Argus report sample

Argus Methanol Analytics

15 June 2024

Executive Summary - Methanol Analytics, 2019-2033

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.

- 2024 shows a more optimistic outlook for the methanol industry, as higher demand expectations improve with slightly better GDP forecasts, at least two new MTO units expected and a slight bump from bunker demand until low-carbon methanol is readily available.
- Industry operating rates have declined and will remain "lower" as new capacity continued during the Covid/recession downturn. Operating rates are expected to hover near [redacted] through the forecast—a combination of China operating at [redacted]pc rates and the rest of the world closer to [redacted].
- Capacity additions continue, but at a slower pace as well. However, capacity excess still appears likely, defining the industry landscape for several years.
- China still dominates industry supply and demand but moving forward industry growth as to look more to global GDP improvement and general fuels demand growth.

Methanol industry demand/forecast, 2024 vs. Fall and Spring 2023 mn t

Spring 2023 Fall 2023 Spring 2024

Methanol industry supply/demand mn t / %

Production Demand Capacity % Operating Rate, right

2019 2021 2023 2025 2027 2029 2031 2033

North America Methanol Summary

The US dominates supply and demand, transitioning from a net importer of methanol in the last 10 years to a net exporter, from 2022 onward. Expansion plans continue, but some will be challenged.

North America methanol demand, 2023 mn t

World demand 90.7 mn t

7.7 mn t 8.5%

HCHO 30%
HAc 17%
MMA 3%
MTBE/TAME 12%
Biodiesel 12%
Fuel 1%
DME 0%

In 2023, North America consumed [redacted] of methanol, of which the US was [redacted]. This was essentially even with 2022 demand and only returning to 2019 levels—the downturn due to the Covid pandemic, major downtime in some derivatives and the economic downturn from the Russia-Ukraine conflict. North America methanol demand is now [redacted]. Even combined with [redacted] these two regions account for [redacted] demand and [redacted] large appetite for methanol.

Historically, formaldehyde and acetic acid have dominated the regions' consumption and this is unlikely to change through the forecast period. MTBE and biodiesel have swapped third and fourth positions historically, but in the last couple of years improved MTBE production has solidified its third place slot. Still, the four account for [redacted] pc of the regions' methanol 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

Production Demand Capacity % Operating Rate, right

2019 2021 2023 2025 2027 2029 2031 2033

North America methanol demand mn t

All Other
Merchant MTO/MTP
Dimethyl Ether
Fuel Applications
Biodiesel
MTBE & TAME
Methyl Methacrylate

2019 2021 2023 2025 2027 2029 2031 2033

Derivative growth CAGR %

Dimethyl Ether
Fuel Applications
Biodiesel
MTBE & TAME
Other
Methyl Methacrylate
Acetic Acid
Formaldehyde

argus

argus

About this report

The Argus Methanol service delivers leading methanol contracts and spot benchmarks, global industry news and analysis of key economic drivers, in a single service.

Our coverage in the US is the leading benchmark among major producers and consumers and we are proud to be a growing reference in Europe, where we publish a monthly contract price, and Asia.

We provide weekly price assessments for methanol, plus short-term fundamentals analysis including plant operating status, trade flows, supply and demand drivers.

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

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

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

Key features

Global service
Global coverage, news and analysis in a single, concise and integrated service.

Feedstocks insight
See how crude and natural gas feedstocks play a role in your business.

Dynamic dashboard
Powerful, real-time visualization tool designed to help you analyse your markets faster.

Regional prices
Price assessments for methanol across the Americas, Europe and Asia-Pacific.

Fundamentals analysis
Plant operating status, trade flows, supply and demand drivers.

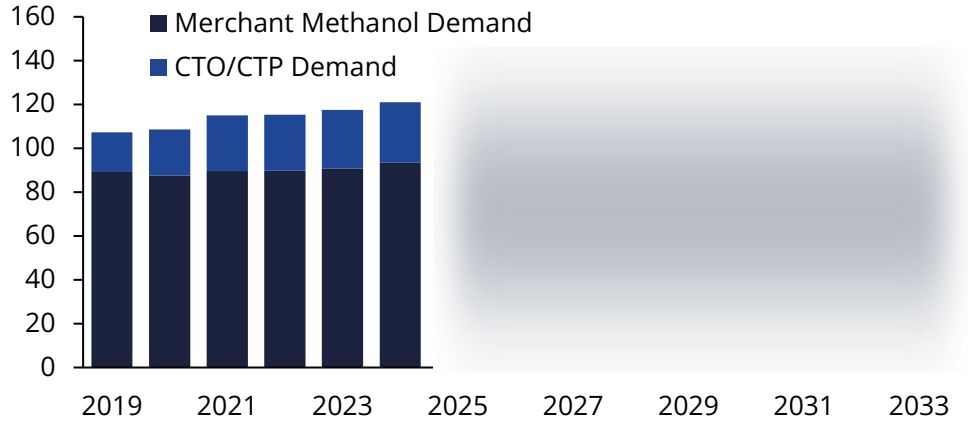
Access to specialists
Argus' experienced and respected experts know your markets.

Executive Summary (Prologue) - Methanol Analytics, 2019-2033

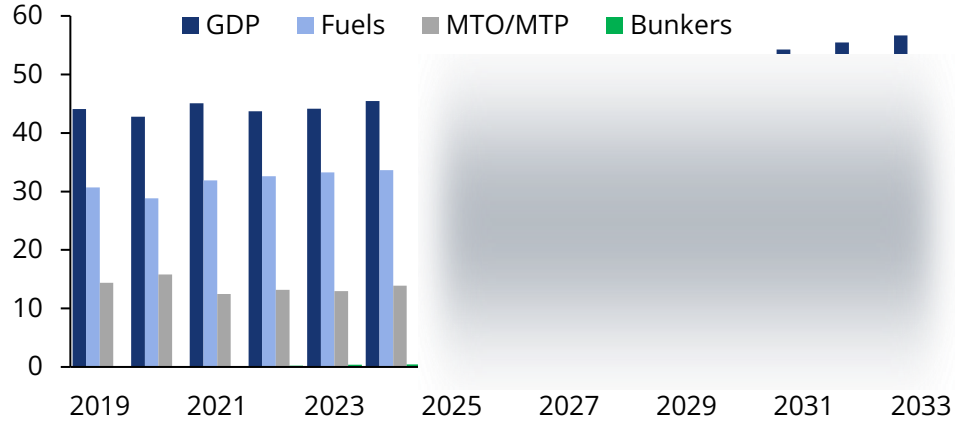
Methanol demand from "captive" CTO is not part of this analysis, as it is not considered merchant demand. Fossil-based methanol as a bunker fuel will have some ongoing demand, awaiting low-carbon methanol.

- The analytics and discussions presented excludes 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.
- Further, while this study acknowledges a potentially large market for methanol as a bunker replacement, Argus believes the bulk of this new demand will be based on "green" methanol (low-carbon), and not existing "fossil" methanol. There is a small amount of methanol to bunkers included in this study, but this is more as fan ongoing future proof demonstration and filling a void until low-carbon methanol is more abundant.

Methanol industry demand /forecast *mn t*



Methanol industry demand by main sectors *mn t*

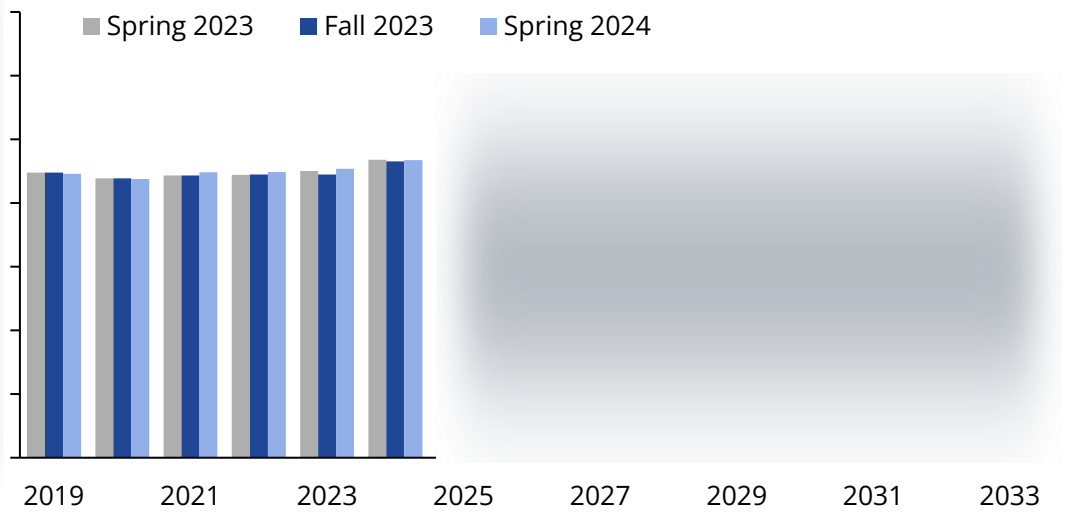


Executive Summary - Methanol Analytics, 2019-2033

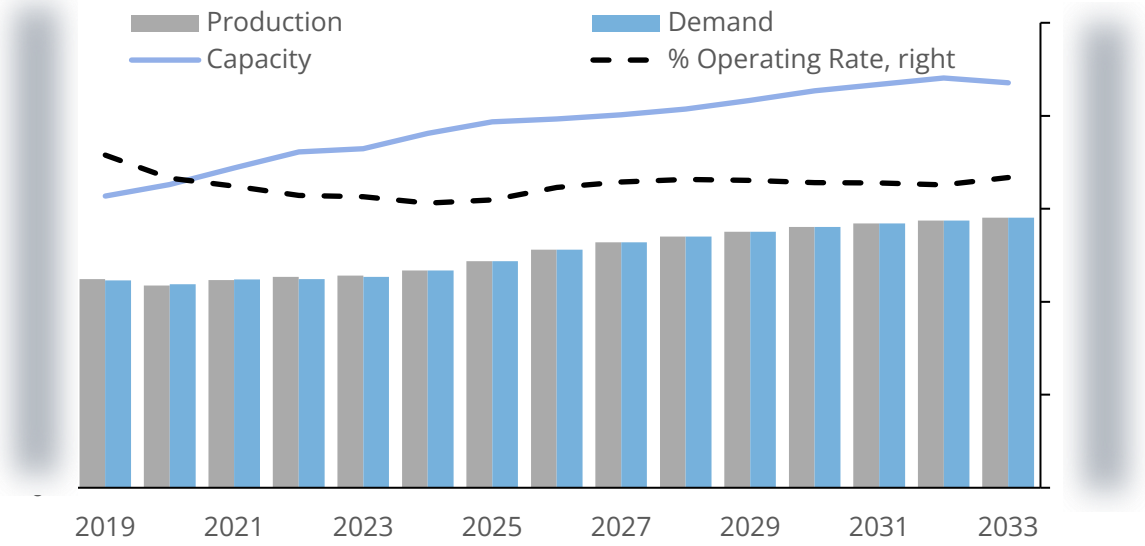
Methanol demand growth slowed as Covid-19 and the Russia-Ukraine conflict drove inflation and recession fears. MTO demand slowed but now improving. The industry lacks the next big demand bump to mitigate new capacity.

