Sparc* the new industrial revolution



WWW.D-CRBN.COM

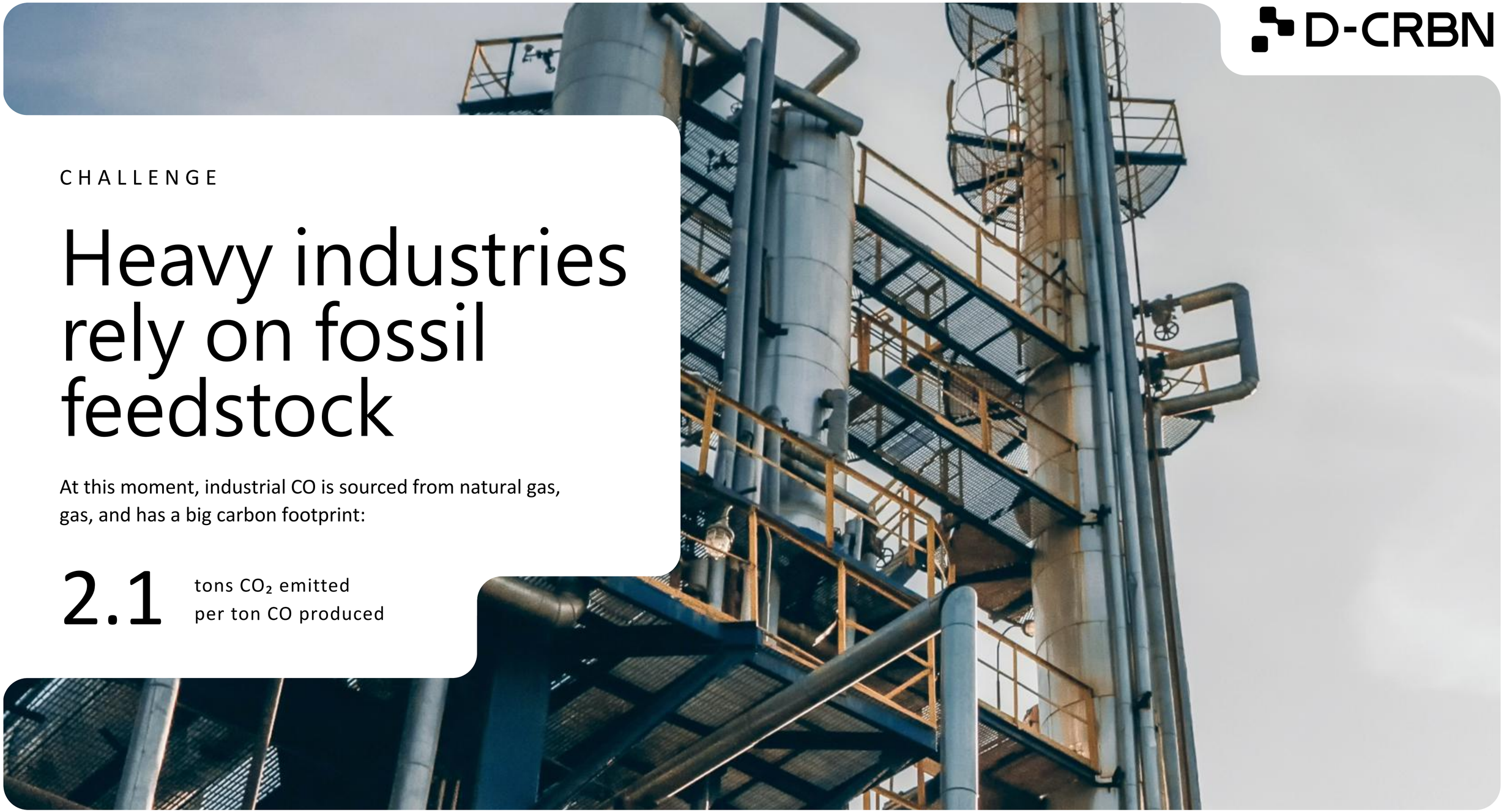
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CHALLENGE

