



M+REFORMER

Methanol Reformer

Off-Grid & Sustainable & Mobile energy solutions

THIBAUD VINCENDON 27/11/2025

methanolreformer.com | info@methanolreformer.es



Key concepts

- **Why** Methanol Reformer?
- **Pragmatic** and realistic approach
- From and old **mix**...to a new one: no competition
- **Current issues**: electric demand vs offer, access to the grid, hard to abate sectors, transport etc.
- And last but not least...**cost!**

Hydrogen logistics challenges

“H₂ is easy to produce but expensive to transport”



Ideal situation:

- Electrolyzer close to the final destination (within 50 meters).



Non-ideal situation:

- Electrolyzer far from the destination (>100 km), leading to **high transportation costs and inefficiencies**.
- Long distances example:

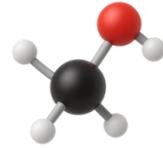


Hydrogen pipe
Not yet ready



Compressed H₂ transport
Non-efficient

Why methanol?



It is the most efficient solution for hydrogen logistics

1 TRUCK OF METHANOL

=

12 TRUCKS OF COMPRESSED H₂



3.6 Tons
H₂



Methanol x 1 truck
+600 km + 1.37 Tn CO₂

Compressed H₂ x 12 trucks
+ 7.200 km + 16.4 CO₂

*Source for the calculation CO₂ from trucks: Transport & Environment (2021). Easy Ride: why the EU truck CO₂ targets are unfit for the 2020s
**3.6 Tn H₂ requires 18 Tn D.I. water for the reformation process

- One 30 ton gas truck can only carry 300 kgs of H₂ (<M30 daily production)
- One 30 ton methanol truck can carry **12 times** more.
- H₂ Compressed: **1% to 5% Boil Off/day** during the whole production/transport/stock cycle)
- For long distance transportation methanol beats compressed H₂

* 250 bars pressure

Methanol Sources

Green vs conventional productions systems



NATURAL GAS

From conventional Fuel (Methane) - Extraction from well and reformed



CO₂ CAPTURED

Captured from conventional fuel combustion or industrial emissions.
E.g., cement, steel production...



BIO-METHANOL
produced from biomass

- From agricultural waste (Biodigestors)
- From dumping site & sewage (Direct)

→ **Methane Gas (biogas)**
 $CH_4 + H_2O \text{ steam} \rightarrow (CO + 2H_2) + \text{Catalyzer} \rightarrow CH_3OH$



E-METHANOL
• Green hydrogen + CO₂ captured
• Renewable electricity

- From biomass burning
- From industrial process

→ **CO₂ captured**
 $CO_2 + 3H_2 \rightarrow CH_3OH + H_2O$
 H₂ from renewable source

Core Product: Methanol-reforming

Medium power (L/M18) / High power (L/M30)

Strong points:

- **High purity (99,997%) H₂** for Fuel Cells (ISO 14687 for H₂ mobility)
- **No emissions of NOx & SOx & PMs**
- Low CO₂ emissions (or **carbon neutral if green**)
- **Lower OPEX & CAPEX**
- **24/7 Run Times & Long lasting**
- **Independent from Grid**
- **No Operator Needed & Remote Monitoring**

Scalability (MW)