- 2024 shows a more optimistic outlook for the methanol industry, as higher demand expectations improve with slightly better GDP forecasts, at least two new MTO units expected and a slight bump from bunker demand until low-carbon methanol is readily available.
- Industry operating rates have declined and will remain "lower" as new capacity continued during the Covid/recession downturn. Operating rates are expected to hover near [redacted] through the forecast—a combination of China operating at [redacted] pc rates and the rest of the world closer to [redacted].
- Capacity additions continue, but at a slower pace as well. However, capacity excess still appears likely, defining the industry landscape for several years.
- China still dominates industry supply and demand but moving forward industry growth as to look more to global GDP improvement and general fuels demand growth.

Methanol industry demand/forecast, 2024 vs. Fall and Spring 2023 mn t



Methanol industry supply/demand *mn t / %*



Executive Summary – Methanol Analytics, 2019-2033

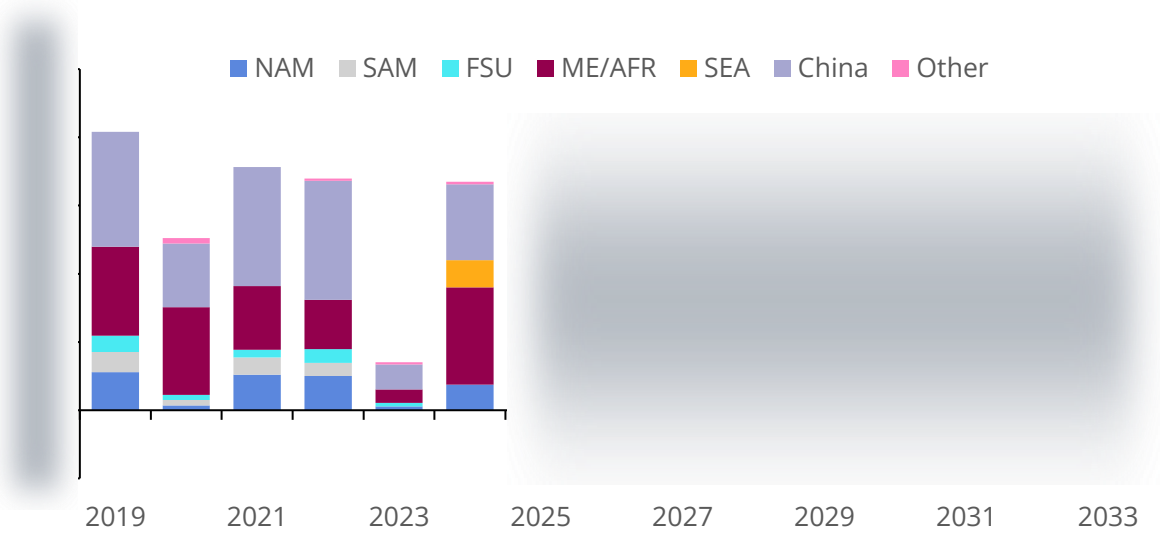
Industry oversupply (though slowed) may continue to limit higher pricing, forcing rationalization of "higher-cost" producers to return the industry to better balance. The industry will find balance.

- 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 has yet to return to 2019 demand levels through 2023 but looks to see improvement in 2024 and forward.
- New capacity additions have been delayed, namely in Iran and Russia—with both remaining industry wildcards. 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 targeted low-carbon markets.

Major global capacity additions **'000t**

Region	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
North America	1,120	140	1,040	1,000	115	750									
Latin America	590	160	510	390	0	0									
West Europe	0	156	0	60	0	0									
Russia	480	150	220	400	100	0									
Middle East	2,600	2,575	1,875	1,450	400	2,850									
Australasia	0	0	0	0	0	0									
South Asia	0	0	0	0	67	75									
Southeast Asia	0	0	0	0	0	800									
China	3,375	1,865	3,485	3,490	730	2,220									
Total	**8,165**	**5,046**	**7,130**	**6,790**	**1,412**	**6,695**									

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



1. Executive Summary
2. **Global Overview**
3. Spotlight: China
4. Breakdown of Key Regions
5. Contact us
6. Appendix

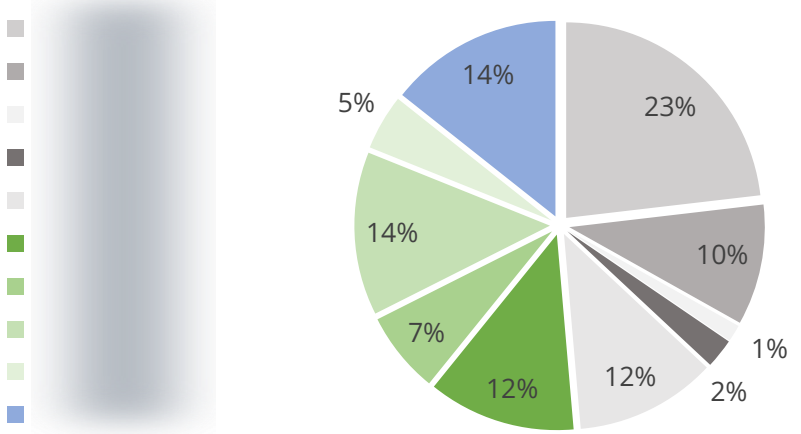
argus

Methanol Global Overview, 2023

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

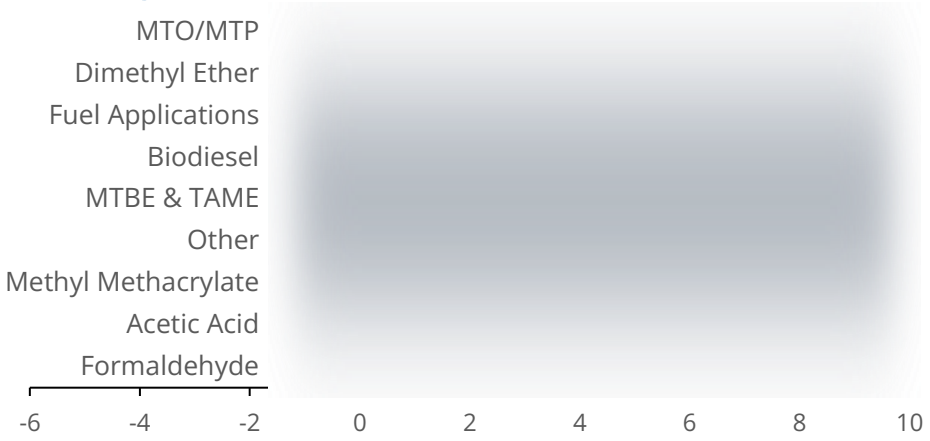
- Traditional GDP-driven products (formaldehyde, acetic acid, methyl methacrylate, solvents, etc.) now represent (2023) of methanol industry demand and have been the core of industry demand for decades. However, these products are very much connected with the housing, automotive, paints/coatings and appliance industries and thus are driven by GDP, seeing demand weaken in 2020, 2021 and flat across 2022 and 2023. The forward outlook remains reserved, but better growth across these derivative sectors is expected.
- Methanol fuel substitution applications or fuel enhancers (octane improvers) continues 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 a 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 in industrial cooking stove applications as well as boiler fuel (versus more expensive coal, fuel oil and/or natural gas). Methanol is becoming one of (many) fuels of choice as bunker fuel substitution, but as we've said before, long term "green" methanol and not "fossil" methanol will have the far greater success with a low-carbon footprint as compared to fossil methanol.
- China's merchant MTO industry was non-existent just a decade ago, growing to (mn t) of total methanol consumption in 2020, but falling to in 2023 (mn t). Improvement is expected for the next several years, almost reaching t, before again declining late in the decades.
- 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, but of course this relationship breaks down in times of fundamental imbalances.

Industry derivative demand, 2023 = 90.7 mn t



Derivative growth

CAGR, %

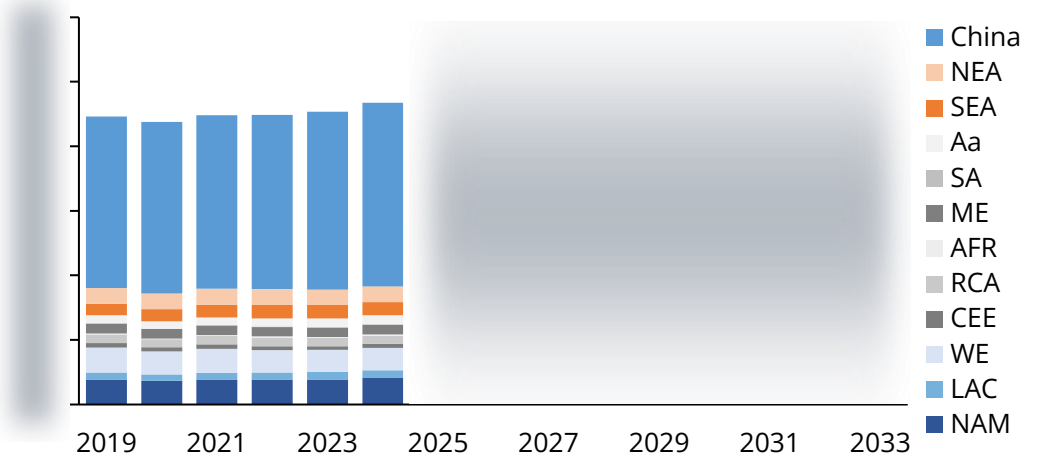


World Methanol Demand Metrics Actual/Forecast, 2019-2033

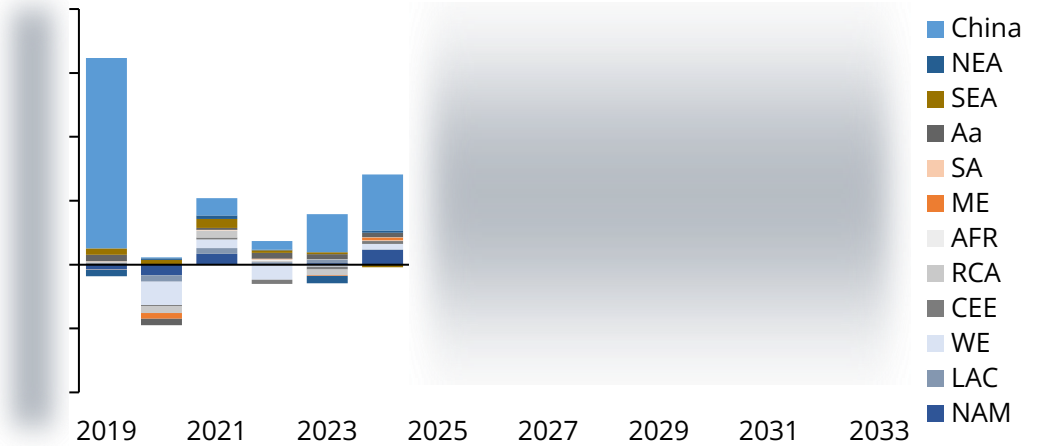
China continues to dominate methanol industry demand, helping underpin growth through the early years of the forecast before trailing off.

