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RMM 2024

Valuing consumer action

Building a renewable methanol industry

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OCI – Long Standing History of Project Development

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OCI has 25+ years experience creating leading industrial platforms through in-house development/construction, from the development of a global cement group, development and rollout of ports business, to the last 15+ years of focus on petrochemical projects development

** 90% of 35 million tons cement capacity was self-developed greenfield projects*

2005-2010
Egypt Basic Industries Corporation EPC: Greenfield construction of 730ktpa ammonia plant led by OCI (60% stake)

Egypt Fertilizer Company: Acquired 1,648 ktpa Urea plant (built by OCI)

2011
OCI Beaumont: Purchase of an 8 year mothballed methanol/ammonia facility; restart of ammonia synloop after 9 month refurbishment

2012
OCI Beaumont: Restart of the methanol plant after 12 months refurbishment (and feeding the ammonia synloop with H2 from the methanol plant)

2013
Sorfert EPC: 2 TKIS ammonia plants (803 ktpa) and 1 urea plant (1,259 ktpa)

2015
OCI Beaumont: Expansion / debottlenecking of ammonia & methanol plants by 25%

2017
IFCo EPC: 2,200 mtpd Ammonia, 2,200 mtpd Urea synthesis, Nitric Acid, 4,300 mtpd UAN, and 3,000 mtpd DEF plant (KBR/TKIS/Stamicarbon). Including all Utilities and Storage and Loading facilities

2018
Natgasoline EPC (lead developer): 5,000 mtpd Air Liquide methanol facility. 50/50 JV with Proman

2019
OCI Delfzijl: restart and refurbishment of methanol-2 plant (0.5 mtpa)

OCI Beaumont: 12% methanol capacity expansion (executed in 6 months)

2023+
Next growth stage
Evaluation and execution of future hydrogen-based projects


OCI Beaumont


Iowa Fertilizer


Natgasoline


OCI Delfzijl

OCI is Uniquely Positioned to Deliver Decarbonized Solutions Globally

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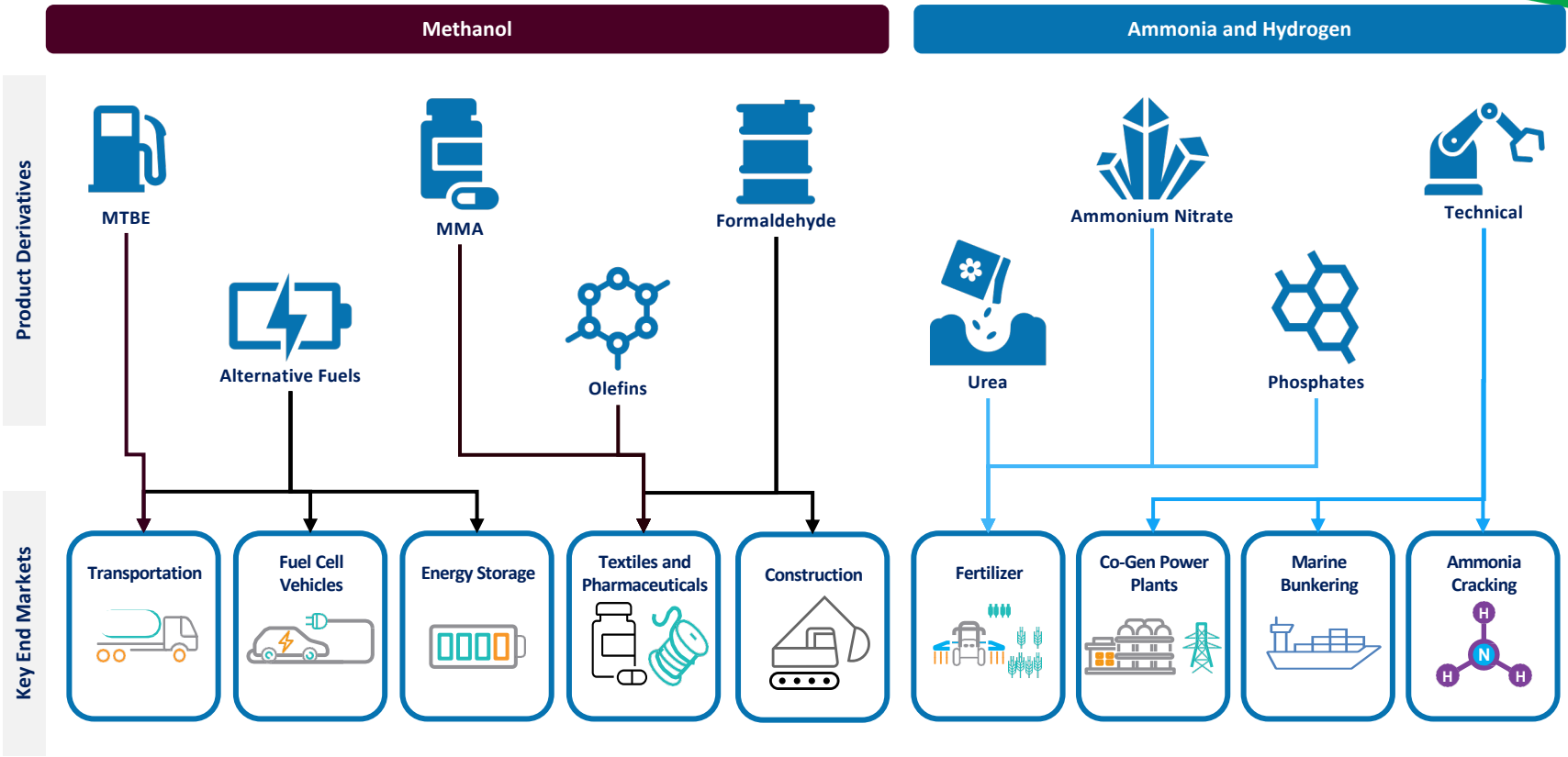

