Capture the Future

January 2025

Nano Innovations Shaping Industry and Climate.

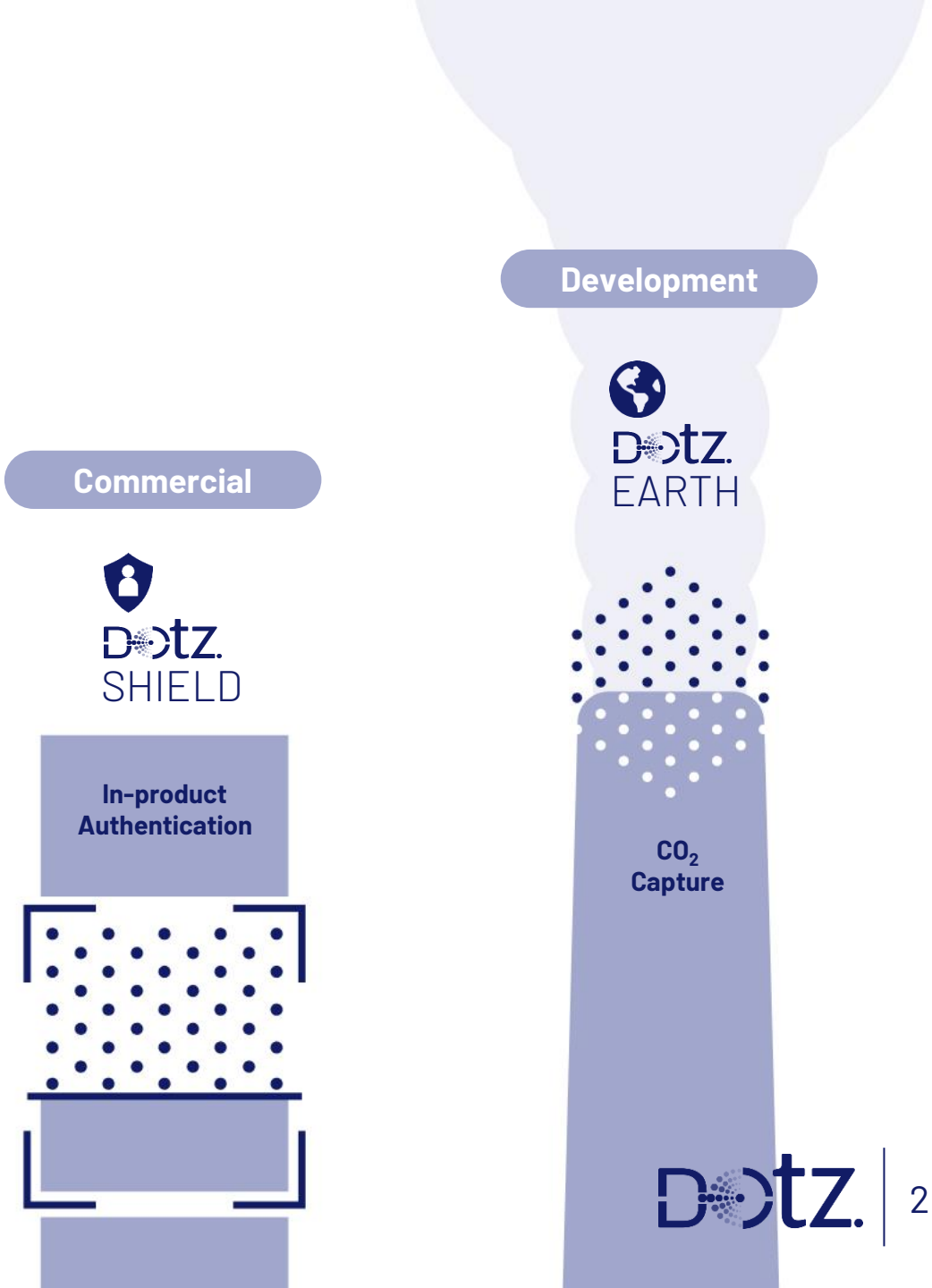
Dotz Nano Limited [ASX:DTZ, OTC:DTZNY/DTZZF]
Corporate Deck; info@dotz.tech

Dotz at a glance.

A pioneering developer of innovative climate and industrial nanotechnologies.

Groundbreaking carbon management technologies that facilitate the transition to a carbon-neutral world.

ASX	DTZ
OTC	DTZZF/DTZNY
Global	HQ: Israel R&D: Israel Commercial: US
Partners	RICE UNIVERSITY · SINTEF · רשות החדשנות Israel Innovation Authority · BIRAD RESEARCH & DEVELOPMENT COMPANY LTD Bar-Ilan University



A global provider of carbon management technologies.

SUPERIOR TECHNOLOGY

- IP-protected nanotechnologies for a range of CO_2 capture and removal applications
- Superior performance delivering game-changing cost savings
- Validated by 3rd parties & piloting towards commercial viability

EXPANDING MARKETS

- Target markets estimated to grow by more than 15x over the next decade
- Increasing regulatory pressure and corporate commitments to net-zero emissions are driving demand
- Governments are providing support and incentives to encourage carbon capture initiatives

BUILT FOR GROWTH

- Partnership opportunities for global scaling across various sectors
- Highly scalable and de-risked business model
- Multiple revenue opportunities

Experienced leadership team with proven record of driving growth and creating value.

