Carbon Recycling International

A PROVEN CARBON UTILISATION SOLUTION

END-TO-END SERVICES FOR CO_2 TO SUSTAINABLE METHANOL

January 2024

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CRI transforms captured carbon into sustainable methanol

CRI at a glance

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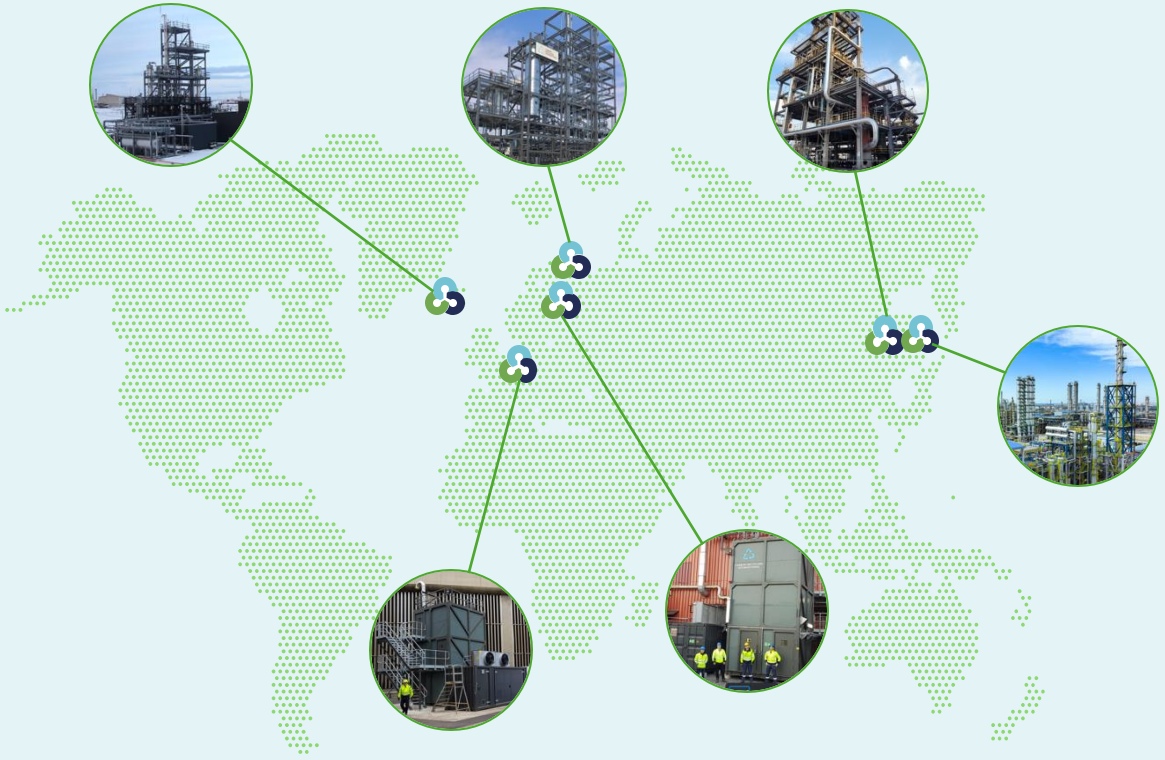
Overview

- ✓ Founded 2006
- ✓ HQ: Reykjavík, Iceland
- ✓ 5 reference plants and several under development



Global Achievements

- ✓ **first** certified e-fuel plant
- ✓ **largest** CO_2 to Methanol plant
- ✓ **most efficient** CO_2 to Methanol plant

Total Worldwide Plant Capacity

✓ **CO2 capture**	**315,000 tonnes/year**
✓ **Methanol production**	**210,000 tonnes/year**

Millions of tons of CO_2 avoided with each ETL plant

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Up to 8.4 million tonnes of CO_2 avoidance in lifetime[1]

