

CARBON RECYCLING FOR A CIRCULAR ECONOMY

World Steel Association
December 5, 2023

LanzaTech

Na sdaq: LNZA

DISCLAIMER

Forward Looking Statements

These slides and any accompanying oral presentation contain forward-looking statements. All statements, other than statements of historical fact, included in these slides and any accompanying oral presentation are forward-looking statements reflecting management's current beliefs and expectations. In some cases, you can identify forward-looking statements by terminology such as "will," "anticipate," "expect," "believe," "intend" and "should" or the negative of these terms or other comparable terminology. Forward-looking statements in these slides and any accompanying oral presentation include, but are not limited to, statements about estimates and forecasts of other financial and performance metrics and projections of market opportunity, expectations and timing related to the rollout of our business and timing of deployments, customer growth and other business milestones. These statements are based on various assumptions, whether or not identified in this presentation, and on the current expectations of our management and are not predictions of actual performance. These statements relate to future events or to our future financial performance and involve known and unknown risks, uncertainties and other factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by these forward-looking statements. The potential risks and uncertainties that could cause actual results to differ from the results predicted include, among others, those risks and uncertainties included under the captions "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" in our Form 10-K filed with the Securities and Exchange Commission and subsequent annual reports, quarterly reports and other filings made with the Securities and Exchange Commission from time to time. Any forward-looking statements contained herein are based on assumptions that we believe to be reasonable as of the date hereof. Except as required by law, we assume no obligation to update these forward-looking statements, even if new information becomes available in the future.

This presentation includes data obtained from third-party studies and internal company surveys prepared for other purposes. We have not independently verified the data obtained from these sources. Forward-looking information obtained from these sources is subject to the same qualification and the additional uncertainties regarding the other forward-looking statements in this presentation.

This presentation contains trademarks, service marks, trade names, and copyrights of ours and of other companies, which are the property of their respective owners. The use or display of third parties' trademarks, service marks, trade name or products in this presentation is not intended to, and does not imply, a relationship with us, or an endorsement or sponsorship by or of LanzaTech. Solely for convenience, the trademarks, service marks and trade names referred to in this presentation may appear with the TM or SM symbols, but such references are not intended to indicate, in any way, that LanzaTech will not assert, to the fullest extent permitted under applicable law, their rights or the right of the applicable licensor to these trademarks, service marks and trade names.



