Regulatory Enablers for accelerating Green Methanol

Policy Roadmap for Export-Oriented Projects with Domestic Integration

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H2Uppp
International Hydrogen Ramp-up Program

ReNew

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The International Hydrogen Ramp-up Programme (H2Uppp) of the German Federal Ministry for Economic Affairs and Energy (BMWE) promotes projects and market development for green hydrogen in selected developing and emerging countries as part of the National Hydrogen Strategy.

New Delhi, November 2025

Glossary 4
About H2Uppp 5
About ReNew 5
Executive Summary 6
1 Introduction 7
2 Regulatory Landscape and Strategic Challenges for Green Methanol 8
2.1 Regulatory Uncertainties Related Policy Measures 8
2.2 Demand Creation Related Policy Measures 10
2.3 Execution Related Policy Measures 11
2.4 Competitiveness & other Policy Measures 11
3 Key Suggestions 13
4 Conclusion 16

Glossary

CCTS	Carbon Credit Trading Scheme
CERC	Central Electricity Regulatory Commission
CfD	Contracts for Difference
COD	Commercial Operations Date
DAC	Direct Air Capture
EC	Environmental Clearance
EHVAC	Extra High Voltage Alternating Current
EJ	Exajoules
e-SAF	electro-Sustainable Aviational Fuel
EU	European Union
FSR	Foreign Subsidy Regulation
GA	Green Ammonia
GH	Green Hydrogen
GM	Green Methanol
HVDC	High Voltage Direct Current
IMO	International Maritime Organisation
IPR	Industrial Policy Resolution
LCOM	Levelized Cost of Green Methanol
MMTPA	Million metric tons per annum
MPA Singapore	Maritime & Port Authority Of Singapore
MTJ	Methanol to Jet
RE	Renewable Energy
RED	Renewable Energy Directive
ROW	Right of Way
RTU	Right to Use
STU	State Transmission Charges
SIGHT	Strategic Interventions for Green Hydrogen Transition

About H2Uppp

The International Hydrogen Ramp-up Programme (H2Uppp) accompanies and supports efforts to ramp up the market for green hydrogen (H2) and Power-to-X (PtX) applications in India. The programme has been commissioned by the German Federal Ministry for Economic Affairs and Energy (BMWE). Unlike other hydrogen support initiatives, H2Uppp focuses on the early stages of green hydrogen project development. Green ammonia production has been identified as one of the first applications of green hydrogen to become commercially viable. The Public-Private-Partnership (PPP) projects address specific questions along the GH2 value chain to analyse bottlenecks in project and business model development of replicable project concepts. In the PPPs, private and public partners contribute their strengths in a formalised partnership to develop the market for GH2/PtX technologies and applications along the value chain. GIZ is the public partner and contributes technical expertise, its structures and networking on the ground to the projects. This feasibility study and location assessment for green ammonia production in India shall enable the development of this promising market segment in India.

About ReNew

ReNew Private Limited (RPL) is a leading decarbonization solutions company and is one of the largest utility-scale renewable energy solutions providers in India in terms of total commissioned capacity. Established in 2011, ReNew has a total balanced portfolio of more than 15.6 GW, including 10+ GW of operational capacity. ReNew E-Fuels Private Limited is a Special Purpose Vehicle (SPV) established by ReNew to develop and commission green hydrogen manufacturing projects in India. ReNew is currently developing several green ammonia and green methanol projects. These are at various stages of development.

Executive Summary

Green Methanol (GM) is emerging as a critical enabler in the global transition towards sustainable energy, offering a versatile solution for decarbonizing hard-to-abate sectors such as shipping, aviation, chemicals, and heavy industry etc. India, with its abundant renewable energy resources and strategic geographic location, is well- positioned to become a global hub for Green Methanol production and export.

The regulatory and policy landscape for Green Methanol remains at an early stage of development. While the National Green Hydrogen Mission has established an important foundation for green fuels, specific mandates, incentives, and infrastructure support for Green Methanol are still evolving. International frameworks, particularly those of the European Union (EU), introduce additional considerations, such as restrictions on industrial CO_2 usage beyond 2041. In this context, it will be important for the Government of India and relevant stakeholders to engage with the EU to explore:

- how Indian subsidies can be aligned with foreign subsidy regulations,
- recognition of the Indian Carbon Credit Trading Scheme under EU RED III, and
- collaboration with the International Maritime Organization (IMO) to support the adoption of net zero pathways.

