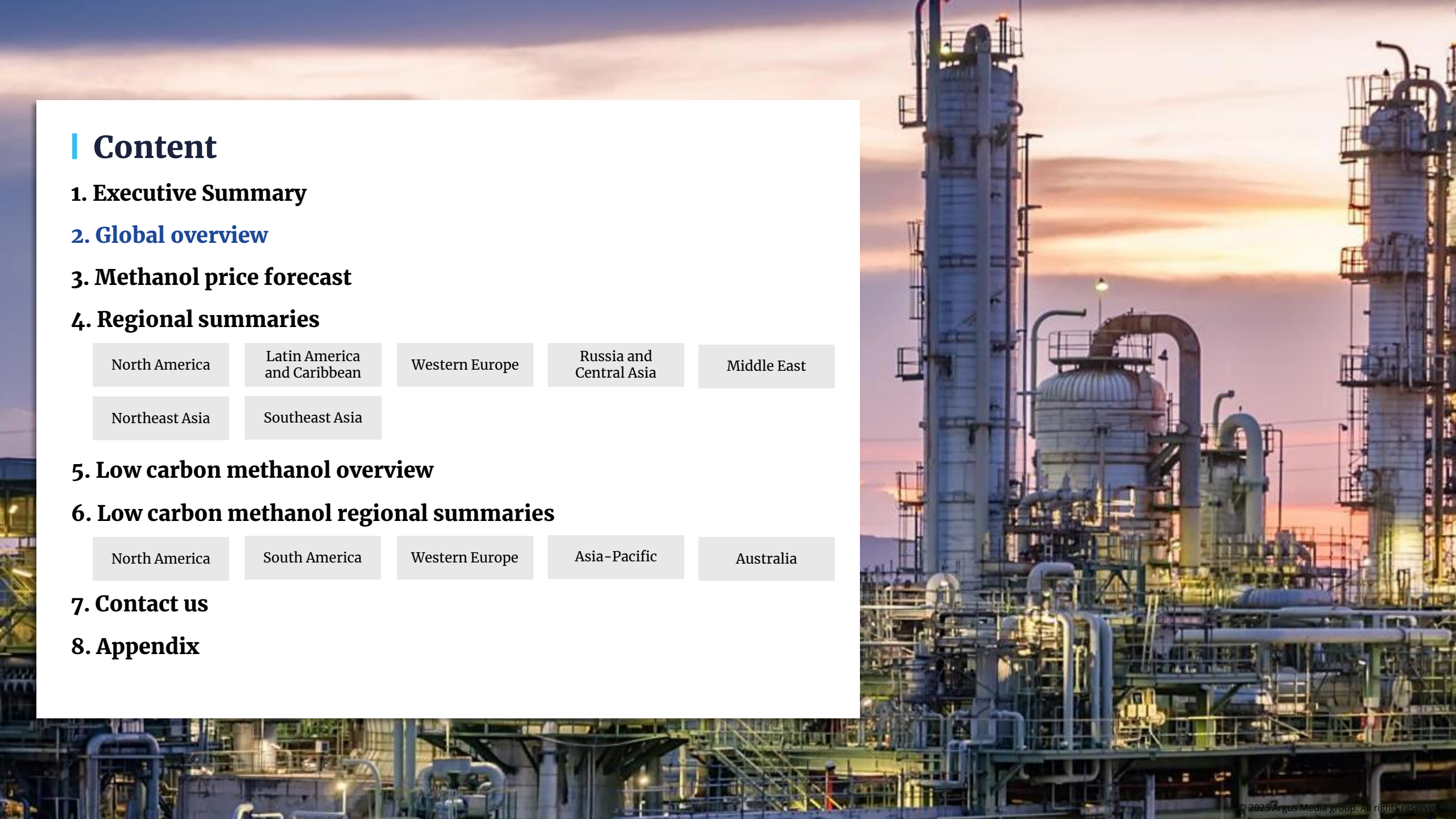
- Past strong growth in China methanol-based olefins production (naphtha cracking alternative), plus steady penetration into a number of energy substitution applications have underpinned methanol industry average annual growth. In the run up to 2020, industry annual growth rates averaged 6pc (2014-2019). The methanol industry returned to 2019 demand levels in 2022 and has grown by about 1mn t/yr since. 2025 and forward should see
- New capacity additions have been China's rampant capacity efforts appear to have slowed for the time being, all combined helping to bring the industry into better balance.
- However, the list of potential new facilities is seemingly growing, most targeting low-carbon markets.

Major global capacity additions, '000t

Region	2020	2021	2022	2023	2024
North America	140	1,040	1,000	115	750
Latin America	160	510	390	0	0
West Europe	156	0	60	0	0
Russia	150	220	400	100	0
Middle East	2,575	1,875	1,450	400	1,250
Southeast Asia	0	0	0	0	140
China	730	2,875	340	1,097	1,983
Total	**3,911**	**6,520**	**3,640**	**1,712**	**4,123**

Global capacity additions/deletions by major region, *mn t*





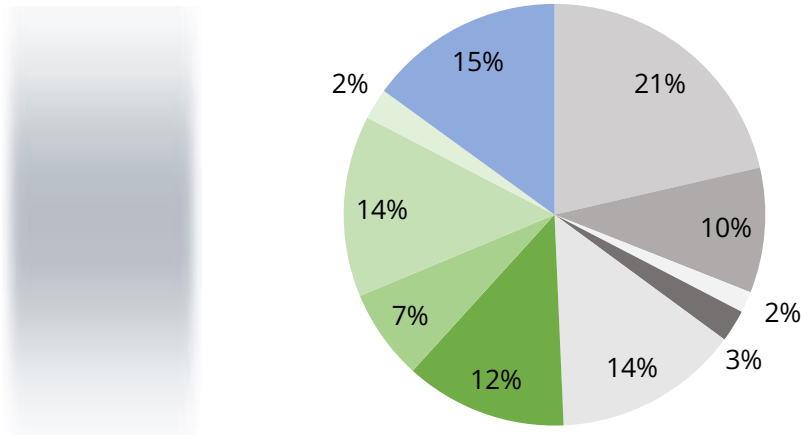
Content

Methanol Global Overview, 2024

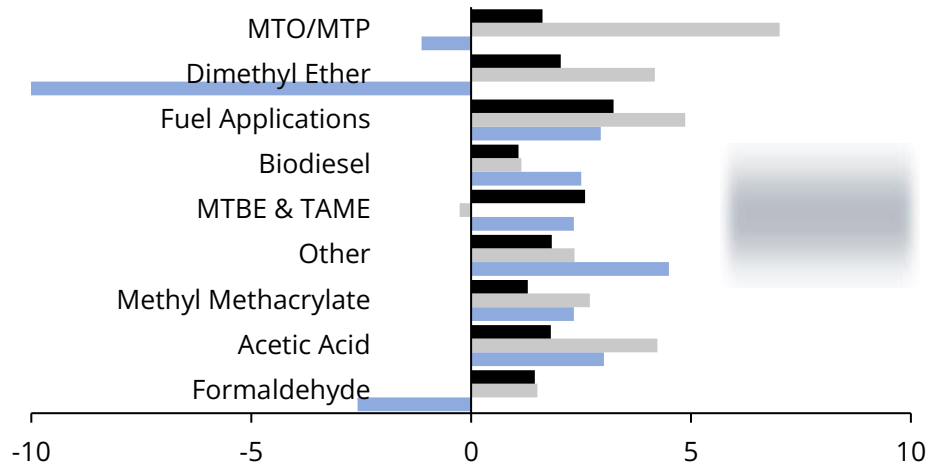
Including the MTO sector, methanol as an oil-derivative (naphtha)/fuel substitution product accounts for 51pc of total industry demand, linking methanol prices to the price of crude oil and/or olefin prices.

- Traditional GDP-driven products (formaldehyde, acetic acid, methyl methacrylate, solvents, etc.) now represent (2024) of methanol industry demand and have been the core of industry demand for decades. However, these products are very much connected with the housing, automotive, paints/coatings and appliance industries and thus are driven by GDP, seeing demand weaken in 2020, 2021 and flat across 2022 and 2023. The forward outlook
- Methanol fuel substitution applications or fuel enhancers (octane improvers) continue to grow, representing about of industry demand in 2023. This sector includes MTBE (methyl tertiary butyl ether), biodiesel as a blend component into diesel fuels, DME (dimethyl ether) as an LPG blendstock, as well as methanol blended directly into gasoline or even as a 100pc fuel substitute for gasoline in China.
- Methanol has also seen growth
- Methanol is becoming one of (many) fuels of choice as bunker fuel substitution, but as we've said before, in the long term "green" methanol and not fossil methanol will have the far greater success as a bunker fuel.
- China's merchant MTO industry was non-existent just a decade ago, growing to mn t) of total methanol consumption in 2020, but to n 2024 (t).
- Viewing MTO as competing with naphtha (i.e. a barrel of crude oil), methanol into fuel substitution applications, combined with MTO demand, represents of total methanol industry demand, establishing a price relationship with crude oil. However, this relationship breaks down in times of fundamental imbalances.

Industry derivative demand, 2024 = 90.5 mn t



Derivative growth, *CAGR*, %

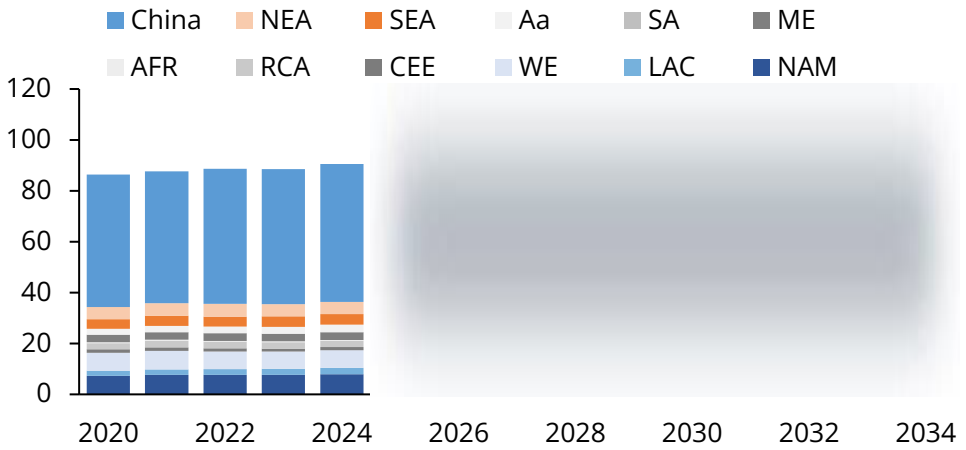


World Methanol Demand Metrics Actual/Forecast, 2020-2034

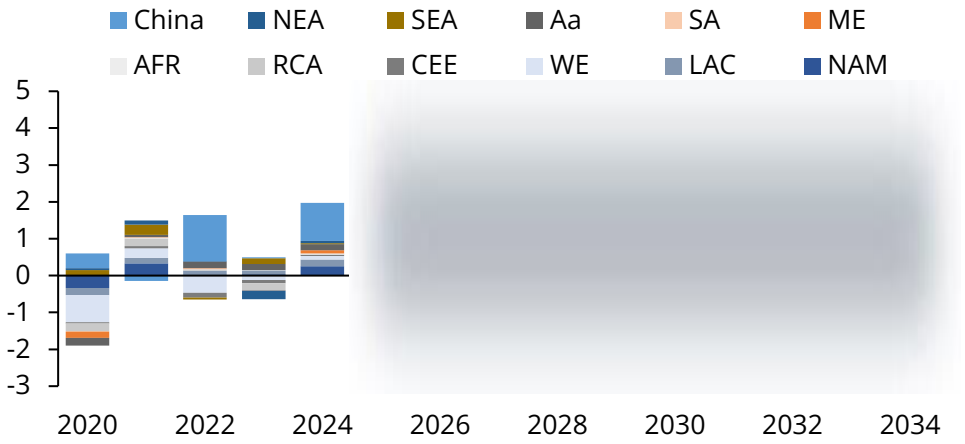
China continues to dominate methanol industry demand, helping underpin growth through the decade, but then industry growth as a whole slows.

- Through the 2020-2024 period, global methanol demand saw a CAGR of just 0.9pc, hurt by covid, the ongoing Russia-Ukraine conflict, as well as general economic stagnation. Losses could have been worse had China's MTO sector not performed unexpectedly well—albeit reduced at times.
- 2024 As the lingering impact of issues noted above, plus ongoing fears of recession, stagnation and the reality of rising interest rates and energy prices stymied GDP growth rates. Now, through the forecast period, slightly improved GDP projections, increased MTO methanol demand and methanol into bunkers is underpinning improvement in industry methanol demand.
- MTO demand had over the past several years but is now
- China's appetite for methanol dominates industry demand. China's demand for methanol hovered at industry total in recent years. Although MTO demand improves over the next several years, slowing growth in traditional methanol derivatives plus more appetite (relatively speaking) from the rest of the world keeps China's demand levels through the forecast period.
- Through the forecast period,
- Year-over-year growth averaged under 600,000 t/yr through the 2020-2024 period, penalized by the loss of almost 1.5mn t in 2020 and returning only to 2019 levels in 2022. Annual demand growth is projected (on average) through the 2025-2029 period, then through 2030-2034.

Regional methanol demand act/fcst, (excludes CTO/CTP), mn t



Regional demand, yoy (excludes CTO/CTP), mn t

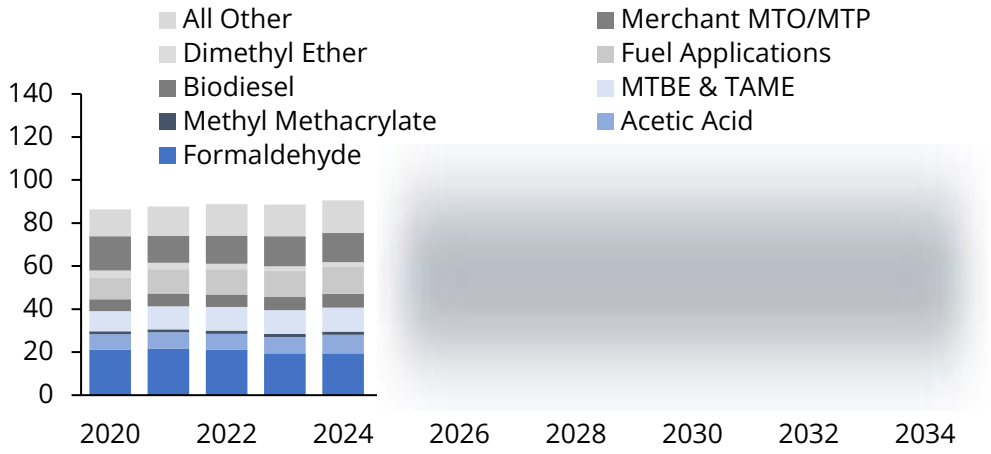


World Methanol Demand Metrics Actual/Forecast, 2020-2034

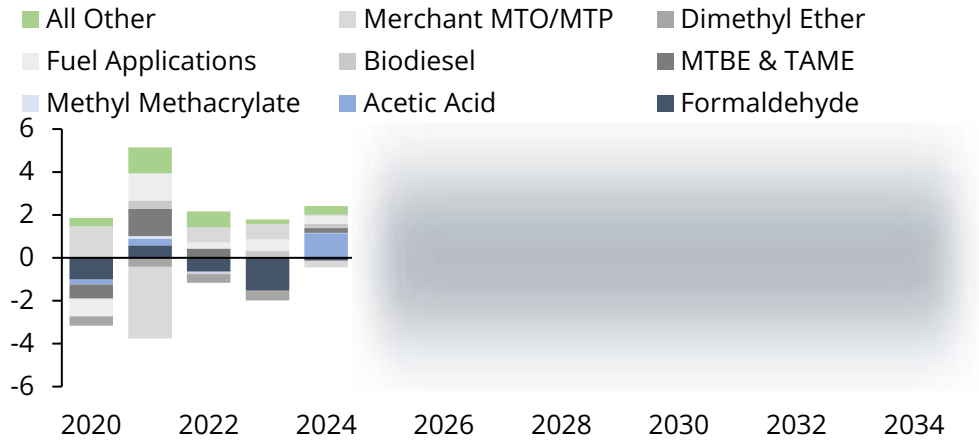
China continues to dominate methanol industry demand, helping underpin growth through the end of the decade. Then, the rest of the world, in combination with China more drive growth.