EXECUTIVE TEAM

Sharon Malka
CEO

Michael Shtein, Ph.D.
Founder, CTO

Liat Bar Ziv Alperovitz
CFO

Shirley Shoshaney-Kleiner
CMO

BOARD OF DIRECTORS

Bernie Brookes
Chairman

Doron Eldar
Director

Kerry Harpaz
Director

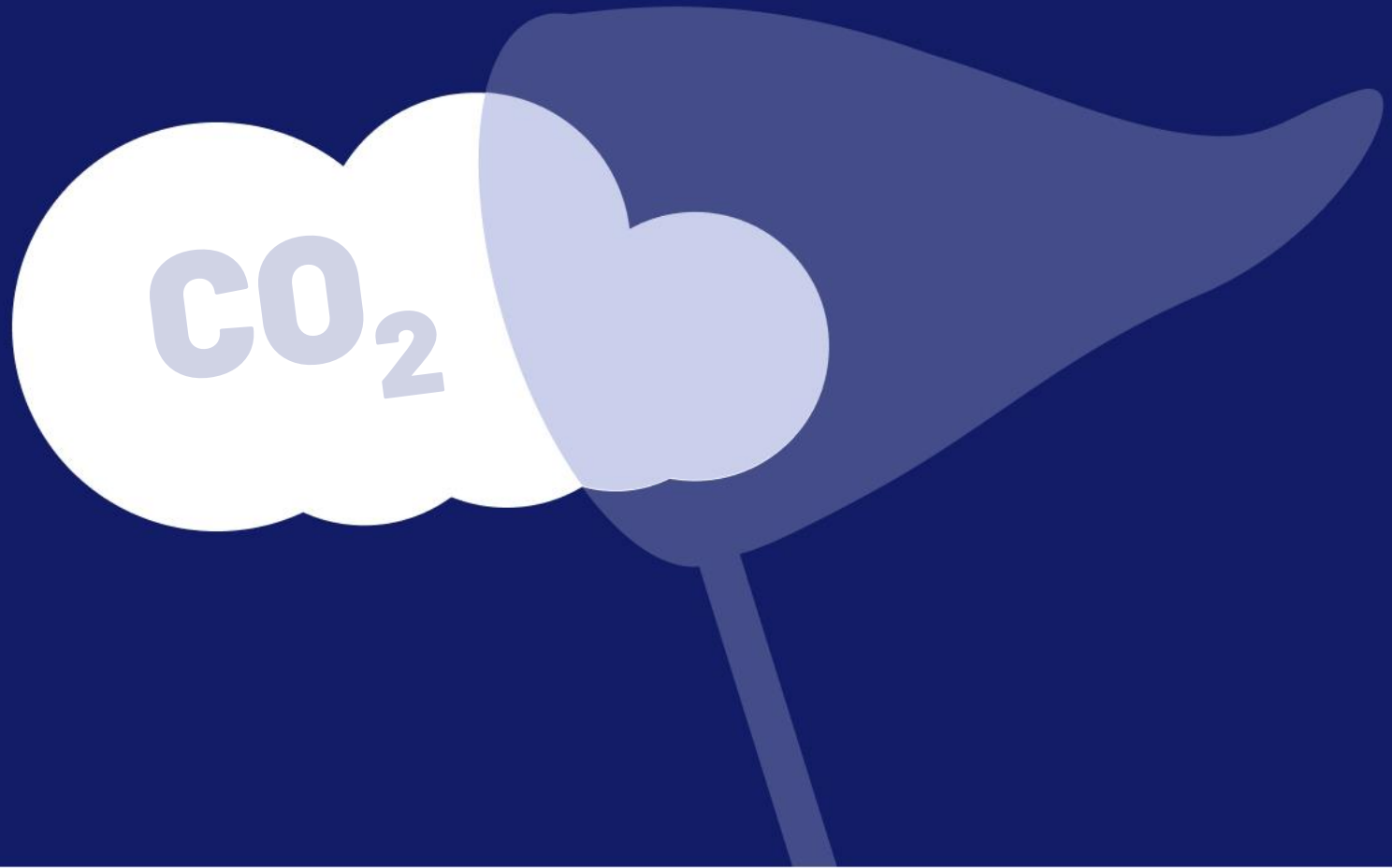
Glenn Kelly
Director

Mitchell Board
Director

Dotz.EARTH

CO_2 Capture

Sorbent innovation driving affordable carbon management solutions



Superior technology

Integrating innovative sorbents with advanced process designs for affordable carbon capture and removal.

Point-Source Capture (PSC)

Capture CO_2 at point sources before it is released to the atmoshphere. PSC is the most viable solution to **avoid emissions** for hard-to-abate industries

