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METHANOL

AN ESSENTIAL ACTOR OF THE ENERGY TRANSITION IN THE EU

*Methanol Institute's Manifesto
for the 2024 European elections*



Methanol Institute

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MAKING EUROPE THE FIRST CLIMATE-NEUTRAL CONTINENT IN THE WORLD

Following the European elections in June, the upcoming Commission and Parliament will have the responsibility to maintaining momentum on the most challenging issue of our century: climate change. As a global emergency that transcends national borders, 195 Parties (194 states & the European Union) signed the Paris Agreement in 2016, aiming to limit global warming to 1.5°C.

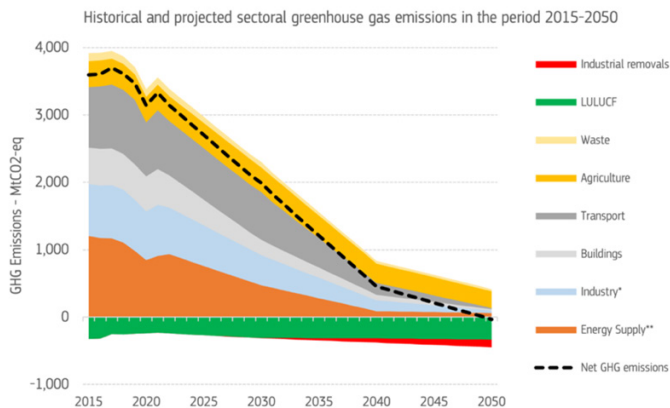
Since 2019 and the inception of the von der Leyen Commission, the European Union has been taking a leading role on the path to a climate-neutral world.

Following the Green Deal, which established a target of carbon neutrality in the EU by 2050, the 'Fit for 55' legislation has been fully adopted, setting the EU on a path to reach its climate

targets by 2030 in a fair, cost effective and competitive manner. Major agreements have been reached to achieve these targets: the Emissions Trading System (ETS), a revision of the Renewable Energy Directive (RED III), the ReFuelEU Aviation, the FuelEU Maritime, the Net-Zero Industry Act (NZIA). More recently, a new target has even been proposed through a Communication from the Commission: the 2040 Target that aims to achieve a 90% reduction in greenhouse gas emissions by 2040, compared to 1990 levels.

The Methanol Institute has been very active and supportive of these advancements by regularly publishing position papers and joining coalitions of stakeholders to promote the development of alternative fuels. Therefore, MI welcomes the new regulations that recognize methanol as an alternative fuel.

Link to our European Policy resources: www.methanol.org/policy-initiatives/europe



Greenhouse gas emissions in tons of CO₂ equivalent, per sector including industrial removals, land use, land-use change and forestry (LULUCF), waste, agriculture, buildings, transport, industry, energy supply, and net greenhouse gas emissions. Credit: European Commission.

As a promising low-carbon and net carbon-neutral chemical building block and energy resource, methanol has a major role to play in achieving these goals that will shape our future. This Manifesto highlights how the methanol industry can contribute to the EU's efforts to meet its commitments to achieve the 2040 and 2050 climate targets.

Throughout their new mandates, the Commission and the Parliament will have to continue these efforts by implementing the necessary measures to meet the objectives.

The energy transition of the EU includes, among others:

- Making transport sustainable for all.
- Revolutionizing the industry.
- Cleaning the energy system.
- Boosting global climate action.



THE METHANOL INSTITUTE'S KEY RECOMMENDATIONS FOR THE 2024-2029 EU LEGISLATIVE TERM INCLUDE:



1

A harmonized implementation of the RED III for fulfillment of climate ambition.

2

The introduction of sufficient and intelligible targets for Renewable Fuels of Non-Biological Origin (RFNBOs) and advanced biofuels, in line with the RED III.

3

The use of industrial CO₂ and the acknowledgement contribution of Carbon Capture and Utilization (CCU) irrespective of carbon source.

4

The recognition of the plurality of solutions capable of delivering GHG reduction targets.