- The industry growth profile witnessed significant change across 2020-2023, seeing almost no growth. Inflation and energy prices (for a time) soared. 2024 looked to be the turning point, paving the way for the industry to continue to more normal (but reserved) demand growth, somewhat resembling history.
- Historically, MTO demand dominated China's (and global) growth, with fuels more a factor years ago. The last several years has seen MTO demand decline—as did most all methanol derivatives—but and ; look poised to step-up and contribute more to industry growth.
- The traditional methanol derivatives (formaldehyde, acetic acid, methyl methacrylate, methylamines, etc.), still represent solid core demand, but as always, are driven by GDP-type growth. These products are forecast to forecast period.
- Formaldehyde will continue to be the largest single methanol derivative, although again only is expected to maintain its leading position through the forecast period. At one time it appeared MTO would climb to the largest single consumer, but this no longer appears likely.
- Shipping industry application will also support fuels growth, where methanol is finding a place as a bunker fuel replacement to meet the lower IMO2020 guidelines and European mandates—further supported by the newest IMO2025 guidelines. While we expect the use of methanol as an alternative bunker fuel , *Argus* projects conventional methanol (and blue) will be consumed in this sector giving way to methanol once capacity is available.

Global methanol derivative demand actual/forecast, mn t



Global methanol derivative demand yoy, actual/forecast, mn t



World Methanol Demand Metrics Actual/Forecast, 2020-2034

Country growth rates slowed via lowered GDP forecasts. China sees its dominant annual growth improve in the next five years, but then again slows as MTO demand growth slows—but aided by increasing fuel usage.

Region and key country demand (excluding CTO/CTP), ‘000t

Region/Country	2020	2021	2022	2023	2024
World	**86,333**	**87,719**	**88,730**	**88,534**	**90,508**
North America	**7,349**	**7,682**	**7,677**	**7,716**	**7,972**
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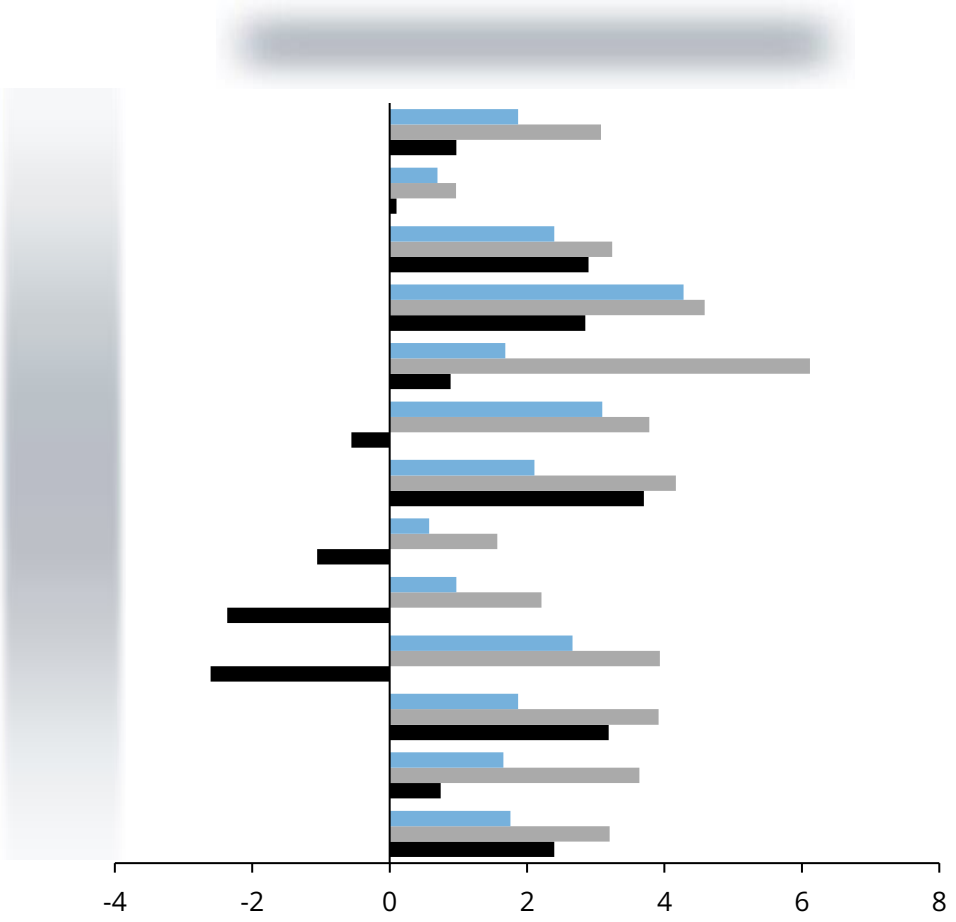
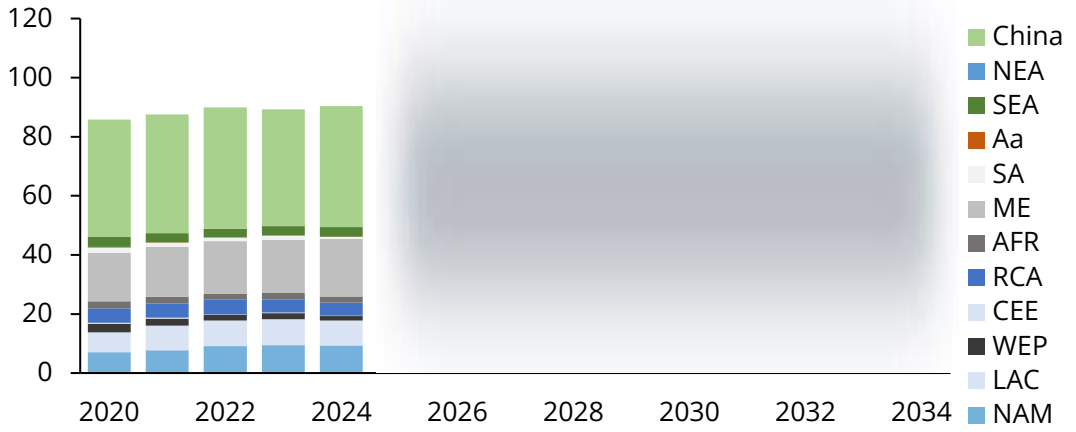
Region/country growth rates, %



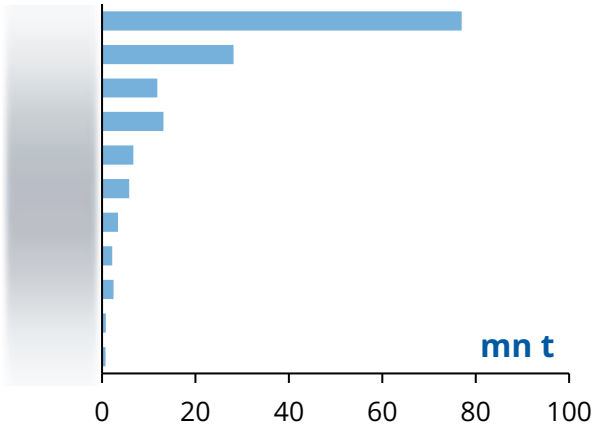
World Methanol Supply Metrics Actual/Forecast, 2020-2034

- Global methanol capacity in 2024 totaled nearly [redacted] has the second largest capacity base, with [redacted] t. [redacted] of the industry's third largest capacity base, with [redacted] world total, although several units have been idled at times, resulting in production well below capacity figure. The [redacted]
- Whereas [redacted] dominated year-over-year growth in methanol supply the last 5+ years, the industry is expected to see change, as most new expansion will come from [redacted] With excess production in the rest of the world (excluding China), much of this [redacted]
- The forecast [redacted] capacity expansion [redacted] mid-decade helps consume some new capacity and better balance supply and demand.

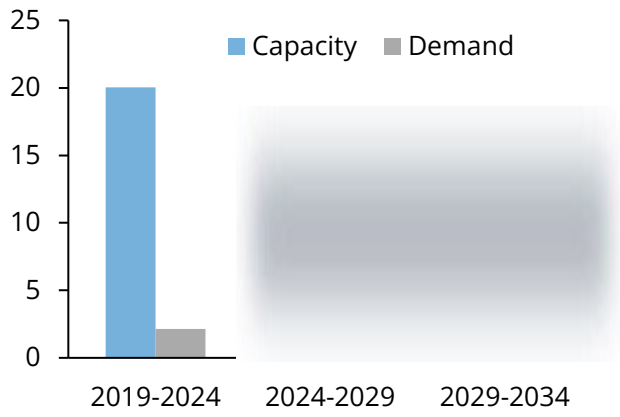
Regional methanol supply actual/forecast, mn t



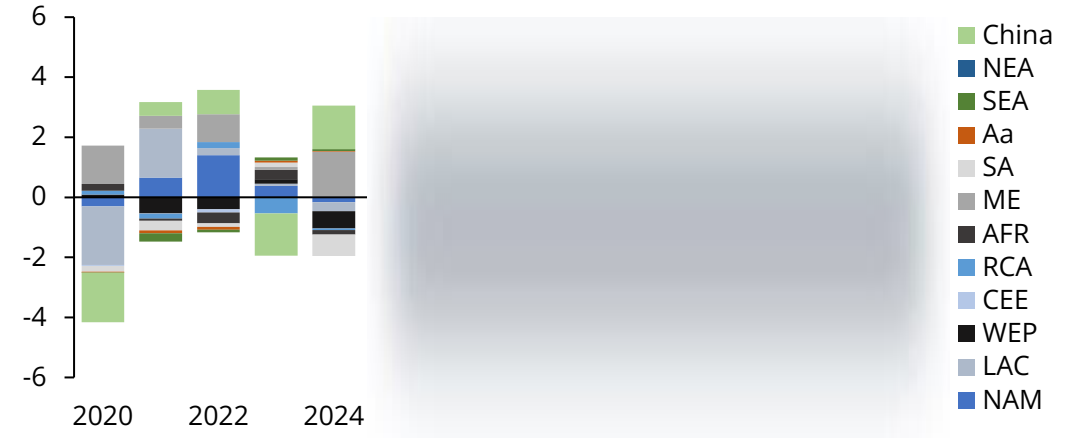
Capacity to produce methanol, 2024



Capacity vs demand growth, mn t



Regional methanol supply yoy, actual/forecast, mn t



World Methanol Supply Metrics Actual/Forecast, 2020-2034

Major global capacity additions, '000t

Region	2020	2021	2022	2023	2024
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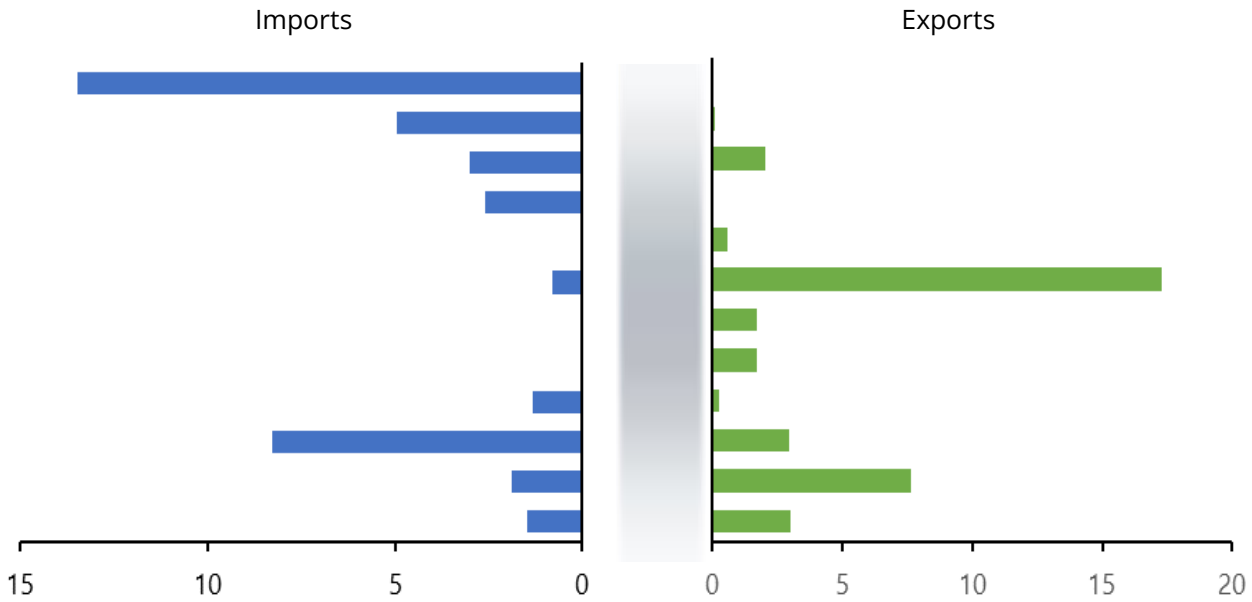
West Europe	156	0	60	0	0
Russia	150	220	400	100	0
Middle East	2,575	1,875	1,450	400	1,250
Southeast Asia	0	0	0	0	140
China	730	2,875	340	1,097	1,983
Total	**3,911**	**6,520**	**3,640**	**1,712**	**4,123**

- From 2020-2024, almost 13mn t of new methanol capacity was commissioned, excluding China. China added almost 7mn t (excluding CTO/CTP). Units were commissioned in Iran (3), the US (3) and Trinidad/southeast Asia each (1).
- Further capacity additions are expected in China and Iran, as well as in the US. In this 2025 base forecast, Russia capacity expansion
- The nearly t of new methanol capacity expected across the time period will be seen in (capturing full year operation). There may be further additions not specifically identified at this time, particularity ex Iran.
- The timing of such large portions of global capacity additions may be critical. Should Iran capacity enter the industry as planned, the industry will remain
- The US became technically self-sufficient as of 2020, but the addition of the Koch methanol unit in 2021 pushed the US into oversupply. A good portion of this new production, However, should Iran (or other) new capacity fail to materialize as planned,