- Through the 2019-2023 period, global methanol demand saw a cumulative annual growth rate (CAGR) of just , hurt by stunted demand across the 2020-2022 timer period. Losses could have been worse had China's MTO sector not performed unexpectedly well—albeit reduced as well. The industry was negatively impacted by the coronavirus pandemic and the Russia-Ukraine conflict's economic woes felt globally.
- 2023 was then forced to embrace the lingering impact of both issues noted above but fears of recession, stagnation and the reality of rising interest rates and energy prices still crippling some economies and stymieing 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 declined over the past several years but is now poised to improve with two new units expected in 2025 and 2026, but peaks mid-decade and then begins a slow decline.
- China's appetite for methanol dominates industry demand. In recent years, China's demand for methanol hovered at . With MTO demand improving mid-decade, China's share of industry demand climbs to but slipping back to at the end of the decade.
- Towards the end of the forecast period, non-China markets are forced to lead industry growth, relying on GDP-driven derivatives and/or fuel applications.
- Year-over-year growth averaged t/yr through the 2019-2023 period, penalized by the loss of almost in 2020 and returning only to 2019 levels in 2022. Annual demand growth is projected to t/yr (on average) through the 2023-2028 period, then t/yr on average through the 2028-2033 time period.

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



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

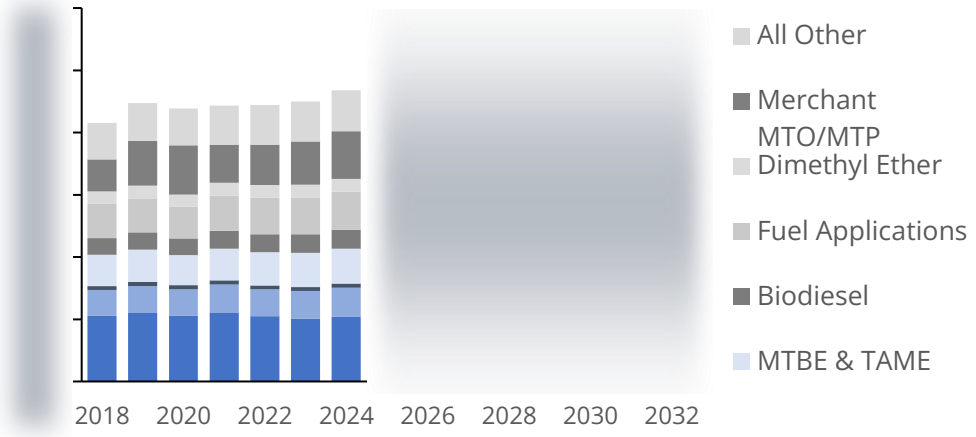


World Methanol Demand Metrics Actual/Forecast, 2019-2033

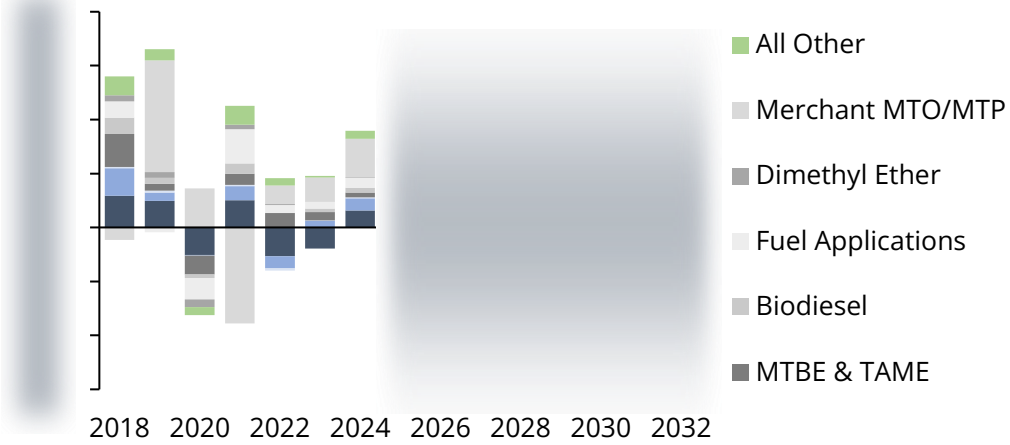
China continues to dominate methanol industry demand, helping underpin growth through the early years of the forecast before trailing off.

- The industry growth profile saw significant change across 2020-2023—seeing almost no growth as the pandemic and the Russia-Ukraine conflict caused extended turmoil. Inflation and energy prices (for a time) soared. 2024 looks to the return of 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—
- These traditional methanol derivatives (formaldehyde, acetic acid, methyl methacrylate, methylamines, etc.), still represent solid core demand, but as always, are driven by GDP-type growth. As such, these products will be driven by more conservative GDP forecasts than pre-2020 views forecast to grow new across the extended forecast period.
- Formaldehyde will continue to be the largest single methanol derivative, although again only growing relative to forecast GDP rates. However, even with slower growth rates,
- China will see continuing growth in boiler fuel and cook stove applications, as well as the return of growth in the automobile fuels sector as the country further develops M100 vehicles. 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. While we expect the use of methanol as an alternative bunker fuel to grow slowly, Argus projects t/yr of conventional methanol will be consumed in this sector by 2030, giving way to "lower-carbon" methanol once capacity is built.

Global methanol derivative demand actual/forecast *mn t*



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



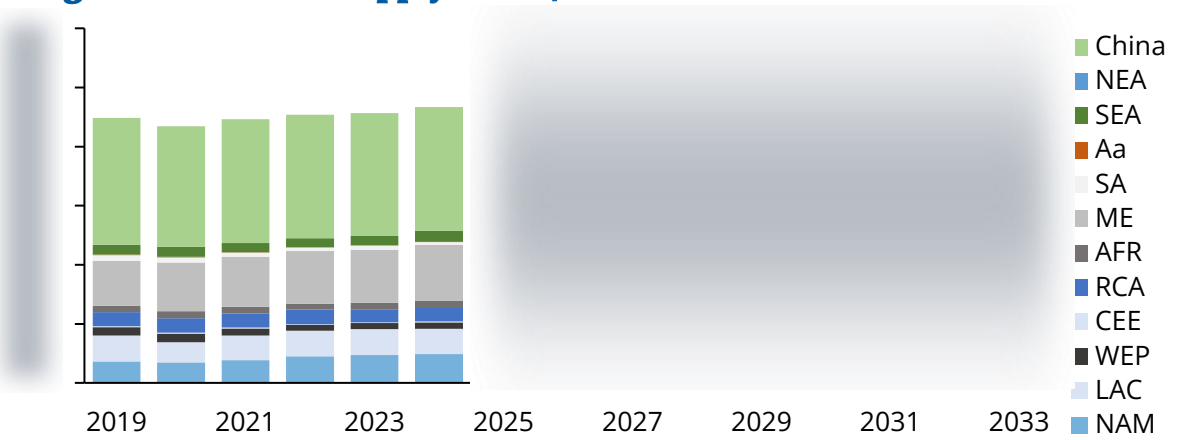
World Methanol Supply Metrics Actual/Forecast, 2019-2033

Supply has historically struggled to keep up with demand, but this changed in across the 2015-2020 timeframe. Capacity growth just exceeds demand through 2023-2028, helping balance supply/demand.

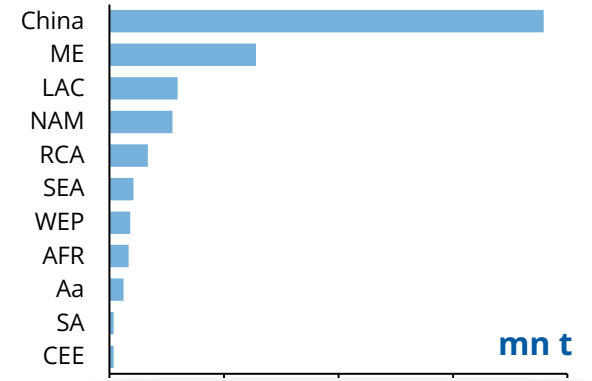
- Global methanol capacity in 2023 totaled nearly t (excluding CTO/CTP), with China accounting for The Middle East has the second largest capacity base, with of world capacity). Latin America and Caribbean is the home of the industry's third largest capacity base, with world total), although several units have been idled at times, resulting in actual production well below capacity figure.
- Whereas China dominated year-over-year growth in methanol supply the last five years, the industry is expected to see change, as most major expansion looking ahead comes from a combination of the Middle East (Iran), China, southeast Asia and the US. With excess production in the rest of the world (excluding China), much of this excess will target the large China market, forcing higher-cost China methanol production to reduce.
- The forecast indicates industry Industry demand was clearly negatively impacted by the Covid-19 pandemic in 2020, recovering through 2021 but to be negatively impacted again in 2022 by the Russia-Ukraine conflict. Improving MTO demand mid-decade helps consume some new capacity, this ends in the last few years of the decade.

Regional methanol supply actual/forecast

mn t

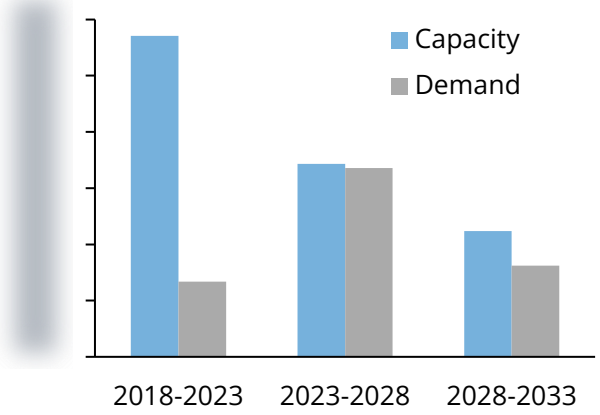


Capacity to produce methanol, 2023



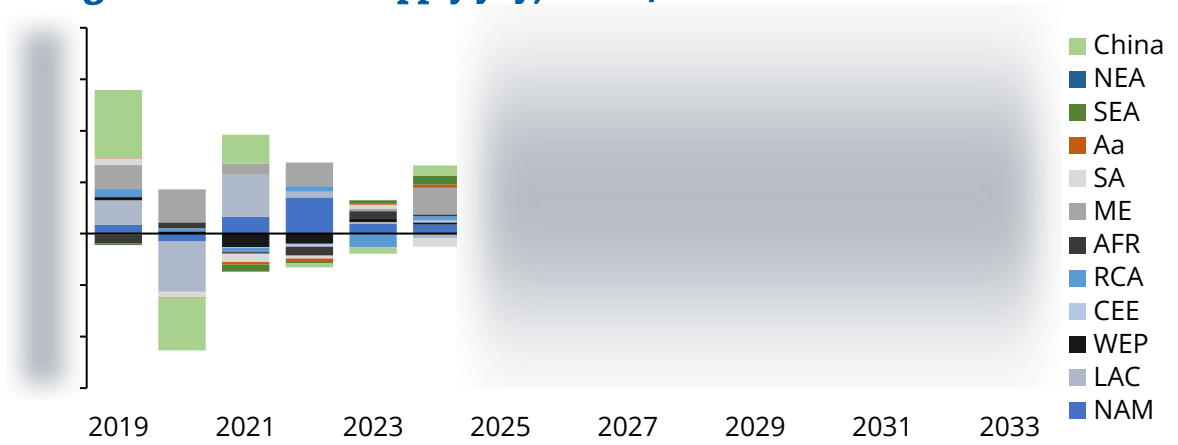
Capacity vs demand growth

mn t



Regional methanol supply yoy, actual/forecast

mn t



World Methanol Supply Metrics Actual/Forecast, 2019-2033

The industry sees [redacted] capacity addition across 2024-2028, dominated by the [redacted] with small additions in [redacted] and the [redacted] but barely outpacing demand growth.