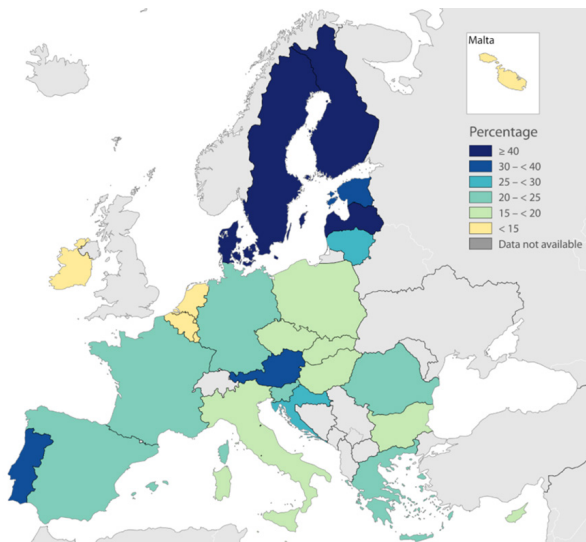


Methanol Institute

THE METHANOL INSTITUTE IS CALLING FOR:

1. A harmonized implementation of the RED III for fulfillment of climate ambition

The increase of the 32% target to at least 40% renewable energy sources in the EU's overall energy mix by 2030 under the revision of the Renewable Energy Directive (RED III) sends a clear signal to national governments and industry of the EU's commitment to addressing climate change. To ensure efficiency and consistency in the implementation of climate related policies and measures, the Methanol Institute is calling for **a harmonized approach across countries**. Thus, upcoming decisions should abandon national voluntary contributions and establish binding targets for Member states, providing adequate market certainty, predictability, and reliability. Additionally, existing tools must be developed in a cross-border manner to guarantee cost-effective application: monitoring plans, annual emission reports, verification reports, improvement reports. The policy instruments must be harmonized **to create predictable and stable market conditions to facilitate the energy transition**, to avoid market fragmentation. Consistency is poised to drive investment in renewable fuels, ensuring the necessary scale-up of their production.



Share of energy from renewable sources in the EU, 2022. Administrative boundaries: EuroGeographics, UN-FAO, Turkstat. Cartography: Eurostat – IMAGE, 01/2024.

Additionally, **it is important that the upcoming legislations remain consistent with other regulations and standards**, such as the Communication on Carbon Management Strategy. The Methanol Institute encourages policymakers to recognize the need to weigh the environmental performance of energy carriers against the same criteria, lifecycle analysis, and align policies across the entire value chain, while ensuring a level playing field among the Member States.

Finally, the Methanol Institute calls **for the recognition of imported biomethane and biomethane-based fuels, including biomethanol, within the Union Database (UDB)**. Biomethane-based fuels, compliant with stringent sustainability and GHG emission standards equivalent to those within the EU, are fundamental in our drive towards a greener future. Considering that restricting their recognition due to transport methods could discourage investments, diminish market attractiveness, and ultimately hamper our progress towards the 2040 climate goals as outlined in the Fit for 55 package, which cannot be achieved with domestic production alone, it is important to not create additional barriers.

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2. The introduction of sufficient and intelligible targets for Renewable Fuels of Non-Biological Origin (RFNBOs) and advanced biofuels, in line with the RED III

Renewable fuels of non-biological origin (RFNBOs) and advanced biofuels are meant to play a key role in the energy transition of both transport and industry. Their development under the future Commission, followed by their scale-up and mass deployment in the EU, will be a prominent factor in achieving climate targets.

The two Delegated Acts adopted by the Commission under Article 27(3) of the RED 2018/2001 define when energy carriers can be considered as RFNBOs, in addition to setting the methodology used to calculate GHG emissions savings from RFNBOs.

Moreover, since July 2023, e-fuels, including e-methanol, have been recognized as RFNBOs. The Renewable Energy Directive requires RFNBOs to reduce emissions by at least 70% compared to gasoline and diesel.

It is necessary **to set more ambitious targets of RFNBO obligations** to reach the climate objectives. The Methanol Institute welcomes the expansion of the transport sector to include aviation and maritime. While RED III mandates that RFNBOs must account for at least 42% of hydrogen used in the industrial sector by 2030, and at least 60% by 2035; in the transport sector, a binding combined sub-target of 5.5% by 2030 was set for the share of advanced biofuels and RFNBOs in the renewable energy supplied to the transport sector. Within this target, there is a minimum requirement of 1%-point of RFNBOs. Therefore, the RFNBO target was significantly reduced during the negotiations – down from 2.6% in the Commission’s proposal.

The Methanol Institute encourages the adoption of more ambitious RFNBO targets before 2030 to stimulate immediate investment. An increase of the sub-target, as well as an increase up to 5% of the overall target for RFNBOs in transport would help fulfill the target established by REPowerEU in 2022. Introducing an interim 2.6% target for the share of RFNBOs in transport by 2027, as outlined in the RED III, would serve to effectively spur the market ramp-up of RFNBOs.