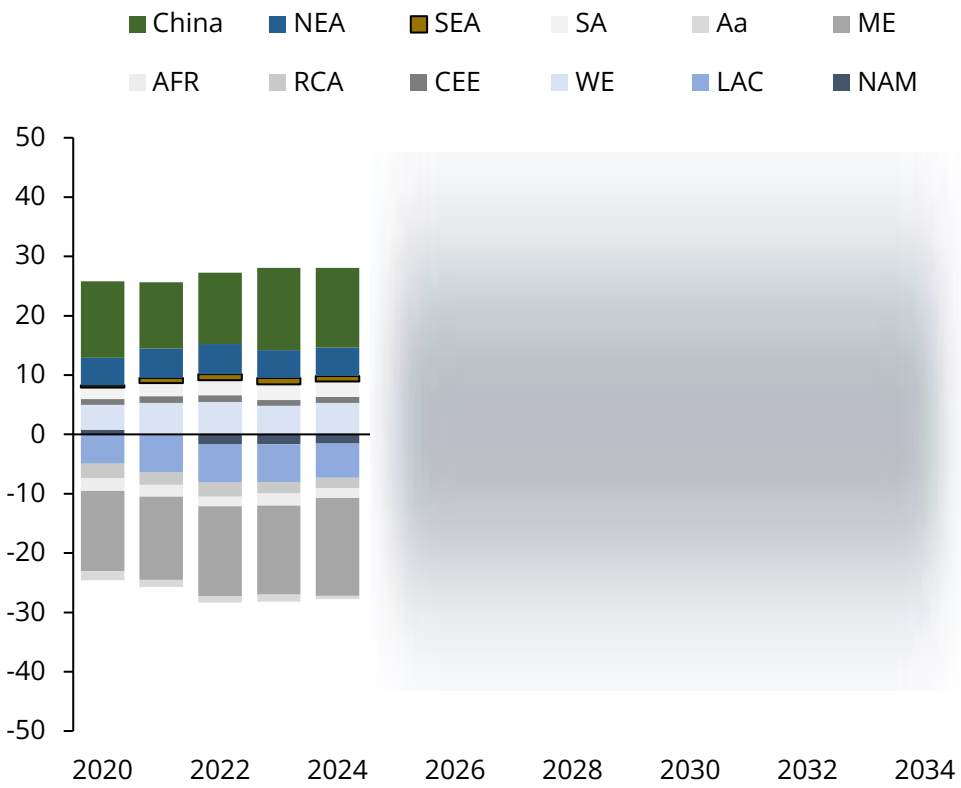
World Methanol Supply Metrics Actual/Forecast, 2020-2034

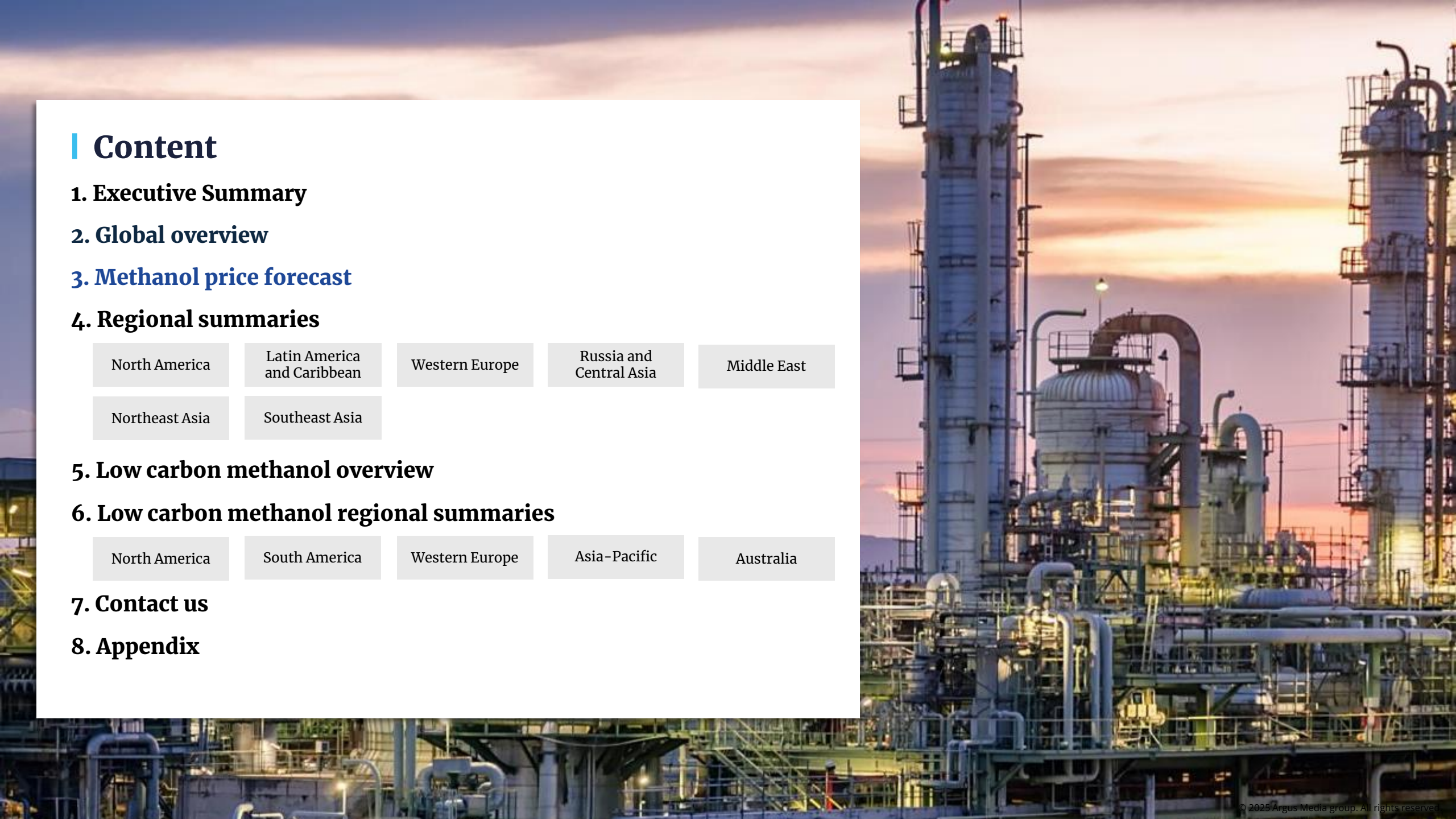
China, west Europe and North America [redacted] of industry demand, with little change through the forecast.
The next five years sees [redacted]

Regional trade 2024, '000t



Regional trade flows actual/forecast, mn t





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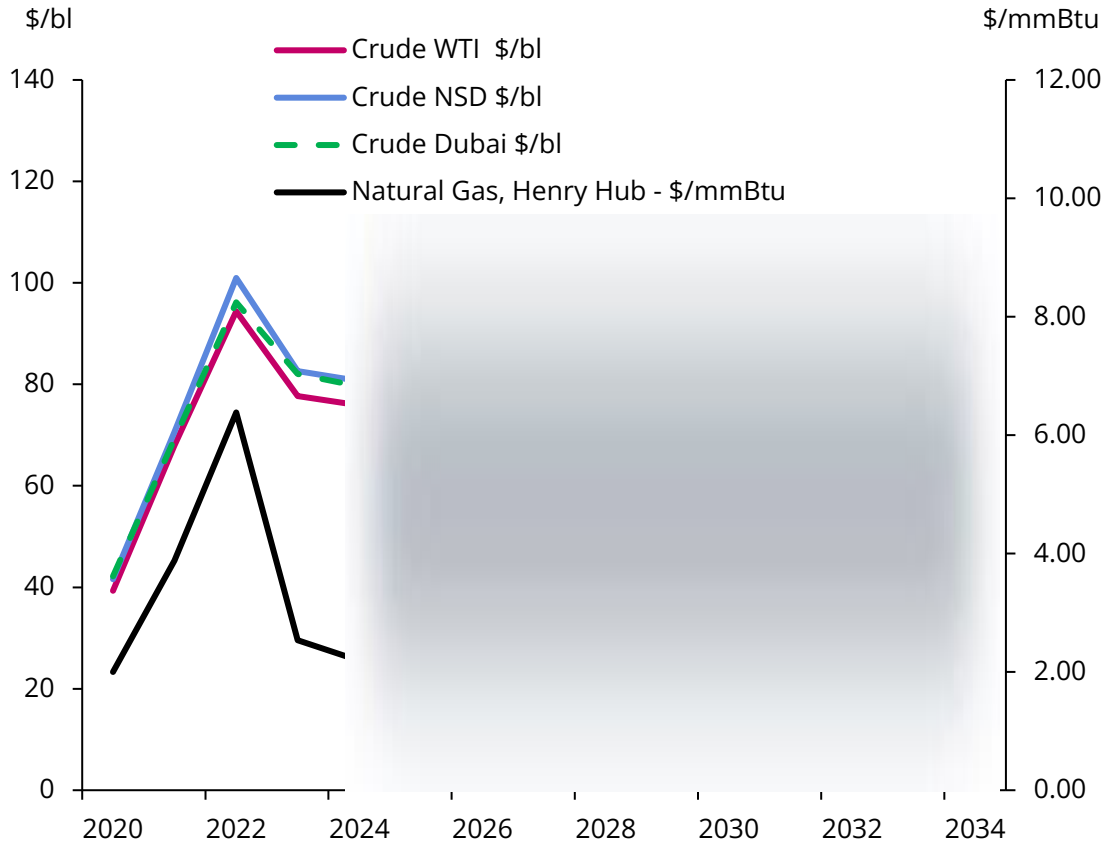
Methanol Price Forecast, 2020-2034 – energy price assumptions

- *Argus* forecasts crude prices around a underpinned by Opec+
- Non-Opec+ supply looks poised to continuing a trend since 2022, onwards after which Opec+ marginal supply will balance global volumes.
- Global oil demand is expected to reach reduce greenhouse gas emissions and decarbonize energy systems will displace oil use in all transport sectors. However, *Argus* global oil demand growth forecast for 2025 is for the next iteration, given the trade friction and economic slowdown expected following the recent US tariff announcements.
- exports is set to outpace declines in residential and power-sector demand in the near term. Further out, could lead to more volatile power-sector requirements, with higher-cost production needed to meet demand.

Energy price forecast



** Note: 10-yr price forecasts in analytics use a March 2025 base case for energy and feedstock fundamentals.*

Methanol Price Forecast, 2020-2034

China olefin/olefin derivative prices slow to recover, pressuring MTO methanol affordability. Conservative China prices pressure prices around the world, with differentials returning more to historic differentials.

Asia-Pacific

- As China is the largest methanol consumer and producer in the world, China's prices drive rest of Asia prices most of the time. There will always be intra-country upsets causing pricing to disconnect from China for periods of time.
- This is not expected to change. For the most part, MTO methanol

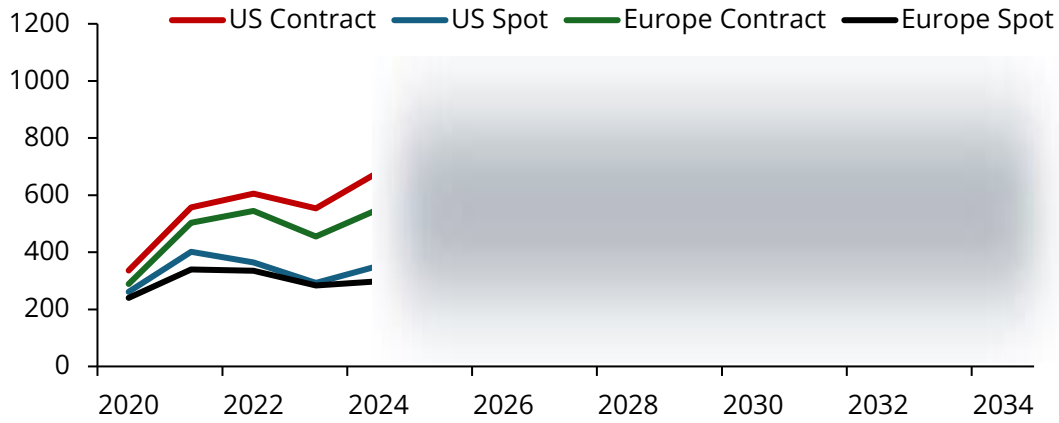
North America

- North America is a
- Argus does believe North America methanol prices (spot and contract) are

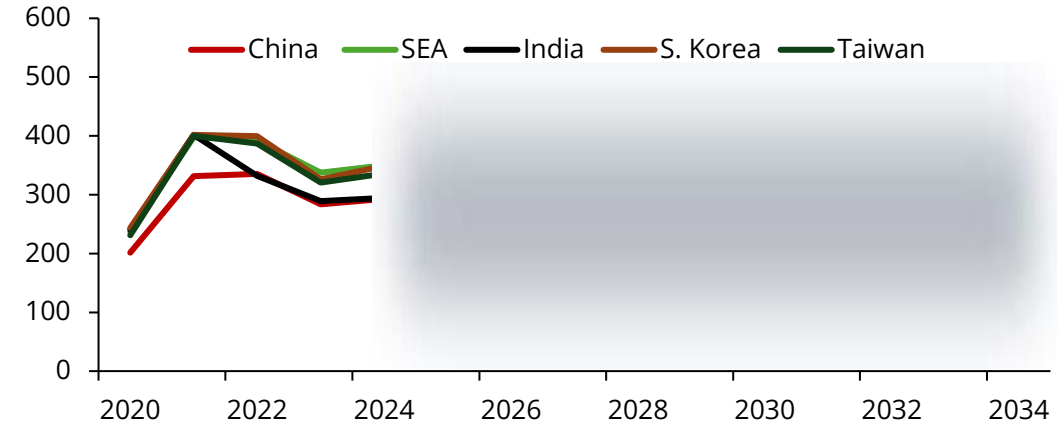
Europe

- As Europe relies more and more on imports, this market must "buy away" exports from other countries/regions.
-

Atlantic basin methanol price forecast, fob, $/t



Asia-Pacific methanol price forecast, cfr, $/t



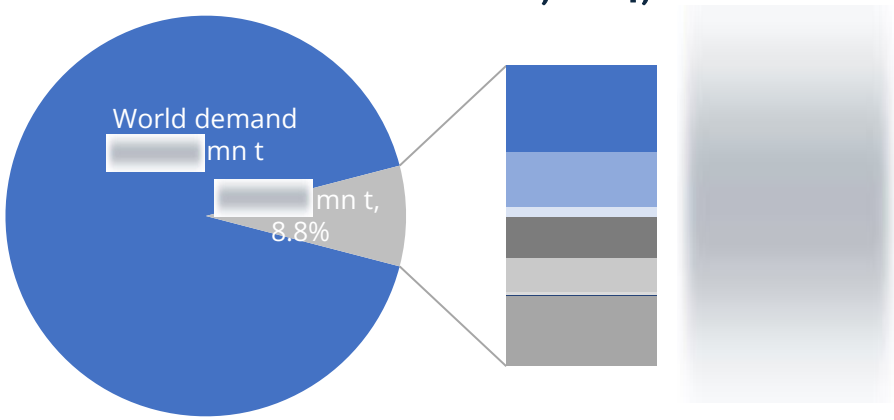
Note: 10-yr price forecasts in analytics use a March 2025 base case for energy and feedstock fundamentals. Many of these markets are subject to extensive short-term price volatility and the elapsed time since the energy forecast was produced may have seen real changes to market prices and/or drivers.