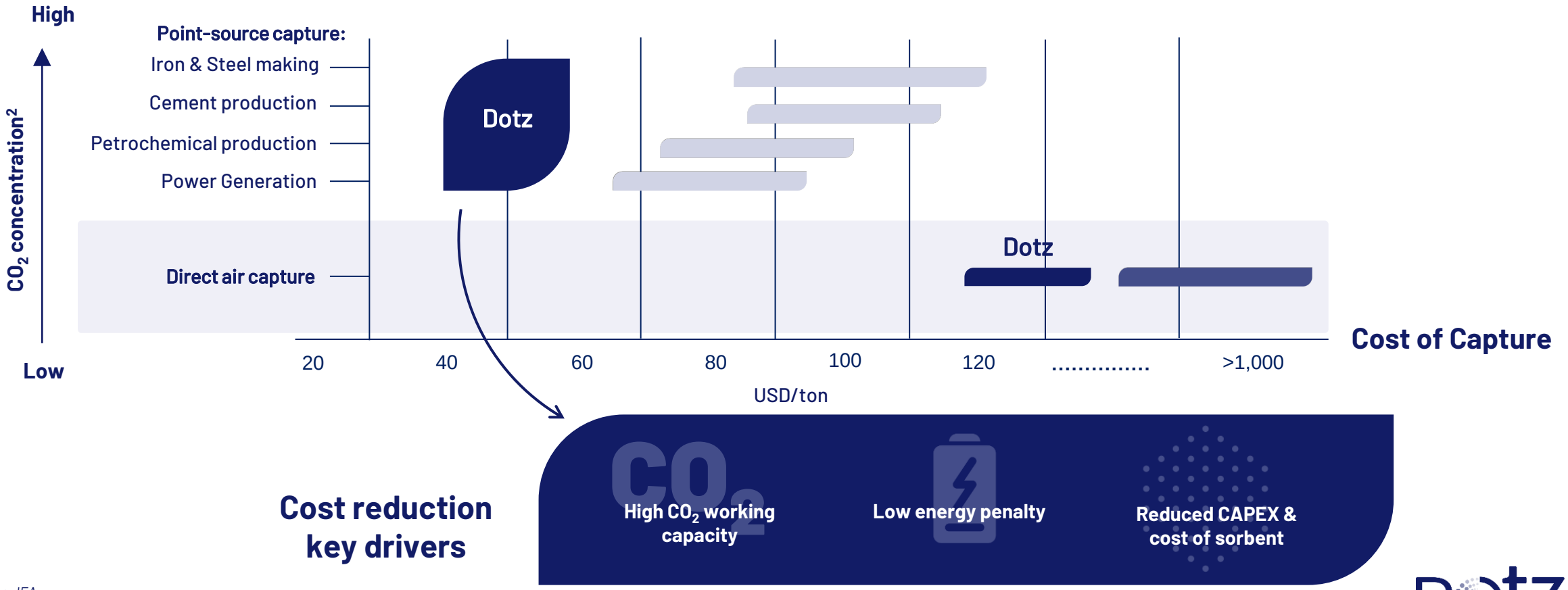
Direct Air Capture (DAC)

Remove CO_2 directly from the atmoshphere. DAC results in **negative emissions**

Superior technology

Innovation driving low-cost carbon management solutions.

Average Cost of CO_2 Capture, Transport and Storage[1]



1 Source: IEA

2 Source: Bettenhausen, Craig. "The life-or-death race to improve carbon capture," Chemical & Engineering News

Estimates of cost to capture a ton of CO2 vary by industry and such factors as the amount of exhausted gas from a plant, the concentration of CO2 in the exhaust and its pressure

Superior technology

A new era of sorbents with enhanced performance.

High CO_2 working capacity with a low energy penalty and low cost of sorbent

DAC SORBENTS

- Modified sorbents
- Chemical absorption
- Ultra-high surface area
- Regeneration via temperature swing (TSA)
- Applicable for low CO_2 content flue gases (<10%)

POINT-SOURCE SORBENTS

- Nanoporous carbon-based & polymeric sorbents
- Physical adsorption
- Unique porosity – high volume of ultra-micropores
- Regeneration via vacuum swing (VSA) and temperature swing (TSA)
- Applicable for high CO_2 content flue gases (>10%)

BENEFITS

High CO_2 adsorption capacity

High selectivity

Low moisture affinity

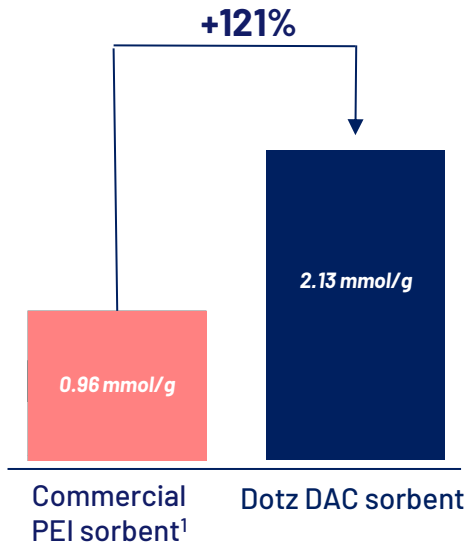
Resistance to impurities

Lower energy penalty

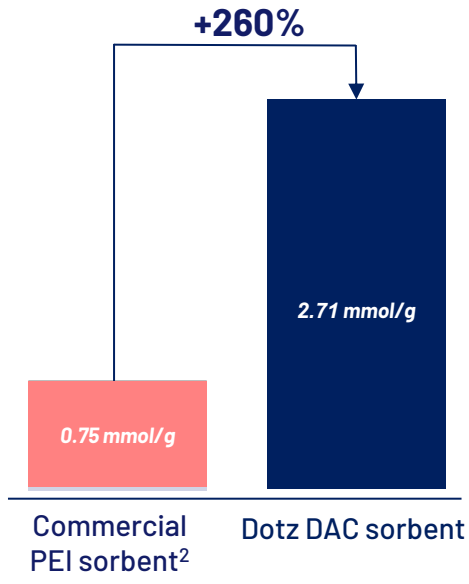
Regenerable and reusable

Dotz's DAC sorbent demonstrate superior adsorption capacity.

