Niraj Singh
Sales Manager (India & Australia)
Tel # 9867286053

Industrial decarbonisation is a trillion $ market opportunity

Carbon capture is the most proven and cost-effective method of achieving industrial decarbonisation

Addressable Challenges:

Climate change is real

10 gigatonnes of industrial CO_2 emissions per annum. Companies and governments are demanding carbon capture solutions.

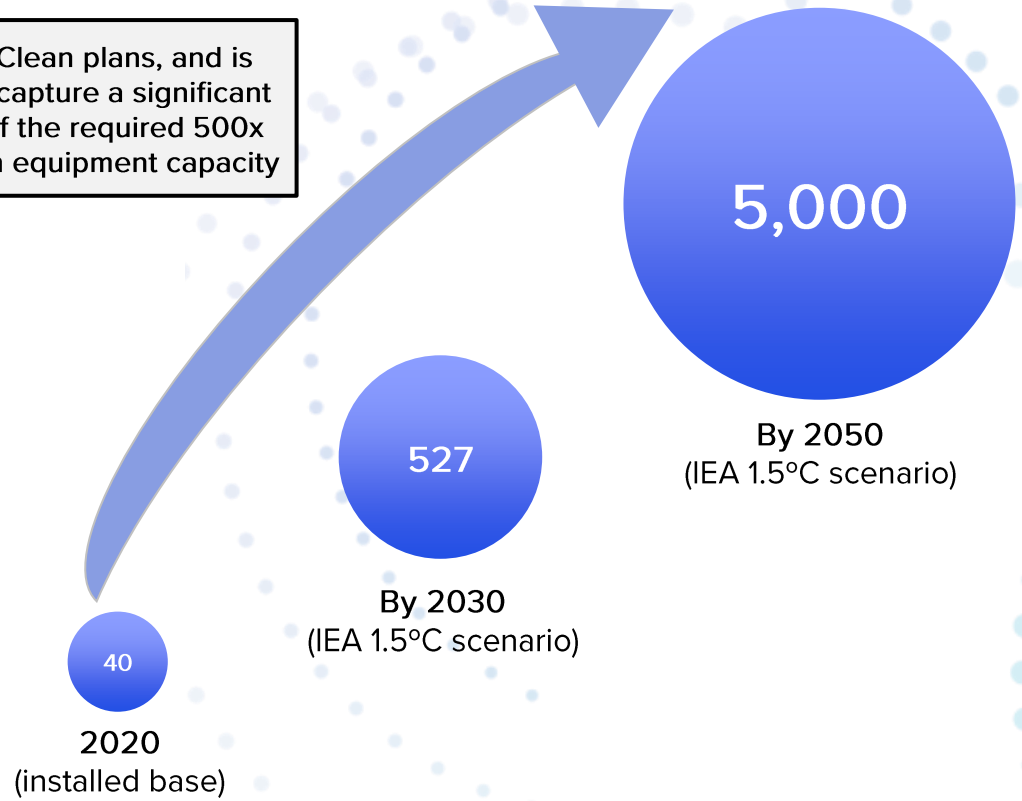
CO_2 capture today is too expensive

Our competitors' offerings cost $100's / tonne. There are no standardised design solutions.

>50% of industrial sites have no space

Most industrial sites are too dense for incremental infrastructure.

Carbon Clean plans, and is ready, to capture a significant portion of the required 500x ramp up in equipment capacity



carbon clean

Carbon Clean is revolutionizing industrial decarbonisation

Our technology is in operation at 49 sites globally and we are set to achieve our vision of capturing 1 billion tonnes of CO_2 by the mid-2030s

- Founded in 2009
- >$195 m raised to date
- 83 → 3x Headcount this FY
- >1.7 m tonnes CO_2 captured
- ~70 patents globally
- Up to 50% overall cost reduction
- 10x smaller mass transfer equipment
- Up to 50% footprint reduction
- 49 global sites operating
- >$300 m qualified pipeline