Content

North America Methanol Summary

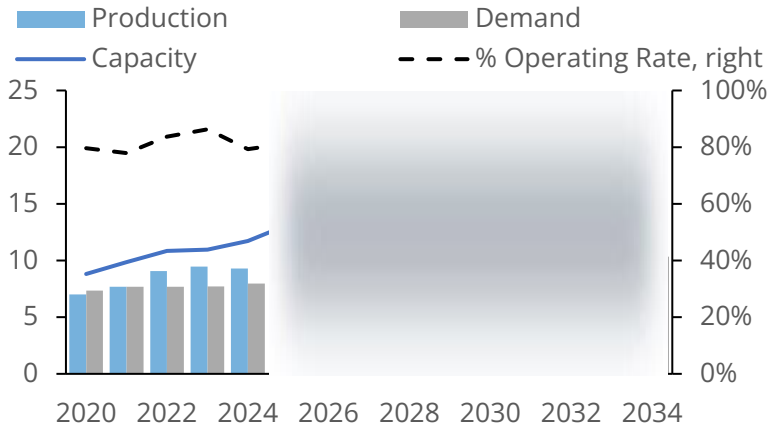
The US dominates supply and demand, transitioning from a net importer of methanol in the last ten years to a still growing net exporter, from 2022 onward. Expansion plans continue, but challenges are many.

North America methanol demand, 2024, mn t

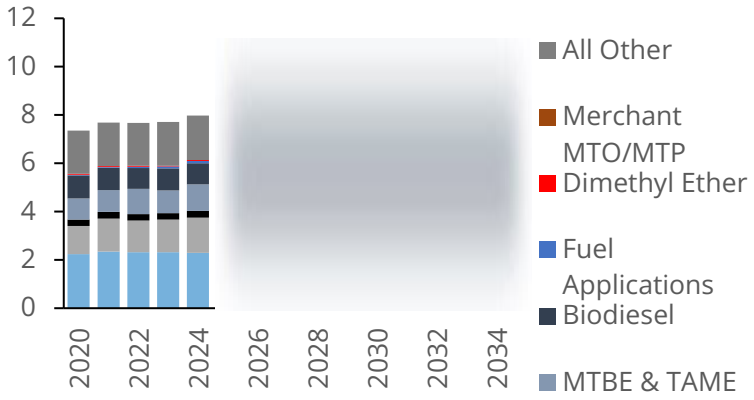


- In 2024, North America consumed of methanol, of which the US was mn t). This was slightly average the previous three years which were softer owing to a myriad of global issues. North America methanol demand is now the second largest of all regions (to China), with Europe still third. Even combined with western Europe, these two regions account for
- Historically, have dominated the regions' consumption, and this is unlikely to change through the forecast period. third and fourth positions historically, but in the last couple of years improved solidified its third place slot. Still, the four account for demand.
- The region's methanol demand slate is very mature and quite dependent on the construction and automotive sectors. As such, North America's overall methanol demand will be underpinned by GDP performance, which remains reserved. There should be growth opportunities in the bunker fuel area, but eventually the bulk of this demand transitions to low-carbon methanol.

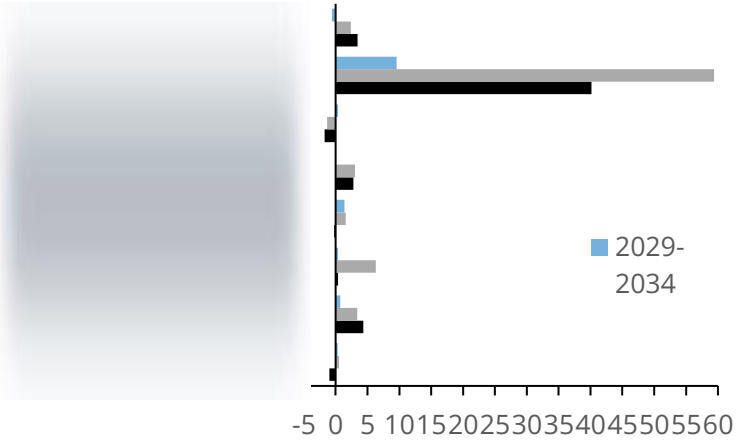
North America supply/demand, mn t



North America methanol demand, mn t



Derivative growth, CAGR %



North America Methanol Summary

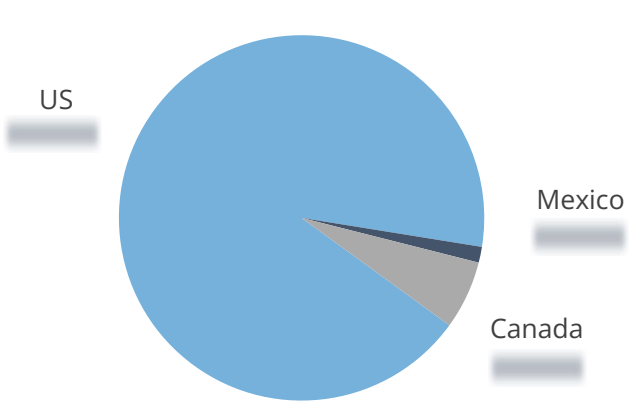
Regional methanol production exceeds demand, with

- A decade ago, the North America supply/demand relationship changed significantly, moving from a small producer and large importer to a large producer and large exporter. Idled methanol capacity has long restarted or relocated from other regions, with several new facilities commissioning over this timeframe, all taking advantage of lower natural gas prices. Looking forward, North America (mostly US) will likely see
- The impact of world events and US government programs to move away from fossil fuels present issues and/or opportunities as well. Further new US methanol capacity is expected in late 2023, with several plans to build further capacity still under study. New (fossil-based) capacity will see challenge from the overall industry slowdown in

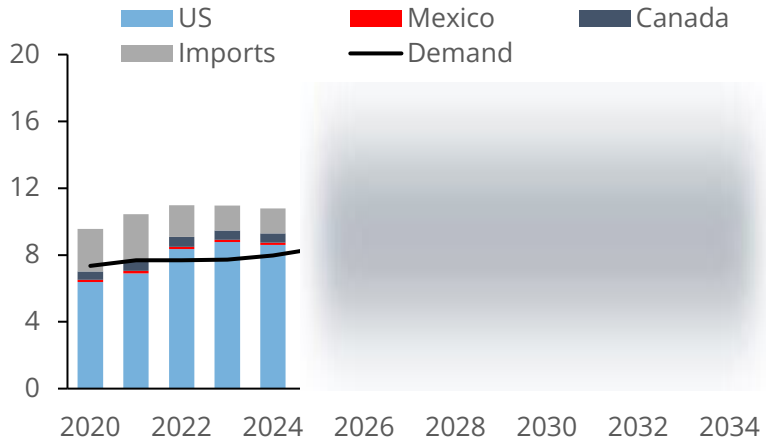
North America methanol producers, 2023, '000t

Location	Company	Coal	Natural Gas
Medicine Hat, Alberta, CAN	Methanex MH - 1		
Texmelucan, MEX	PEMEX		
Beaumont, TX, USA	Natgasoline LLC		
	OCI North America		
Channelview, TX, USA	LyondellBasell		
Clear Lake, TX, USA	Fairway LLC		
Deer Park, TX, USA	Millennium (LyondellBasell)		
Geismar, LA, USA	Methanex - Geismar 1		
	Methanex - Geismar 2		
	Methanex - Geismar 3		
	Praxair		
Kingsport, TN, USA	Eastman		
Oregon, OH, USA	Alpont LLC		
Pampa, TX, USA	Pampa Fuels LLC		
St. James Parish, LA, USA	Koch Methanol One		
Institute, WV, USA	US Methanol		
Total by source			
	North America Total		**13,065**

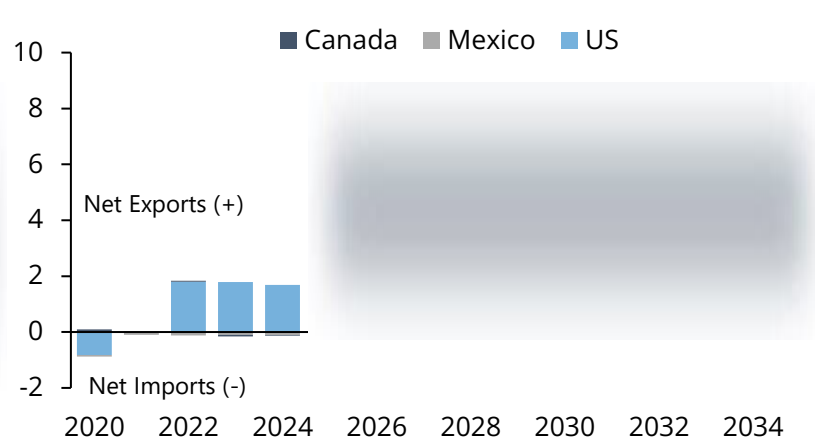
North America methanol producers, 2024

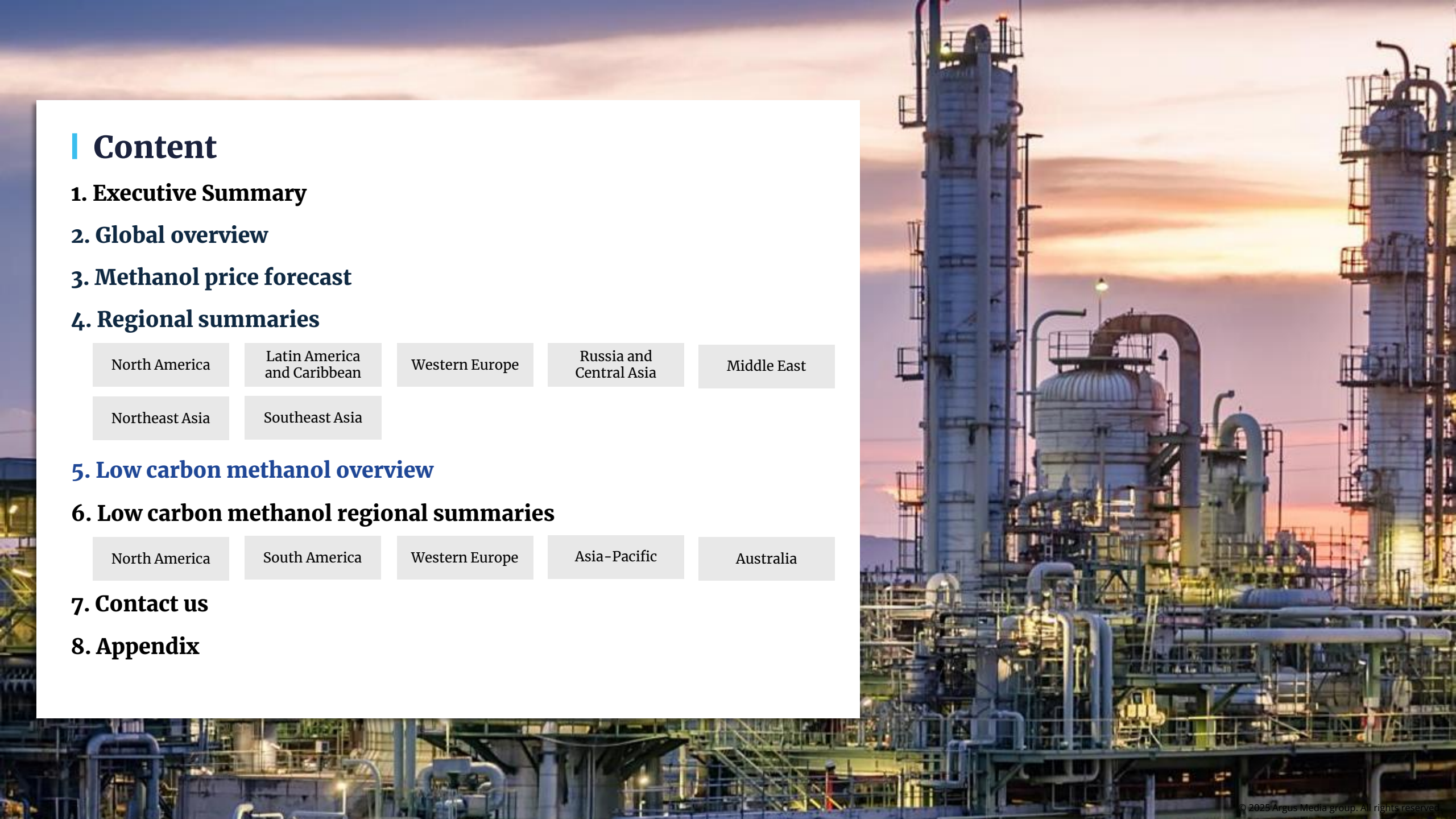


North America supply, mn t



North America trade flows, mn t





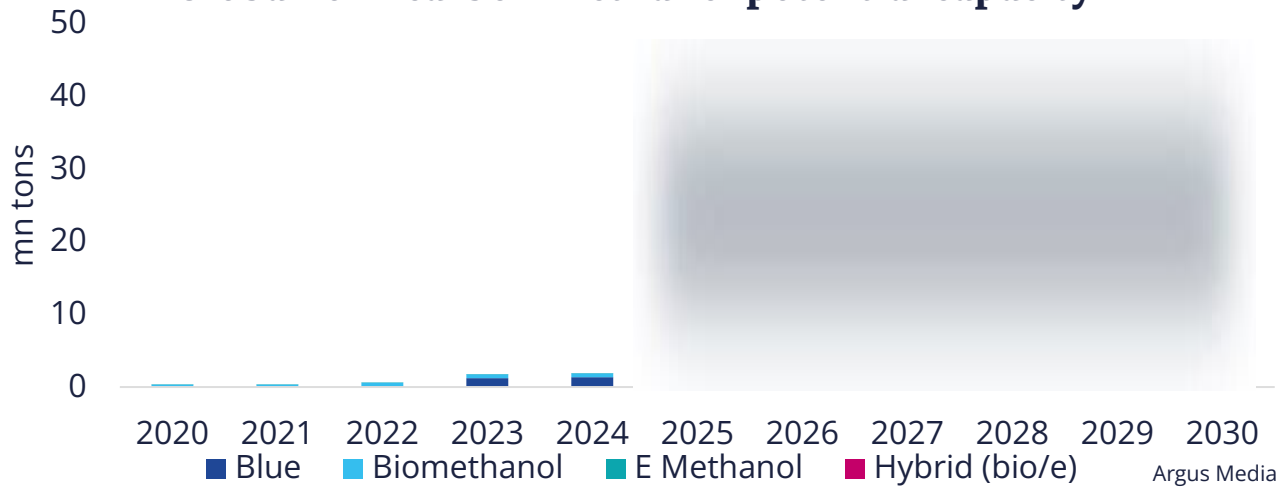
Content

Global overview

Low-carbon methanol builds momentum as EU policies are implemented and IMO proposes framework.

- *Argus* believes low-carbon methanol can play a pivotal role in global decarbonization efforts. The *Argus* low-carbon methanol project tracker follows over [redacted] global projects and indicates a capacity pipeline of nearly [redacted] mn t by [redacted] (see top right chart); however, the ability for announced projects, particularly for biomethanol and e-methanol to reach FEED and FID project stages gives uncertainty to how much capacity will truly be available.
- [redacted] and [redacted] lead the way in potential online capacity for biomethanol, e-methanol and hybrid (bio/e) methanol; however [redacted] and [redacted] continue to make strides, albeit in smaller steps.
- Low-carbon methanol looks to compete in the alternative marine fuel space among several other viable options like VLSFO, LNG and biofuels. This competitive landscape is far from simple with several implications, including policy, regulation, energy density, certifications, pricing economics, fleet capabilities and feedstock availability.
- FuelEU Maritime, EU ETS, and the newly proposed IMO framework have kept the low-carbon methanol market progressing, however, reaching its full potential is [redacted] more years before the switch to low-carbon fuels is truly incentivized. The maritime and low-carbon fuel sectors will await the final vote on International Maritime Organization's (IMO) proposed framework in October 2025.
- While methanol as a marine fuel is providing the largest incentives for the switch to low-carbon methanol, [redacted] open the door for conversations about implementation into the end-use chemical product derivatives such as MTBE and formaldehyde.