2X higher CO_2 adsorption capacity with dry air (at 400 ppm, 25°C)



Very high CO_2 adsorption capacity with wet air (at 400 ppm, 30 °C , 20% RH)

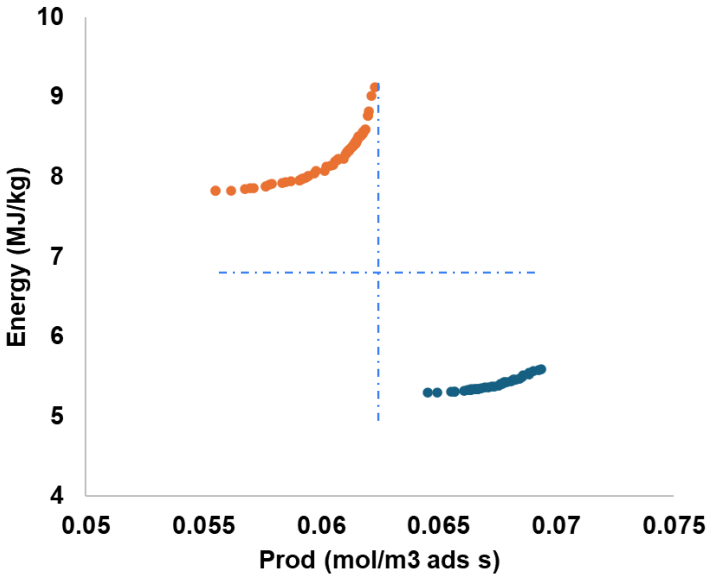


1 Lewatit VPOC 1065; Source: low-et-al-2023-measurement-of-physicochemical-properties-and-co2-n2-ar-o2-and-h2o-unary-adsorption-isotherms-of.pdf
2 Lewatit VP OC 1065 (amine-grafted resin) at 35 RH; source: https://doi.org/10.1038/s41467-024-53961-4

Process modeling of DAC application validate higher productivity and lower energy.

- Dotz's modified sorbent was tested via DAC process modelling by 3rd parties and by SINTEF[1]
- **Summary of results**:
  - **Very high CO_2 uptake** at 400 ppm CO_2 / 30°C / 20% RH
  - Sorbent is **inert to N_2** and showed **high water affinity**
  - Breakthrough analysis (kinetic) indicated **reproducibility**
  - Stability cycling tests indicated high retained CO_2 uptake after 2,500 adsorption/desorption cycles
  - **Higher productivity of CO_2 adsorption** relative to commercial PEI-sorbents
  - **Low energy** usage compared to commercial PEI-sorbents
- Lab-scale pilot demonstration is ongoing

Superior productivity & lower energy usage



SINTEF DAC model to benchmark Commercial sorbent performance in a fixed bed VTSA process of DAC application in Norway[2]

SINTEF

1 SINTEF, one of Europe's largest independent research organizations for energy and climate technology
2 Modelling conditions: 400 ppm vol, 80% relative humidity at 5°C

Superior technology

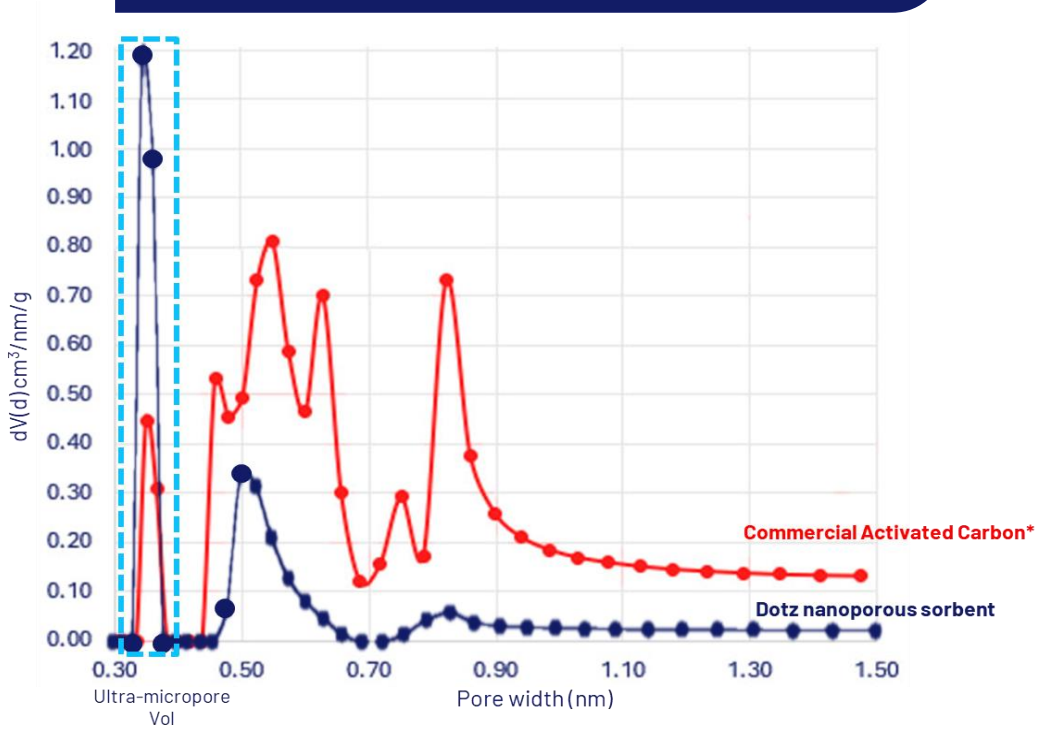
Engineered pore volume & distribution, ideal for CO_2 capture from flue gases.