OCI Methanol Group – A Global Leader With Significant Growth Ambitions

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A Global Leader with Top Market Positions In US and Europe

~3.3Mt[1]

Of total current owned capacity

- #2 in US
- #1 in Europe
- #5 Globally
- #1 Leader in Clean Methanol

Global Production

Sole producer with facilities in both the USA & EU leading to enhanced netbacks

Global Distribution

Extensive import and export infra with network to reach the EU, US and Asia

Centralised Commercial

Senior traders with >20yrs of individual experience in Methanol & Petchem

Clean Fuels Leader

Leader in green methanol transportation fuels applications

Hydrogen Advantage

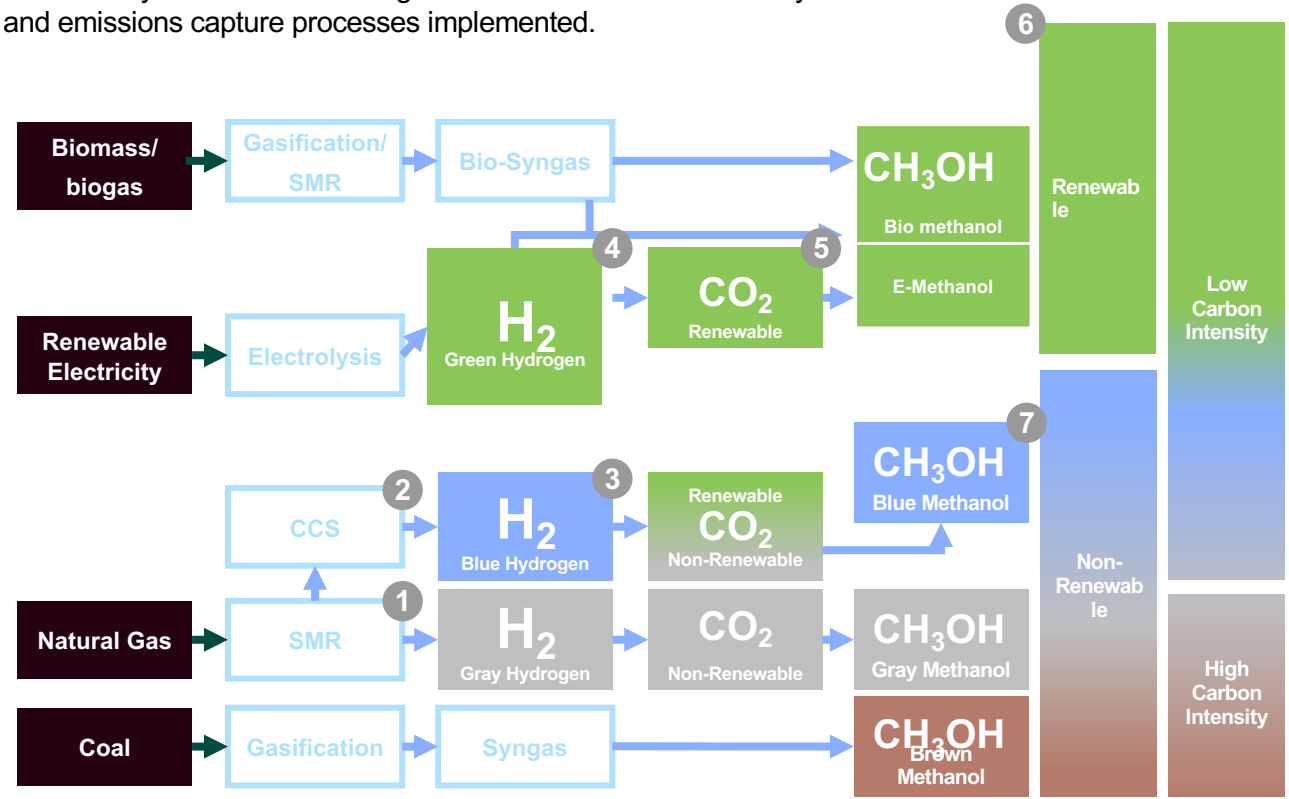
With methanol ideally positioned to capitalise on the H2 economy as a H2 liquid carrier

Transportation | Marine | Chemicals | Power

[1] Includes 50% of Natgasoline capacity and 365ktpa of ammonia capacity at OCIB.