Global low-carbon methanol potential capacity



FuelEU and IMO GHG intensity limits, gCO2/MJ

Global policy

Policies affecting methanol as a marine fuel have gone into effect in Europe.

Emissions Trading Scheme (ETS)

- In 2023, RED III was finalized to apply to **all transport sectors including marine and aviation.**
- In 2025, **40pc** of the CO2 emissions from voyages and at berth stays in 2024 will be subject to the ETS, rising to **70pc** in 2026 and **100pc** in 2027.
- 2024 only count CO2, 2026 **expand to CH4/N2O/Slip**, qualified biofuels is considered zero CO2 emission.

FuelEU Maritime Regulation

- The regulation sets targets for reducing the yearly average GHG intensity of the energy used by a ship.
- The required GHG intensity reduction **starts at 2pc in 2025** (2020 baseline), reaching 6pc in 2030 and 14.5pc in 2035, **through to 80pc by 2050**.
- A penalty or reward is then calculated based on the extent of under- or over-performance.

International Maritime Organization (IMO)

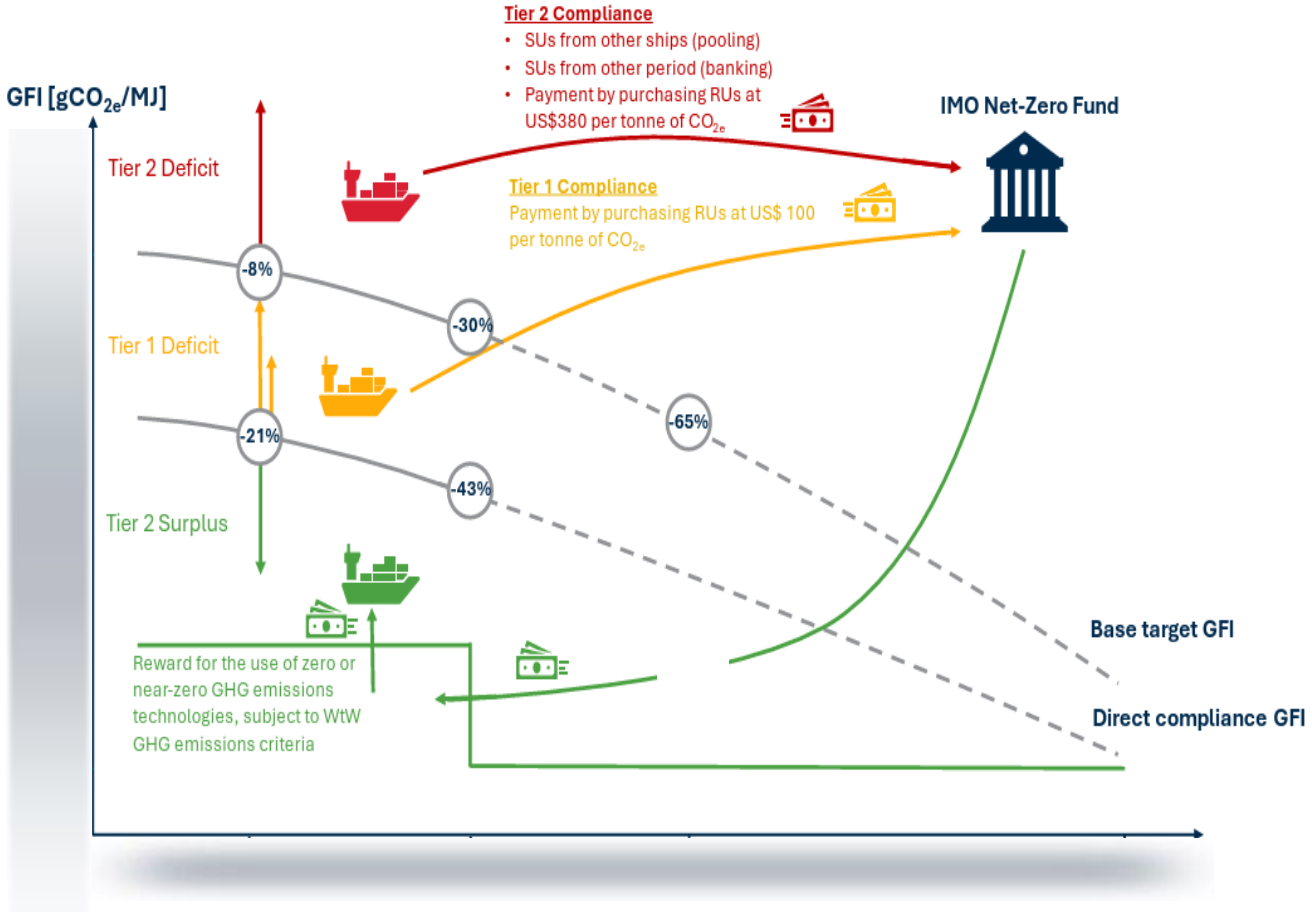
- **By 2030,** to **reduce carbon intensity of 20pc** striving for 30pc, take low/zero carbon fuels of at least 5pc, striving for 10pc; By 2040, to reducing carbon intensity of 70pc striving for 80pc; **By 2050**, to **achieve net-zero** CO2 emissions.
- MEPC's 83rd session takes place in the spring to review feedback and confirm **guidelines in the fall of 2025** with **implementation likely in 2027.**
- IMO's guidelines are likely to be more feedstock agnostic with a simpler approach to decarbonization.

Updated: IMO GHG intensity limits

Final vote on IMO proposed framework is October 2025.

- In April 2025, the IMO released a proposed framework for marine fuel GHG intensity to be voted on in October.
- The IMO proposal is more fuel-agnostic, encouraging multiple different pathways to reach decarbonization goals and has introduced two different tiers based on carbon intensity.
- A Tier 2 deficit is a result of not meeting the CI requirement for the fuel being below the base target threshold reduction from 93.3gCO2eq/MJ. The percentage reduction starts at 4pc in 2028 (89.5gCO2eq/MJ) and steadily climbs to 30pc in 2035 (65.3gCO2eq/MJ). In this case, the ship owner would need to:
  - [redacted]
  - [redacted]
- A Tier 1 deficit is a result of not meeting the CI requirement for the fuel being below the direct compliance threshold reduction from 93.3gCO2eq/MJ. These reduction targets are steeper than Tier 2, starting at a reduction of 17pc in 2028 (77.4gCO2eq/MJ) to 43pc in 2035 (53.1gCO2eq/MJ). In this case, the ship owner would need to:
  - [redacted]
  - [redacted]
- A Tier 2 Surplus is a reward for the use of zero or near-zero fuels, this regulation is forthcoming and will likely only apply to e-fuels and RFNBOs.

IMO GHG Fuel Intensity (GFI) mechanism



North America

Previous policies facing uncertainty in 2025 and beyond.

- The Inflation Reduction Act (IRA) signed in August 2022 mandates the US to reduce GHG emissions 40pc by 2030 in comparison to 2005 levels. The IRA offers $160bn in tax incentives for clean electricity and $8bn for biofuels, and this includes $13bn for clean hydrogen and $3bn for expanded carbon capture programs.
- The Trump Administration's return to the White House has brought criticism to the IRA policy as they continue to rethink biofuel incentives.
- If passed, President Trump's "One Big Beautiful Bill" would gut clean energy incentives in attempt to offset a multi-trillion-dollar tax cut.
- [redacted]
- [redacted]
- [redacted]

Inflation Reduction Act (IRA)

45Q

Credit for Carbon Dioxide Sequestration

- IRA extended deadline to begin construction through January 1, 2033.
- Includes credits for permanently stored and used CO2, depending on year equipment was in service.
- Direct air capture (DAC) credits include higher thresholds for permanently stored and used CO2.

45V

Credit for Production of Clean Hydrogen

- Creates tax credit for production (up to $3/kg of clean hydrogen) or investors (up to 30pc investment tax credit).
- A GHG mission level of 4kg CO2 per kg of hydrogen required to qualify
- Cannot already qualify for 45Q.

45Z

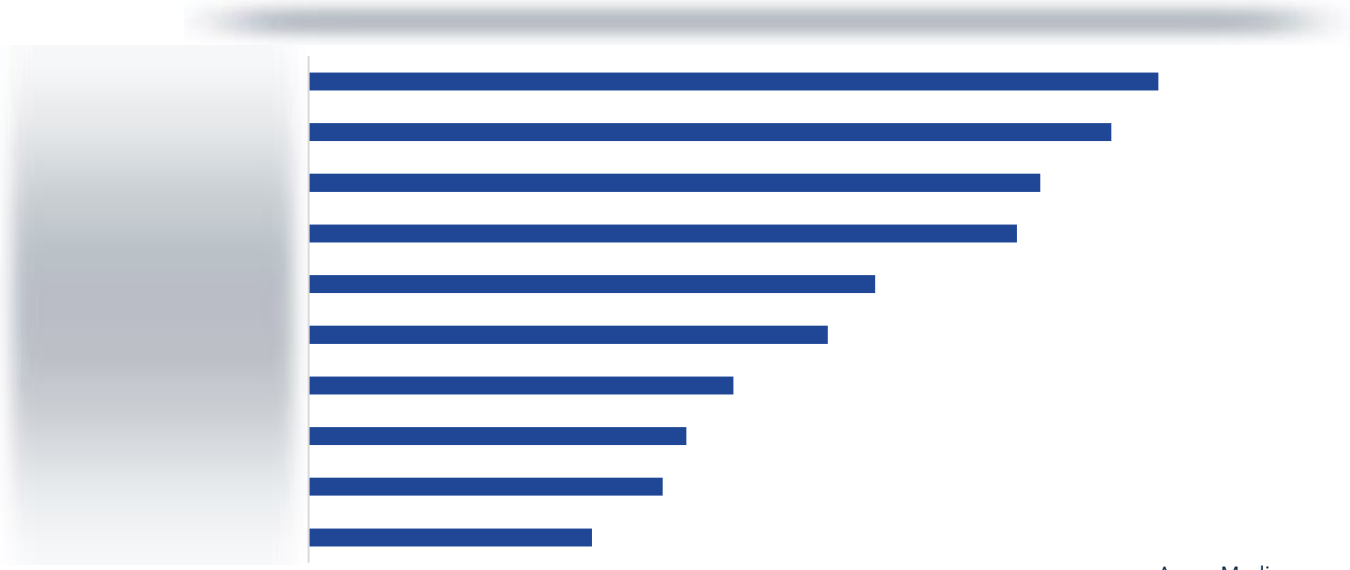
Clean Fuel Production Credit (CFPC)

- Extends $1/USG biodiesel and $0.5/USG alternative fuel tax credits through 2024 with additional incentives for SAF.
- SAF credits now $1.25-1.75/USG based on lifecycle GHG emissions
- This credit requires a minimum of 50pc reduction of life-cycle GHG emission levels versus conventional fuel.
- Cannot already qualify for 45Q or 45V.
- Guidance issued May 2024 states those who intend to qualify for this credit to be registered with the IRS as soon as possible before January 1, 2025. Registration criterion are either producer of non-SAF transportation fuel or producer of SAF.
- It is important to note that D3 RINs may qualify for highest number of CFPCs due to very low carbon intensity scores.

Ship data

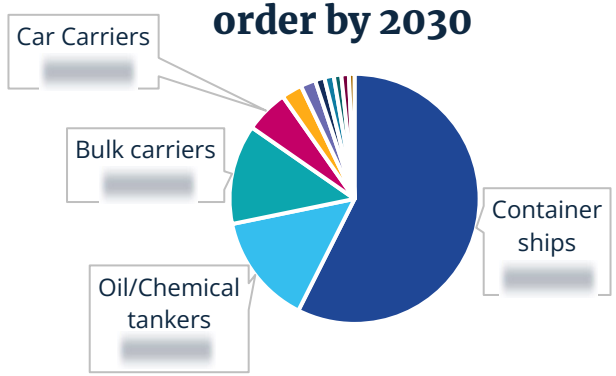
Methanol-capable vessel pipeline continues to grow.

of methanol vessels on water & on order by 2030



Argus Media

Methanol ship type on water & on order by 2030

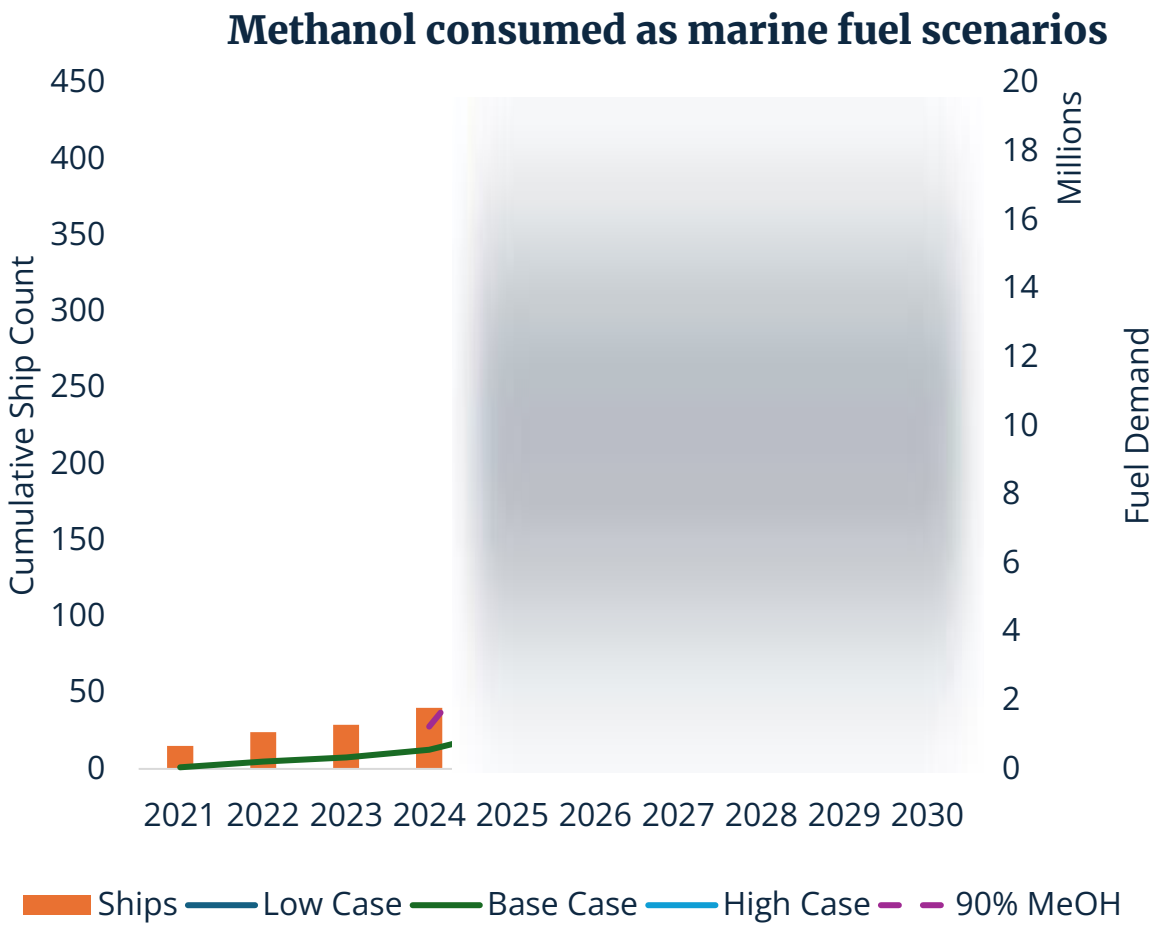


Argus Media

- helps to pave the way for alternative marine fuels, looking to decarbonize and prioritize funds. In the Q4 of 2024, spent $ EU ETS fees alone (accounting for 40pc of their emissions).
- leads efforts in methanol-capable ship count currently, up to by end of year) as well as pending offtake agreements with various low-carbon methanol projects.
- has said they are looking toward a multi-fuel future and are committed to purchasing t of methanol each year, starting in 2030.
- Shipping companies along with maritime policy have ignited low-carbon methanol projects that desire to be part of global decarbonization.