POWER

CAN BE CARBON FREE

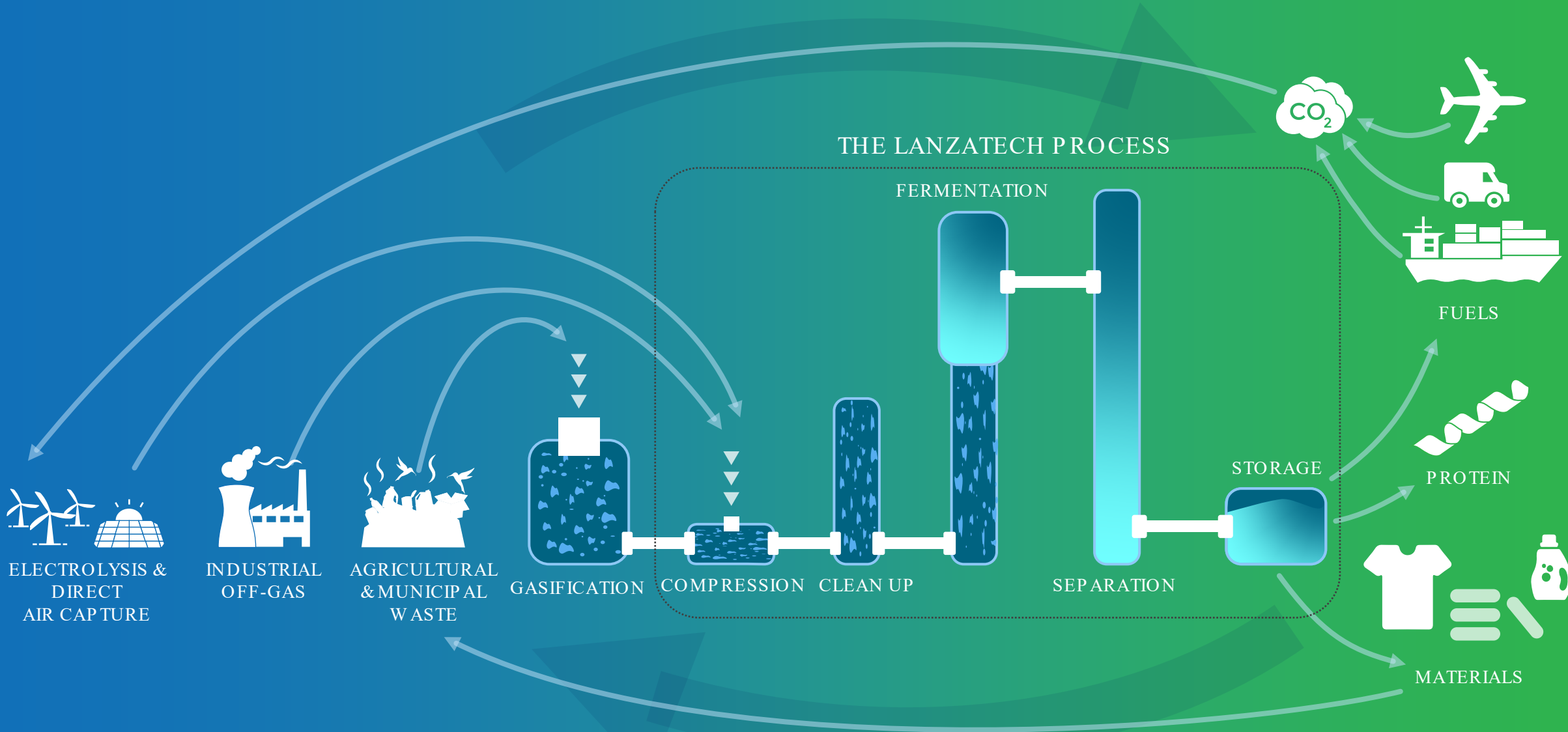
FUELS NEED CARBON



CHEMICALS FOR EVERYDAY PRODUCTS NEED CARBON



A NOVEL CIRCULAR SOLUTION, RECYCLING WASTE CARBON INTO VALUABLE PRODUCTS



GLOBALY LICENSED & COMMERCIALY OPERATIONAL TODAY



2018
Production Volume:
46,000 Tons per Year Ethanol
Carbon Source:
Steel Mill Em issions

RSB
ISCC
International Sustainability
& Carbon Certification

Certified Sustainability
ISCC
ISCC CORSA

Certified Sustainability
ISCC
ISCC PLUS



2021
Production Volume:
46,000 Tons per Year Ethanol
Carbon Source:
Ferroalloy Em issions



2022
Production Volume:
60,000 Tons per Year Ethanol
Carbon Source:
Ferroalloy Em issions

ISCC
International Sustainability
& Carbon Certification

Certified Sustainability
ISCC
ISCC CORSA

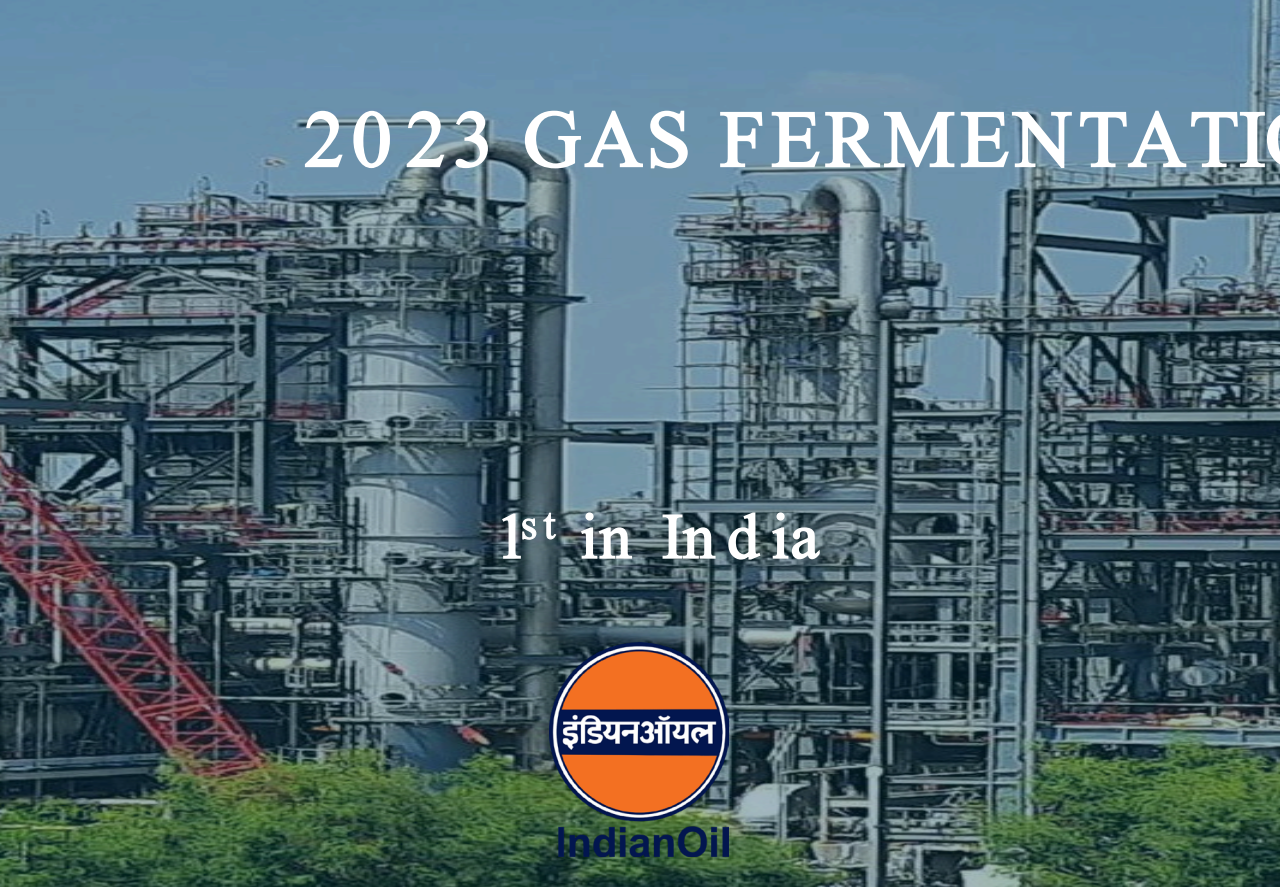
Certified Sustainability
ISCC
ISCC PLUS



2023
Production Volume:
60,000 Tons per Year Ethanol
Carbon Source:
Ferroalloy Em issions



2023 GAS FERMENTATION PLANT START UPS