The RFNBO mandate in transport still offers flexibility to obligated parties, as they may choose between different feedstocks and processes for RFNBO production. Additionally, a value for the use of RFNBOs in the end market is created, allowing the costs to be borne by the entire supply and production chain.

WHAT ARE RFNBOs?

THIS TERM ENCOMPASSES ALL GASEOUS AND LIQUID RENEWABLE FUELS THAT DO NOT RELY ON BIOMASS.

The main technology to produce them is the use of electrolysis powered by renewable electricity to produce hydrogen. This hydrogen can be combined with carbon to produce various synthetic hydrocarbons, including e-methanol.



3. The use of industrial CO₂ and the acknowledgement contribution of Carbon Capture and Utilization (CCU) irrespective of carbon source

The Methanol Institute is calling for a broader recognition of different sources of captured carbon feedstock for fuel production as contributors to GHG reduction in transport.

In this regard, the Methanol Institute calls for a substantial amendment to the delegated regulation mentioned in Article 29a of the Commission's proposal. This amendment should mandate the acknowledgement of all sources of captured carbon as essential contributors to reducing greenhouse gas emissions in the transport sector, thus affirming Europe's commitment to ambitious climate goals.

This approach, supported by the strategic use of carbon dioxide emitted from industrial facilities, not only promotes a net reduction in carbon emissions but also supports competitiveness between new renewable fuels and fossil fuels. This is indispensable for accelerating the energy transition and ensuring the decarbonization of vital sectors for our future.

Given the climate urgency, the Methanol Institute also advocates

for the consideration of the inevitable use of industrial CO₂ post-2041, in the context of the EU Industrial Carbon Management Strategy and the 2040 climate targets. We stress the importance of allowing the use of industrial carbon under strict regulation until 2041. After this deadline, a transition to the exclusive exploitation of captured carbon from renewable sources should be implemented.

Moreover, it is imperative that future decisions ensure uniformity in the methods for evaluating fuel sustainability among all Member States, based on life-cycle assessment in accordance with EU sustainability standards.

The adoption of the Net-Zero Industry Act, recognizing CO₂ transport and utilization as carbon-neutral technologies, should be encouraged. The Methanol Institute calls on the future European Commission and Member States to demonstrate strong leadership by providing administrative and financial support for these initiatives, which are essential for achieving Europe's goals in climate and sustainable development.

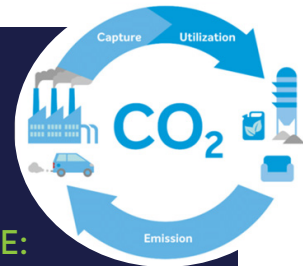
Link to our Open Letter: www.methanol.org/wp-content/uploads/2024/03/Joint-Letter-DA-RFNBO-CCU.pdf

ABOUT CARBON CAPTURE AND UTILIZATION (CCU):

CCU products will play a key role in replacing fossil-based products in the industry and transport sectors. Some CCU technologies are already deployed while others will achieve commercial production before 2030. A combination of domestic production of CCU fuels and chemicals and limited imports will strengthen the EU's energy sovereignty.

ACCORDING TO THE EXPERT VISION SCENARIO OF CO₂ VALUE EUROPE:

- CCU fuels will answer more than half of the fuel demand by 2050, representing about 17.5% of the total EU energy demand by that year.
- The domestic production of CCU fuels and chemicals for the transport and industry sectors will require up to 1187 TWh of low-carbon electricity in 2050.
- Despite the need for some imports of CCU fuels and H₂ to answer the demand for non-fossil carbon feedstock in the EU, CCU fuels, together with renewable energy developments and electrification will therefore help strengthen EU energy sovereignty and decrease the import of primary energy from 60% (today) to 10% (by mid-century).



4. The recognition of the plurality of solutions capable of delivering GHG reduction targets.



Effectively addressing climate change requires a plurality of solutions because the challenges it presents are multifaceted, touching on energy, agriculture, transportation and more. **As no single solution can tackle all aspects of the problem, we encourage EU authorities to adopt diverse, technology neutral strategies, enhancing resilience and adaptability in the face of evolving climate threats.** As such, Methanol Institute recommends a results-oriented approach to climate policy development, favoring policy outcomes over the selection of specific routes to achieve said outcomes.