Methanol demand in maritime industry

Methanol as marine fuel forecasting demand varies.



Argus Media

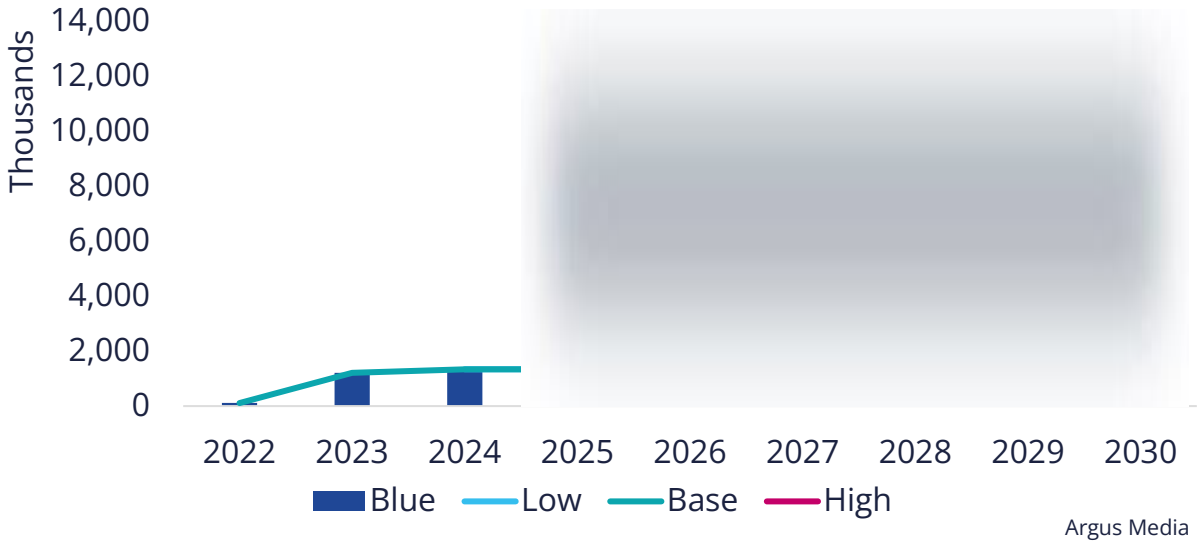
- Global bunker demand in 2024 was approximately to [redacted] t with a projected [redacted] for 2025. If ship routes can return to efficient routes through the Suez and Panama Canals, the total volume likely to drop to [redacted] t in 2026. However, recent tensions in the Middle East have routes through the Strait of Hormuz in jeopardy of being re-routed.
- Alternative marine fuel demand in the next 3-5 years will be heavily dependent on pricing economics, feedstock availability and scalability. It is also important to [redacted] ore transitioning to methanol.
- Nearly all the methanol-capable ships have a dual-fueled engine, meaning a ship owner can burn methanol of any CI or conventional fuel and other low-carbon fuels like [redacted] and [redacted] are compatible with a conventional fuel engine. For newbuild ship investments, methanol mainly competes with [redacted] however, once the ships are on water, they compete with other [redacted] that can be utilized in the dual-fueled engine.
- [redacted] of any CI is likely [redacted] marine fuel demand through to 2030, growing to approximately 11 to 12mn t of methanol, depending on pricing and availability.
- Carbon intensity levels will play a major role. Blue methanol can be a stepping-stone fuel with a slight CI advantage over conventional bunker fuels and some alternatives but will eventually succumb to very low CI methanol fuels like biomethanol and e-methanol, by the mid-2030s.
- Biomethanol and particularly e-methanol should have more success in the competitive alternative marine fuel space because their very low [redacted] able to assist in offsetting methanol's energy density ratio of requiring 2.08x more than other conventional fuels (ex. VLSFO).

* Based on calculated capacity per day, approximate methanol consumption and 280 laden days/ballast.

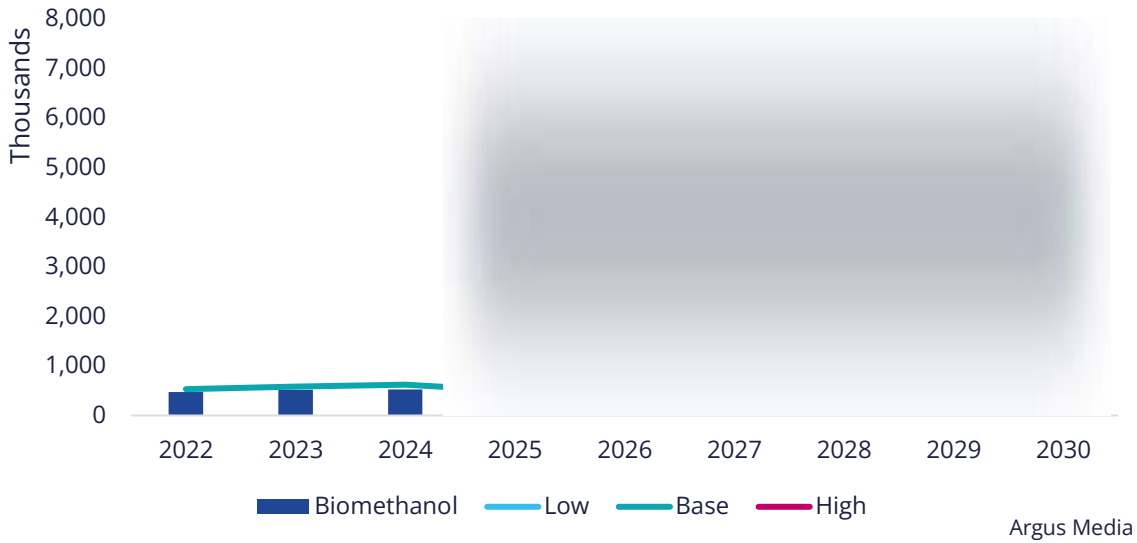
Global capacity forecast

Blue methanol capacity pipeline progresses in the US, while biomethanol tackles more global hurdles.

Blue methanol capacity forecast



Biomethanol capacity forecast



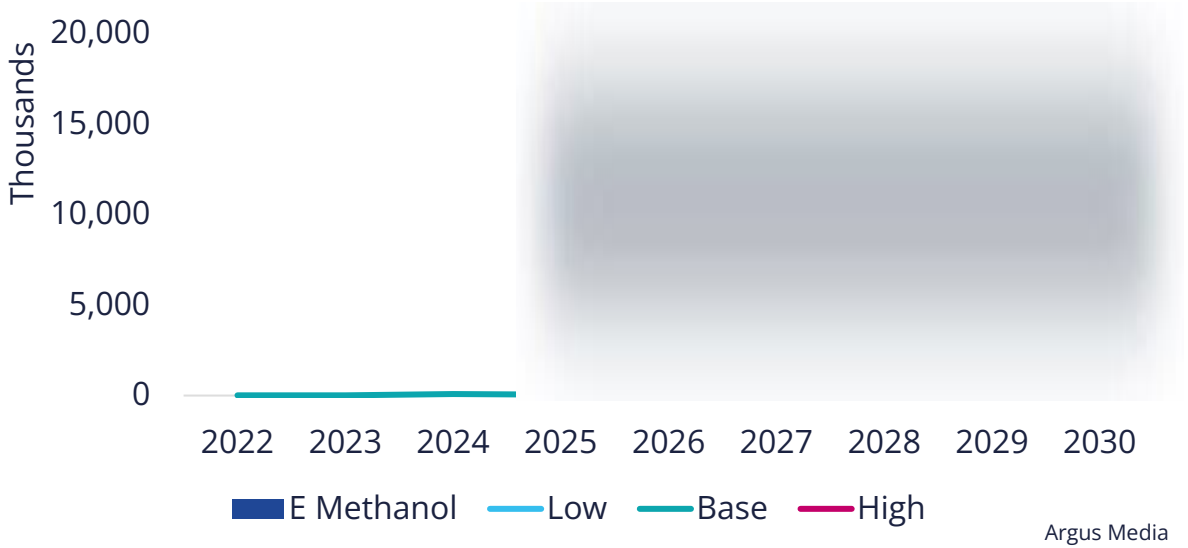
- [redacted] is estimated to have a carbon intensity of approximately [redacted] (well-to-wake). While this CI still seems high, it is lower than grey methanol by approximately [redacted] (well-to-wake). *Argus* estimates approximately [redacted] out of a potential [redacted] methanol will be available globally by [redacted]
- Additionally, blue methanol has a considerably smaller premium because the GHG savings is not as high. However, with the help of IMO's proposed framework, this fossil-fuel derived lower-carbon fuel has advantages in price and as a potential fuel base to mix with lower CI methanol.
- Nearly all these units are in North America, with a large portion ([redacted]) in the US Gulf coast region, who will look to compete in the Port of Houston (annual marine fuel volume approximately [redacted]) for short-term decarbonization efforts.

- Biomethanol capacity forecast continues [redacted] With most projects [redacted] pricing and availability and securing the offtake agreements necessary to reach FID status. *Argus* forecasts [redacted] (of potential [redacted]:) of biomethanol will be available by [redacted]
- Majority of biomethanol projects are based in Europe through several countries, which have targeted the maritime industry as offtake partners in addition to attempting to accomplish country-specific energy transition goals.
- Carbon intensity for biomethanol varies greatly, dependent upon whether the CO2 source is industrial or biogenic. With most projects aiming to secure biogenic CO2, although this comes with a higher price premium. CI values can range from [redacted]q/MJ (minimum CI level that meets RED compliance) down to [redacted]/MJ or more.

Global capacity forecast

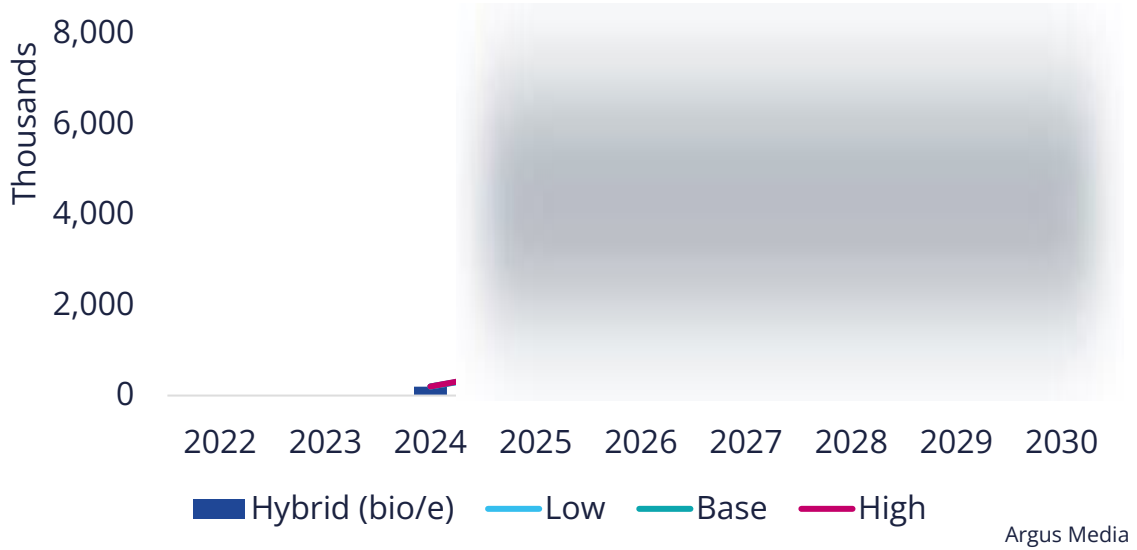
E-methanol and hybrid (bio/e) methanol making

E methanol capacity forecast



Argus Media

Hybrid (bio/e) capacity forecast



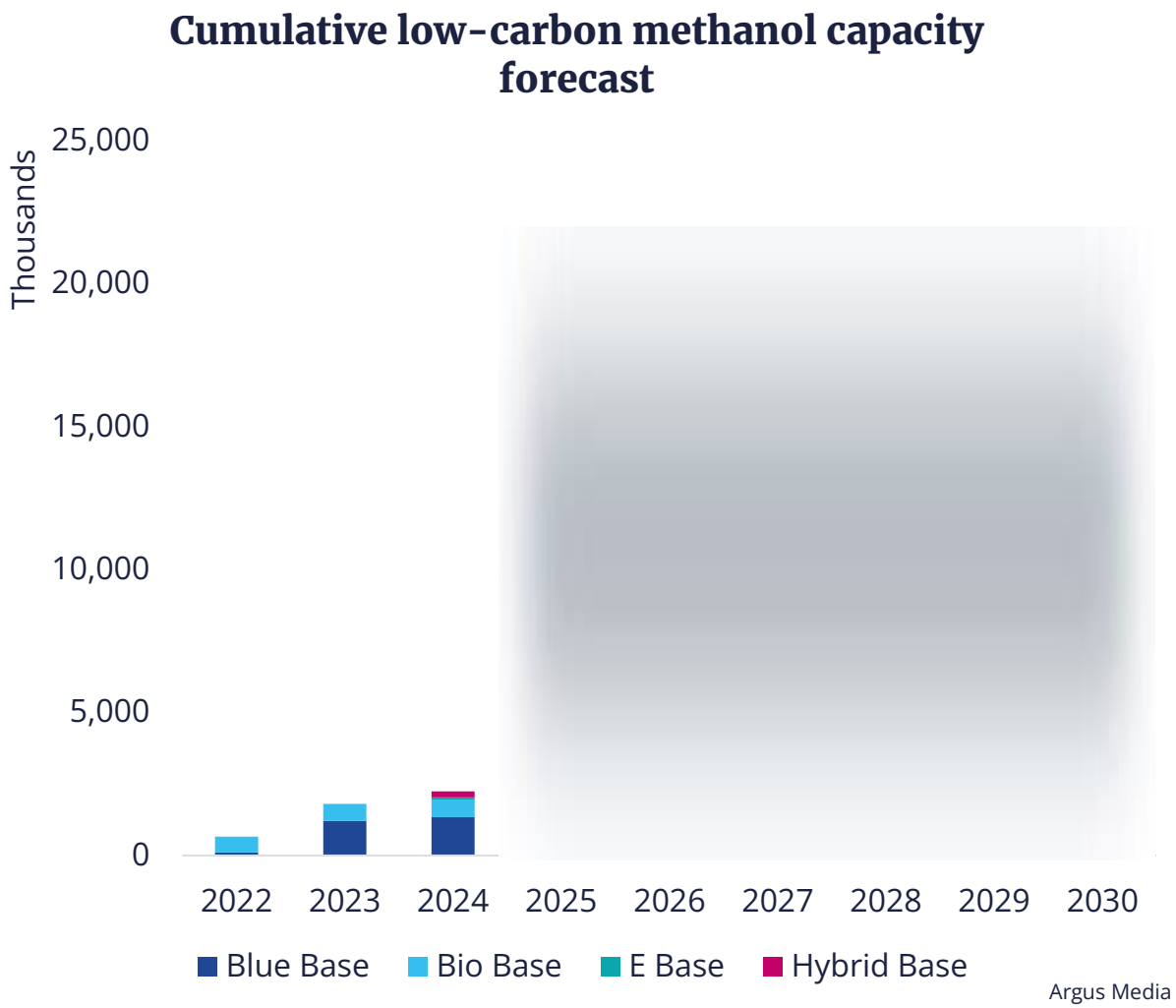
Argus Media

- E-methanol projects are [redacted] leading in potential capacity volume. Once in production, e-methanol units can boast a very low carbon intensity value, with most ranging from [redacted]
- E-fuels, such as e-methanol, can qualify for renewable fuels of non-biological original or RFNBO rewards through FuelEU Maritime and Zero/non-Zero credits that are to be determined through the IMO's proposed framework.
- Notably, the first large scale e-methanol production unit started production in May 2025. The Kassø e-methanol facility in Denmark has started producing toward its nearly 42kt annual production target. Majority of this e-methanol will bunker containership Laura Maersk. Additional volumes will be used for plastics and products for toy maker Lego, pharmaceutical maker Novo Nordisk and other companies.