Heavy industries rely on fossil feedstock

At this moment, industrial CO is sourced from natural gas, gas, and has a big carbon footprint:

2.1 tons CO_2 emitted per ton CO produced



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CCS is treating CO_2 as waste

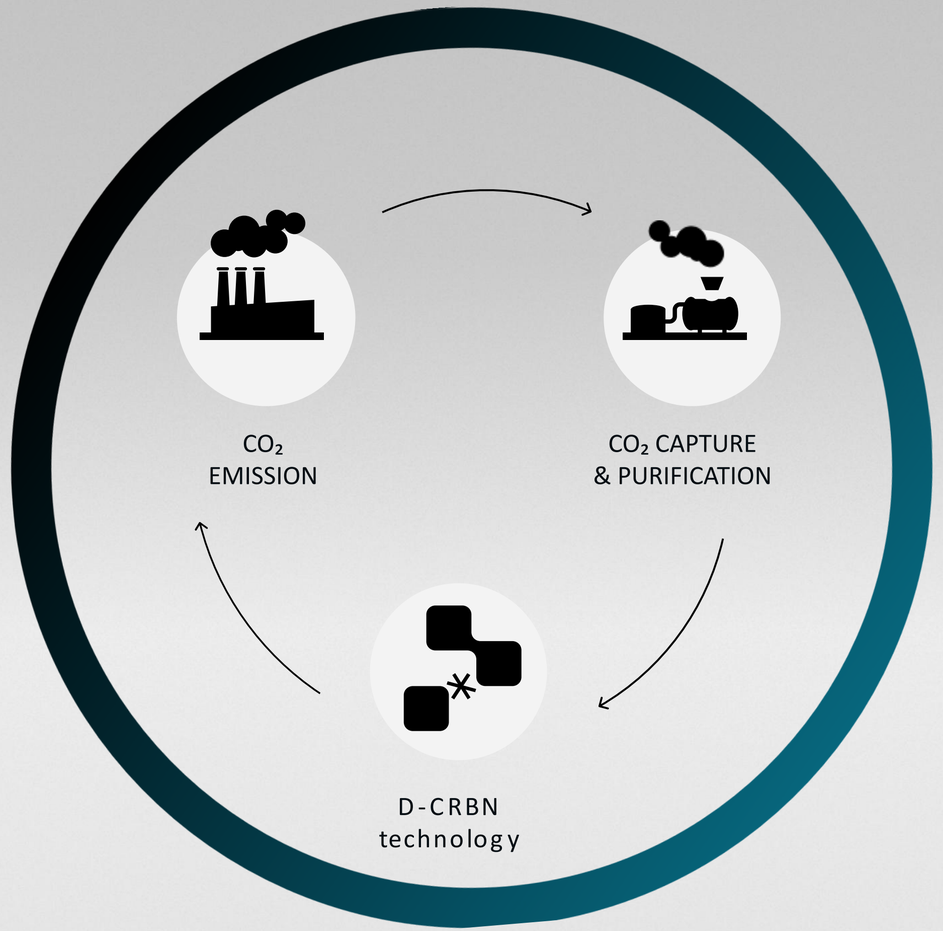


- Based on taxation
- Linear economy
- No added value created
- Short term solution

"CCS is treating CO_2 as waste, literally going going from cradle to grave… "