CO_2 150,000 tonnes/year recycled

H_2 20,000 tonnes/year

100,000 tonne/year plant

Methanol 100,000 tonnes/year

CO_2 avoidance up to 420,000 tonnes/year[1]

1. Lifetime C02 avoidance based on 20 years of plant operation, replacing the weighted average carbon emissions of coal and natural gas-based methanol production. Exact CO2 savings depend on each site specifics. Lifecycle of plant can be greater than 20 years

10+ years of experience - 5 reference plants

Diverse feedstock sources and project sizes

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	George Olah *Svartsengi, Iceland*	**MefCO2** *Niederaußem, Germany*	**FreSMe** *Luleå, Sweden*	**Shunli** *Anyang, Henan China*	**Sailboat** *Lianyungang, Jiangsu, China*
Start-up	**2012**	**2019**	**2020**	**2022**	**2023**
Methanol Capacity tonnes/year	4000	330	330	110,000	100,000
CO2 Recycled tonnes/year	6000	500	500	165,000	150,000
H2 Source	Alkaline Electrolysis	PEM Electrolysis	Alkaline Electrolysis, Blast Furnace Gas	Coke-oven Gas	Propane Dehydrogenation
CO2 Source	Geothermal	Power Plant	Blast Furnace Gas	Lime Gas	Ethylene Oxide Production

2025
One of the World's Largest e-Methanol Plants

Tianying Plant, Liaoyuan, Jilin, China

Client: Tianying – Global Waste Management company

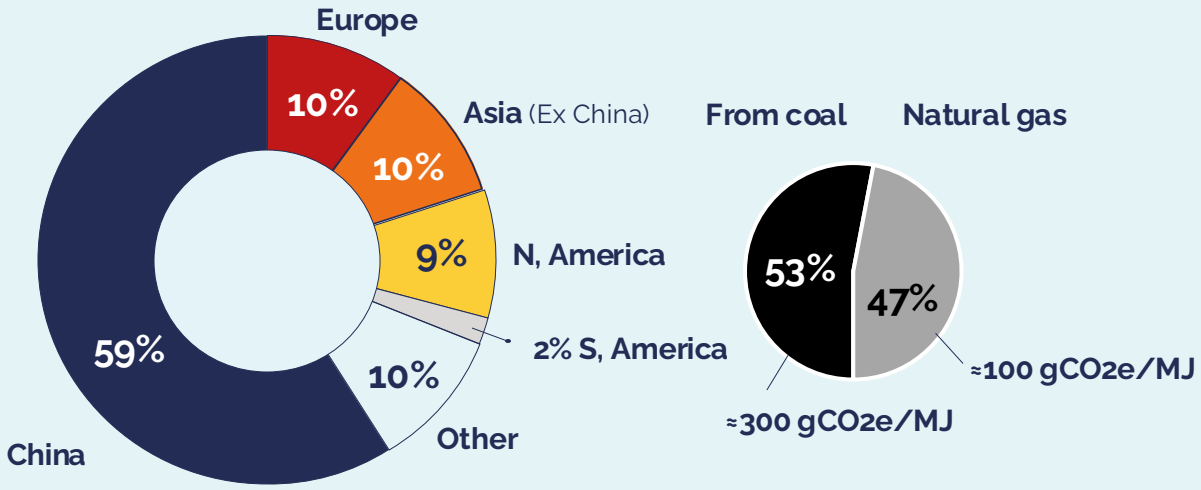
Methanol: 170,000 tonnes/year produced
CO_2 : 255,000 tonnes/year utilized (Biogenic)