Point-source sorbents

Dotz's innovative nanoporous sorbents have very high volume of ultra-micropores that are responsible for the physical adsorption of CO_2

(CO_2 molecule 0.33nm diameter)

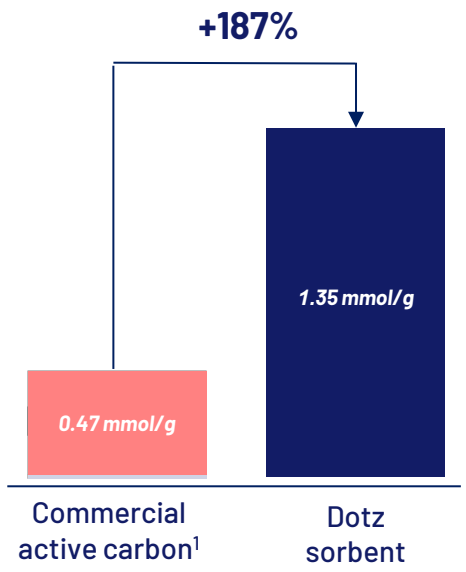
Pore volume and distribution



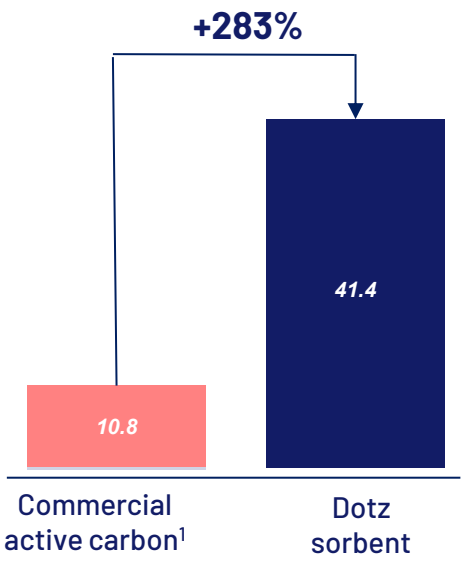
*Provided by Blücher (Germany)

Dotz's nanoporous sorbents demonstrate superior properties.

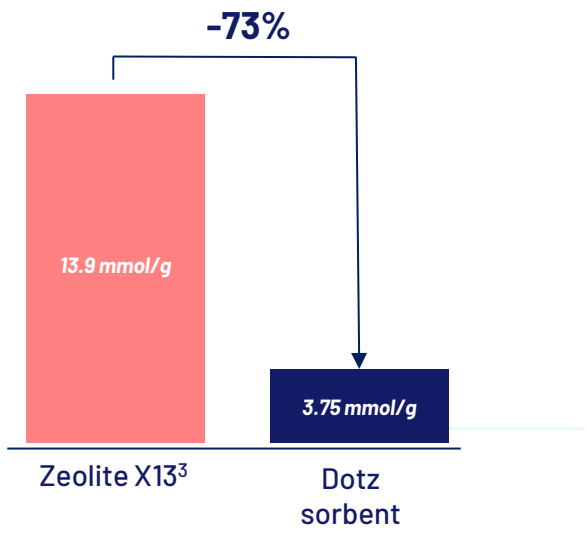
3X higher CO_2 adsorption capacity (at 25°C, 15 kPa)



4X higher selectivity[2] (at 25°C, 10 kPa)



~75% lower H_2O adsorption (at 30°C, 1 kPa)



1 Provided by Blücher (Germany)
2 CO_2 / N_2 adsorption capacity
3 Source: low-et-al-2023-measurement-of-physicochemical-properties-and-co2-n2-ar-o2-and-h2o-unary-adsorption-isotherms-of.pdf

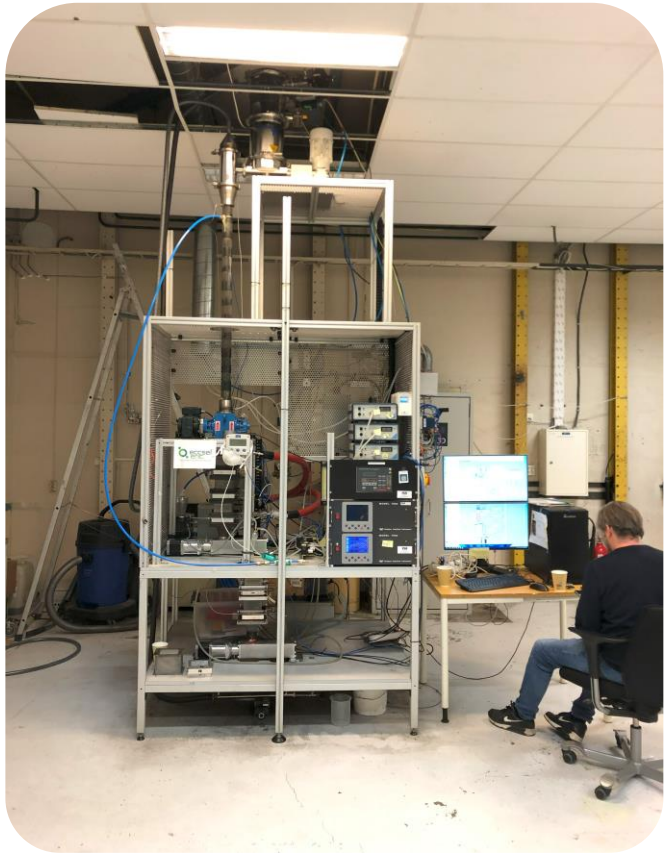
Lab-scale piloting demonstrates superior adsorption capacity, low energy use and improved cyclability.

VSA[1] process simulations resulted in ultra-low energy requirements

- Process simulation resulted in 97% purity CO_2 at **an energy consumption of <1 GJ/ton CO_2**, from post combustion flue gases
- Dotz's AC can also handle humid flue gases

TSA[2] lab-scale pilot demonstration resulted in superior adsorption capacity and cyclability

- **Higher effective adsorption capacity** relative to a commercial reference
- **Higher in situ CO_2 purity** (based on its higher selectivity of CO_2 over N_2) compared with a commercial reference)
- Demonstrated **thermal stability** following approximately 140 adsorption/desorption cycles



1 Moving bed temperature swing adsorption (**MBTSA**) lab scale pilot rig, simulating Waste-to-Energy flue gas fixed operating conditions: Adsorbent benchamrking protocol as defined by SINTEf for the MBTSA pilot rig – consisting of batch sorbent drop tests and continuous operation cycles.(Ambient adsorption temperature, fixed desorption temperature, sorbent solid flux flue gas flow rate and composition)
2 A multi-column fixed bed vacuum swing adsorption (**VSA**) using Dotz's sorbent process modelling

Built for growth

Piloting towards commercial viability.