CARBON CAPTURE & UTLISATION - CCU

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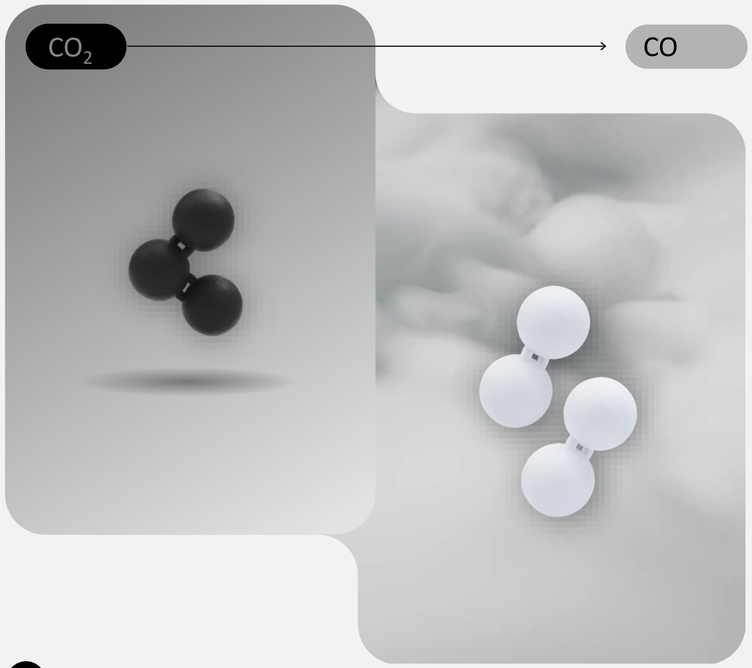
CCU CAN HAPPEN ON-SITE

We turn CO_2 into valuable feedstock and **close the carbon loop**

2.1 ⟶ **-0.7** tons CO_2 emitted per t CO produced

Product Offering

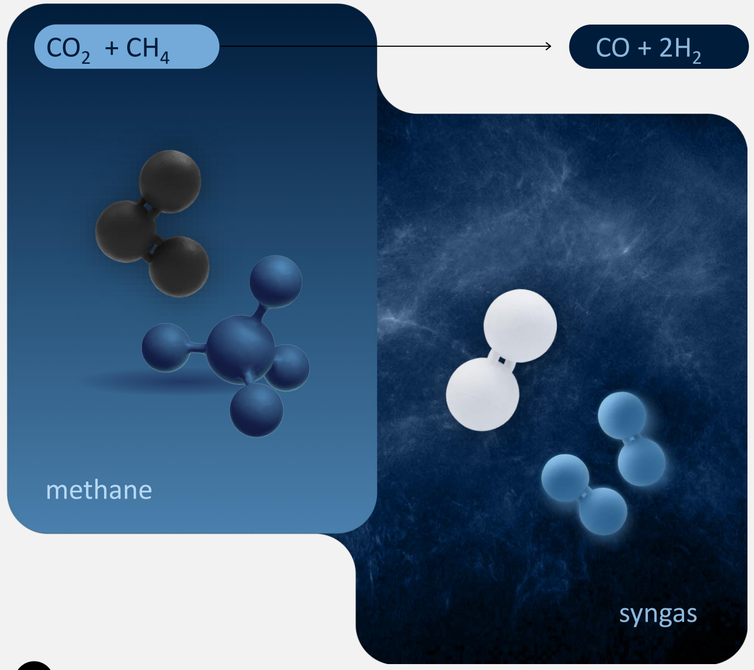
D-CRBN offers two industrial products



1

CO as a Product

We convert captured CO_2 into circular, high-value carbon monoxide (CO) using our patented Plasma ARC™ technology, reducing your reliance on fossil feedstock.