Methanol market: Maritime e-Fuel

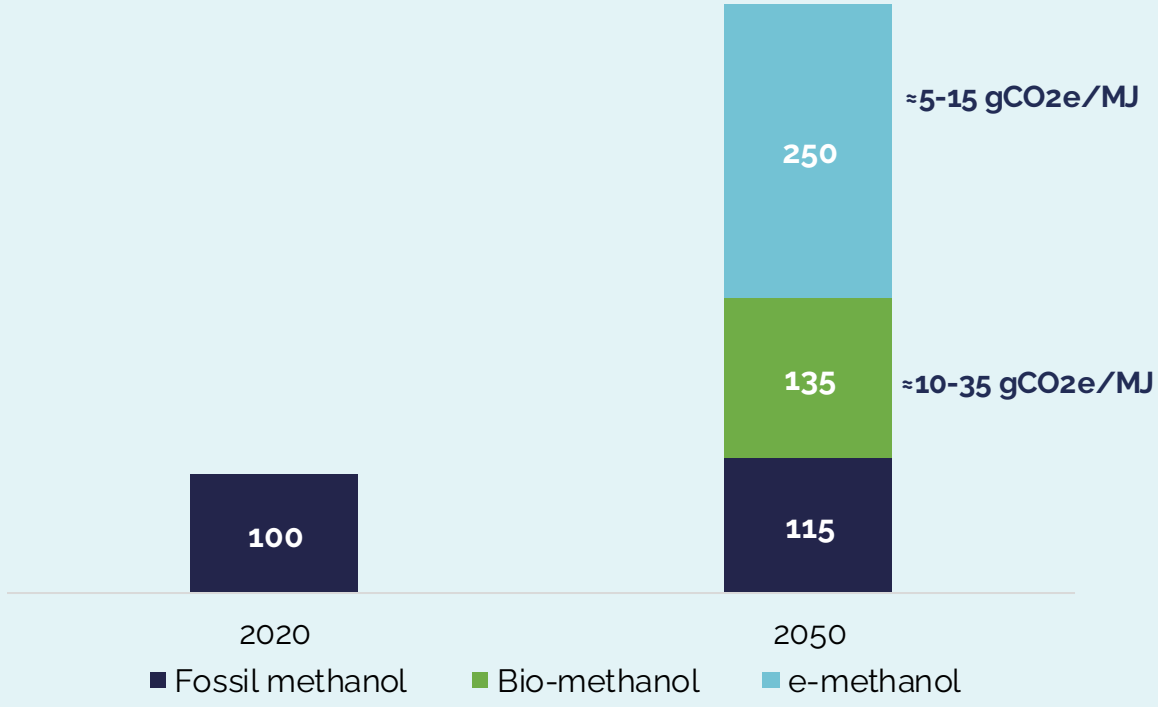

Carbon Capture and Utilization at scale
is now a reality

Demand for methanol increasing annually

Demand by region and source of supply



Estimated methanol production by source (mt)



Source: BMO (2022), Precedence Research, HIS, MI Studio GearUp study, IRENA

Comprehensive Services

built on experience and know-how

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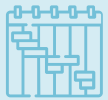
Project Feasibility & Conceptual Studies

- ✓ Appraisal of feedstocks and site
- ✓ CAPEX and OPEX estimates
- ✓ Conceptual engineering

ETL Technology

- ✓ Technology license
- ✓ Front-end Engineering and Design
- ✓ Key equipment and catalyst supply
- ✓ Commissioning and startup support



Project Development, Execution & Operation

ETL Technology services plus;

- ✓ Project co-development
- ✓ Procurement, construction, installation, commissioning and startup support
- ✓ Permitting and contracting

Lifetime Services

- ✓ Maintenance support
- ✓ Troubleshooting
- ✓ Operator training
- ✓ Performance evaluation and optimisation
- ✓ Support certification of methanol for compliance requirements