In effect, **this means enabling the wide-ranging emission reduction technologies available today through legislation, delivering the contribution of sustainable fuel blends to a greater extent, unlocking the GHG reduction potential of existing low-carbon energy carriers, and facilitating alternative fuel imports.** Practicing technology-neutrality, the Methanol Institute believes we can ensure a more flexible, inclusive, and effective transition to sustainable value chains.

The recognition of the plurality of solutions capable of delivering GHG reductions also comes with evaluating the environmental performance of fuels across mobility segments against the same benchmark, which considers emissions across the entire life cycle. This would serve to provide a complete picture of the environmental performance of a given climate solution, ensuring the authenticity of sustainability claims, and eliminating false impressions of climate progress.



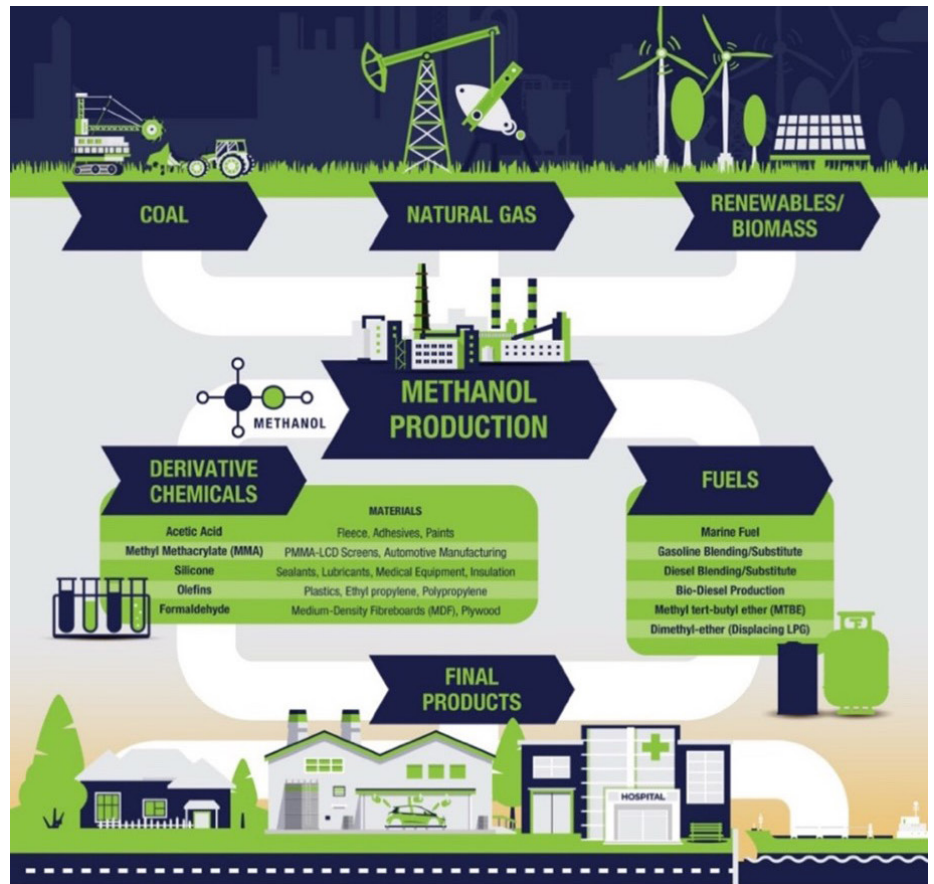
WHAT IS METHANOL?

Methanol is a clear liquid chemical used in thousands of everyday products, including plastics, paints, cosmetics, and fuels. Methanol is also an energy resource used in the marine, automotive, and electricity sectors and **an emerging renewable energy resource**.

Methanol (CH_3OH) is water-soluble and readily biodegradable, comprising four parts hydrogen, one part oxygen, and one part carbon, and is the simplest member of a group of organic chemicals called alcohols. Methanol is a clean-burning, biodegradable fuel. Increasingly, **methanol's environmental and economic advantages make it an attractive alternative fuel for powering vehicles and ships, cooking food, and heating homes**.

Typically, methanol is produced with natural gas. However, with increasing interest in sustainability, methanol has proven versatile in its production pathways (e. g. low-carbon methanol). More and more projects are utilizing renewable feedstocks such as agricultural waste, Municipal Solid Waste (MSW), sewage, renewable electricity, and captured CO_2 .