2

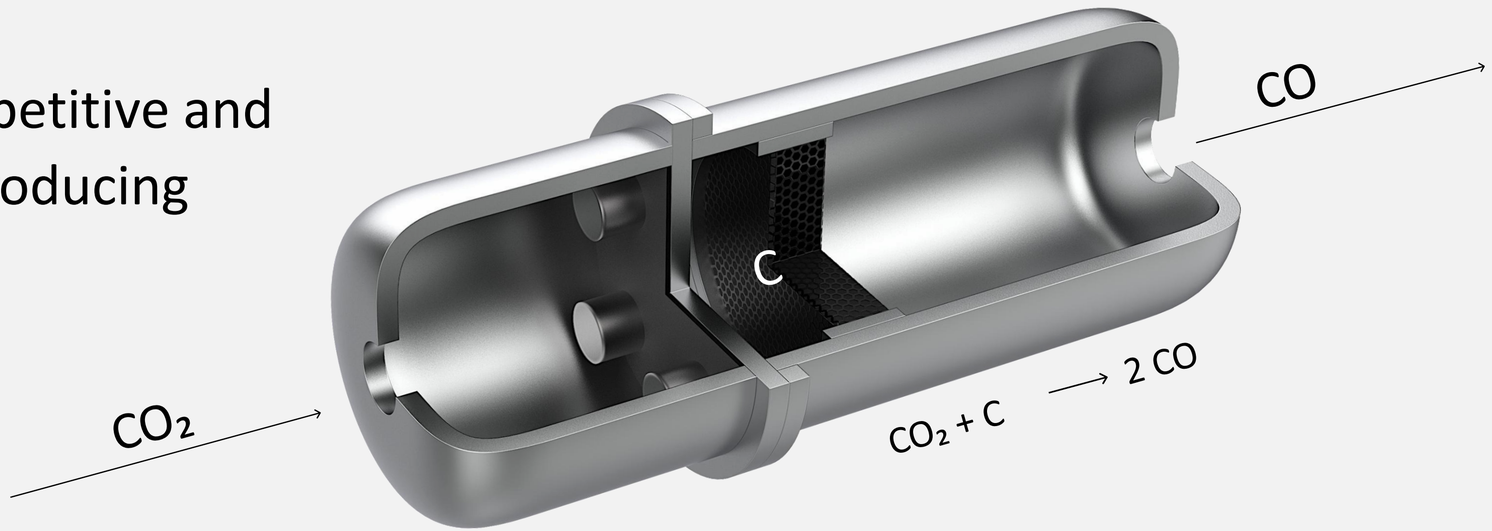
Syngas as a Product

We convert CH4 and CO_2 into circular, high-value value syngas using our patented Plasma ARC™ technology, enabling production of synthetic fuels & fuels & chemicals, without the need of additional additional hydrogen.

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Plasma CO_2 to CO