This whitepaper highlights key regulatory considerations for developing an export oriented Green Methanol ecosystem in India. While important enablers, such as policy clarity, infrastructure readiness and cross sectoral coordination, remain areas of ongoing work, there are also significant opportunities to accelerate adoption through targeted interventions and strategic alignment. The paper examines how these factors may influence project commercial viability and investment confidence. It further offers recommendations for Indian policymakers, EU counterparts, and industry stakeholders to support harmonized frameworks, encourage investment and advance deployment within the broader energy transition.

1 Introduction

The urgency to decarbonize global hard to abate sectors has led to a surge in interest around green fuels—those derived from renewable energy sources and capable of replacing fossil-based alternatives. Among these green fuels, Green Methanol (GM) stands out due to its versatility, scalability, and compatibility with existing infrastructure. It can be used as a fuel, feedstock, or energy carrier across sectors such as:

- Shipping (as a marine fuel)
- Aviation (via e-SAF pathways)
- Chemicals (formaldehyde, plastics)

India's ambition to become a global leader in green energy is reflected in its National Green Hydrogen Mission, which promotes hydrogen and its derivatives. Green Ammonia and Green Hydrogen have achieved significant attention in terms of policy and bids in domestic as well as global market. Green Methanol being a hydrogen derivative would require the same level of attention as of Green Ammonia and Green Hydrogen under SIGHT Mode-2A and 2B.

In Europe, sustainability criteria are tightening under frameworks such as RED III (RFNBO), ReFuelEU Maritime regulation and ReFuelEU Aviation regulation. Beyond the EU, other regions are also advancing green methanol, such as South Korea proposed a $610 million [1]Green Marine Fuel Infrastructure Fund and strategic partnerships (e.g., Korea-Europe Green Shipping Corridor) aim to make methanol a key marine fuel

The development of an export-oriented Green Methanol (GM) project globally as well as in India faces multiple challenges:

- Delay in legislation demand IMO mandates and incentives Globally as well as in India
- Lack of adequate Infrastructure (e.g., bunkering, Storage etc. at Indian Ports
- Adequate clarity on Regulations in international markets
- Limited recognition of Indian carbon pricing mechanisms
- Lack of Environmental clearance waivers for Green Methanol and harmonization at state levels in Indian Context

This whitepaper aims to provide a structured analysis of these challenges, backed by policy insights and stakeholder perspectives. It offers a roadmap for aligning domestic and international regulations, enabling India to unlock its full potential in the Green Methanol value chain.

[1] https://mfame.guru/south-korea-launches-green-marine-fuel-infrastructure-fund/

2 Regulatory Landscape and Strategic Challenges for Green Methanol

India's potential to emerge as a global hub for Green Methanol (GM) hinges on a robust and coherent policy and regulatory ecosystem. However, a series of interconnected enablers—spanning global mandates, infrastructure, international compliances, and feedstock reliability—pose significant challenges. To provide clarity and structure, these issues are grouped across four Key categories:

Regulatory Uncertainties	Demand Creation Related Policy	Execution Related Policy	Competitiveness & Others
RED II limits use of industrial CO_2	Mandates for Consumption of GM	Environment Clearance for Green Methanol	Recognition of Indian Carbon Credit Trading Scheme (CCTS)
Single Bidding Zone	Non-adequate bunkering Infra	ASTM Approval Delay for MTJ Pathway	Exclusion of Green Methanol in State IPRs
EU Foreign Subsidy Regulation (FSR)	Long Term Offtake Contracts	Support for RTU/ROW for Pipelines	Biogenic CO2 Supply Risk
Lack of Clarity on Indian Incentives as			

2.1 Regulatory Uncertainties Related Policy Measures

2.1.1 RED II limits use of Industrial CO_2 Emissions post 2041

The EU's RED II directive restricts industrial CO_2 use in renewable fuel of non- biological production after 2041, affecting project commercial viability. Although RED II allows usage of direct air capture (DAC) technology for extraction of CO_2 from atmosphere for production of Green Methanol, however, DAC technology is not mature yet.