Modularity



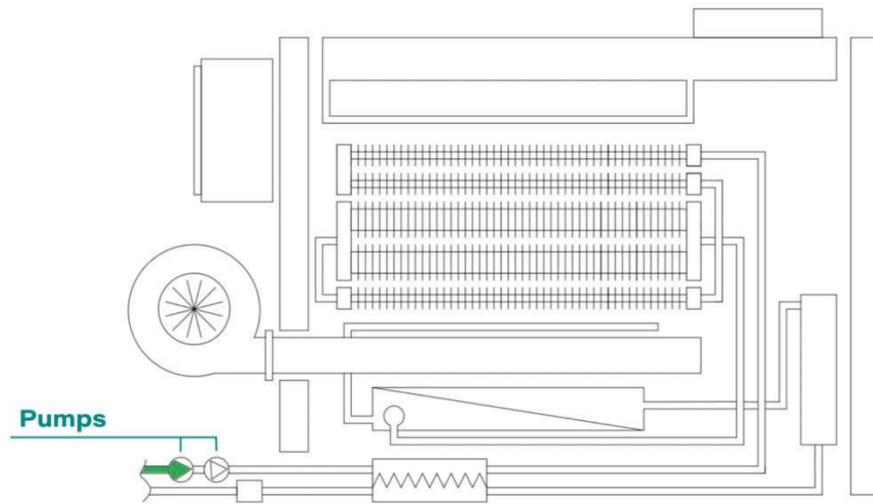
Plug&Play



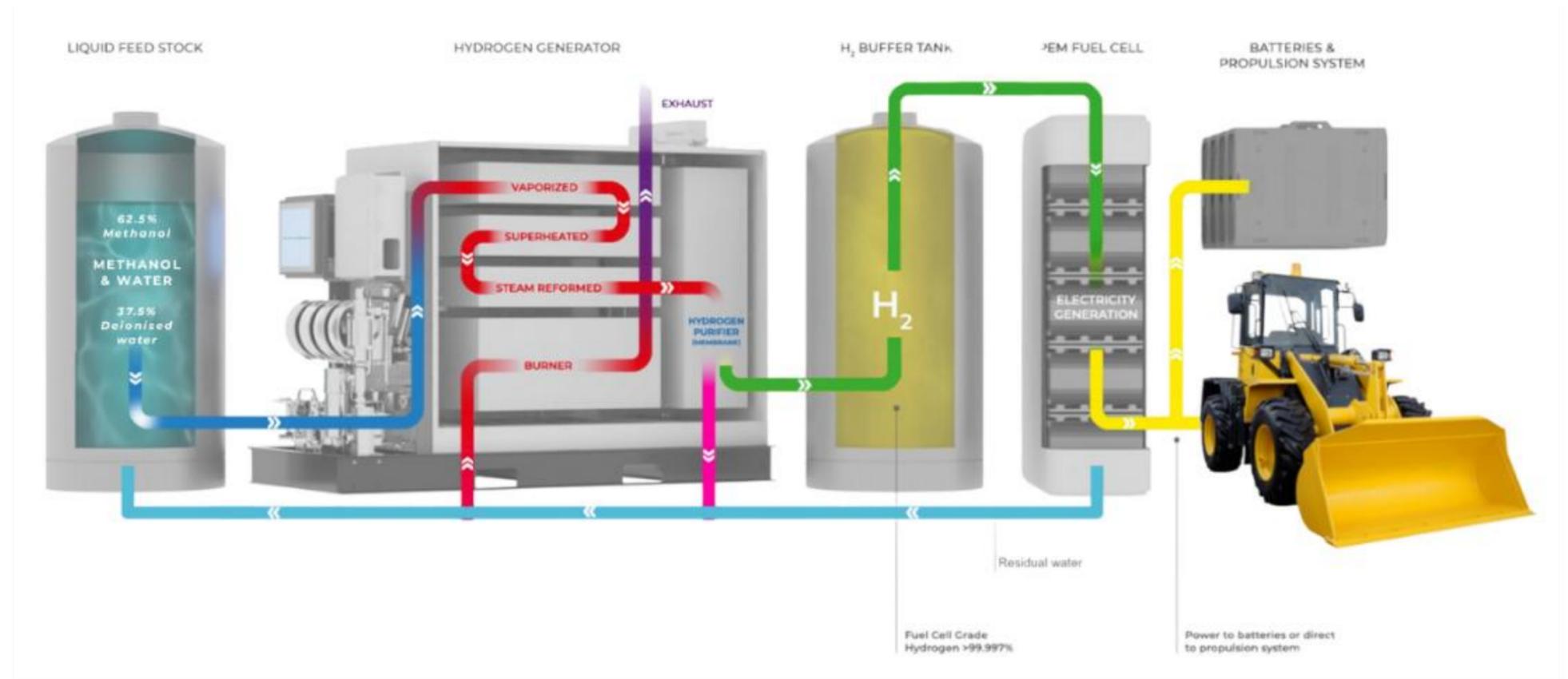
Dimensions 879 x 2,080 x 1,380 mm
(LxWxH): 1,500 kg
Weight:

Outlook of methanol-reforming process

L/M18 & e-Nomad



 [Flow diagram](#)



MReformer Solutions



MOBILE SOLUTION

STATIONARY SOLUTION

Medium power (L/M18) / High power (L/M30)
 Hydrogen generator: Basic unit
 Produces: 9.8 kg H₂/h / 16,2 kg H₂/h
 Up to: 150kW / 250kW



e-Nomad - 150 kW (20ft)
 e-Power container Mobile
 150 kW output



CPG - 250 kW - L/M30
 e-Power container Mobile
 250 kW output



H-Nomad - L/M18/30
 h-Power container Mobile
 Up to 16.2 kg H₂/h



**CHG3 - L/M30 (20ft) /
 CHG6 - L/M30 (40ft)**
 Containerized H₂ generation stationary
 Up to 50 kg H₂/h



**In the annex, you will find the product datasheets.*

Cross-sectorial applications



Civil works/ Mining

Off-grid & support to availability areas providing fast charging of battery packs or H2 to mining/civil works areas.