Different methanol production pathways

Methanol synthesis can be categorized into various sustainability definitions based on the feedstocks and emissions capture processes implemented.



1. **Steam Methane Reforming (SMR)** reacts natural gas (methane) with water to produce carbon oxides and hydrogen gas

   $CH_4 + 2\ H_2O \rightarrow CO_2 + 4\ H_2$

2. **Carbon Capture and Sequestration (CCS)** is the process of capturing carbon oxides (CO and CO2) that would otherwise be released into the atmosphere and storing them underground
3. **Blue Hydrogen** is produced from **SMR** (or other gasification process) where carbon is captured and stored
4. **Green Hydrogen** is produced from **electrolysis** (the use of renewable electricity to split H_2O into O_2 and H_2)
5. **Renewable CO2** is not captured from fossil fuels, but rather sourced from biomass or direct air capture
6. **Green Methanol** describes methanol produced from renewable resources (biomass, renewable electricity)
7. **Blue Methanol** is a low carbon alternative produced from either 1) blue H2 and CO2 or 2) green H2 and non-renewable CO2

OCI

Currently: SMR biomethanol production

Dedicated renewable methanol marketing platform with established track record of commercializing low carbon products for variety of customers

Bio-Methane Sourcing

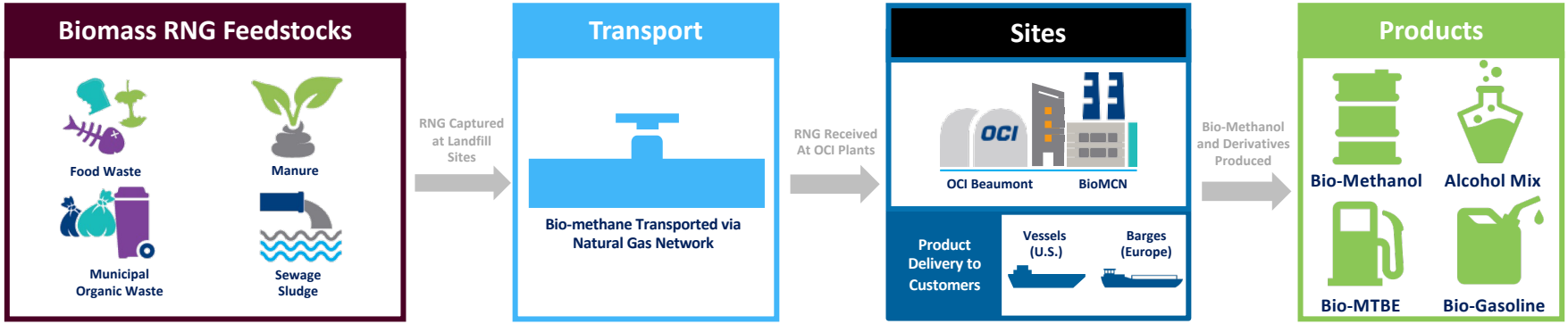
- OCI sources bio-methane (also known as “Renewable Natural Gas” or “Biogas”) from a variety of producers in the EU and USA
- Bio-methane is a renewable energy source produced from the decomposition of organic matter either in a landfill or anaerobic digester
- Bio-methane is a direct substitute for fossil natural gas and can be transported through the natural gas grid
- OCI HyFuels is one of the largest buyers of bio-methane globally

Bio-Methanol Production

- Methanol is produced by the catalytic reforming of natural gas and steam
- Bio-methanol is produced by substituting fossil natural gas with biomethane in the production process
- Chemically, bio-methanol produced from bio-methane is identical to traditional methanol produced from fossil natural gas
- OCI transports bio-methanol via vessel and barge for final sale into various markets

End Products

- OCI currently uses bio-methanol to make Bio-MTBE and an alcohol fuel mix (bio-methanol and ethanol) or directly delivered as a fuel for the shipping sector



Enabling the green energy future- the importance of the mass balance approach

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In order to transition our fossil-based energy systems, the industry needs to be able to feed in increasing amounts of renewable and circular molecules over time. Accounting methodologies such as mass balance and book&claim are crucial to trace and secure the just transition from a fossil to a biogenic and circular carbon-based society

Why mass balance?

Mass balancing is accepted under the EU RED and considered a key GHG accounting methodology helping to factor in the climate properties of renewable products. The mass balance (and book and claim) approach accelerates the energy transition allowing the consumption and production of 100% green inputs and products. As sustainable feedstock chains and production facilities need to be built, such a demand in the upcoming years is impossible. Therefore, the mass balance approach allows for a rapid transition from a fossil to a biogenic and circular based society.

How does it work?

Mass balancing allows to mix materials of similar physical and chemical properties. This is especially important as sometimes materials cannot be physically separated because they are mixed in the process e.g. paints.

The mass balance approach can be applied to different steps in the supply chain. The following graphic explains the three parts of the supply chain where the mass balance approach can be applied to: the distribution/feedstock part of the supply chain, the production process part of the supply chain and the transport/storage part of the supply chain.