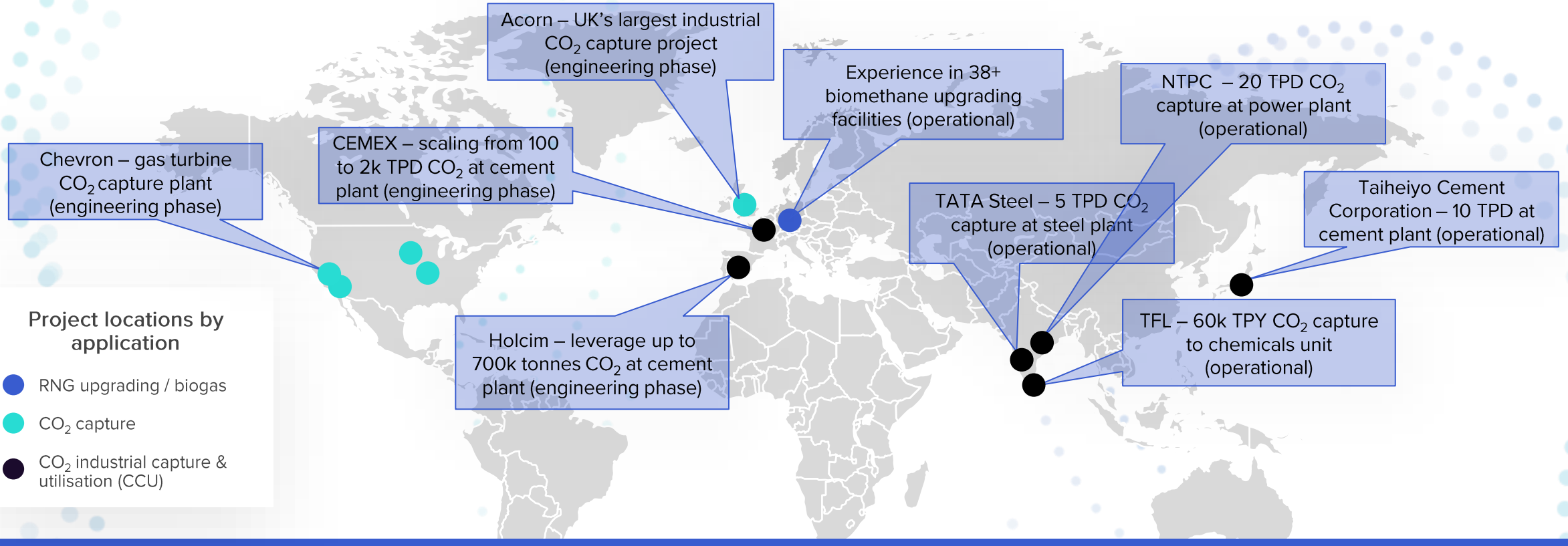
carbon clean

Strong global partnerships

Strategic Partners & Top Customers

Key Investment Partners

49 technology references across the globe



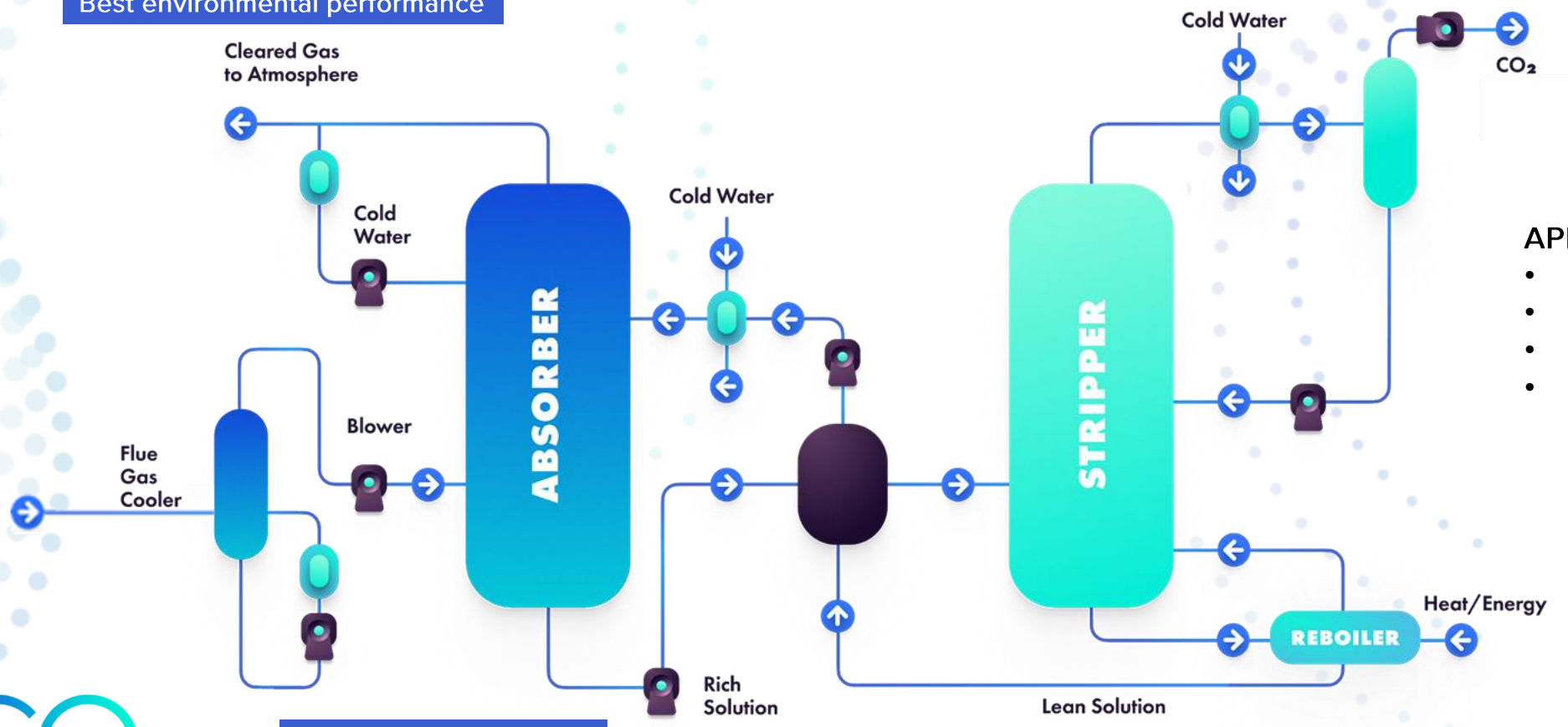
Over 1.7 million tonnes CO_2 captured since 2009