CRI Global activities on CO_2 to Methanol

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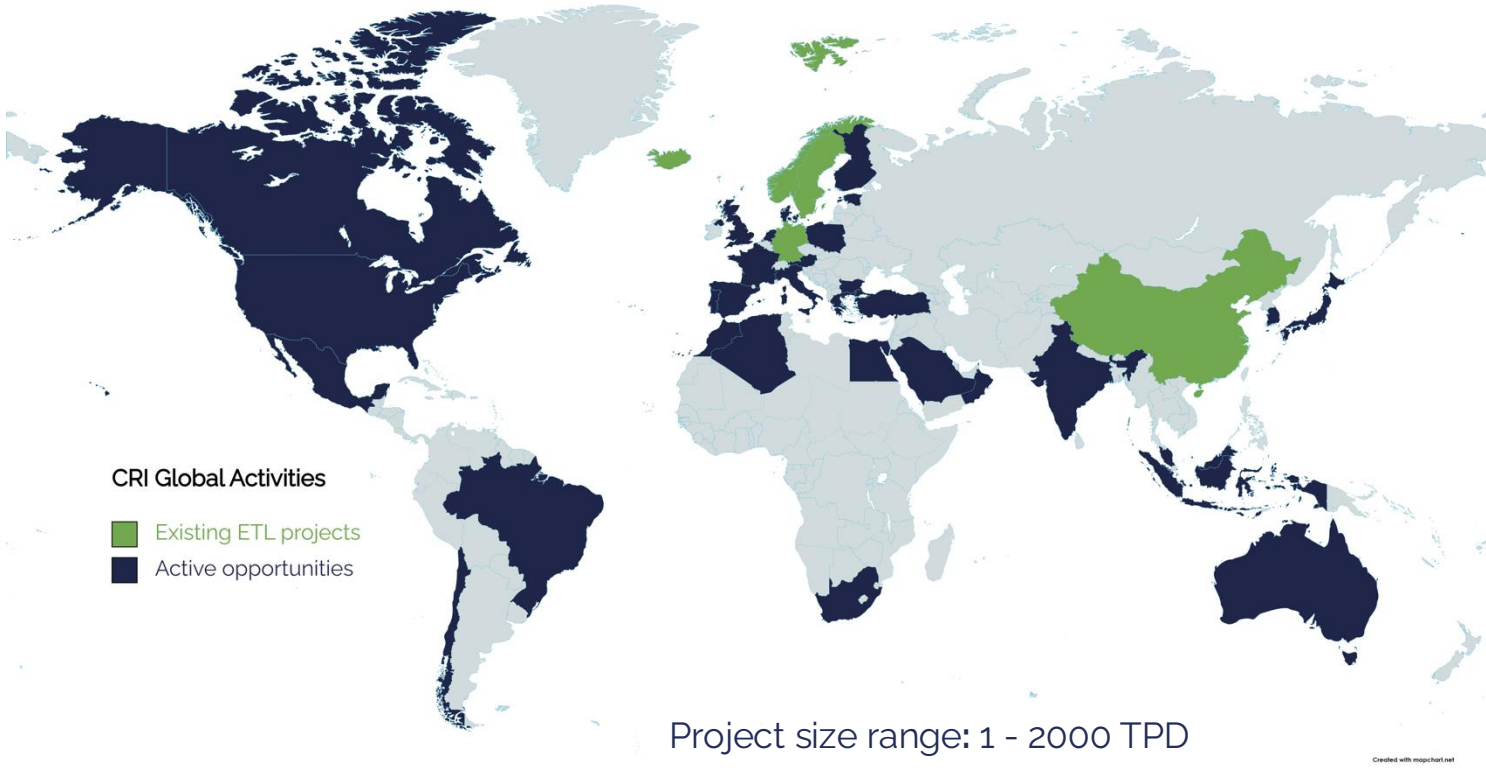
- Demand for E-fuels is growing rapidly from Marine and Aviation sectors
- E-methanol is a proven way to transform renewable energy and recycle waste and residual gases
- CRI has 10+ years of experience in e-methanol projects with 5 reference plants built
- We provide the necessary expertise and proven technology to successfully realize CO_2 to Methanol projects



Project size range: 1 - 2000 TPD