- During the 2019-2023 timeframe, over 15mn t of new methanol capacity was commissioned, excluding China. China alone added almost 13mn t (excluding CTO/CTP). Units were commissioned in Iran (5), the US (2) and Trinidad (1).
- Looking ahead, further capacity additions are expected in China and Iran, as well as in the US and southeast Asia. In this 2024 base forecast, Russia capacity expansion remained delayed for many years (2030 and beyond), with Iran expansion plans delayed some as well.
- The nearly [redacted] of new methanol capacity expected across the 2024-2028 (ex China) time period will be seen in Iran, the US, Malaysia and Australia. There will likely be further additions not specifically identified at this time.
- The timing of such large portions of global capacity additions may be critical. Should [redacted]
- As well, with Iran capacity having to target China and/or India as its major outlets, these additional large supplies [redacted] hinder expansion plans in other countries—particularly the US, where financing requirements seem to be more challenging than in other locales.
- The US became technically "self-sufficient" as of 2020, [redacted]
- [redacted]

Major global capacity additions

'000t

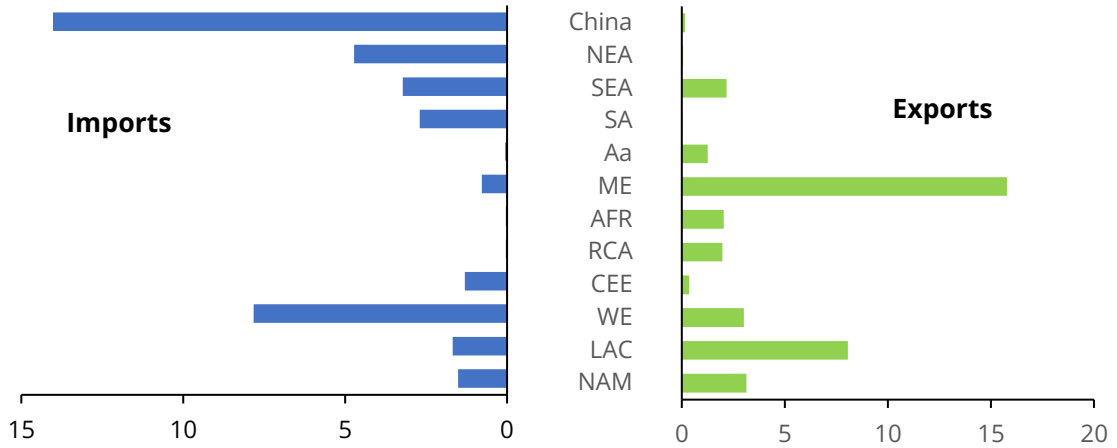
Region	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
North America	1,120	140	1,040	1,000	115	750									
Latin America	590	160	510	390	0	0									
West Europe	0	156	0	60	0	0									
Russia	480	150	220	400	100	0									
Middle East	2,600	2,575	1,875	1,450	400	2,850									
Australasia	0	0	0	0	0	0									
South Asia	0	0	0	0	67	75									
Southeast Asia	0	0	0	0	0	800									
China	3,375	1,865	3,485	3,490	730	2,220									
Total	**8,165**	**5,046**	**7,130**	**6,790**	**1,412**	**6,695**									

World Methanol Supply Metrics Actual/Forecast, 2019-2033

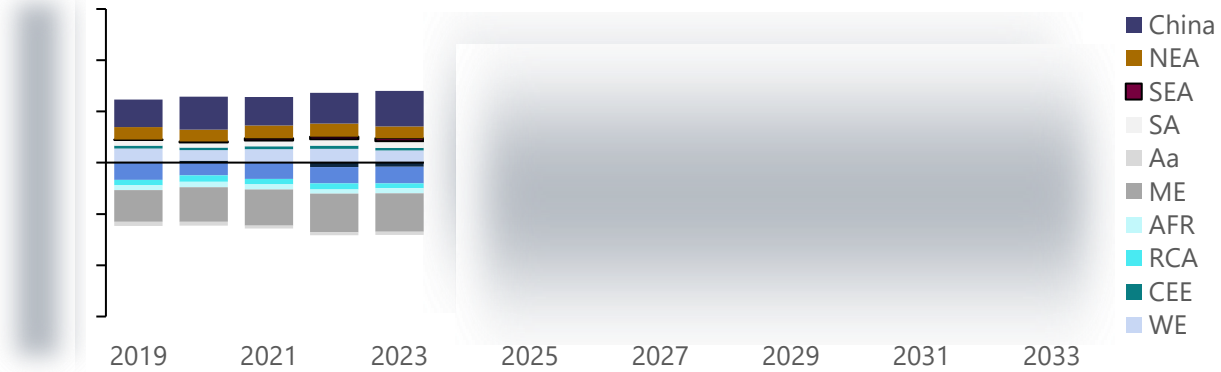
China, west Europe and North America combined represent pc of industry demand, through the forecast. The next five years sees

- During the 2019-2023 timeframe of new methanol capacity was commissioned. excluding China, with world scale units starting up Through this same 2019-2023 time period, China's expansions alone totaled some of new capacity (again excluding captive CTO/CTP capacity).
- Looking ahead, further capacity additions are expected in and to a lessor degree the In the latest forecast, capacity expansion plans have been (2030 and beyond), with expansion plans some as well.
- The nearly : of new methanol capacity expected across the 2024-2028
- The timing of such large portions of global capacity additions may be critical.
-

Regional trade 2023 **'000t**



Regional trade flows actual/forecast ***mn t***



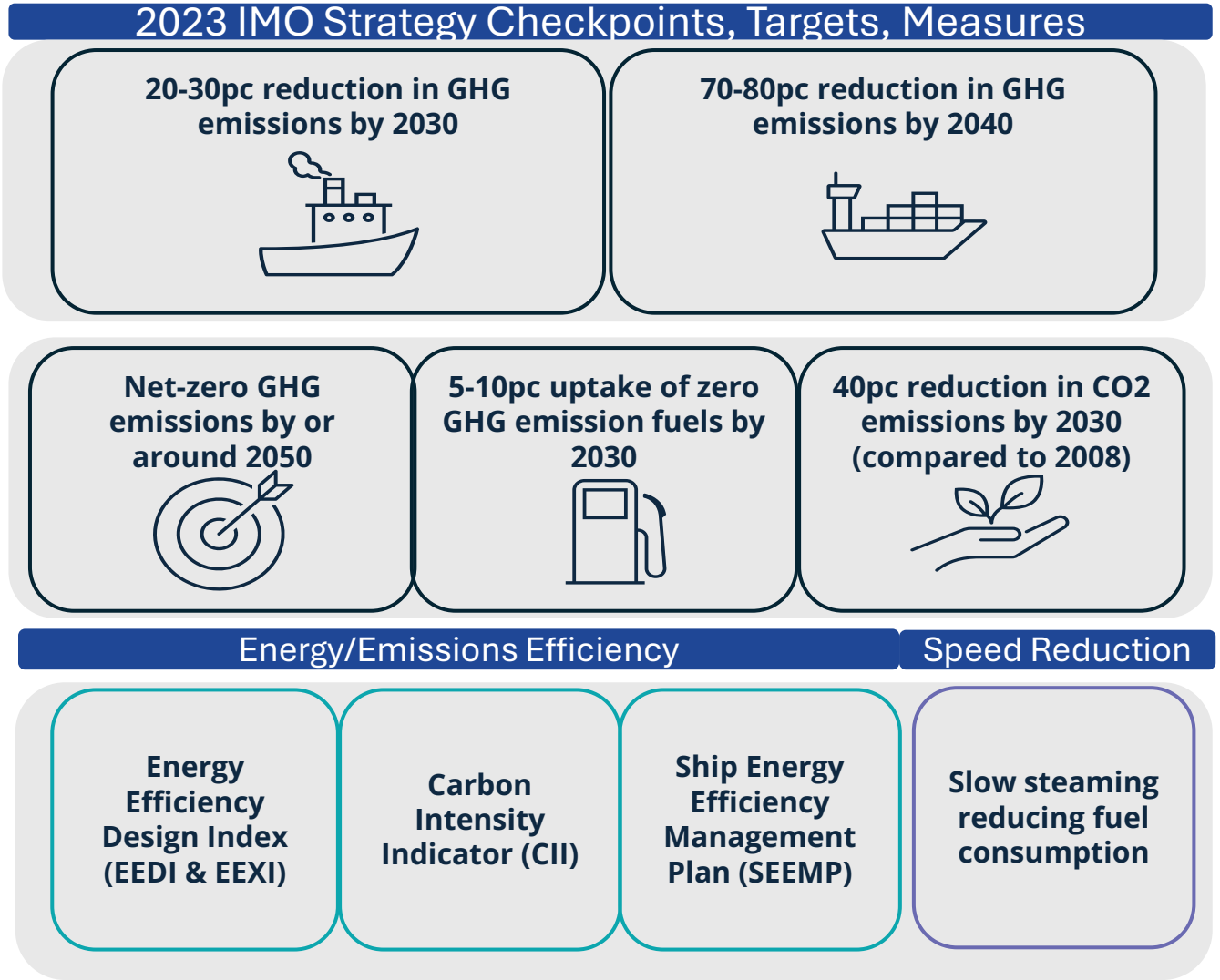
Executive Summary – Low-carbon Methanol

- *Argus* views low-carbon methanol as an emerging piece within the gray methanol world, particularly in the maritime industry. Currently, low-carbon methanol has limited pathways into chemical end-use products, but these have yet to come to fruition as this space lacks policy and regulatory measures needed to justify the premium price. Nevertheless, there has been discussion of demand to produce bio-MTBE and bio-DME in certain regions. Preliminary discussion of methanol-to-jet/SAF continues to occur, but notwithstanding legitimate near-term hurdles.
- Within the next 12-18 months *Argus* expects the low-carbon methanol market to quickly evolve amidst global decarbonization policy implementation, growing financial investments, and increasing demand from various sectors. However, this growth is not without signification challenges, as the availability of feedstock, financial incentives or penalties, carbon capture technology and competitive pricing economics will play a critical role in the scalability of low-carbon methanol production.
- *Argus Chemicals* forecasts e-methanol capacity to reach [redacted] and biomethanol capacity to reach [redacted] by 2028. Most growth capacity is slated for [redacted] and [redacted] yet, [redacted] has added [redacted] capacity projects recently, along with the ability to accelerate construction, leading us to believe they could enter 2030 as the largest low-carbon methanol producer globally.