carbon clean

How we are solving it

Carbon Clean has expertise in process design and engineering that, when integrated with existing industrial plants or new projects, enables optimised carbon capture

Best environmental performance



APBS-CDRMax® solvent

- 50% less solvent make-up
- 20x less corrosion
- 30% less energy
- No hazardous emissions

Use of low-grade heat

Higher CO_2 absorption

carbon clean

Our solutions

Conventional Technology

- Engineered to order
- Capacities up to 4,000 TPD CO_2
- Mature technology
- Traditional project execution

CDRMax Technology - Semi-Modular

- Pre-fabricated semi-modular systems
- Capacities 10, 100, 200, 300 TPD CO_2
- Less installation and onsite activities
- Reduced project timeline

CycloneCC™ Technology – Modular

- Fully pre-fabricated modular system
- Capacities 10, 100, 300 TPD CO_2
- Up to 50% reduction in CapEx and OpEx
- Standardised scalable specific sizes reduce footprint

carbon clean

Tuticorin Alkali Chemicals and Fertilizers Limited

Tuticorin Alkali Chemicals and Fertilizers Limited
CIN L24119TN197PLC006083

> 90% capture rates	~$40/tonne capture cost
CO_2 converted into soda ash for green product resale	Soda ash purchased by Unilever for 100% green cleaning products

"Not only does this project meet cost and performance expectations, but we're able to convert the CO_2 into soda ash – an ingredient found in commercial household products."

G. Ramachandran, Managing Director, TFL

Location: Chemical and fertiliser carbon capture and conversion plant in Chennai, India

- Carbon Clean has been operating the world's first low-cost industrial-scale CCU plant in India since 2016, with Tuticorin Alkali Chemicals and Fertilizers Ltd (TFL)
- The project captures 60,000 tonnes of CO_2 per year from coal-fired boiler flue gas and produces soda ash for green product sales

CDRMax™ semi-modular: TATA Steel

TATA STEEL

Capturing 5 TPD of CO_2

Modular and skid-mounted technology

First-of-its-kind within the steel industry

CO_2 reuse onsite to promote the circular carbon economy

"The operational experience gathered from this 5 TPD CO_2 capture plant will give us the required data and confidence to establish larger carbon capture plants in future. As the next step, we aim to establish scaled up facilities of CO_2 capture integrated with utilisation avenues."