Implications:

This restriction will increase production costs and risks project commercial viability; thus, it may dampen the demand. It may result in only a few projects being commercially feasible which have access to eligible CO_2 sources and may undermining global decarbonization goals. Further, availability of biogenic CO_2 is limited for production of e-methanol and e-SAF and may not be suffice to meet the global demand of e methanol and e-SAF.

According to the Mærsk Mc-Kinney Møller Center for Zero Carbon Shipping, the global supply of biogenic CO_2 suitable for e-fuel production is estimated at 320–370 million tons per year, concentrated mainly in Europe and the Americas. Even if 20% of this supply were utilized, it would enable production of only ~1 EJ of e-fuel annually (equivalent to ~ 45 million ton of methanol), enough to decarbonize 8% of the global shipping fleet—far short of full sector decarbonization targets. [2]

In contrast, the global CO_2 demand is estimated to reach 6,076 Mt, with approximately 2,179 Mt allocated to produce synthetic fuel by 2050. This stark mismatch underscores that biogenic CO_2 alone cannot meet global e-methanol and e-SAF demand, making industrial CO_2 and Direct Air Capture (DAC) critical transitional sources. [3]

[2] https://www.zerocarbonshipping.com/publications/global-availability-of-biogenic-co2-and-implications-for-maritime-decarbonization

[3] https://ptx-hub.org/wp-content/uploads/2024/02/International-PtX-Hub_202402_Sustainability-Briefing-1_carbon-sources.pdf

These estimates indicate that **biogenic CO_2 availability can be a potential bottleneck**, and with regulatory flexibility to allow industrial CO_2 for a transitional period, global decarbonization goals for shipping and aviation can help achieving the decarbonization goal.

2.1.2 Single Bidding Zone

A single bidding zone ensures traceability of renewable electricity for compliance with EU Delegated Regulation (RFNBO). Bidding zones as defined in EU lead to lack of clarity or equivalent concept in 3rd countries in terms of complying with delegated regulation.

India has unified national grid wherein RE locations are seamlessly connected through central and state Grid networks. India operates a synchronously interconnected national grid, comprising multiple bidding zones (CERC Power Market Regulations, 2021). Even though the India's Grid is being divided into bid areas for market operations, it achieves more than 99.98% price convergence across these zones. Electricity is transferred across zones through high-capacity HVDC and EHVAC links enabling real-time balancing and national-level price uniformity which ensures India's Grid is effectively functioning as a single and unified power market.

RE plants sites are spread across India and far from GH or derivative fuels production sites which are located near to port for exports. Therefore, best RE resources in RE rich states are being used for production of green molecules which likely to leads to lower cost of production.

Implications:

EU's lack of formal recognition of India as a single bidding zone likely to increases the compliance costs. If India's National Grid is not considered as single biding zone, GH producer may not be able to set up RE Projects at best RE rich sites located in different states which will lead to higher levelized cost of Green Molecule

2.1.3 EU's Foreign Subsidy Regulation (FSR) as a Non-Tariff Barrier

Foreign subsidy regulations (FSR) determine foreign subsidy which may have distortive effect is applicable also under following conditions:

- A 3rd country provides direct/indirect financial contribution to specific undertakings /industries
- Subsidies availed by Group Companies/ Main contractors in last 3 years

European Commission shall evaluate whether subsides have distortive effects and impose redressive measure. FSR prevents market distortions from subsidies given by non-EU governments, ensuring fair competition within the EU. Indian Green Methanol projects face risks under FSR due to various government subsidies including capital and other incentives.

Implications:

India's Central and State governments are providing various incentives for production of GH & derivative fuels using RE power in order to promote the GH industry.

The subsidies (that are or had been granted in last couple of years) by State / Central governments on RE for production of Green Hydrogen & derivative fuel may fall under purview of FSR and hence there remains a risk of the same being considered as distortive measure under FSR. Also, even if a group company/ main contractor avails or had availed such subsidy, the same may also be considered. This could deter European offtakers' from engaging with Indian developers', creating a non-tariff barrier to trade and investment.