Methanol as marine fuel

The maritime fuel industry is the emerging market for all types of methanol.

- *Argus* estimates the marine industry was responsible for approximately 1000mn t of CO2 emissions in 2019, with around 80pc of those emissions from international shipping.
- Since the early 2000s, GHG emission reduction efforts have been successful, however, the reduction techniques alone are not enough to reach net-zero targets. Switching to less carbon intensive fuels is a must moving forward.
- **International Maritime Organization (IMO)**
  - Beginning in 1997, IMO developed a framework for addressing CO2 emissions in the maritime sector. In 2018, IMO adopted its first strategy for reducing GHG emissions from ships with the goal of enhancing this framework by 2023.
  - In July 2023, the 2023 IMO GHG Strategy was adopted, setting out the timeline and specific guidelines for reduction in carbon intensity.



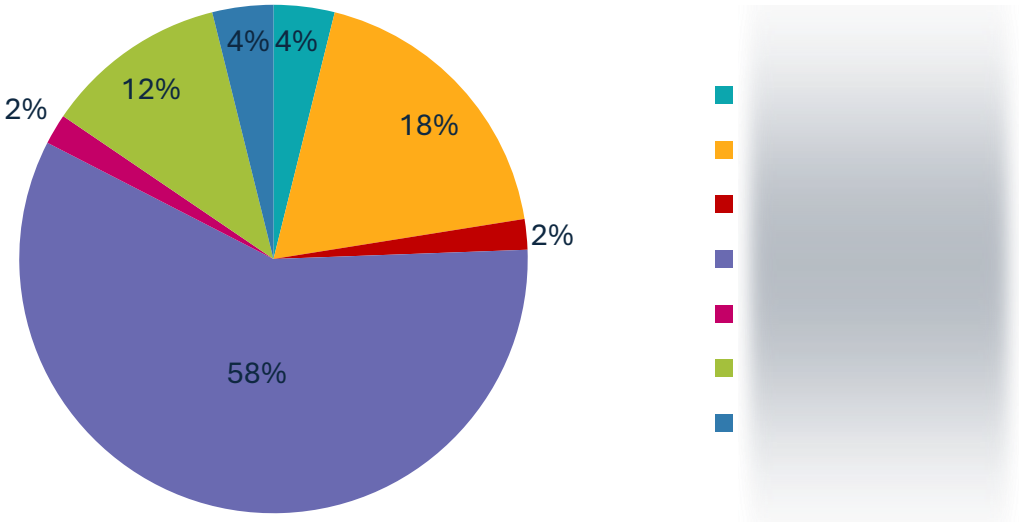
Vessel data

Order books and fuel contracts indicate continuous growth.

Vessel count by company

- Argus Chemical, Argus Marine Fuels

Vessel type

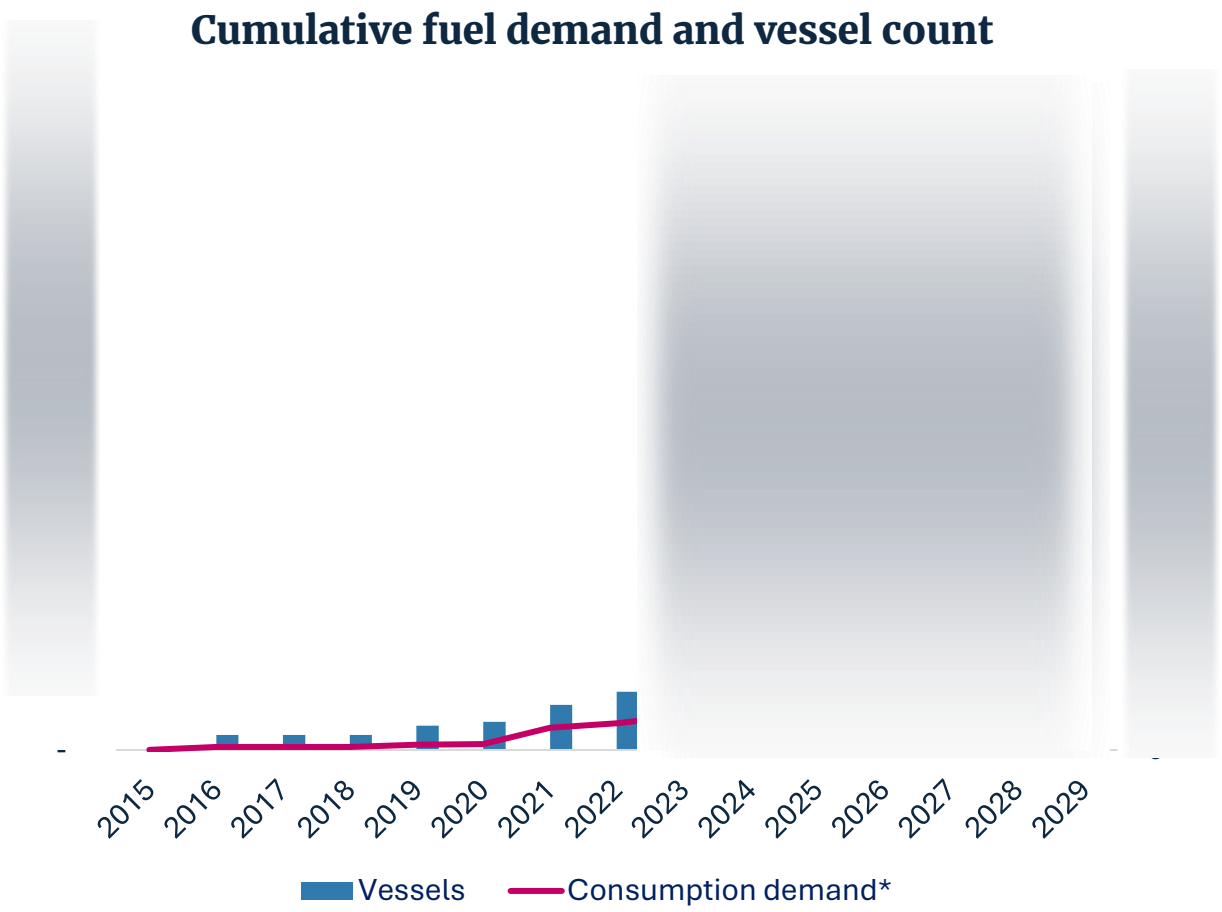


- Argus Chemical, Argus Marine Fuels

- Approximately [redacted] total vessels with methanol-fueled capabilities built before the end of the decade.
- Most ships [redacted] are new builds with many expected on water in the next 12-24 months, taking 2-3 years to build.
- By 2025, nearly all new ships will be dual-fueled for alternative fuels and conventional bunker fuels. This is essential as shipowners will require flexibility in fuel options to meet evolving emission reduction goals (i.e. EU ETS (effective 2024) and FuelEU Maritime (effective 2025)).

Methanol demand in maritime industry

Order books and fuel contracts indicate continuous growth.



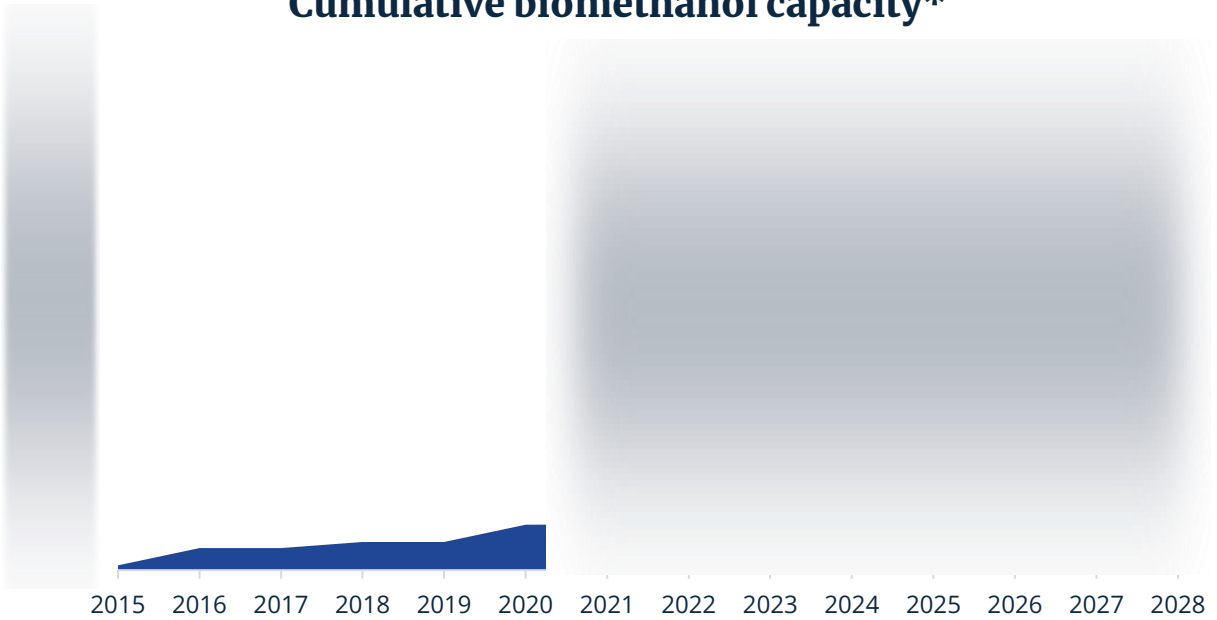
- Argus Chemical, Argus Marine Fuels

- Growth for methanol as a marine fuel accelerated in 2024, with over half of new ship orders built to use methanol.
- Additionally, [redacted] of alternative fuel contracts are methanol; followed by LNG, LPG and ammonia.
- Gray and low-carbon methanol have lower energy density requiring ships to utilize [redacted] more methanol than other conventional fuels.
- Approaching 2030, pricing economics, feedstock availability and scalability will play key roles as methanol competes with other alternative fuels.
- For containerships utilizing methanol, *Argus* estimates each ship will require approximately [redacted] of fuel each year.
- Danish ship owner, Maersk, has several strategic partnerships with fuel suppliers around the globe, estimating several million tons of low-carbon methanol needed for their fleet by 2030.