Project/Partner	Carbon Source	Actual or Anticipated Start Date	Ethanol Production Volume (tons/year)	CO ₂ Abated (tons/year)	Location
IndianOil	Refinery Off Gas	3Q 2023	33,500	~60,000	India
ArcelorMittal	Steel Off Gas	4Q 2023	64,000	~125,000	Belgium

Total of 6 commercial-scale gas fermentation facilities online at end of 2023 with cumulative nameplate capacity of +300,000 tonnes per year

Steelmanol: January 2019



Steelmanol: September 2020



Steelanot: December 2020



Steelmanol: September 2021



Steelanol: Today

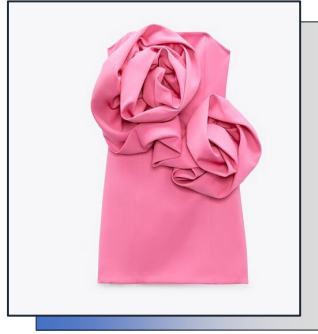


Pinakin Chaubal, Chief Technology Officer, ArcelorMittal:

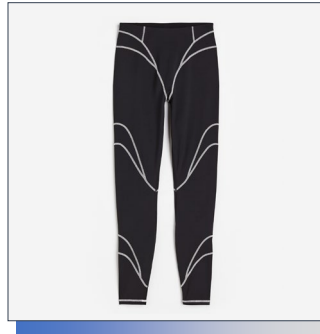
“We have worked with LanzaTech for several years, know their leadership team well and understand the potential of their technology and the role it can play in not only helping us to **decarbonise**, but also in producing **valuable products** from our carbon bearing gases which can help the **decarbonisation of other sectors**. “