2.1.4 Lack of clarity of Indian Incentives as Operating Aid under RED

While India's Green Hydrogen policy at central level offers waivers on Central Transmission Charges for transmission of RE electricity for production of Green Hydrogen for projects commissioned before 2030 and thereafter graded waivers are being offered until year 2034, and few States are also very forthcoming such as State of Odisha offering waiver of State Transmission Charges (STU), electricity duty (ED) charges for 20 years etc.

In the EU, Renewable Energy Directives (RED), there is lack of clarity whether aforementioned benefits would qualify as "operating aid" on RE assets.

Implications:

This lack of clarity likely to affects the bankability of Indian Green Methanol projects aimed to cater to EU markets due to inconsistent interpretations. It may lead to uncertainty on availing the benefits offered by Central and State Govt. for production of green hydrogen & derivative fuels in compliance to EU RED.

2.2 Demand Creation Related Policy Measures

2.2.1 Mandates for Consumption of GM

Despite growing recognition of green methanol as a key decarbonization fuel, major economies have yet to introduce binding consumption mandates specifically for green methanol across sectors such as marine fuels, chemicals, etc. Chemical sectors are exploring green methanol for low-carbon feedstocks and Aviation sectors for production of e-SAF through Methanol-to-Jet technologies, but uptake is limited due to higher cost and can be enabled through regulatory push.

Further, under the National Green Hydrogen Mission, the Government of India has set target to achieve a green hydrogen production capacity of at least 5 million metric tons per annum (MMTPA) by 2030 and incentives under SIGHT program, enables reduction in cost of green hydrogen production. Under SIGHT Mode-2A and Mode-2B bidding guidelines, incentives have been made available for green hydrogen and ammonia which has resulted in discovery of very competitive prices globally but guideline pertaining to Green Methanol is yet to be issued under National Green Hydrogen Mission. Government of India may specify a minimum share of consumption of green methanol by designated consumers in phased manner such as Govt. may start with target of 5% usage of green methanol in chemicals, plastics, marine fuel, etc to promote demand for Green Methanol.

Implications:

Weak demand visibility discourages investments.

2.2.2 Lack of Adequate Bunkering Infrastructure

India is strategically positioned to serve global shipping with methanol bunkering services, but development yet to pick pace on this front in the country. India's ports yet to accelerate development of methanol bunkering facilities, in line with Singapore and port of Rotterdam wherein they have taken multiple initiatives for development of methanol bunkering facility. This will help positioning India better, to serve the global shipping industry's decarbonization needs.

Implications:

India has an opportunity to lead as frontrunner to serve this strategic opportunity to become a global bunkering hub, for Green Methanol in maritime decarbonization enabled through upcoming IMO mandates / guidelines. The emergence of Indian ports as Bunkering Services provider can accelerate Green Methanol demand and enable decarbonization of shipping industry.

2.2.3 Long-Term Offtake Contracts

Green Methanol projects require significant upfront investment. The lack of adequate institutional arrangements to secure long-term demand—such as binding offtake agreements—limits investor confidence. In contrast, sectors like renewable power have benefitted from long-term PPAs, which have provided revenue certainty and driven investment confidence. To unlock private investment, there is a need to establish structured demand assurance mechanisms, potentially through government-facilitated long-term offtake arrangements or aggregated demand platforms.

Implications:

Lack of long-term offtake contracts of minimum 15 years likely to push developers' to factor in demand uncertainty and financing risk, resulting in higher cost of capital and thereby higher Levelized Cost of Green Methanol (LCOM).

2.3 Execution Related Policy Measures

2.3.1 Environment Clearance (EC) Exemption for GH & Derivatives Projects

MOEFCC has recommended EC waiver for stand-alone green hydrogen (GH) / green ammonia (GA) projects via its Office Memorandum: F. No IA3-22/14/2023-IA.III[E 218163] dated 28.07.2023. Further, Govt. notification in Feb 2025 includes GA industry under Red category. Therefore, the EC waiver for Green Methanol and other Green Hydrogen derivative projects may be notified and it is also requested to exclude the GA industry from Red category.