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

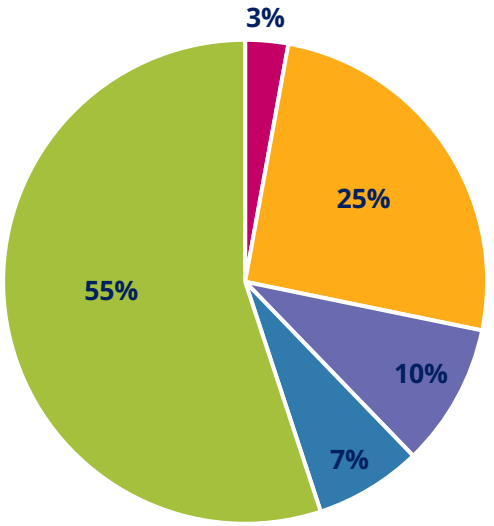
Biomethanol

Cumulative biomethanol capacity*



- Argus Chemical, Argus Hydrogen & Future Fuels

2028 Capacity volume by region



- Argus Chemical, Argus Hydrogen & Future Fuels

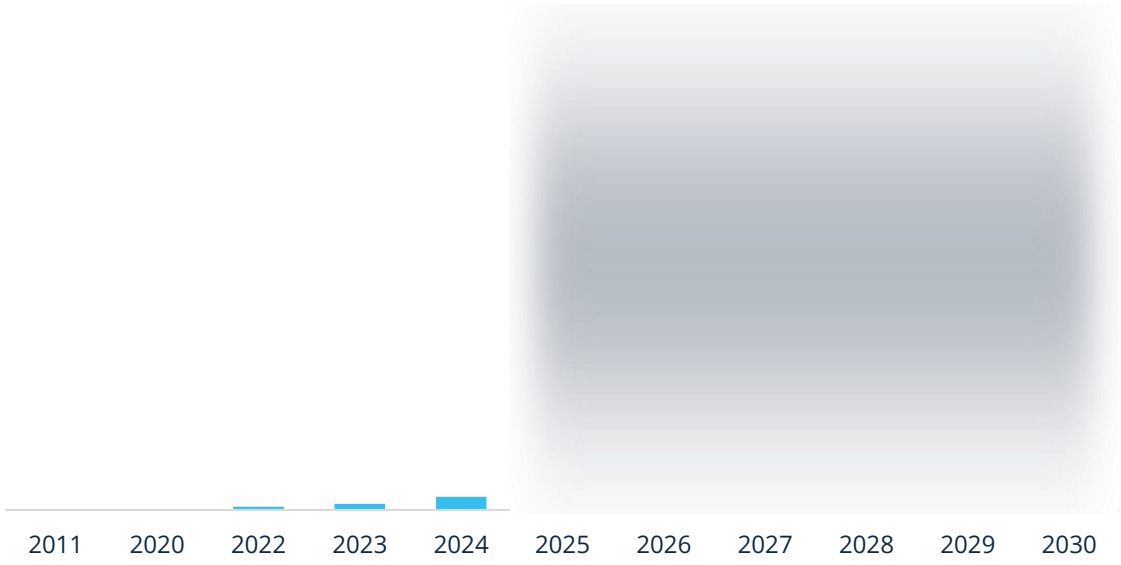
- Biomethanol capacity continues to rapidly accelerate 2H 2024 through 2028 with several projects expected to come online globally.
- Approximately [redacted] of the facilities are located within [redacted]
- Biomethanol usage under Europe's Renewable Energy directive competes with other biofuels and cost of biotickets.
- Several different feedstocks are utilized with waste-based biomethane (5), biomass (3) and biomass + electrolyser (3) most prevalent.

- Prominent challenges for biomethanol production include biomass supply, storage and transport and production continuity. Additionally, the amount of CAPEX, OPEX and conversion efficiency warrant further improvement in process and production.
- Biomethanol is currently seeing demand in Europe's transportation sector as a blendstock for gasoline.
- UK is one of the largest consumers of biomethanol for gasoline blending due to its volumetric biofuel mandates.
- *Argus* expects that marine fuel segment will be the largest consumer of biomethanol in the longer term as GHG saving requirements increase.

**project included have surpassed the pre-feasibility stage*

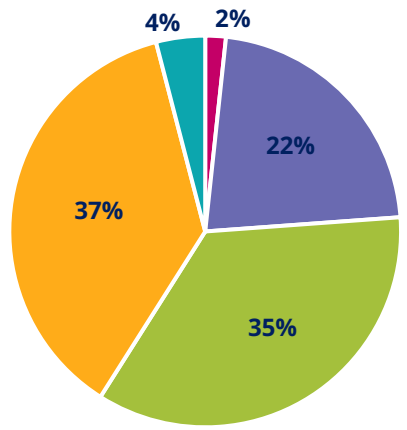
E-methanol

Cumulative E-methanol capacity*



- Argus Chemical, Argus Marine Fuels

2028 Capacity volume by region



- Argus Chemical, Argus Marine Fuels

- E-methanol growth intensifies in 2025, adding nearly [redacted] in capacity in a single year, increasing to over [redacted] t of capacity in 2030.
- Carbon intensity for e-methanol is very low and potentially net-carbon neutral depending on specific production pathways, making it an attractive pathway for emission reduction.
- Challenges for e-methanol include the high cost in obtaining green hydrogen, direct air capture (DAC) technology, and location.
- These hurdles have hindered many projects from reaching the FEED stage, rendering less than 5pc of projects as firm or under construction for 2024.
- Carbon Recycling International (China) and European Energy (Denmark) pave the way with their plants online and/or under construction. Market sentiment is hopeful that incoming regulations will help aid in e-methanol investments in the near future.
- Due to accelerated project development, it is likely that

**project included have surpassed the pre-feasibility stage*

North America

- The Inflation Reduction Act (IRA) signed in August 2022 mandates the US to reduce GHG emissions 40pc by 2030 in comparison to 2005 levels.
- 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.
- Introduces tax credits for SAF, extending previous biodiesel tax credits through the Clean Fuel Production Credit through 2027.
- Producers are currently awaiting IRS publication of rules and regulations on execution and exact qualifications to receive the following credits.
- There are important implications to consider leading up to the Presidential Election in November. If the presidential administration changes over, there could be attempts made to re-align and/or repurpose parts of the IRA, with all provisions, grants, credits and tax guidance being re-examined.

Inflation Reduction Act (IRA)

45Q

Credit for Carbon Oxide Sequestration

- Previous program expanded and extended seven years.
- Increases credits for permanently stored ($85/t) and used CO2 ($60/t).
  - Example – Fairway methanol's carbon capture of 180kton/year.
- Direct air capture (DAC) credits include $180/t for permanently stored and $140/t for 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)

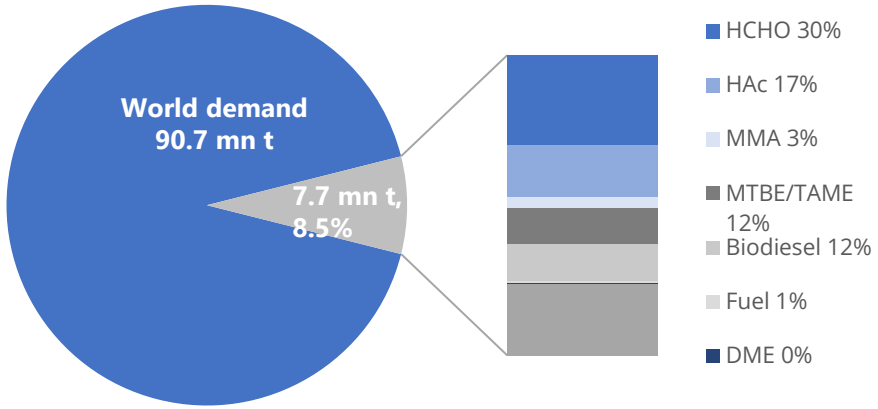
- Extends $1/USG biodiesel and $0.5/USG alternative fuel tax credits through 2024 with additional incentives for SA.
  - Example – OCI production of green methanol from renewable feedstocks, including renewable natural gas (RNG) and green hydrogen.
- SAF credits now $1.25-1.75/USG based on lifecycle 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 (discussed in future slides) may qualify for highest number of CFPCs due to very low carbon intensity scores.

North America Methanol Summary

The US dominates supply and demand, transitioning from a net importer of methanol in the last 10 years to a net exporter, from 2022 onward. Expansion plans continue, but some will be challenged.

North America methanol demand, 2023

mn t



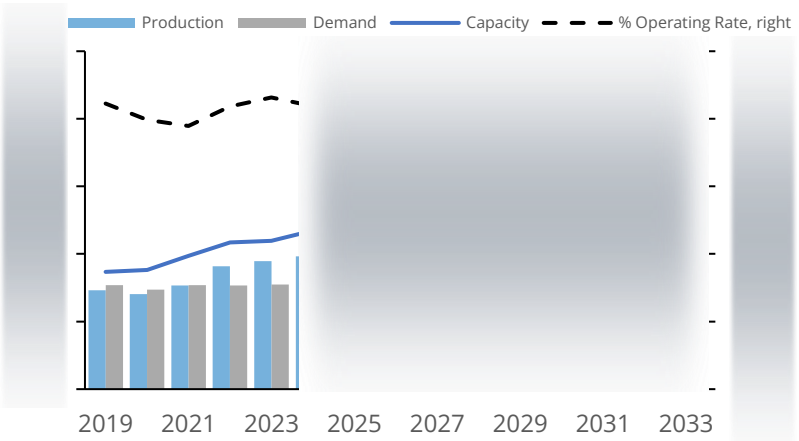
- HCHO 30%
- HAc 17%
- MMA 3%
- MTBE/TAME 12%
- Biodiesel 12%
- Fuel 1%
- DME 0%

In 2023, North America consumed [redacted] of methanol, of which the US was [redacted] This was essentially even with 2022 demand and only returning to 2019 levels—the downturn due to the Covid pandemic, major downtime in some derivatives and the economic downturn from the Russia-Ukraine conflict. North America methanol demand is now [redacted] Even combined with [redacted] these two regions account for [redacted] demand and [redacted] large appetite for methanol.

Historically, formaldehyde and acetic acid have dominated the regions' consumption and this is unlikely to change through the forecast period. MTBE and biodiesel have swapped third and fourth positions historically, but in the last couple of years improved MTBE production has solidified its third place slot. Still, the four account for [redacted] pc of the regions' methanol 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.