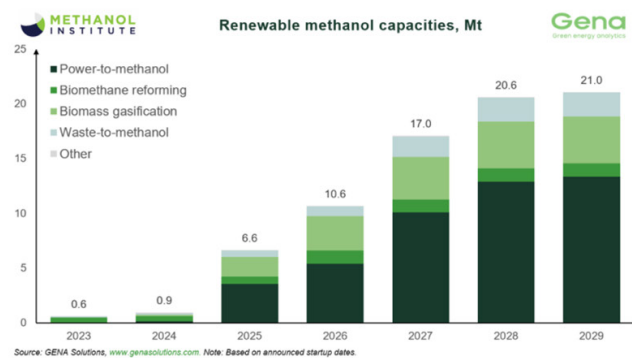
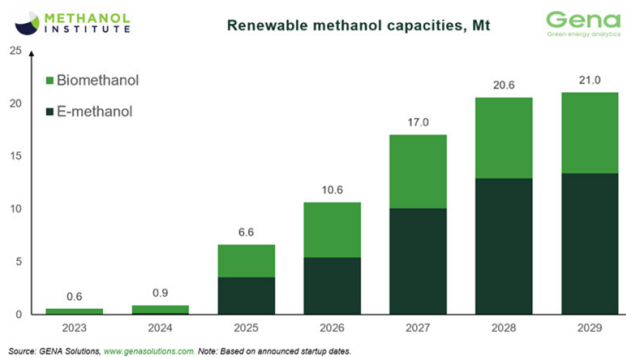
Methanol production with renewable feedstocks significantly reduces greenhouse gas intensity and contributes to the energy transition in end-user markets. Sustainably produced methanol is also being utilized as an alternative drop-in fuel in shipping, road transport, and power generation to lower overall emissions and impact on the environment, as well as blended fuels.



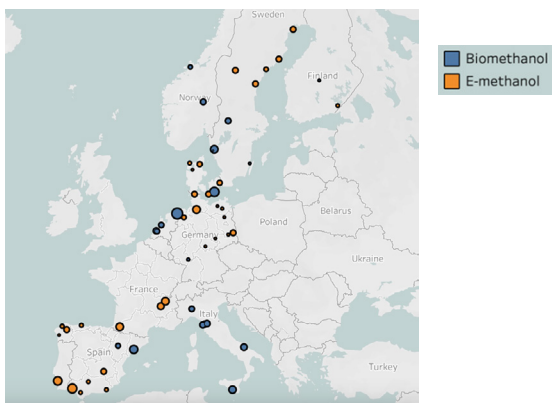
RENEWABLE METHANOL TO ACHIEVE THE EU'S CLIMATE TARGETS

Compared to conventional fuels, renewable methanol cuts carbon dioxide emissions by up to 95%, reduces nitrogen oxide emissions by up to 80%, and eliminates sulfur oxide and particulate matter emissions. It is an ultra-low carbon chemical produced from sustainable biomass, often called bio-methanol, or from carbon dioxide and hydrogen produced from renewable electricity.

After a partnership with GENA Solutions, we have identified 139 renewable methanol projects globally, with a total capacity of 17 million metric tons by 2027 and 21 million tons by 2029. Projected capacities for e-methanol are expected to reach 10.1 million tons by 2027 and 13.3 million tons by 2029, while biomethanol could see increases to 6.9 and 7.7 million tons respectively during the same periods.



The European Union and China are the worldwide leaders in low-carbon methanol production. Overview of the e-methanol and biomethanol plants in the EU:



Map realized by the Methanol Institute & GENA Green Energy Analytics.

METHANOL INSTITUTE CEO, GREG DOLAN:



Just two years ago, we were tracking 80 projects with total announced production capacity of 8 million metric tons by 2027. Now, there are more than 130 projects in our joint database with GENA, topping 16 million metric tons in 2027, and 19.5 million tons by 2028.

If we add low carbon methanol projects, the total rises to nearly 24 million metric tons. Methanol will play a prominent role in the low carbon transition for hard to abate sectors like shipping, aviation, and chemicals.





THE METHANOL INSTITUTE (MI)

FOUNDED IN 1989

The Methanol Institute (MI) serves as the trade association for the global methanol industry, representing the world's leading producers, distributors, shippers, and technology companies. MI now represents its members from five offices around the world in Singapore, Washington DC, Beijing, Brussels, and Delhi.

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