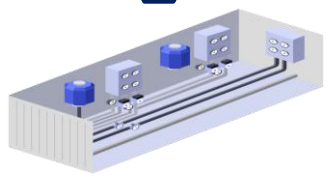
2025 | 2026 | 2027

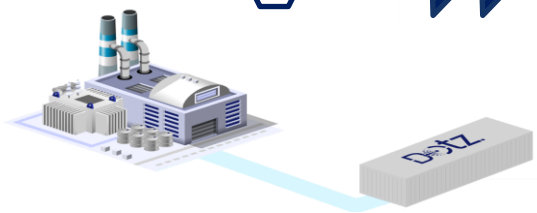
DAC

- **Sorbent validation**
- **Process simulations**
- **Lab-scale pilot unit** TRL 4
- **Field demo unit** TRL 6
- **Lab-scale pilot - Electrochemical**
- **Integrated pilot (market-ready-module)** 100 kg/d
- **Field demo pilot - Electrochemical**
- **A modular capture unit for scale-up & deployment** 1 t/d

Point source

- **Sorbent validation**
- **Process simulations**
- **Lab-scale pilot unit TSA** TRL 4
- **Lab-scale pilot unit VSA** TRL 4
- **Small-scale mobile pilot unit** TRL 6
- **Industrial pilot unit** (10-30 t/d)

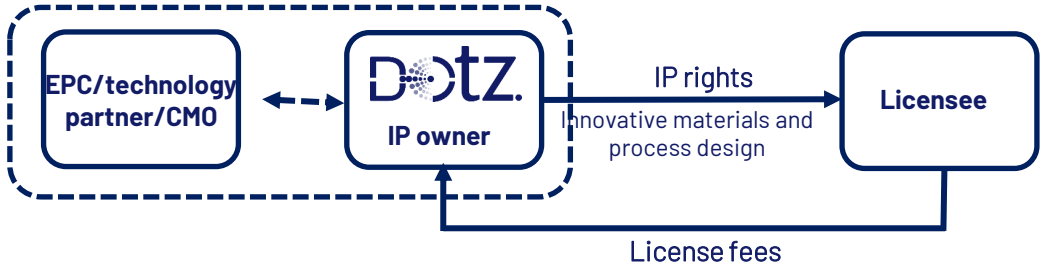




Built for growth

Monetizing innovation through strategic licensing with multiple revenue streams.

IP licensing model



- Highly scalable model
- Lower risk
- Multiple revenue streams

Multiple revenue opportunities

- **Product sales**: generate initial revenue during the development stages
  - Sorbent supply
  - CO_2 utilization
  - Testing mobile unit
- **Carbon credits**: Generate revenue through the sale of future carbon removal credits
- **Technology licensing**: license the use of the technology to scaling partners
  - Upfront license fee
  - Milestone payments
  - Ongoing royalty payments

Built for growth

Partnership opportunities for global scaling across various sectors.