T. V. Narendran, CEO & MD, Tata Steel

Location: Steel pilot plant in Jamshedpur, India

- In 2021, Carbon Clean successfully designed and commissioned a blast furnace carbon capture plant at Tata Steel's Jamshedpur facility
- The carbon capture technology captures CO_2 directly from the blast furnace gas and makes it available for onsite reuse
- The operational experience gathered from this 5 TPD capture plant will give the necessary data and confidence to establish larger carbon capture plants going forward with the aim to establish scaled up CO_2 capture facilities integrated with utilisation avenues

CDRMax™ semi-modular: NTPC

Capturing 20 TPD of CO_2

Modular and skid-mounted technology

> 90% capture rates

CO_2 reuse for producing green methanol

"As part of its commitment towards Net Zero by 2070, NTPC Ltd, India's largest integrated power company has captured its first CO2 on 15th August 2022 from flue gas stream of 500 MW coal based power plant (Unit-13) at Vindhyachal Super Thermal Power Station (VSTPS)."

NTPC, company statement

Location: NTPC Power Plant, Vindhyachal, India

- The carbon capture technology captures CO_2 directly from the flue gas and makes it available for onsite reuse
- The integrated CO2 to methanol project has been conceived, designed, engineered and awarded by the R&D wing of NTPC -- NTPC Energy Technology Research Alliance and executed by Vindhyachal Super Thermal Power Station

Our CycloneCC™ technology

CycloneCC™ enables scalable cost-effective carbon capture for the industrial sector by reducing equipment size and CapEx & OpEx up to 50%

- ✓ Breakthrough combination of two process intensification technologies:
  - Rotating Packed Beds
  - APBS-CDRMax® solvent
- ✓ 100% modular & scalable
- ✓ Standardized scalable specific sizes to reduce footprint
- ✓ Upto 50% reduction in CapEx and OpEx
- ✓ Capacities of 10, 100, 300 TPD of CO2

carbon clean

Our execution strategy is simple….

Lead with the world's smallest industrial carbon capture solution: CycloneCC™

- ✓ ***Modular:*** *1/10th the size of conventional commercial carbon capture equipment*
- ✓ ***Scalable:*** *10, 100 and 300 TPD CO_2*
- ✓ ***Low Cost:*** *CapEx and OpEx are reduced by up to 50%*

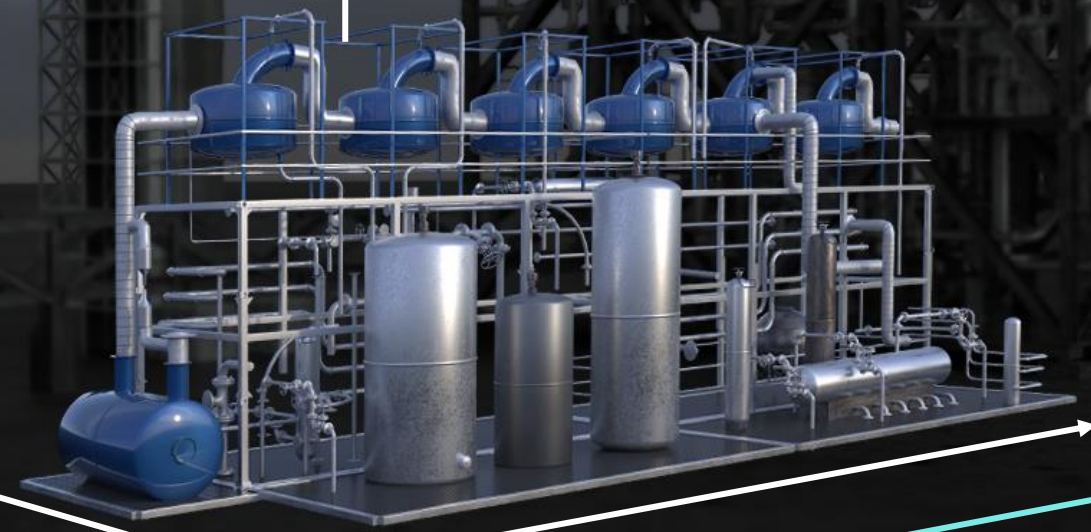
Cyclone CC Product Vision : 2025

100 TPD conventional CO_2 capture plant

- Overall footprint: 500 sqm
- Height: 35m
- Delivery time: 15-18 months

100 TPD CycloneCC™ modular solution

- Overall footprint: 225 sqm
- Height: 16m
- Delivery time: 6-12 months



35m

16m

20m

8.6m

26m

26m

carbon clean

TECHNOLOGY TO ACHIEVE 'NET ZERO'