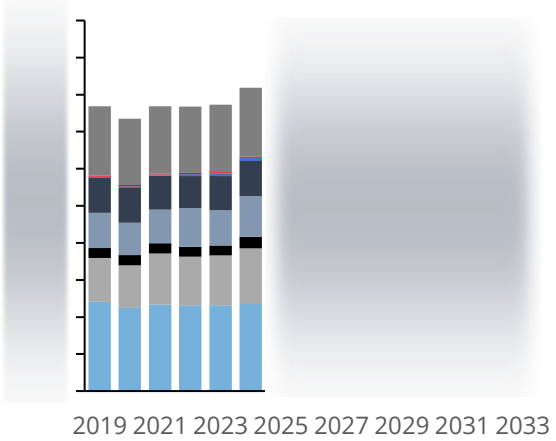
North America supply/demand

mn t



North America methanol demand

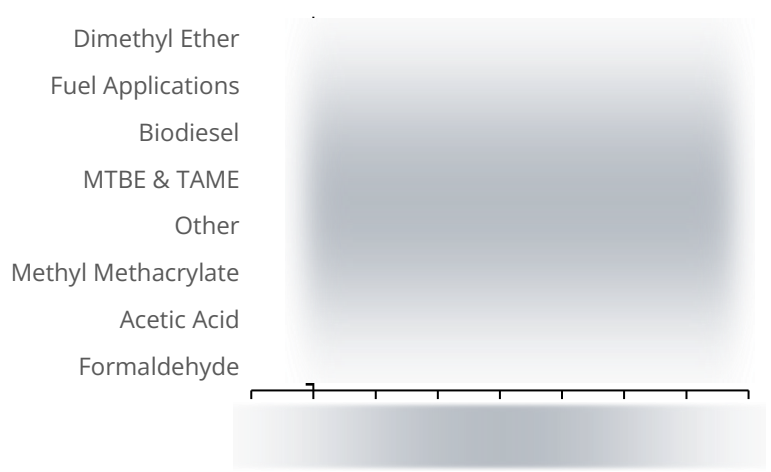
mn t



- All Other
- Merchant MTO/MTP
- Dimethyl Ether
- Fuel Applications
- Biodiesel
- MTBE & TAME
- Methyl Methacrylate

Derivative growth

CAGR %



North America Methanol Summary

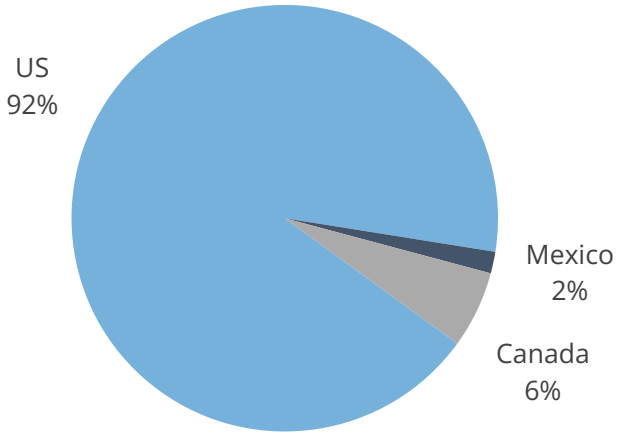
The US dominates supply and demand, transitioning from a net importer of methanol in the last ten years to a net exporter from 2022 onward. Expansion plans continue, but some will be challenged.

- Some 10 years 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 restarted, 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 further capacity expansion but challenged by mid-ranged natural gas prices and somewhat moderate price forecasts.
- The impact of world events and US government programs to move away from fossil fuels present issues as well. Further new US methanol capacity is expected in late 203, with several plans to build further capacity still under study. New (fossil-based) capacity will see challenge from the overall industry slowdown in demand, while "low-carbon" capacity has a far better chance as the world embraces the "low-carbon" direction.

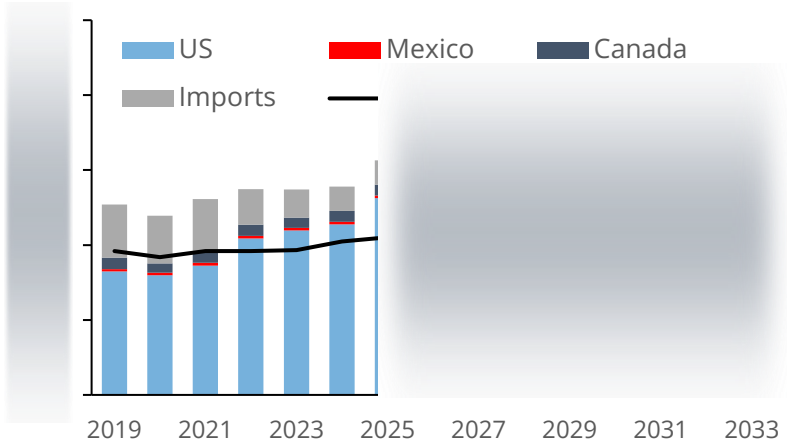
North America methanol producers, 2023 '000t

Location	Company	Coal	Natural Gas
Medicine Hat, Alberta, CAN	Methanex MH - 1		640
Texmelucan, MEX	PEMEX		180
Beaumont, TX, USA	Natgasoline LLC		1,650
	OCI North America		1,030
Channelview, TX, USA	LyondellBasell		780
Clear Lake, TX, USA	Fairway LLC		1,500
Deer Park, TX, USA	Millennium (LyondellBasell)		680
Geismar, LA, USA	Methanex - Geismar 1		1,100
	Methanex - Geismar 2		1,100
	Praxair		45
Kingsport, TN, USA	Eastman	195	
Oregon, OH, USA	Alpont LLC		85
Pampa, TX, USA	Pampa Fuels LLC		65
St. James Parish, LA, USA	Koch Methanol One		800
Institute, WV, USA	US Methanol		200
Total by source		**195**	**9,855**
	North America Total		**10,050**

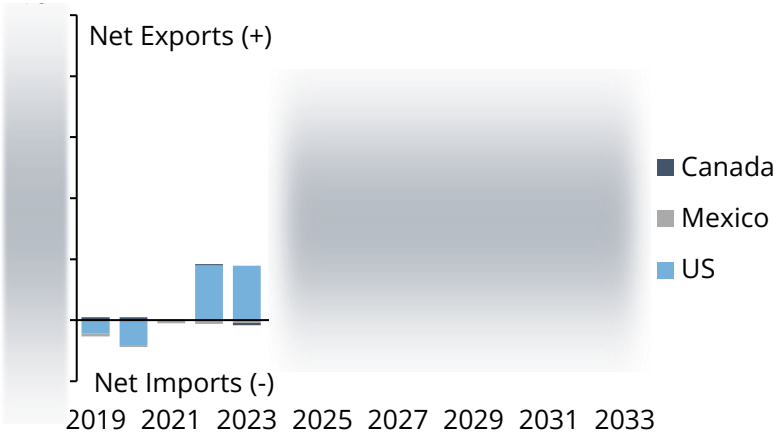
North America methanol producers, 2023

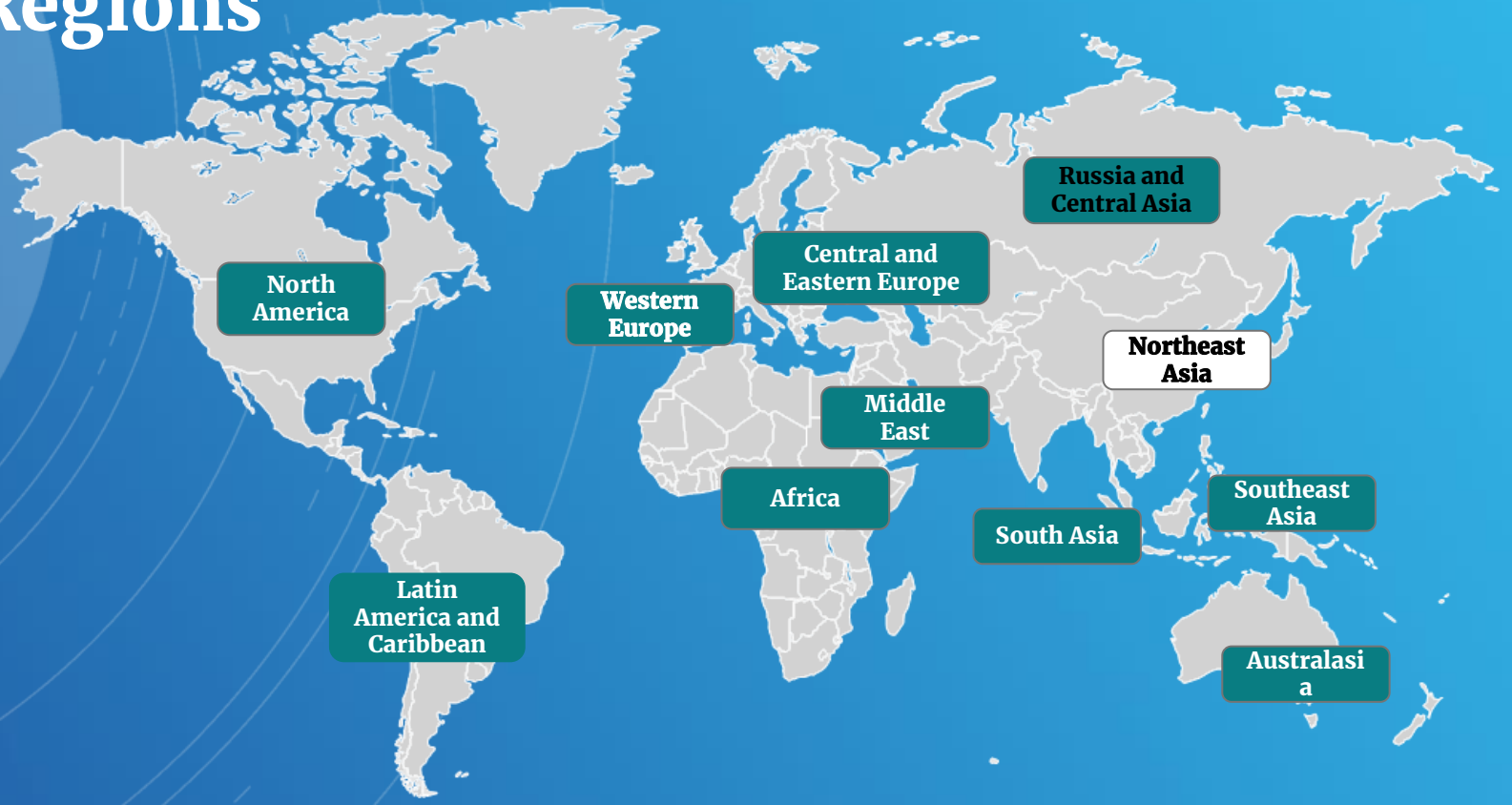


North America supply mn t



North America trade flows mn t

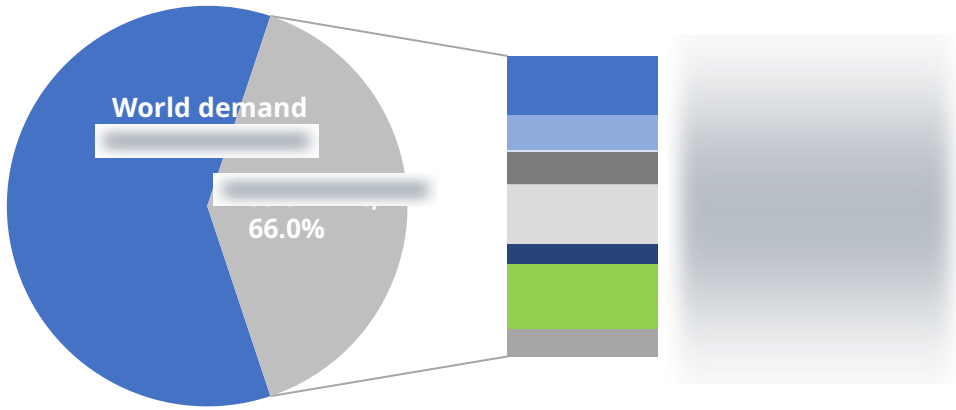




Northeast Asia Methanol Summary

Methanol demand is very diverse and growing but slowed. The region constitutes of world methanol demand but regional growth (y-o-y) the last five years to .