Targeting industrial processes, power generation, and direct air capture

Target Segments of point source capture

Iron & Steel

Share in global emissions[1]: 12%
Annual CO_2 emissions (2020)[1] : 2.6GT

Cement

Share in global emissions[1]: 8%
Annual CO_2 emissions (2022)[1] : 1.6GT

Power Generation

Share in global emissions[1]: 40%
Annual CO_2 emissions (2022)[1] : 36.8GT

Chemicals

Share in global emissions[2]: 5%
Annual CO_2 emissions (2022)[1] : 1.3GT

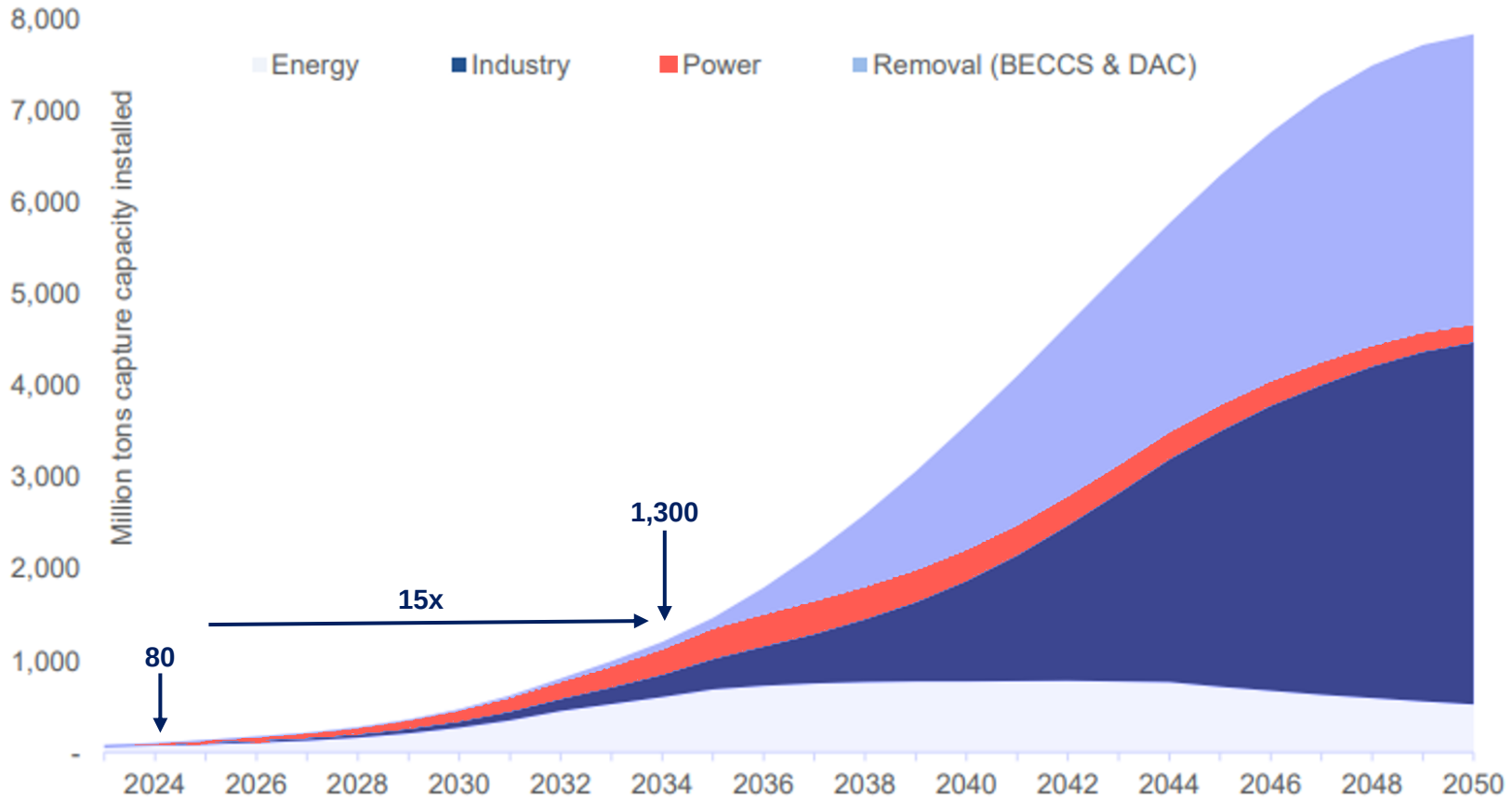
Direct Air Capture

Over 200 million tonnes of CO2 every year needs to be captured from the atmosphere utilizing direct air

1 International Energy Association (IEA) ; 2 "Net-zero emissions chemical industry in a world of limited resources", Gabrielli et al, 2023;

Early phase of a rapidly expanding market.

Carbon capture capacity estimated to grow by more than 15x within 10 years



More than
3Gt removal
Voluntary carbon market

More than
4Gt removal
Compliance carbon market

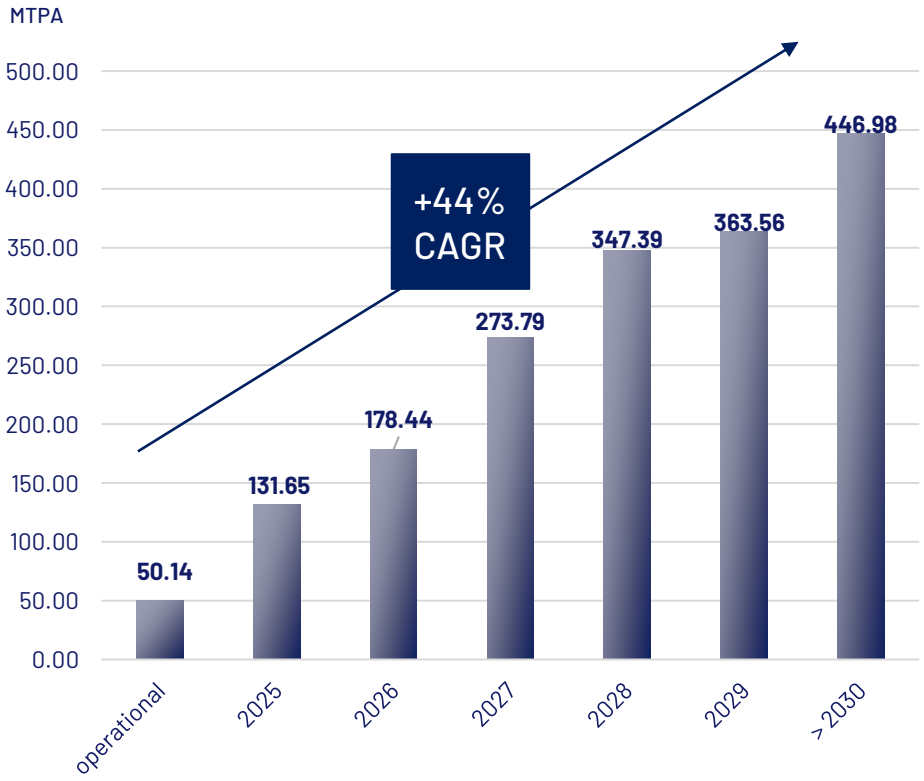
Source: Rystad Energy 1.6dg Scenario/SpareBank 1 Markets