This offers the most cost-competitive and and energy-efficient way of producing



x5

More energy efficient compared to technology currently implemented in industry (RWGS)

1. Splitting CO_2 into CO and O

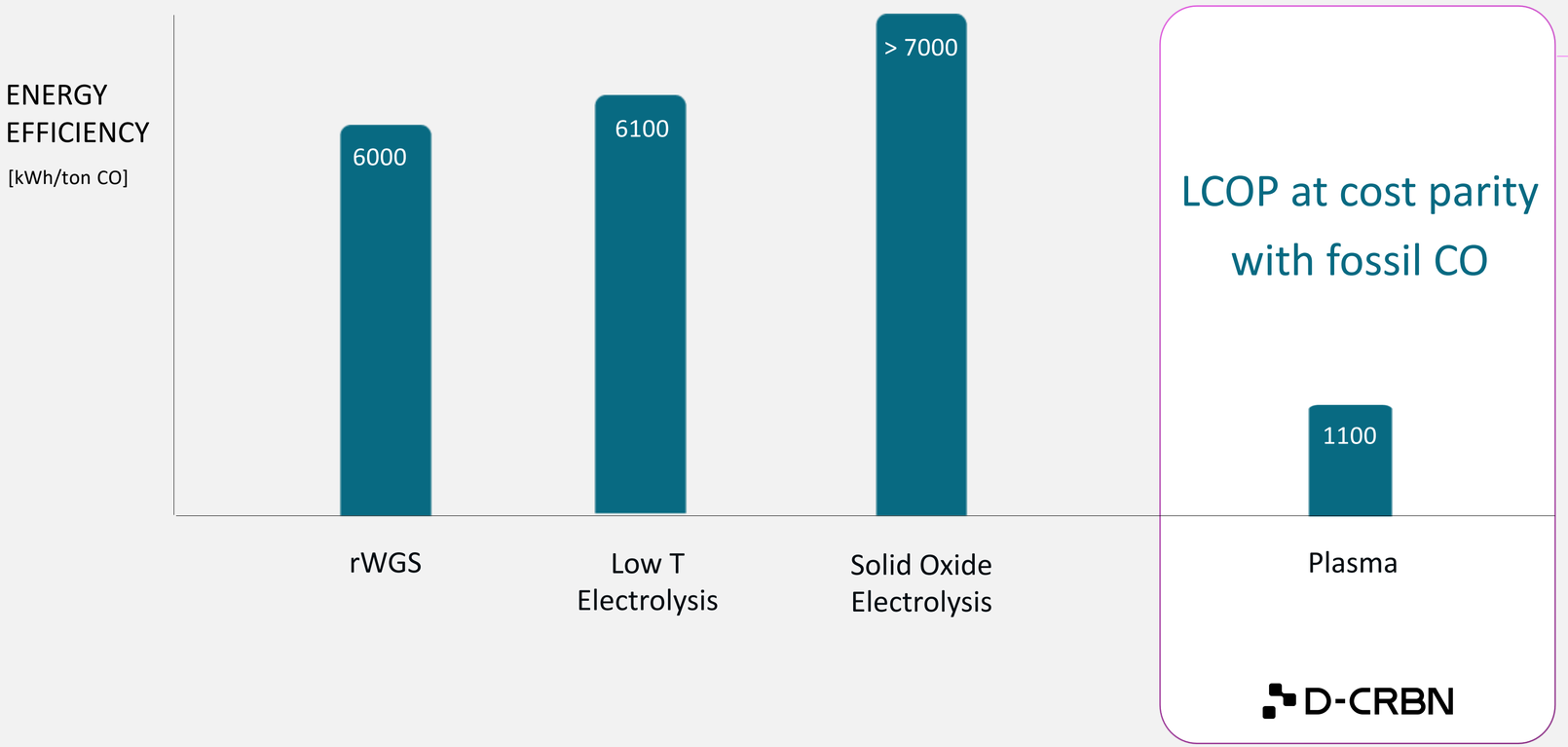
   Captured CO_2 is injected into our proprietary proprietary plasma reactor, splitting it into into CO molecules and O radicals.