- [redacted] hybrid (bio/e) methanol production projects. [redacted] has several advantages in this area, including availability of low-cost renewable energy, overall cost competitiveness with low capex and large availability of agricultural and municipal waste residues. *Argus* expects [redacted] to strive toward producing hybrid (bio/e) methanol in the future but is currently confronted with high-cost renewable energy.
- Due to [redacted] dedication to renewable energy and willingness to accept risk into a newly emerging market, the hybrid (bio/e) methanol project forecasts shows more success out [redacted], with approximately [redacted] of a possible [redacted] capacity available to buyers.
- Large portions of hybrid (bio/e) methanol will go into the maritime sector as two of the world's largest ports the Port Shanghai and the Port of Singapore are dedicated to decarbonization efforts by utilizing various biofuels.

Global capacity forecast

Cumulative low-carbon methanol capacity expected

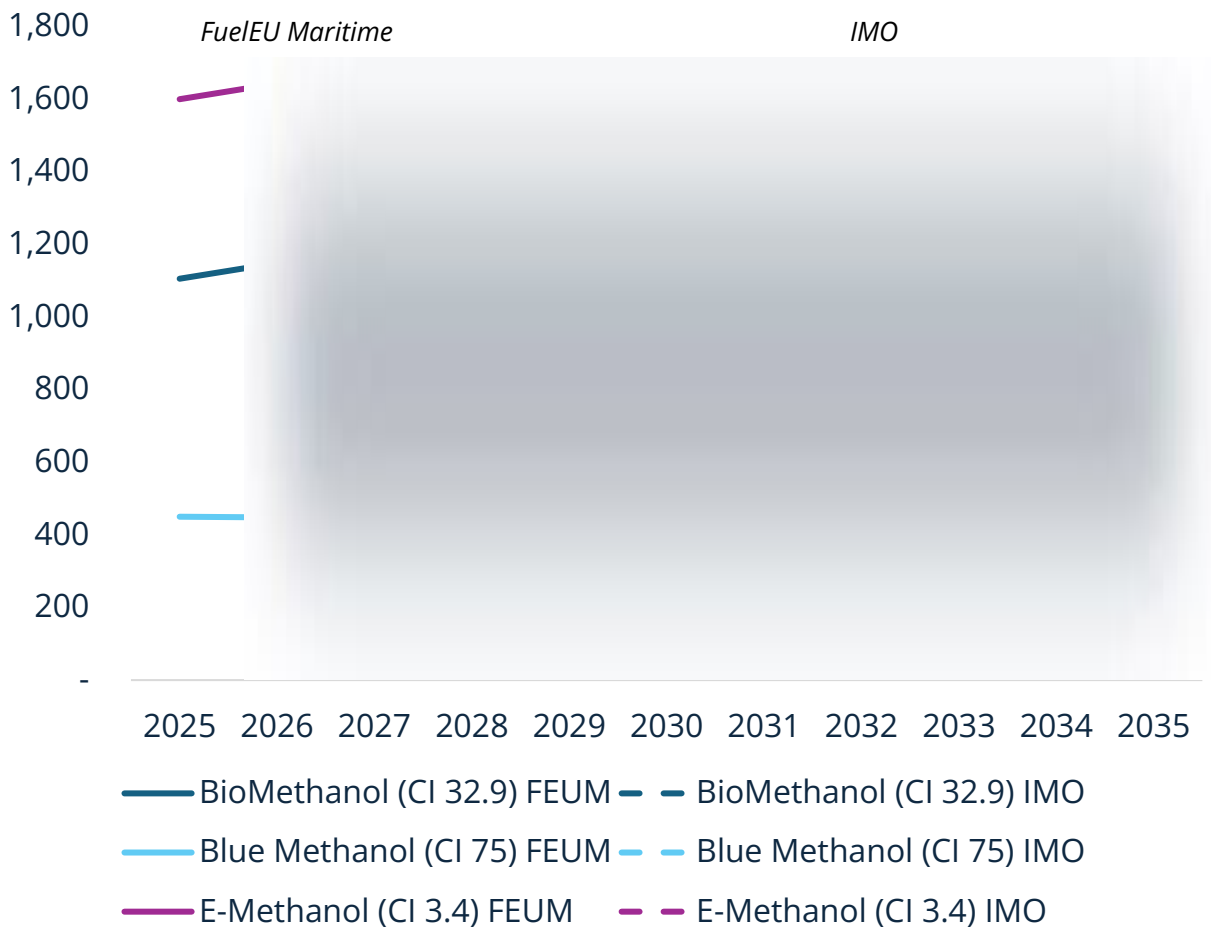


- A large majority of low-carbon methanol volume is expected to compete for buyers of global bunker demand. With a global demand for marine fuel at approximately per year for the next few years, low-carbon methanol alternatives will compete against several other viable options through
- Low-carbon methanol has a distinct disadvantage in energy density among other competing fuel as it requires nearly two times more fuel to go the same distance. This requires additional infrastructure at ports and fuel space on ships as well.
- *Argus* forecas capacity to reach t by volume is expected to be with a carbon intensity of approximately
- Low-carbon methanol with a CI c
- Nearly methanol (t) with C of 'MJ and below are expected to be available starting in 2030. Unfortunately, this

Low-carbon methanol forecast pricing

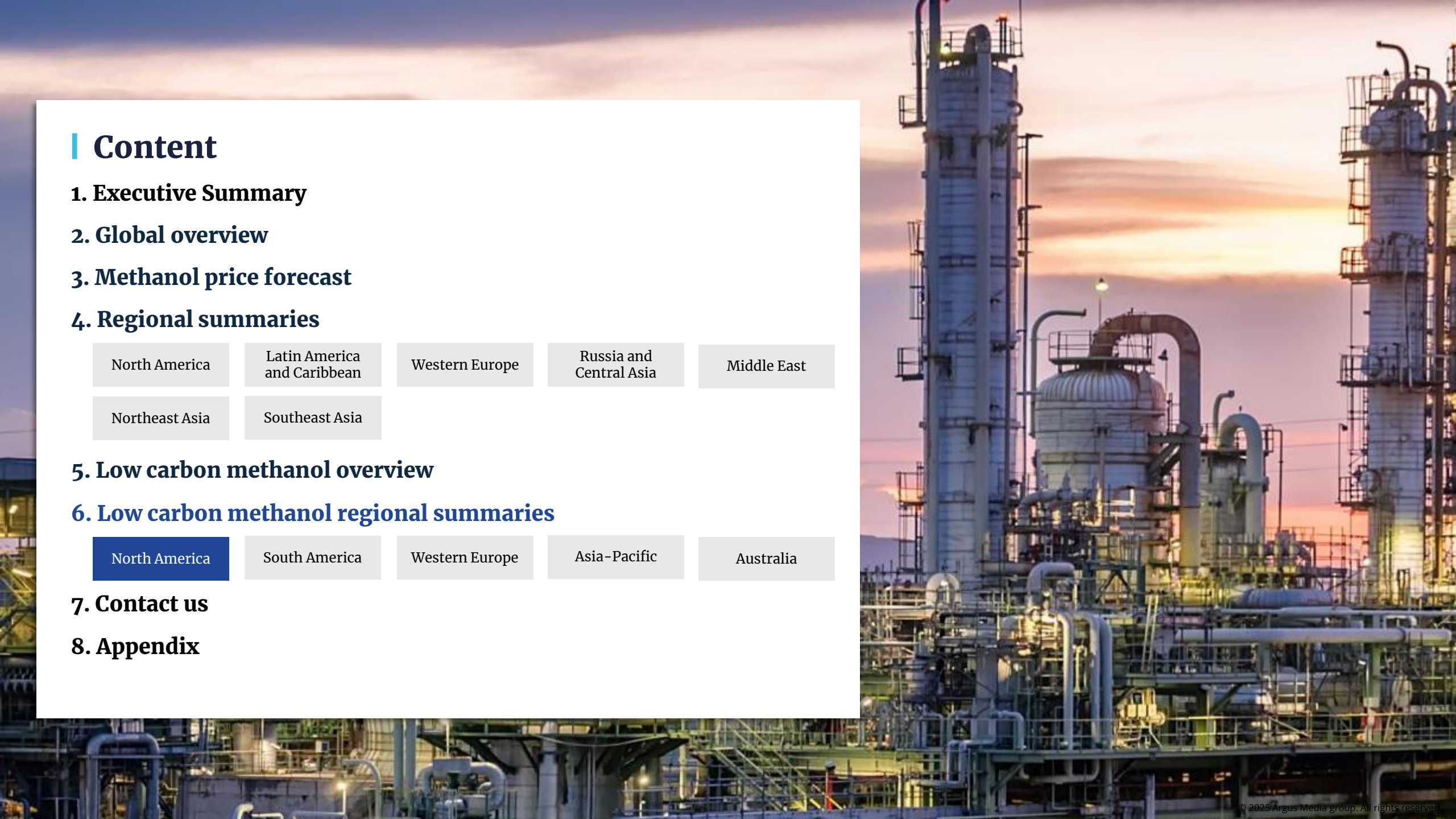
Argus' new willingness-to-pay prices for maritime sector, dependent upon ever-changing policies

Willingness-to-pay FEUM & IMO



- **Methodology:** *Argus* analyzed low-carbon methanol options as an alternative marine fuel, in comparison with VLSFO. The willingness-to-pay prices provide context at which price a buyer is likely to seek another alternative marine fuel option. This methodology considers:
- *Argus* anticipate 027, will

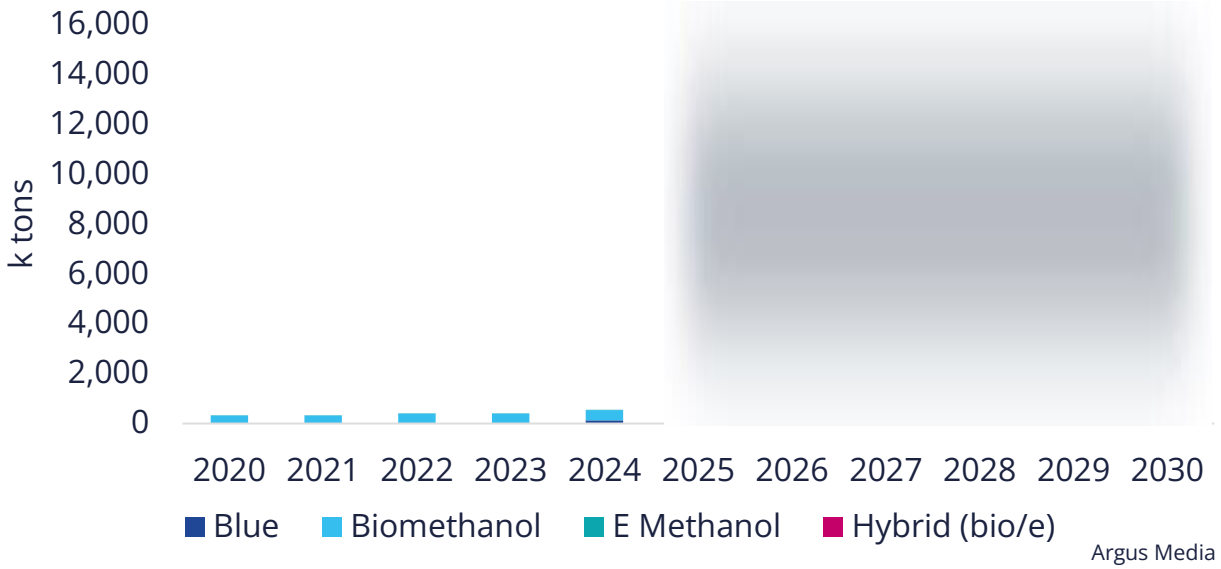
Content



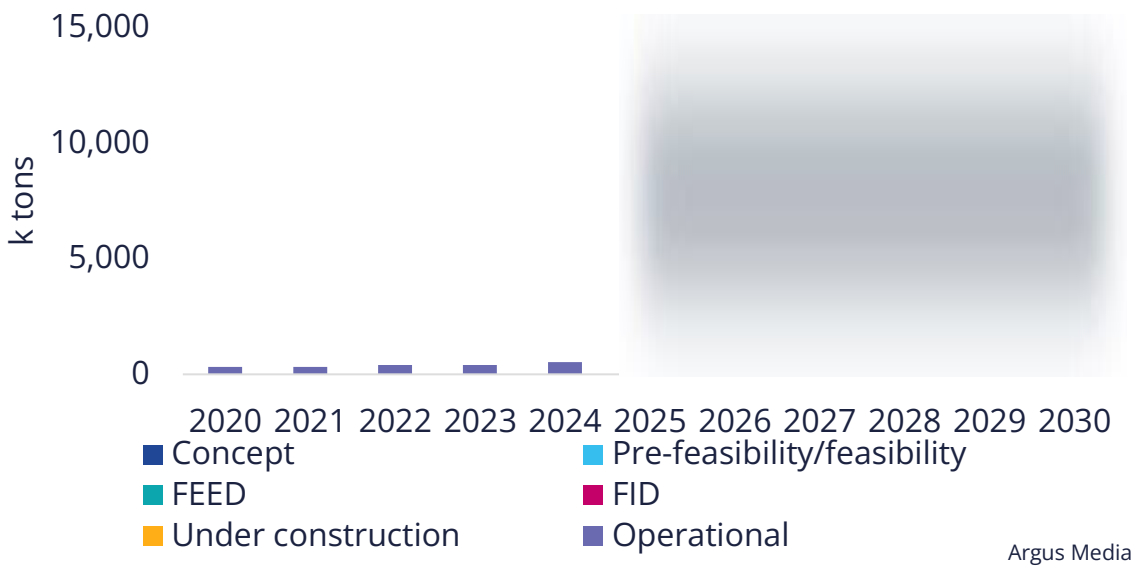
North America

North America continues adding low-carbon methanol capacity but still trails other regions.