COMMERCIALY PRODUCING

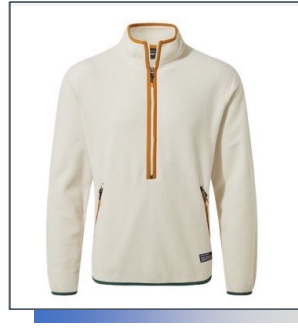
DRESSES



YOGA PANTS



FLEECE JACKETS



SHOE SOLES



PACKAGING



ATHLETIC SHORTS



FRAGRANCES



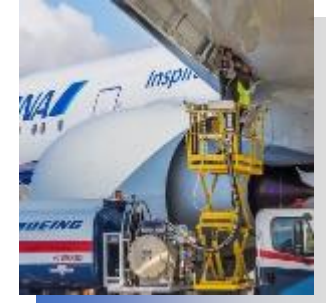
CLEANING PRODUCTS



SHIRTS



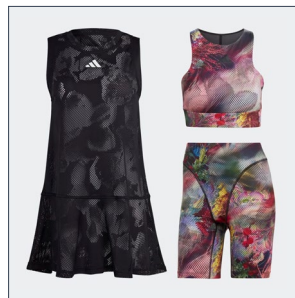
SAF



TENNIS SHOES



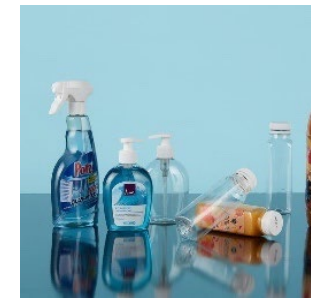
ATHLETIC DRESSES



DETERGENTS



CONTAINERS



SURFACTANTS



LANZATECH ENABLES CARBON NEGATIVE PRODUCTS TODAY WITH FORESEEABLE IMPROVEMENT OVER TIME

Renewable Energy

Further reduces carbon intensity of LanzaTech process and products

Carbon Negative Feedstocks

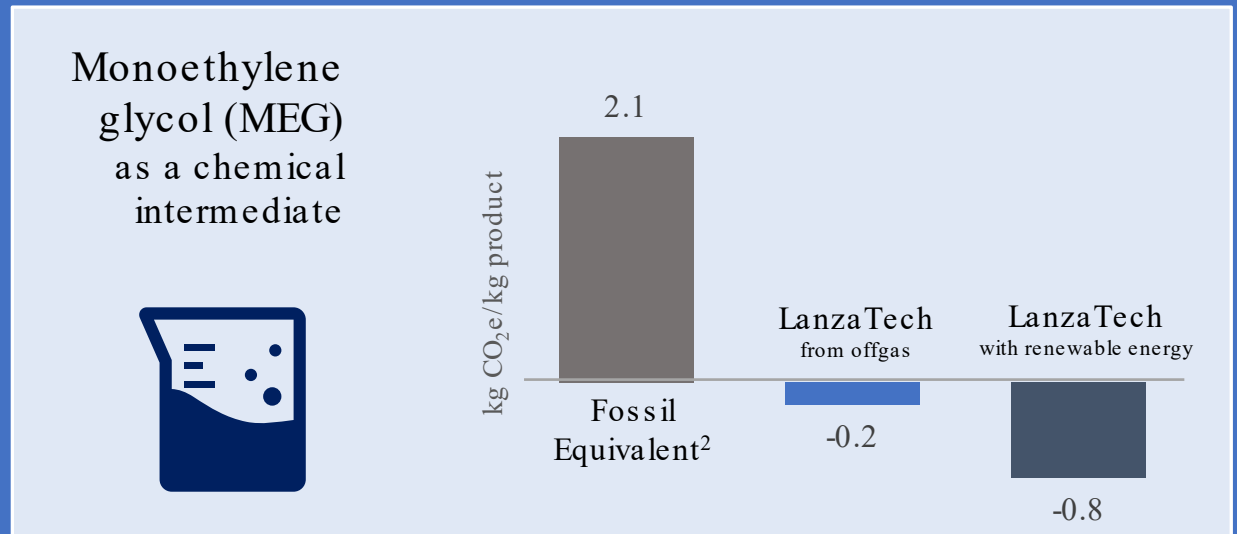
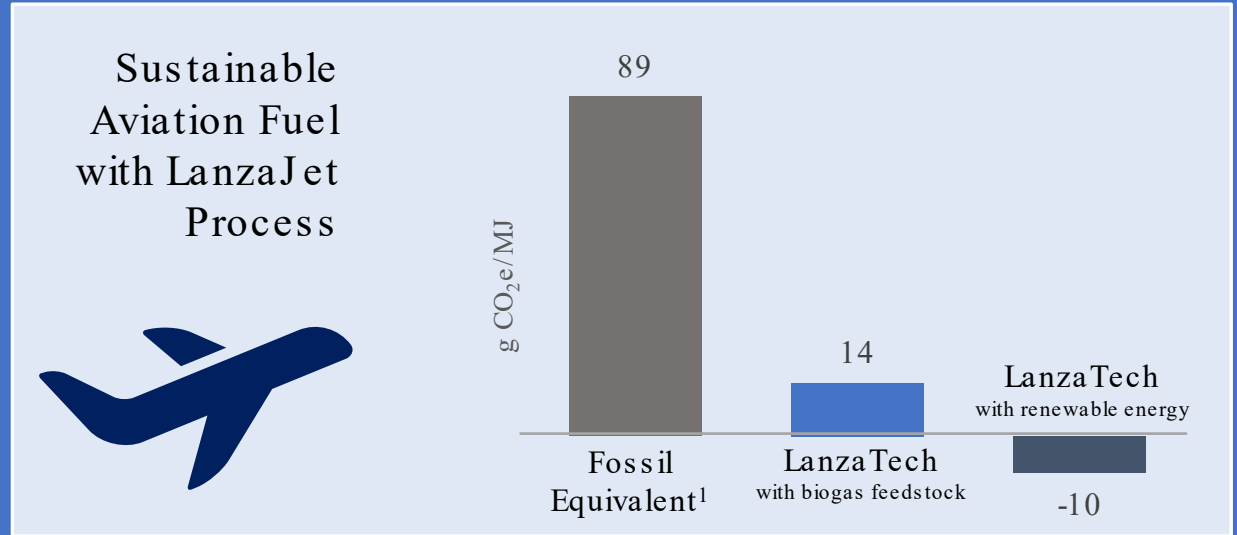
Enable increasingly negative product carbon intensity

Net Zero Economy

Supported by LanzaTech products

Certifications

RSB & ISCC certifications for value chain integrity



¹ ICAO Sustainable Aviation Fuels Guide, Version 2, December 2018, Page 6; ² The ecoinvent database, version 3

Iron & Steel Decarbonization - Technologies

LanzaTech

Direct Reduced Iron & EAF

- + Quick fix (NG / Ore)
- + Potential to deep cut with H2-DRI?
- Capex and Opex intensive
- Significant disruption
- Resources challenge

Carbon capture utilization

- + Value Creation
- + Feedstock to produce fuels and chemicals
- + Retrofit
- + Definitive Payback
- Policy recognition
- Scale-up

Steel production and technology pathways (IEA)

Milestones	2022	2030	2035	2050
Share of near-zero emission iron production	0%	8%	27%	95%
CCUS equipped	0%	3%	10%	37%
Electrolytic hydrogen based	0%	5%	15%	44%
Iron ore electrolysis	0%	0%	2%	14%
CO2 captured (Mt CO2)	1	27	131	399
Low emission hydrogen demand (Mt)	0	6	17	41