Implications:

Environmental Clearance is a lengthy process and sometimes it may take considerably longer time for undertaking effective consultations and thereby may lead to delays during Permitting stage.

2.3.2 ASTM Approval for MTJ Pathway

Methanol to Jet (MTJ) pathway is being pursued by many GH Industry players for eSAF production. Presently ASTM is evaluating MTJ technology Since more than a year.

Implications:

Due to lack of visibility on ASTM approval, timeline for MTJ and investment plans on eSAF and e-methanol are difficult to finalize.

2.3.3 Support for RTU/ROW for pipelines

The Petroleum and Minerals Pipelines (Acquisition of Right of User in Land) Act, 1962 enables smooth and timely construction of pipelines to be laid for carrying hydrocarbons by providing regulatory support for acquisition of Right to Use (RTU) for the same. However, there is lack of clarity on whether under the Act, acquisition of Right to Use (RTU) for laying pipelines for carrying the Green Molecules such as Green Ammonia, Green Methanol and CO_2 is allowed.

Implications:

Delay in obtaining RTU/ROW likely to affect project completion timelines and likely to bring in lot of uncertainties for the project. Further, the cost of obtaining the RTU/ROW may substantially increase, thereby increase the levelized cost of green methanol.

2.4 Competitiveness & other Policy Measures

2.4.1 Recognition of Carbon Credit Trading Scheme (CCTS)

As per EU RFNBO regulations, any captured emissions from activities listed in Annex I to Directive 2003/87/EC, namely from industrial processes or from the combustion of non-sustainable fuels are allowed till 2041 (2036 for power plant emissions) to be used to produce renewable liquid and gaseous transport fuels of non-biological origin and recycled carbon fuels provided the same have been taken into account upstream through an effective carbon pricing.

It is thus understood that if Green Methanol is produced using captured Industrial CO_2 emissions, the CO_2 is subject to effective carbon pricing.

India announced launching of Carbon Credit Trading Scheme (CCTS) in 2023 for providing platform for discovery of CO_2 price and enabling the compliances of Industry (CMIA, 2023). Clarity is needed on whether the industrial CO_2 emissions captured from industrial units is allowed to be offset through carbon credits from Indian CCTS under effective carbon pricing.

Implications:

Current, CO_2 price at EU ETS is relatively very high (in range of ~ 60-80 Euro/Kg [4] of CO_2 and further may vary depending on market forces) and due to net zero target of Europe in year 2050, there may be surge of carbon credits prices at EU-ETS owing to substantial demand, while the carbon prices for similar quality credits on proposed Indian Exchange may be low due to extended net zero timelines of India in year 2070.

[4] https://icapcarbonaction.com/en/ets/eu-emissions-trading-system-eu-ets

Therefore, restriction of purchase of carbon credit only from EU-ETS likely to lead to increase in levelized cost of Green Methanol to European offtaker.

2.4.2 Consideration of Green Methanol from State-Level Industrial Policies

In state of Odisha where multiple GH/GA Projects are coming up owing to the attractive Industrial Policy Resolution (IPR) 2022 which identifies Green Hydrogen (GH) and Green Ammonia (GA) as Thrust Sectors and thereby make it eligible for capital subsidies, land incentives, transmission charges waiver, Electricity duties/taxes waiver and infrastructure support etc. However, Green Methanol (GM) is yet to be included in the IPR, despite its strategic relevance in green fuels and industrial decarbonization.

Implications:

Currently, Green Methanol (GM) projects may not be eligible for key benefits under Odisha IPR like Capital subsidies, concessions on electricity charges, Land at concessional rates, etc.

This may create a competitive disadvantage for GM developers vis-à-vis GH and GA, despite being part of the same hydrogen-based economy.

2.4.3 Biogenic CO_2 Supply Risk

A Green Methanol producer would depend critically upon biogenic CO_2 supplier operations. Alternatively, CO_2 supplier risk is very minimal and not providing adequate guarantee for ensuring continuous supply of biogenic CO_2 whereas the production of green methanol hinges on supply of biogenic CO_2.
Therefore, Lenders' may consider it huge risk to finance the Green Methanol Project as discontinuity of CO_2 would lead to stopping of green methanol production and affect the cashflows of developer, thereby, repayment to bankers.