North America low-carbon methanol capacity



North America low-carbon methanol capacity

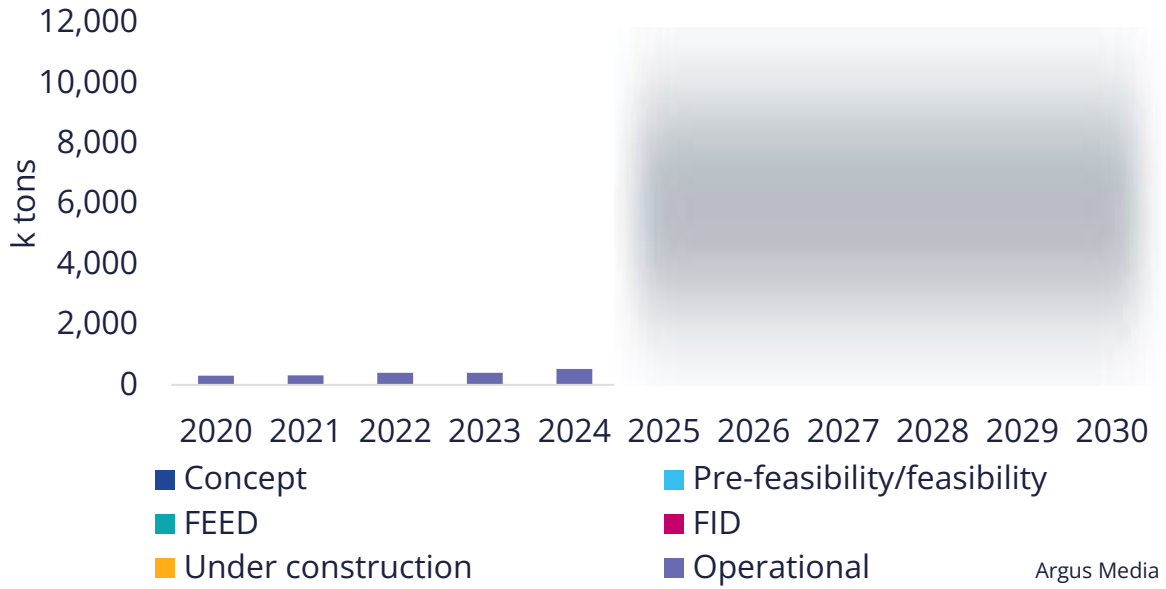


- North America's low-carbon capacity is led by the US, with several projects planned for the US Gulf Coast. Many projects totalin[redacted] in North America are blue methanol projects that are hopeful to be in production by end [redacted] however, projects have [redacted] offtake agreements. This significant jump in capacity volume could be [redacted]
- Capacities of low-carbon methanol in North America lag leading regions like Europe and Asia. Likely due to competitive feedstock prices and lack of local regulations incentivizing decarbonization. The proposed framework from the IMO has bolstered new energy into low-carbon methanol projects, but many investors and projects await final regulatory direction in October 2025.
- Majority of potential biomethanol capacity would [redacted] who have secured RNG availability. However, current demand is [redacted]
- Funding for hydrogen projects in the US have been shaken since the Trump Administration took office. Including revoking a previously awarded $100mn from Department of Energy to Orsted's Star e-Methanol project in Texas. Additional government funding for this project is also under review.
- The only North American project in FID is [redacted]

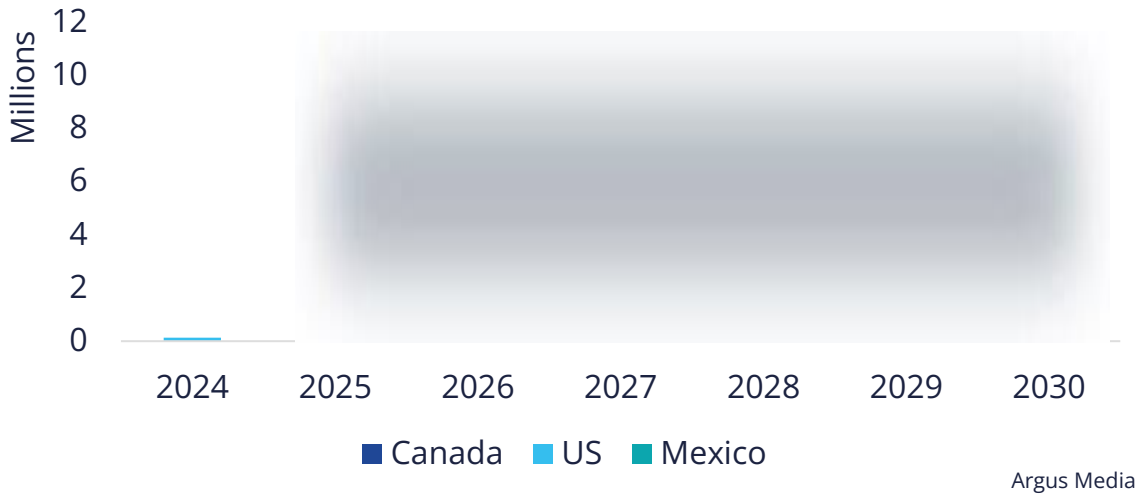
North America

US leads the region in potential capacity, but with a higher carbon intensity value.

US low-carbon methanol capacity



Cumulative Blue Methanol Capacity North America



- For North America, the US is leading low-carbon methanol capacity behind a handful of [redacted] projects currently in the [redacted]
- In addition to the US, there is a large biomethanol and carbon capture methanol project in Mexico as well as Methanex's Medicine Hat facility that is installing a CCS unit.
- Decarbonization policy in North America varies by country. Projects in the US are still awaiting final clarity on IRA incentives due to the changeover in presidential administrations.
- In recent years, the US Gulf coast has been advocating for carbon capture or blue methanol. This lower carbon intensity yet fossil-fuel derived alternative has gained momentum upon on the back of the IMO's recently proposed framework.
- With most blue methanol units producing around a carbon intensity [redacted] (well-to-wake) and [redacted] premium price, this methanol would become a [redacted] next decade as the global market awaits [redacted]
- If the IMO proposed framework passes in October as it is currently written, methanol with a carbon intensity [redacted] would not incur penalties until [redacted] his would be a critical time of transition for biofuels of lower CI to fulfill marine fuel volumes; however, [redacted] Due to limited volumes of feedstocks/biogenic CO2, [redacted] of [redacted] come online.

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

The Argus Methanol service is essential for anyone exposed to methanol prices and seeking a perspective on the marketplace.

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:

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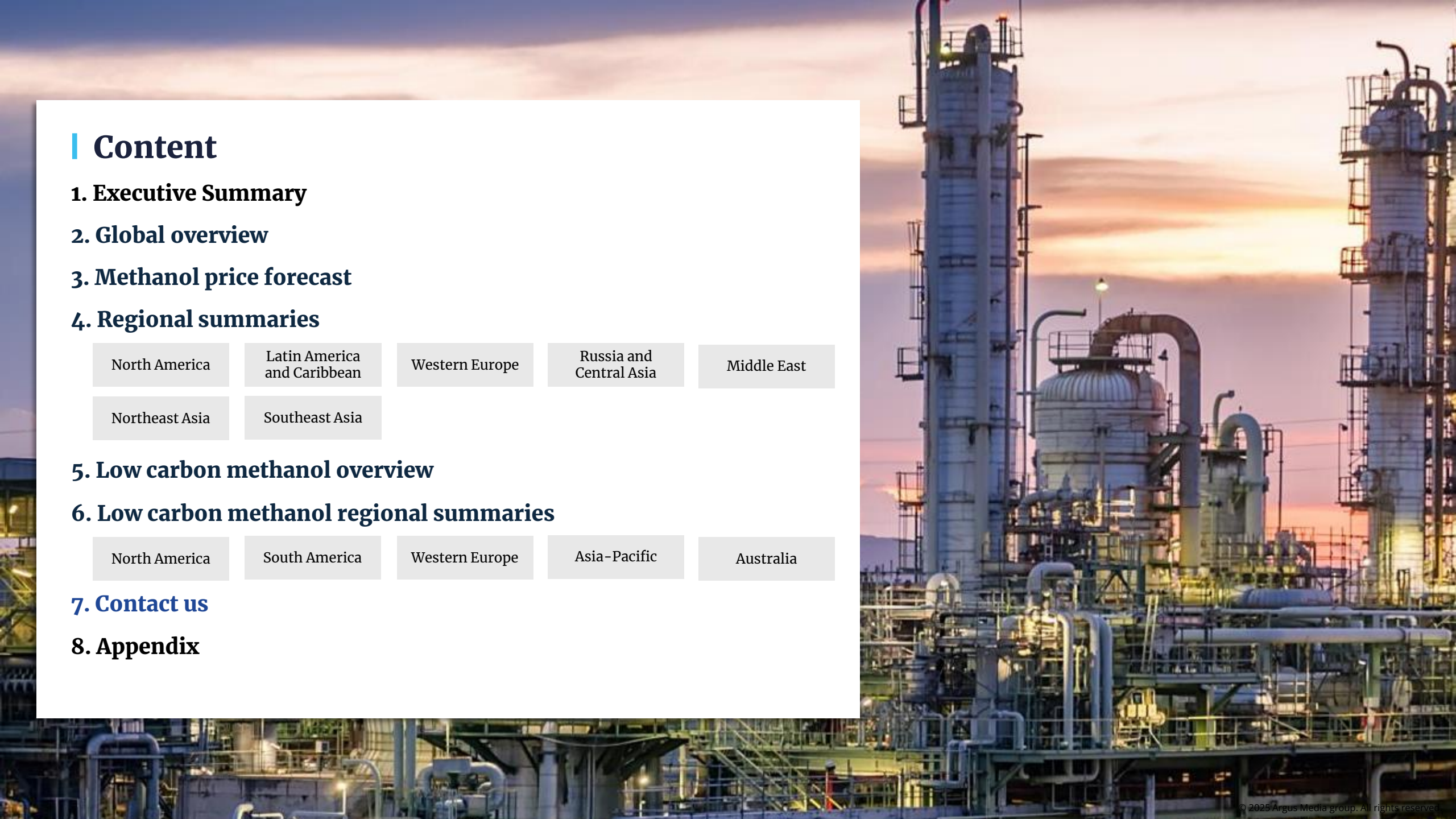

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Dave McCaskill is responsible for managing *Argus' Global Methanol Services* with individual emphasis on methanol and downstream derivative activities in the Americas. Dave has nearly 45 years of experience in the petrochemical industry, beginning at Celanese Chemical Company as a chemical engineer. In 2000, Dave moved to serve as Global Business Director of Methanol & Derivatives for two private petrochemical consulting firms for almost 13 years, developing extensive knowledge of the methanol industry, He has participated in many methanol industry conferences sharing his views of the methanol industry. Dave holds an undergraduate degree in Chemical Engineering from the University of Kansas.

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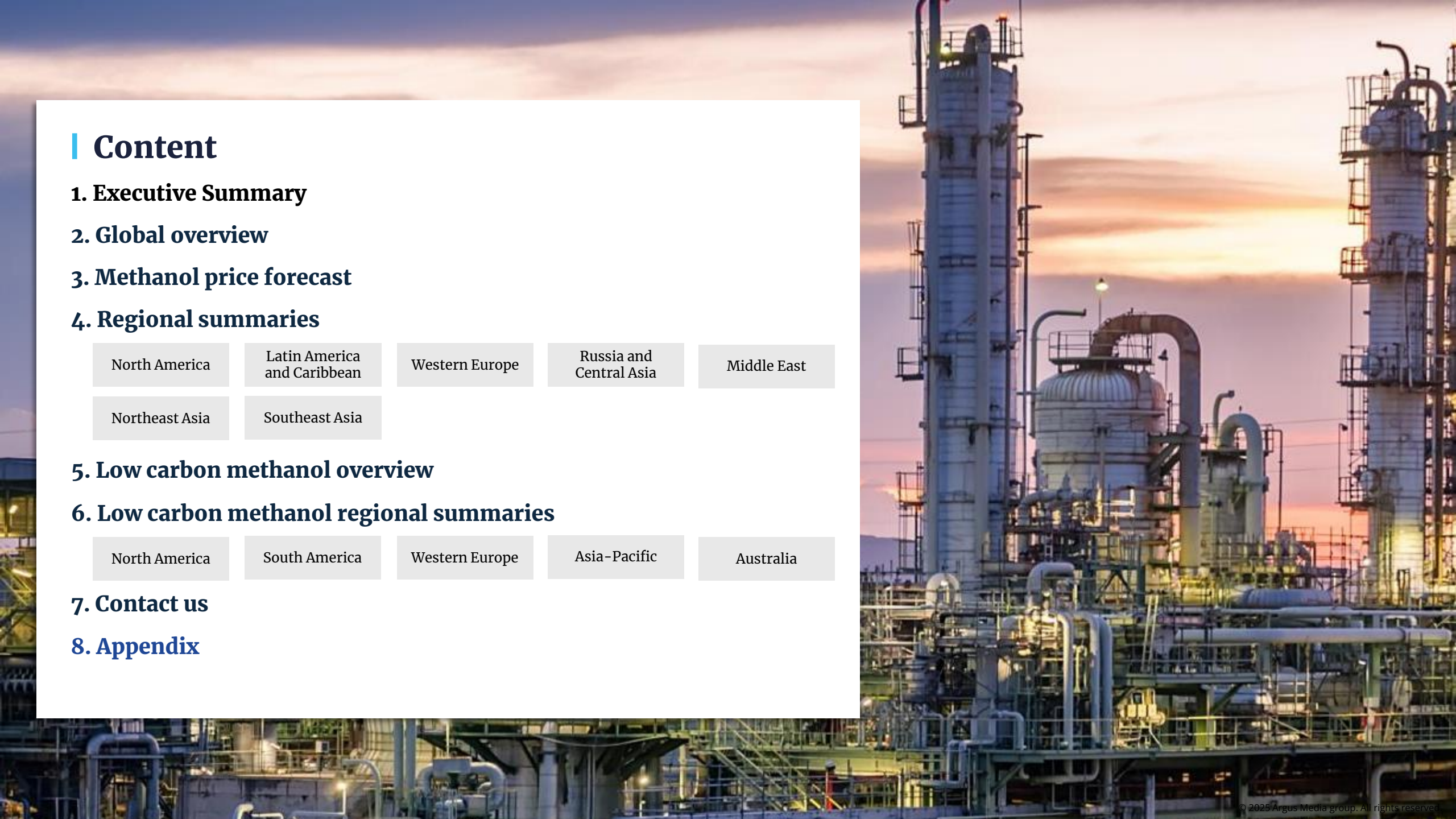

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Appendix: Methanol Analytics Methodology

Period presented
The annual period for this study is the historical years 2020 through 2024, and forecast data for 2025 through 2034 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 tonnes (t) 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.