Emerging technologies (mostly at low TRL)

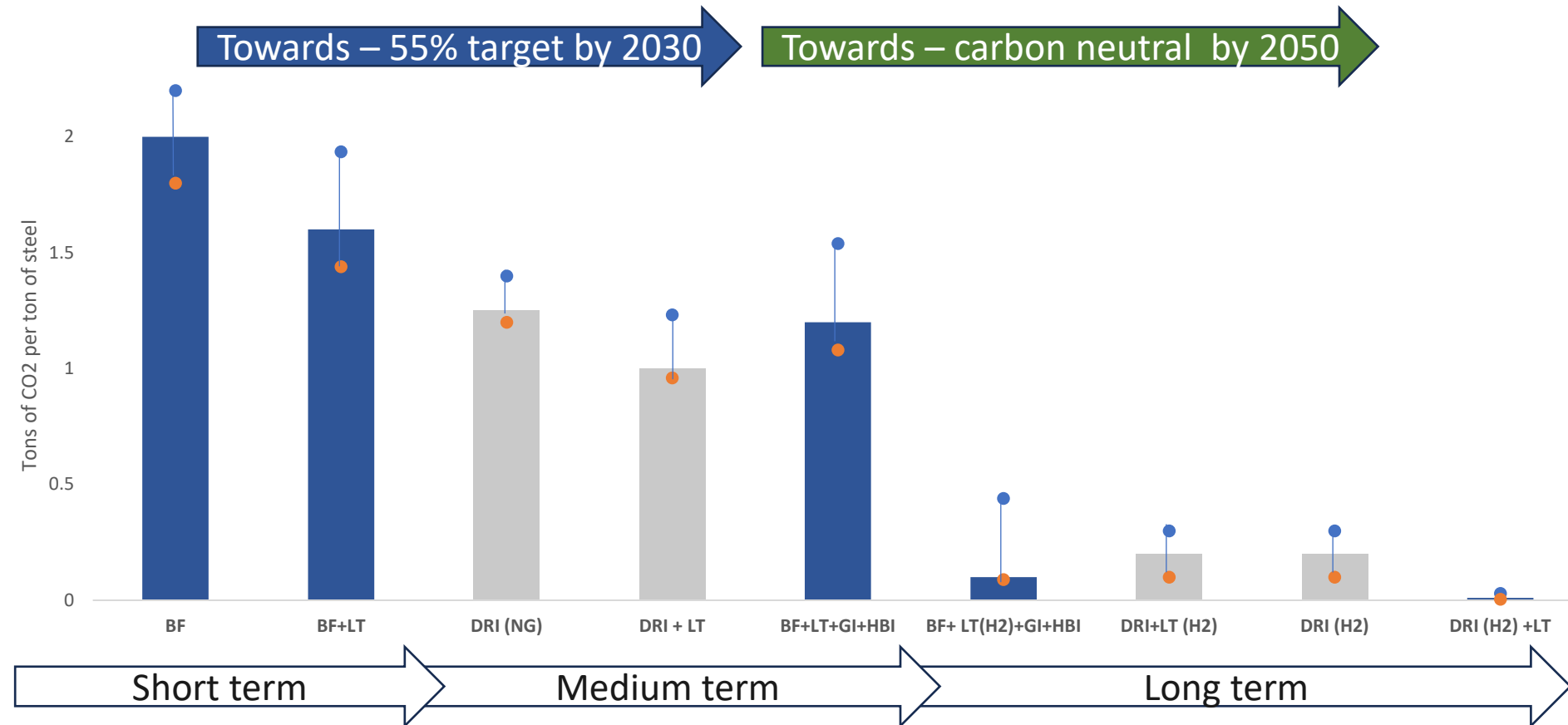
- Boston Metals (MOE)
- Volteron™ (ArcelorMittal)
- Electra
- Hydrogen production
- Syngas
- Use of Biomass

Carbon Capture storage

- + Potentially a quick-fix too?
- + Retrofit
- + Cost avoidance
- in infrastructure;
- recurring cost year on year.