2. Converting O to more CO

   This mixture is then passed through a bed of carbon carbon (C), avoiding the recombination and converting the O radicals into more CO.

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Electrified CO production



- \+ Low CAPEX & OPEX
- \+ Rapid On – Off
- \+ Industrially robust
- \+ Small Footprint

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Our USPs

Low CAPEX & OPEX

CAPEX: 50% lower compared to 2nd in class (reverse water gas shift): main component is steel, no use of any rare-earth-metals, no complex geometries.

OPEX: 30% lower compared to 2nd in class: high energy-efficiency, and increased conversion from ~8% to 50%.

Fast on/off

The plasma reactor can be switched on and off rapidly. Allowing intermittent sources of the power such as green energy to be used. This also allows for margin maximization via energy cost optimization.

Gas treatment

Captured CO2 requires no pre-processing. Eliminating the need for environmentally harmful and costly solvents or electrolytes.

Ambient pressure

No need for vacuum tech or pressure vessels, reducing the manufacture cost, maintenance cost and minimizing downtime.

Limited surface footprint

Allowing systems to convert large volumes at a minimal physical footprint.

Robust

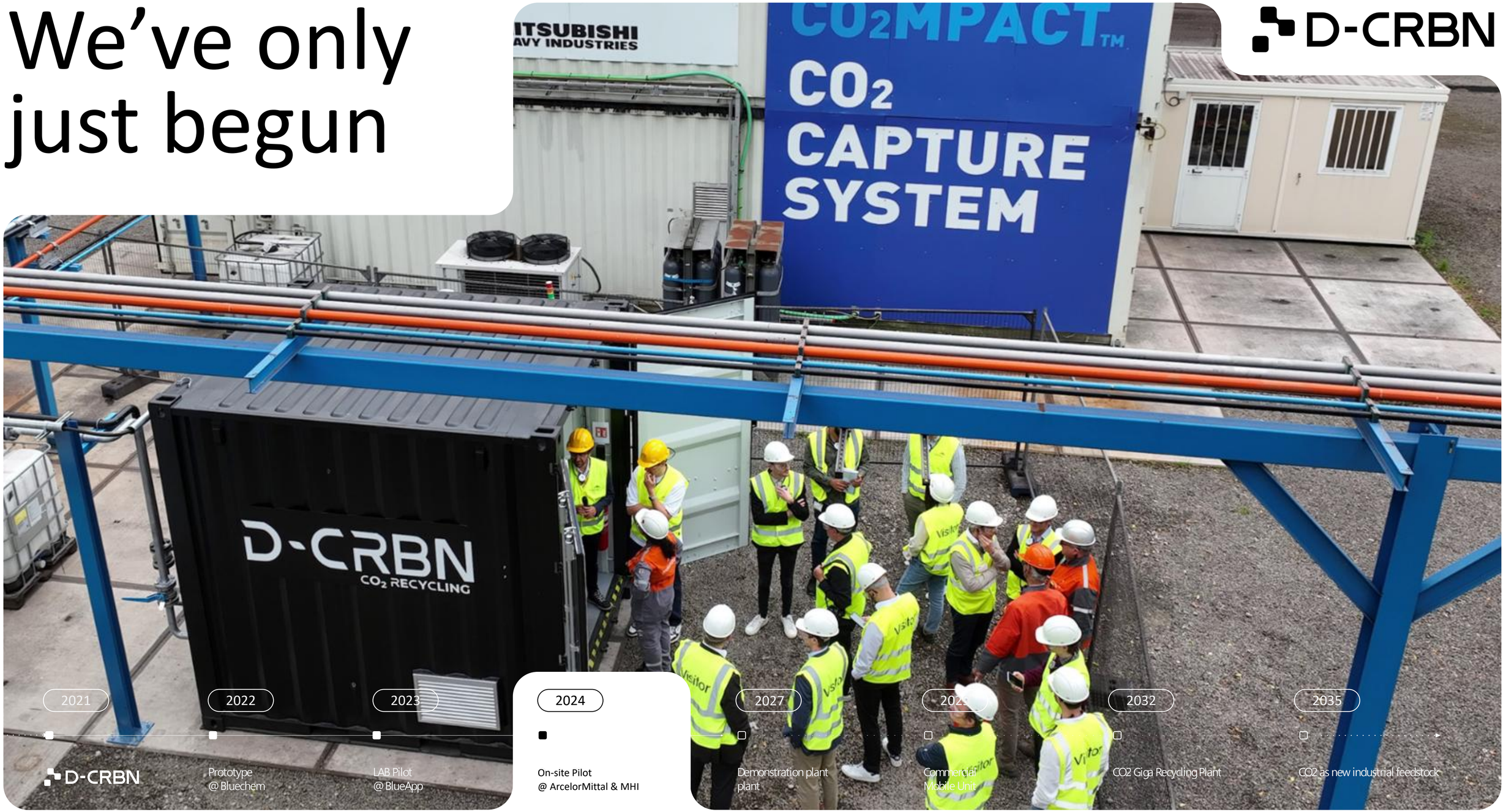
The system can operate with diluted CO2 streams, composed of up to 50% N2. This allows the system to be integrated in a broad variety of capture processes.

We’ve only just begun



2021	2022	2023	2024	2027	2029	2032	2035
D-CRBN	Prototype @ Bluechem	LAB Pilot @ BlueApp	On-site Pilot @ ArcelorMitta & MHII	Demonstration plant	Commercial Mobile Unit	CO2 Giga Recycling Plant	CO2 as new industrial feedstock

We’ve only just begun



2021

D-CRBN

Prototype
@ Bluechem

2022

LAB Pilot
@ BlueApp

2023

2024

On-site Pilot
@ ArcelorMittal & MHI

2027

Demonstration plant
plant

2028

Commercial
Mobile Unit

2032

CO2 Giga Recycling Plant

2035

CO2 as new industrial feedstock

Long-term strategy

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At the core	Pilot	Demonstrator	10 ktpa CO/unit	100 ktpa CO/ gigaplant
				
Incorporation 2021	2025	NOW	2027	2029	2032
Lab (TRL 4)	Pilot (TRL 6)		Demo (TRL 8)	FOAK (TRL 9)	Gigafactory
Core technology derisked in lab	Core technology derisked on industrial site		Core and auxiliary equipment integration on industrial site	Scale reached relevant size for industrial implementation	
				COMMERCIAL ROLL-OUT	

Confidential & privileged

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