Implications:

Discontinuity / disruption of CO_2 may jeopardize the huge investment associated with the Green Methanol Project, as securing a bankable Biogenic CO_2 sourcing contract remains challenging for the developers.

3 Key Suggestions

To unlock the full potential of Green Methanol (GM) and position India as a global leader in green fuel exports, a coordinated multi-stakeholder approach is essential. Different stakeholders—government bodies, industry players, certifying agencies, and international regulators—need to address their respective issues through targeted actions rather than acting collectively on all challenges. The following suggestions are tailored to specific enablers, supported by analogies and strategic rationale.

3.1 Request to the Government of India

3.1.1 Mandate on Green Methanol Usage in Shipping and other Key Sectors

The International Maritime Organization (IMO) has adopted a revised GHG Strategy that aims to reduce the total annual GHG emissions from international shipping by at least 70% while striving for 80%, by 2040, compared to 2008. This creates a strong international signal for national governments to define preferred pathways and support infrastructure and production. Just as ethanol blending mandates created a market for biofuels in India, a similar way mandate for GM in marine fuels, chemicals, plastics, and SAF may catalyze the demand.

Suggestive measures:

- Engaging dialogue with IMO to accelerate the adoption of IMO's Net-Zero Framework along with guidelines for implementing the Net Zero Framework
- Introduce sector-specific GM blending obligations for marine fuels and industrial applications.
- Support early adoption through incentives, infrastructure development, and certification frameworks.
- Development of Green shipping corridors on a bilateral basis

3.1.2 Development of Methanol Bunkering Infrastructure at Ports

Singapore's success as a bunkering hub stem from early infrastructure investment. India can replicate this by developing shared methanol bunkering facilities, reducing delivered costs and attracting global shipping lines.

Suggestive measures:

- Launch a port-led GM infrastructure initiative under Sagarmala or Gati Shakti.
- Develop shared GM bunkering and storage facilities at major ports to optimize delivered cost.

3.1.3 Seek EU Extension for Industrial CO_2 Usage

Industrial CO_2 is abundant and reliable, unlike biogenic CO_2 or DAC. Indian Govt. may like to take up dialogue for transitional window for usage of industrial CO_2 for minimum 15 years of lifetime of the project from commissioning of e-methanol plants getting commissioned before 2035 i.e until 2050. RED II directive issued in 2018 provides for usage Industrial CO_2 window for minimum 15 years for all project commissioned before 2025. Therefore, due to delay in adoption of green methanol, this window for allowing the usage of Industrial CO_2 shall be extended accordingly. Support joint Direct Air Capture (DAC) technology development and once DAC technology becomes mature and commercially viable, developers may transit from usage of industrial scale CO_2 to DAC.

Suggestive measures:

Engagement with EU regulators to allow industrial CO_2 for minimum 15 years until 2050 for projects commissioned before 2035 as transitional measure and supporting research & development for technical and commercial viability of DAC technology.

3.1.4 Clarify Incentive Classification with EU

India's Central Govt. and State Govt. is extending various incentives such as waiver of transmission waivers and various subsidies such as State Transmission charges waiver, electricity duty waiver, etc. which are critical enablers for optimizing the levelized cost of green methanol. If these are deemed "operating aid," developers may not be in the position to use aforementioned benefits and thereby EU offtakers' to bear higher cost of green molecule.

Suggestive measures:
MNRE is requested to prioritize the resolution of the issues with the European Commission to clarify operating aid classification and on treatment of incentives offered by Central and State Govt. of India for production of green hydrogen & derivative fuel.

3.1.5 Include GM in RTU/ROW Pipeline Regulations

Pipelines are the arteries of green molecule logistics. Inclusion will reduce project delays and costs. Inclusion of Green molecules such as Green Methanol, Captured CO_2, Green Ammonia including Green Hydrogen & derivatives as eligible minerals under Petroleum and Minerals Pipelines (Acquisition of Right of User in Land) Act, 1962 are important for enabling the smooth execution

Suggestive measures:
Request to MoPNG to make necessary enabling provision under the Petroleum and Minerals Pipelines Act for inclusion of Green Methanol, CO_2, Green Ammonia, Sustainable Aviation Fuel and other green hydrogen derivatives.