LanzaTech

TOWARDS CARBON NEUTRAL WITH LANZATECH

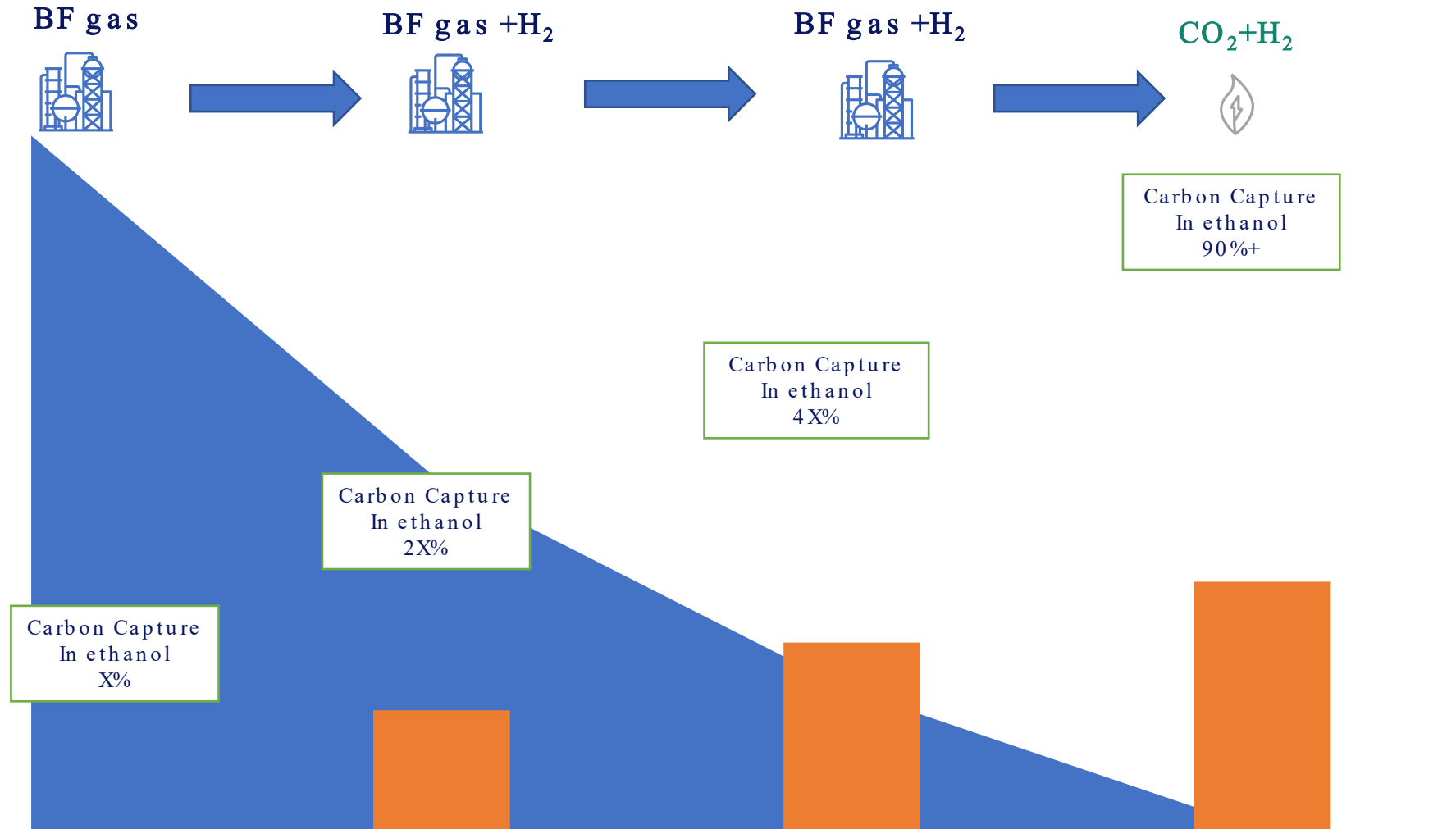


Proven and promising Technologies		
BF+LT	LanzaTech integration in BF	Commercialized
BF+GI	Gas injection technologies in BF	Under development
DRI (H ₂)	Hydrogen	Under development
HBI in BF	HBI as feedstock in BF	Proven

TOWARDS CARBON NEUTRAL WITH LANZATECH:

Transition from BF to CO₂ rich gases & increase in carbon capture rate with H₂

Case study : 100kt Ethanol production tons per year



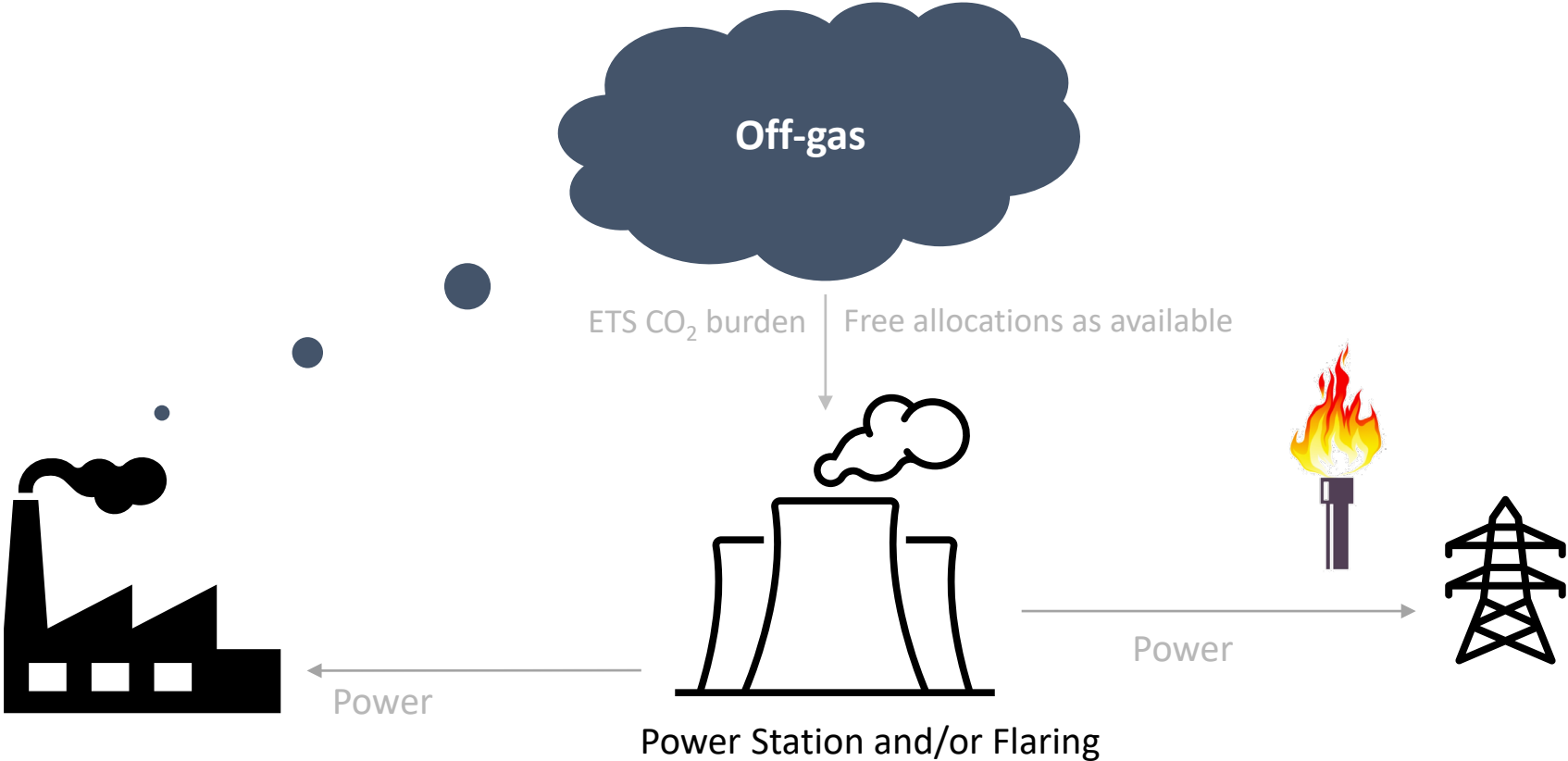
ADDED HYDROGEN INCREASES CARBON CAPTURE

		H ₂ :CO Ratio	Carbon Efficiency
CO	$6 \text{ CO} + 3 \text{ H}_2\text{O} \rightarrow \text{C}_2\text{H}_5\text{OH} + 4 \text{ CO}_2$	0:1	33.3%
CO + H ₂	$3 \text{ H}_2 + 3 \text{ CO} \rightarrow \text{C}_2\text{H}_5\text{OH} + \text{CO}_2$	1:1	66.7%
CO + H ₂	$4 \text{ H}_2 + 2 \text{ CO} \rightarrow \text{C}_2\text{H}_5\text{OH} + \text{H}_2\text{O}$	2:1	100%
CO + H ₂ + CO ₂	$5 \text{ H}_2 + 1 \text{ CO} + 1 \text{ CO}_2 \rightarrow \text{C}_2\text{H}_5\text{OH} + 2 \text{ H}_2\text{O}$	5:1	100%
H ₂ + CO ₂	$6 \text{ H}_2 + 2 \text{ CO}_2 \rightarrow \text{C}_2\text{H}_5\text{OH} + 3 \text{ H}_2\text{O}$	1:0	100%