Services Stations

Fast Charging Stations - H2 Station Easy using the same infrastructure and producing on-demand.



Airports/Maritime

Off-grid & support to availability areas in renewable energy.



Industry

Main supply of Hydrogen to furnace with the right quality at low OPEX to different industries: energy, metallurgical, ceramic...



Backup System

Backup system to provide Hydrogen or electricity off-grid: data centers, electrolyzers, hospitals, ports, stadiums...



Methanol Reformer's role Maritime Applications

Enhancing Ports/Fleets Sustainability and Functionality with Alternative Power Sources

- Onboard use in **fuel cells** or as a **combustion enhancer** for engines.
- Port-side energy supply for **heavy equipment** (cranes, trucks, forklifts).
- **Multi MW** applications
- Free Carbon Emission reduction **if feedstock complies:**
 1. With **RFNBO** methanol
 2. With **Bio-methanol**
- Alignment with **green fuel diversification** strategy
- Efficient & reliable system as principal or back up

Partnerships:



MARITIME PARTNERS



Civil works / Mining

Electricity supply in remote areas



ENERGY SUPPLY TO ELECTRIC MACHINERY:

Unbuilt land is often far from the electrical grid.
Even if it's near the grid, it may not have enough power capacity.

What does on-site charging avoid?

- Transporting batteries to the city
- Use of diesel generators
- Pollution from the battery transport system
- Inactivity due to the logistics of battery charging

Main expansion target 2025 -2030

Electric or Hydrogen supply on-site



ELECTRIC CHARGING – EU DIRECTIVE (2026)

- **Fast charging on major roads:** availability of 400 kW every 60 km on key corridors.
- **Infrastructure challenge:** in some locations, it will be impossible to obtain such high power from the grid, requiring alternative solutions like energy storage or on-site generation.



HYDROGEN REFUELING – EU DIRECTIVE (2030)

- **Hydrogen refueling on high-traffic roads (TEN-T):** deployment of a Hydrogen Refueling Station (HRS) every 200 km by 2030.

Industrial applications

Electricity and/or H₂ supply for the industry



INDUSTRIAL APPLICATIONS:

- 99.997% purity
- High flow rate
- Constant on-site supply
- Reduction in logistics costs and CO₂ emissions
- Lower CAPEX/OPEX compared to other solutions like electrolysis

Applications in industrial furnaces, turbines, chemical industry, fertilizers, refining applications, and more.

Backup System

Reliable and efficient supply to ensure operational continuity



INDUSTRIAL APPLICATIONS:

- HIGH purity (99.997%)
- Constant and high flow rate
- Uninterrupted on-site supply
- Reduction in operational costs and CO₂ emissions
- Lower CAPEX/OPEX compared to traditional solutions

Applications in data centers, telecom infrastructure, critical facilities, remote locations, backup during power outages.

From PowerPoint to power plants

We do not do prototypes, we implement real projects



Current and next installations:

- Several small models in the USA
- 1 reformer in NEOM (Saudi Arabia)
- 1 M18 in Norway (DRIV)
- 1 E-nomad in the Netherlands
- 1 E-nomad in Spain for maritime sector (Balearia)
- 16 reformers M30 for maritime sector (2026/27)
- First reformer in Japan in 2026 for Mitsubishi Gas Chemical
- 2 H-nomads for hospital in Spain with HRS in 2026
- LOI for 5 H-nomad in eastern Europe for 2026
- LOI for a reformer in a Spanish island for 2026
- LOI for an E-nomad in Japan



Key takeaways for Brazil

- **Important asset:** biogenic CO₂

- **Choose you battlefield for methanol applications:**
 - Port, bunkering, maritime applications, shipping
 - Off grid sectors
 - Industry / blending
 - Huge volumes with transport issues

Why a Methanol Reformer System



Environmentally friendly

Emissions reduction and support of clean energy adoption



Low CAPEX

Cost-effective investment of deployment



Low OPEX

Energy efficient with minimal operational costs



Modularity

Scalable design, ranging from 150 kWh to several MW to meet various energy needs



Fast Hydrogen/Power Availability

Hydrogen supply takes less than 3 min from hot stand-by



High Energy Efficiency

- >80% efficiency in H2 systems
- >35% efficiency in electric systems

M₂REFORMER

OBRIGADO



www.methanolreformer.com



info@methanolreformer.es



tvincendon@methanolreformer.es



WTC. Moll de Barcelona s/n
Edificio Este Planta 5. 08039 Barcelona (Spain)



www.linkedin.com/company/m-reformer