3.1.6 Extend Environment Clearance (EC) Waiver to Green Methanol Projects

MoEFCC's EC waiver for GH and GA projects should be enable for GM and other hydrogen derivatives, given similar production processes with end objective of decarbonization, otherwise, GM developers may face unnecessary delays.

Suggestive measures:
MOEFCC is requested to extend EC waiver to Green Methanol and other hydrogen derivatives Projects for accelerating the decarbonization initiatives.

3.1.7 Update State-Level Industrial Policies to Include GM

In India, Odisha state has been front runner for promotion of Green Hydrogen Projects. Odisha's Industrial Policy Resolution (IPR) 2022 supports Green Hydrogen and Green Ammonia but yet to explicitly include Green Methanol (GM) and other hydrogen derivatives fuel under Thrust Sector to ensure parity. The state-level industrial policy to be harmonized with national green energy strategies by explicitly including Green Methanol and other derivative fuels.

Suggestive measures:
Odisha State Govt, is requested to include Green Methanol and other hydrogen derivatives as strategic fuel under priority sector of IPR for making it explicitly eligible for State Govt. incentives.

3.1.8 Invest in Shared Infrastructure for GM Logistics

In line with solar parks developments which have reduced land and transmission costs, accelerated the project development and reduced the developer's risks through shared GM infrastructure (bunkering, pipelines, storage etc.) can help reduce the delivered costs and attract global buyers.

Suggestive measures:
Development of shared GM bunkering facilities (similar to MPA, Singapore) and storage facilities at ports, in order to optimize the delivered cost of Green Methanol.

3.1.9 Long-Term Offtake Contracts

Facilitate long-term offtake contracts of at least 20 years for Green Methanol, supported by government to create demand and enable project bankability.

Suggestive measures:

- Introduce a policy framework for GM offtake agreements, similar to renewable PPAs.
- Facilitate demand aggregation from sectors such as shipping, chemicals, and aviation.
- Introduce a Contracts for Difference (CfD) scheme to bridge the viability gap between green methanol production costs and market prices, thereby de-risking early investments for long term offtake contract of 20 years.

3. 2 Request to European Policymakers

3.2.1 Recognize Indian Carbon Credits Under Renewable Energy Directives (RED)

India is going to shortly operationalize Carbon Credit Trading Scheme (CCTS) for providing platform for discovery of CO_2 price and enabling the compliances of Industry (CMIA, 2023). India's CCTS may offer credible competitive pricing and Recognition from suitable EU authorities of India's CCTS as effective carbon pricing mechanism as specified in EU RED likely to provide an option to reduce the compliance costs and improve market access. Therefore, Industrial CO_2 may be allowed to offset through carbon credits from Indian CCTS under effective carbon pricing mechanism specified in RED.

Suggestive measures:

A dialogue between EU and Indian Govt. for consideration of Indian carbon credits through Carbon Credit Trading Scheme (CCTS) as valid under RED effective pricing mechanism.

3.2.2 Treat India as a Single Bidding Zone

India's has a unified grid wherein RE sites which are geographically spread however connected through Central and State network. Request MNRE to help developers obtain clarity from European Commission on consideration of whole Indian Grid as Single bidding zone.

Suggestive measures:

MNRE and other agencies are already working with EU regulatory bodies on Recognition of India as a single bidding zone by EU for supplying Renewable Energy Power for production of green molecules. Through this whitepaper we request the regulatory bodies to reach agreement ensuring India's widely spread RE resource rich states can be harnessed together without being limited by definition of bidding zones but by inherent nature the unified and synchronous single central grid of India.

3.2.3 Exempt GM Projects from Foreign Subsidy Regulation (FSR)

FSR scrutiny of Indian subsidies creates uncertainty therefore a structured clearance mechanism is required to streamline the EU-India trade in green fuels. Either Green Hydrogen industry may be excluded from purview of FSR or there should be a formal process for evaluation of GH & derivative production projects to clarify that GH & derivative project are in compliance to FSR by European Commission before entering into binding agreement between Indian developer and any European offtaker.