Multiple avenues to reach 100% carbon capture

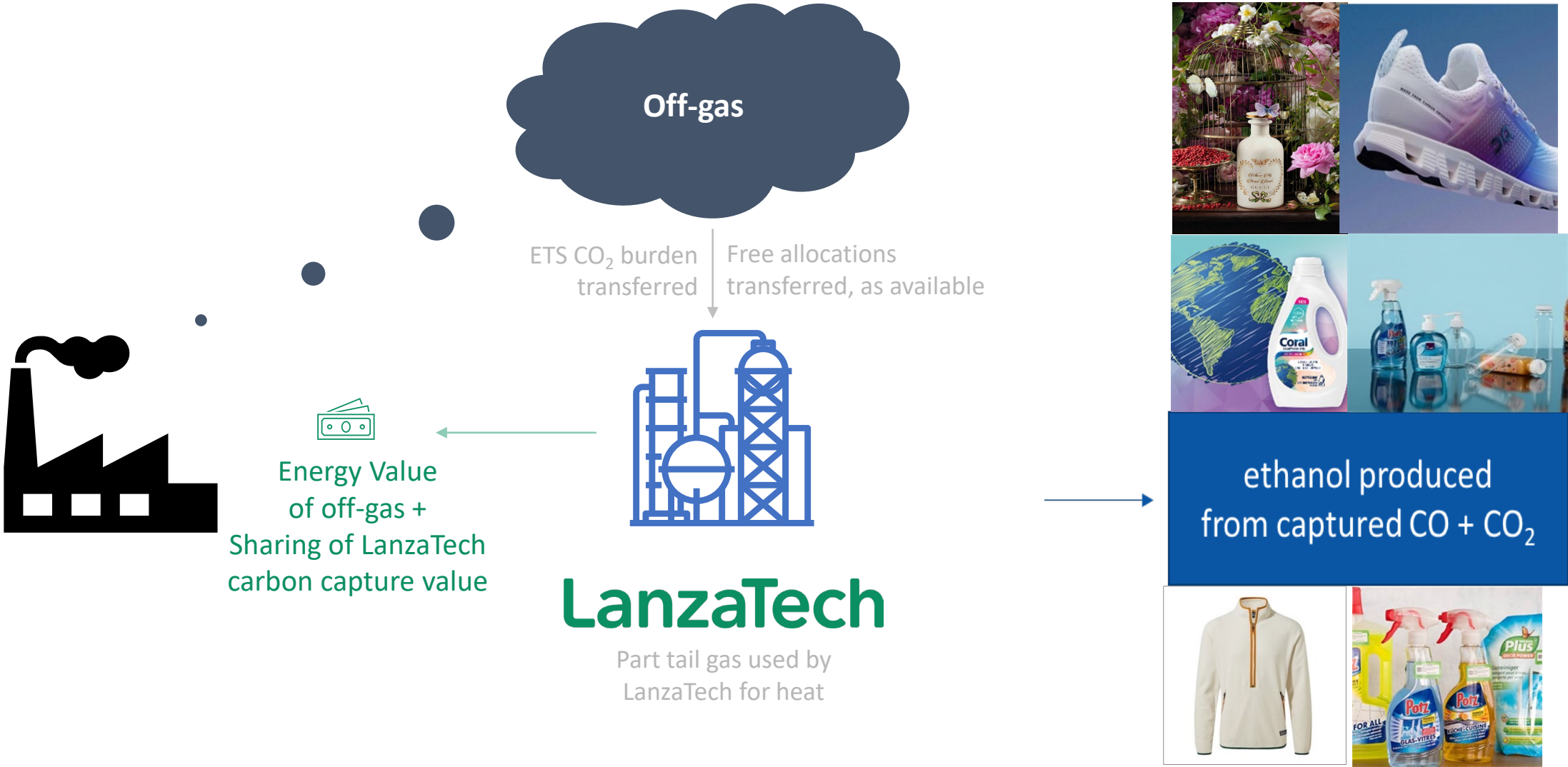
Gas fermentation can flexibly add green H₂ to tailor carbon capture

TYPICAL USE OF WASTE GASES



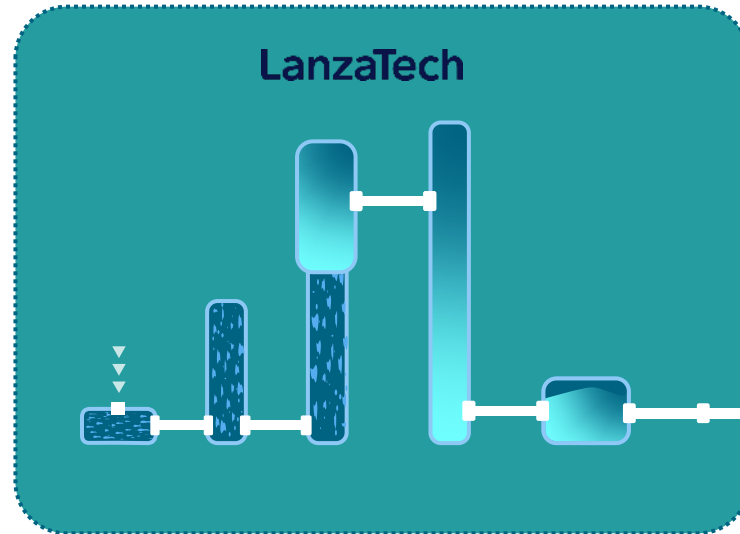
Value of the steel mill off-gas decreases over time as the ETS free allocations decrease in the 2026+ time frame

VALUE CREATION POTENTIAL



Source: LanzaTech

THE NEW CARBON ECONOMY IS DISTRIBUTED AND CIRCULAR



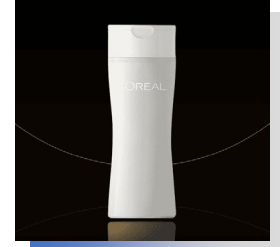
TEXTILES



SHOE SOLES



PACKAGING



CLEANING



FRAGRANCES



AVIATION FUEL



DETERGENTS



CONTAINERS



SURFACTANTS





THE WORLD HAS
ENOUGH CARBON ABOVE
GROUND TO MAKE
EVERYTHING WE NEED

WE CREATE VALUE
WHERE OTHERS
SEE WASTE

JOIN US ON THIS JOURNEY

LanzaTech

Nasdaq: LNZA

RECYCLING CARBON WITH BIOLOGY