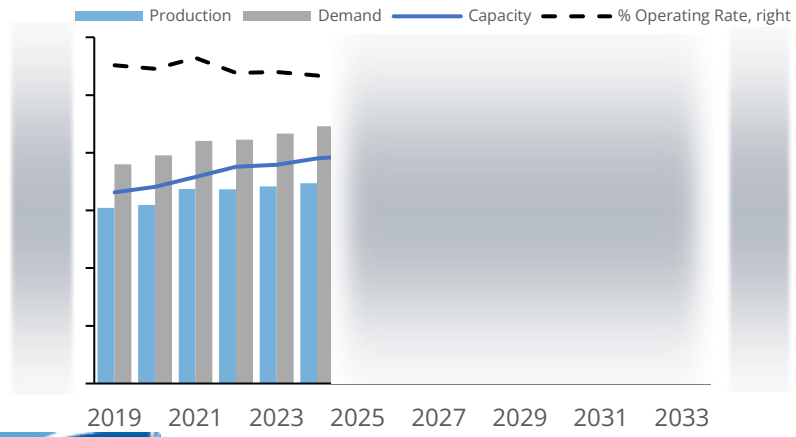
Northeast Asia demand, 2023 mn t



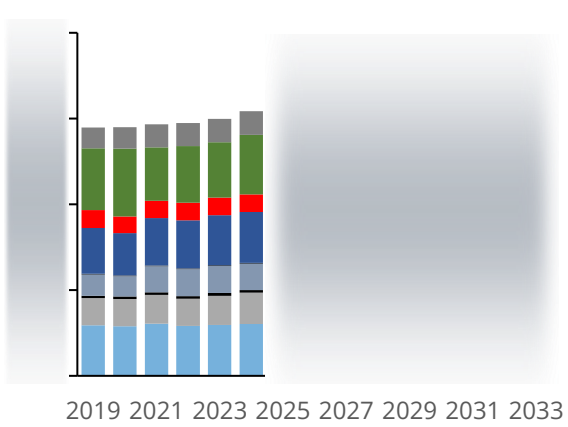
Methanol demand in northeast Asia, reached : of world demand in 2023 (almost t). Like Europe and North America, the 2020 Covid pandemic slowdown resulted in essentially no growth in overall demand in the region, with China's better demand offsetting losses elsewhere. China was less impacted by the turndown as growing methanol-into-gasoline blending, fuel substitution and higher than expected MTO production offset losses seen from the traditional derivative sectors across the region. However, no country escaped the negative impact of 2020-2021 Covid-19 pandemic, only to be further negatively impacted by the ongoing Russia-Ukraine conflict.

For the region in total, methanol derivative, but has now respectively, of the region's methanol consumption. The bucket of is now a close while GDP-driven sectors account for about in total. Fuel applications – a mix of gasoline blending, boiler/cook stove fuel, biodiesel and DME combine to represent the largest grouping, accounting for as much as of total northeast Asia methanol demand.

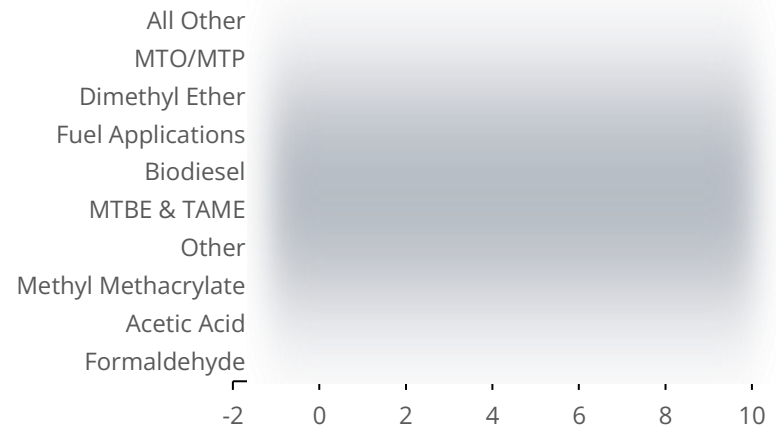
Northeast Asia supply/demand mn t



Northeast Asia methanol demand mn



Derivative growth CAGR %

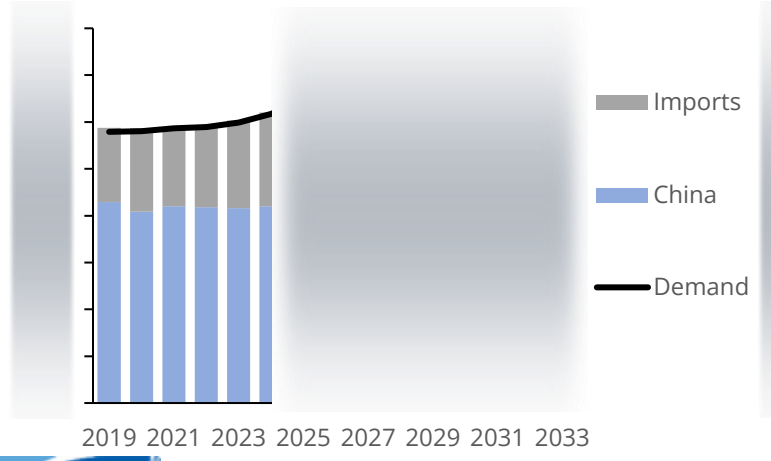


Northeast Asia Methanol Summary

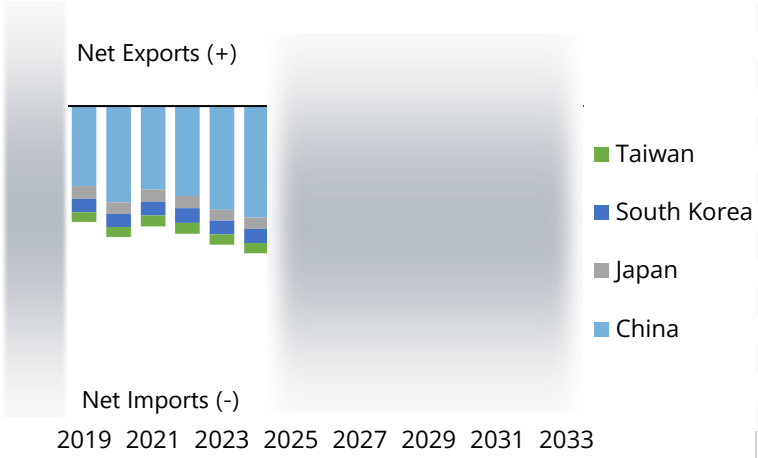
China dominates the world and region's methanol demand and is the lone producer in the region. China accounts for [redacted] of world methanol demand and [redacted] of methanol industry production in 2023.

- Argus studies exclude CTO/CTP as this methanol produced is assumed to be 100pc captive for the production of olefins and has no supply/demand impact on the merchant methanol industry. This difference in assumptions can lead to very different views of methanol industry supply and demand, but both equally valid.
- As now well seen, [redacted]
- Across more than 10 years' time, China's appetite for methanol into gasoline blending, other fuel uses and methanol-to-olefins/methanol-to-propylene redefined the methanol industry. MTO production is [redacted]
- China has become the clearing house for the industry, as incremental consumption and production often dictates the incremental price for methanol, influencing prices across the rest of the world.

Northeast Asia supply *mn t*



Northeast Asia trade flows *mn t*



Northeast Asia (China) methanol producers, 2023 '000t

Province	Natural Gas	Heavy Liquids	Coal	Coking Gas
Anhui			2,030	900
Chongqing	300		1,270	
Dalian			500	
Fujian			300	
Gansu	200		700	
Guangxi			1,840	
Guizhou			1,200	
Hainan	1,400			
Hebei	55	250	825	1,720
Heilongjiang	200		510	1,180
Henan	170		4,925	100
Hubei	200		990	
Hunan	120		190	
Inner Mongolia	1,550		9,850	1,600
Jiangsu			1,855	600
Jiangxi			600	
Jilin				125
Liaoning	50		30	
Ningxia			1,300	540
Qinghai	1,700			
Shaanxi	100		5,000	1,350
Shandong	50		7,630	2,830
Shanghai			810	
Shanxi			3,240	4,400
Sichuan	1,720		290	140
Tianjin			500	
Xinjiang	680		3,150	600
Yunnan			720	200
Zhejiang			550	
Total by source	**8,495**	**250**	**50,805**	**16,285**
		Northeast Asia Total		**75,835**

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:

> Find out more

Contact us

dave.mccaskill@argusmedia.com

Dave McCaskill

Vice President Global Methanol and Derivatives

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.

roel.salazar@argusmedia.com

Roel Salazar

Lead Consultant, Fuels and Octanes

Roel Salazar is the Lead Consultant for Fuels and Octane for *Argus*. Roel is responsible for covering the US and Latin American MTBE markets and the weekly Fuels & Octane Report. Roel is also instrumental in preparing the global Fuels and Oxygenates Annual. Roel joined *Argus* in 2005 as an Olefins Analyst and joined the Fuels and Octane team in 2011. His petrochemical experience includes working at one of Mobil's ethylene crackers in Houston between 1996-97. He holds an undergraduate degree in Information Systems from the University of Houston.

becky.zhang@argusmedia.com

Becky Zhang

Editor, Olefins and Methanol

Becky works as an editor for Asian olefins and methanol markets. She has 10 years experience of real-time market editor work. She also spent two years in consulting services as a project manager focusing on the Chinese market and led projects in various industries, including refining, olefins, polymers, coal and methanol. Becky is a chemical engineering graduate from the East China University of Science and Technology and has two masters' degrees, in environmental and energy engineering from the University of Sheffield and in Entrepreneurship from the University of Nottingham.

victoria.baghdjian@argusmedia.com

Victoria Baghdjian

Head of European Methanol

Victoria Baghdjian joined *Argus* in 2020 and is Head of the European Methanol markets. She contributes to benchmark spot price assessments, as well as supply and demand analytics for the *Argus Methanol* and *Argus Fuels and Octanes* services. Victoria has more than 10 years of experience covering the methanol and fuel octanes markets, in various pricing and consulting roles at *Platts* and *IHS Markit*. She holds MA and MPhil degrees from Trinity College, University of Cambridge.

cassidy.staggers@argusmedia.com

Cassidy Staggers

Analyst, Polymers and Methanol

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

Appendix: Methanol Analytics Methodology

Period presented
The annual period for this study is the historical years 2019 through 2023, and forecast data for 2043 through 2033, inclusive.

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

Weights, currencies and percentages
Unless explicitly stated, all weights are given in metric 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.

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

ISSN: 2399-9454

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