Suggestive measures:

EU may facilitate a waiver to GH & derivative production projects under FSR or else establish a formal FSR evaluation process for GM projects before entering into binding agreements.

3.2.4 Allow Industrial CO_2 in place of biogenic CO_2 Feedstock for production of Green Methanol

Discontinuity / disruption of biogenic CO_2 may jeopardize the huge investment associated with the Green Methanol Project, as finding the alternative Biogenic CO_2 in the vicinity is likely to be very difficult.

Suggestive measures:

It is suggested to allow usage of Industrial CO_2 for production of Green Methanol and hydrogen derivatives projects for period of 25 years from COD for the projects commissioned before 2035.

3.2.5 Speeding up ASTM approval for e-SAF produced by MTJ pathway

MTJ is one of the promising pathways for e-SAF. Delays in ASTM approval may hold back investments. We request MNRE and European Commission to constitute a dedicated team / committee or through appropriate channel which could coordinate with ASTM team on MTJ approval as the same is critical for production of eSAF from Methanol to Jet Process which will help complying with e-SAF mandates.

Suggestive measures:

Engagement with ASTM team through appropriate channel / body in order, to expedite approval.

4 Conclusion

India has emerged as a global frontrunner in green energy with record-breaking tenders for Green Hydrogen and Green Ammonia. Under the National Green Hydrogen Mission, multi-gigawatt projects and electrolyser manufacturing capacities have been awarded to leading players, driving a 5 MTPA production target by 2030. SECI's landmark green ammonia tender ensures long-term offtake for fertilizer decarbonization, backed by PLI incentives and strategic port development. These initiatives position India at the heart of the global clean energy transition. Similarly, EU's RFNBO regulations are very exhaustively and scientifically drafted and are pioneer green hydrogen regulations globally.

Green Methanol (GM) represents a transformative opportunity for India to contribute in the global green fuel economy. Its versatility across sectors—shipping, aviation, chemicals, and energy—makes it a strategic asset in the country's decarbonization and export ambitions.

However, realizing this potential requires more than technological readiness; it demands a coherent, forward-looking regulatory and policy framework.

This whitepaper has identified and analyzed critical regulatory enablers, grouped into four key categories:

- Regulatory Uncertainties (e.g., EU RED compliance, carbon pricing recognition etc.)
- Demand Creation (e.g., mandates, long-term offtake contracts etc.)
- Execution Challenges (e.g., accelerating permit approvals, ASTM approval etc.)
- Competitiveness & Feedstock Issues (e.g., biogenic CO_2 scarcity, exclusion from state policies)

These enablers span policy facilitation, infrastructure creation, international compliance challenges, and feedstock limitations. These issues carries significant implications for project technical and commercial viability, enhancing investor's confidence, and India's competitiveness in global markets.

The path forward lies in:

- Harmonizing international and Indian regulations
- Recognizing Green Methanol as a priority fuel
- Enabling infrastructure and market mechanisms that support scale and cost competitiveness

Indian Govt may like to consider following suggestions to accelerate the pace for adoption of green methanol such as:

- Mandating Green Methanol (GM) usage across key sectors
- Integrating GM into national and state-level policies
- Facilitating long-term offtake contracts
- Investing in shared infrastructure for bunkering and logistics

At the same time, European Policy makers and Indian Policymakers may like to speed up the engagement to explore transitional mechanisms, such as recognizing Indian carbon credits by European commission, allowing industrial CO_2 for a defined period, expediting ASTM approvals for e-SAF pathways etc. engaging with IMO for accelerating the adoption of net zero framework while considering Green Methanol as strategic decarbonization fuel for maritime.
Green Methanol (GM)is not just a fuel—it is a bridge between India's renewable energy potential and the world's decarbonization goals. With the right policy interventions and strategic alignment, India can lead the global transition toward sustainable fuels, creating economic value, environmental impact, and geopolitical relevance.

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The International Hydrogen Ramp-up Programme (H2Uppp) of the German Federal Ministry for Economic Affairs and Energy (BMWE) promotes projects and market development for green hydrogen in selected developing and emerging countries as part of the National Hydrogen Strategy.