Accelerated rollout with shareholders and JV partners


Gas turbines in San Joaquin Valley, California

- **Facility Type:** Co-generation
- **Expansion Opportunities:** Other land-based gas turbines across the US
- **Unit Size:** 120 TPD


Energy from waste facility in Sheffield, UK

- **Facility Type:** Energy from Waste (EfW)
- **Expansion Opportunities:** Opportunities in the US, EU, India and Australia in the EfW sector
- **Unit Size:** 10 TPD

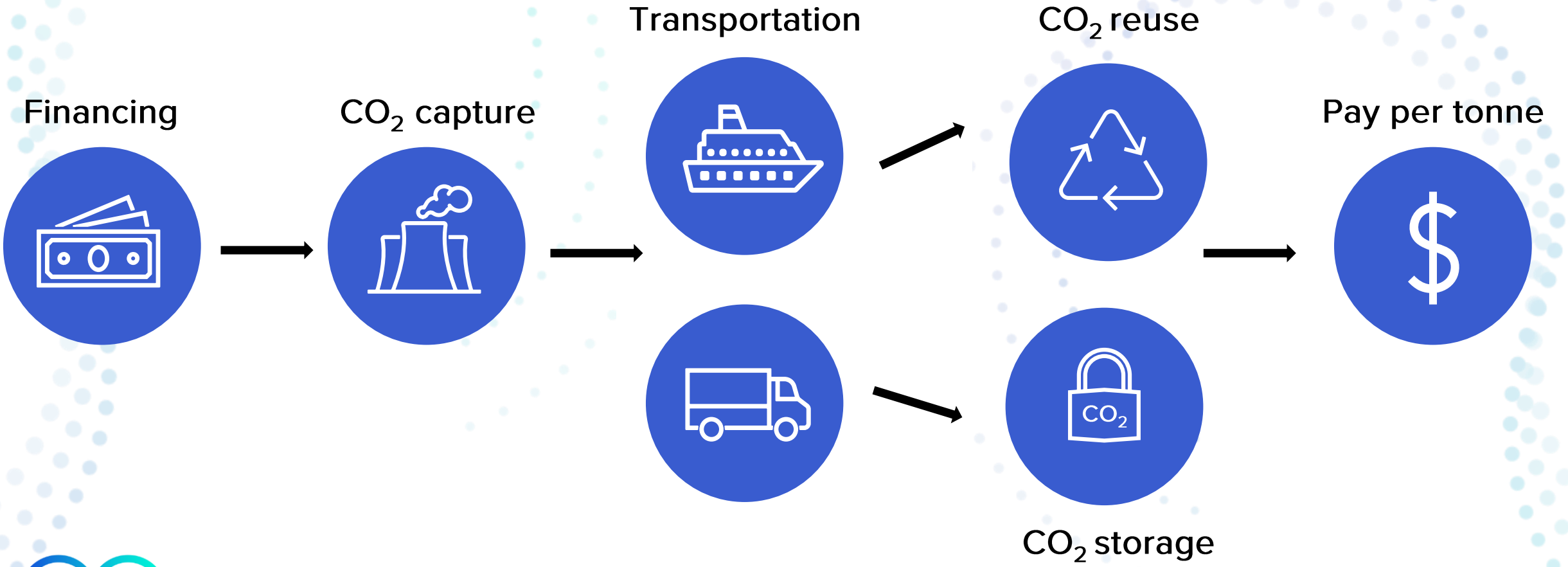

Cement plant in Rüdersdorf, Germany

- **Facility Type:** Cement plant
- **Expansion Opportunities:** 100 TPD at 15 identified sites globally; beyond this, 300 TPD with ambitions to scale to 2,000 TPD
- **Unit Size:** 10 TPD, 100 TPD and 300 TPD

carbon clean

Carbon Capture as a Service (CCaaS)

Streamlined and simple carbon capture from source to reuse or storage with payment per tonne CO_2 captured



carbon clean

Why Carbon Clean?

- Global leader in cost-effective, modular and scalable carbon capture solutions
- Patented technology, processes & engineering expertise, proven at over 49 sites around the world
- Enabling industries to reach net zero, leverage decarbonization incentives and join the growing global circular carbon economy

carbon clean

carbon clean

TECHNOLOGY TO ACHIEVE 'NET ZERO'