Expanding markets

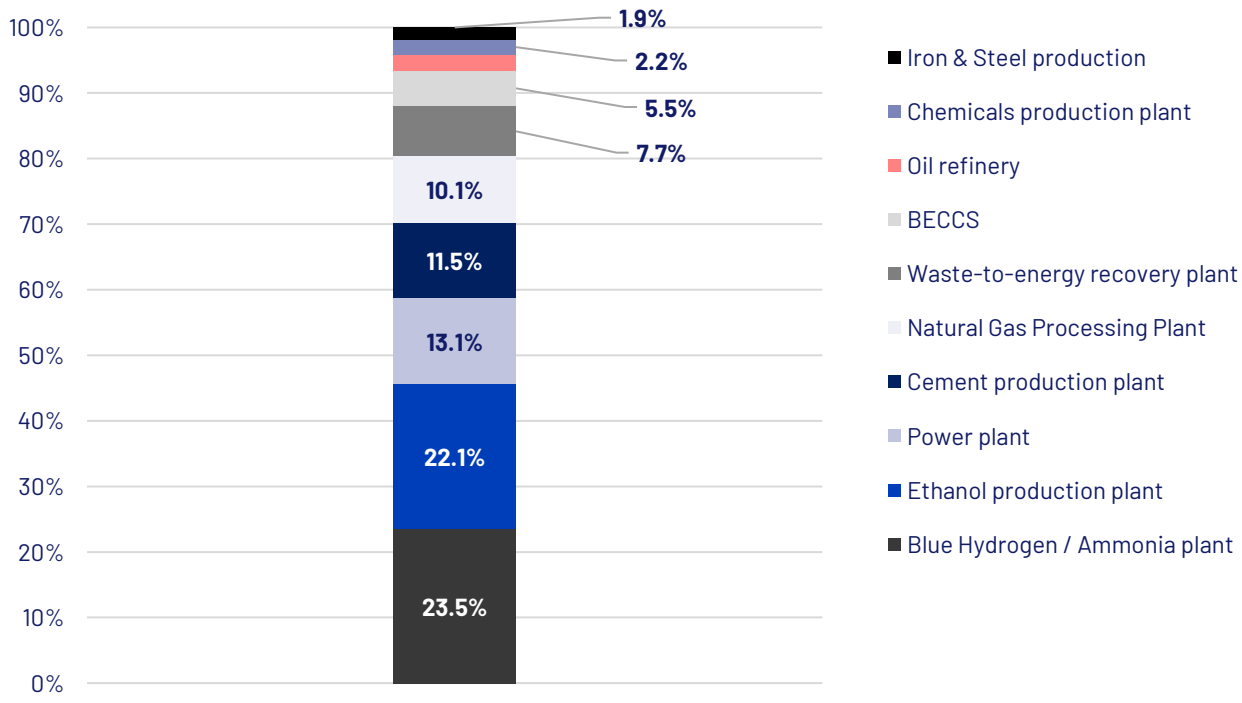
Planned projects point to strong growth.

Nearly 600 MTPA have been announced and more to come

Global operational & planned captured capacity[1]



Global Capacity by application[1] (% of total)



1 Company information

Expanding markets

CCS Market Poised for Growth Amid Favorable Market Drivers.

Regulatory pressure, corporate commitments and government support & incentives

Pricing

40% of global emissions presently covered by pricing mechanism

Storage

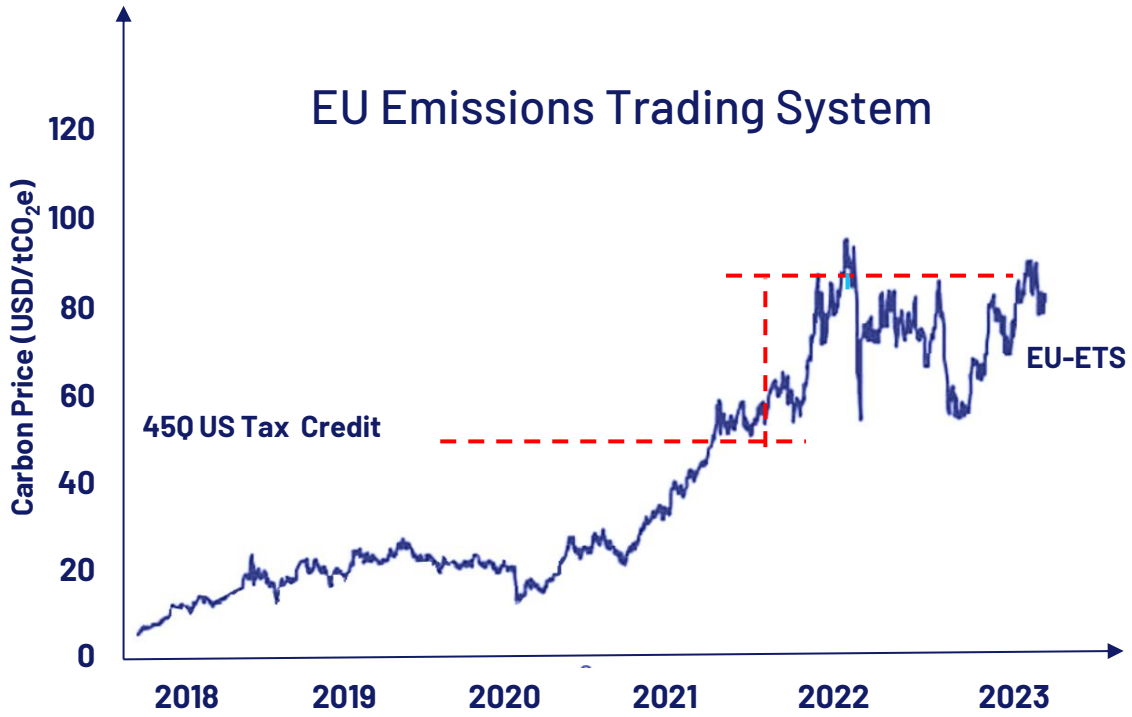
Transportation and storage availability is accelerating

Incentives

CCS incentives are increasing globally

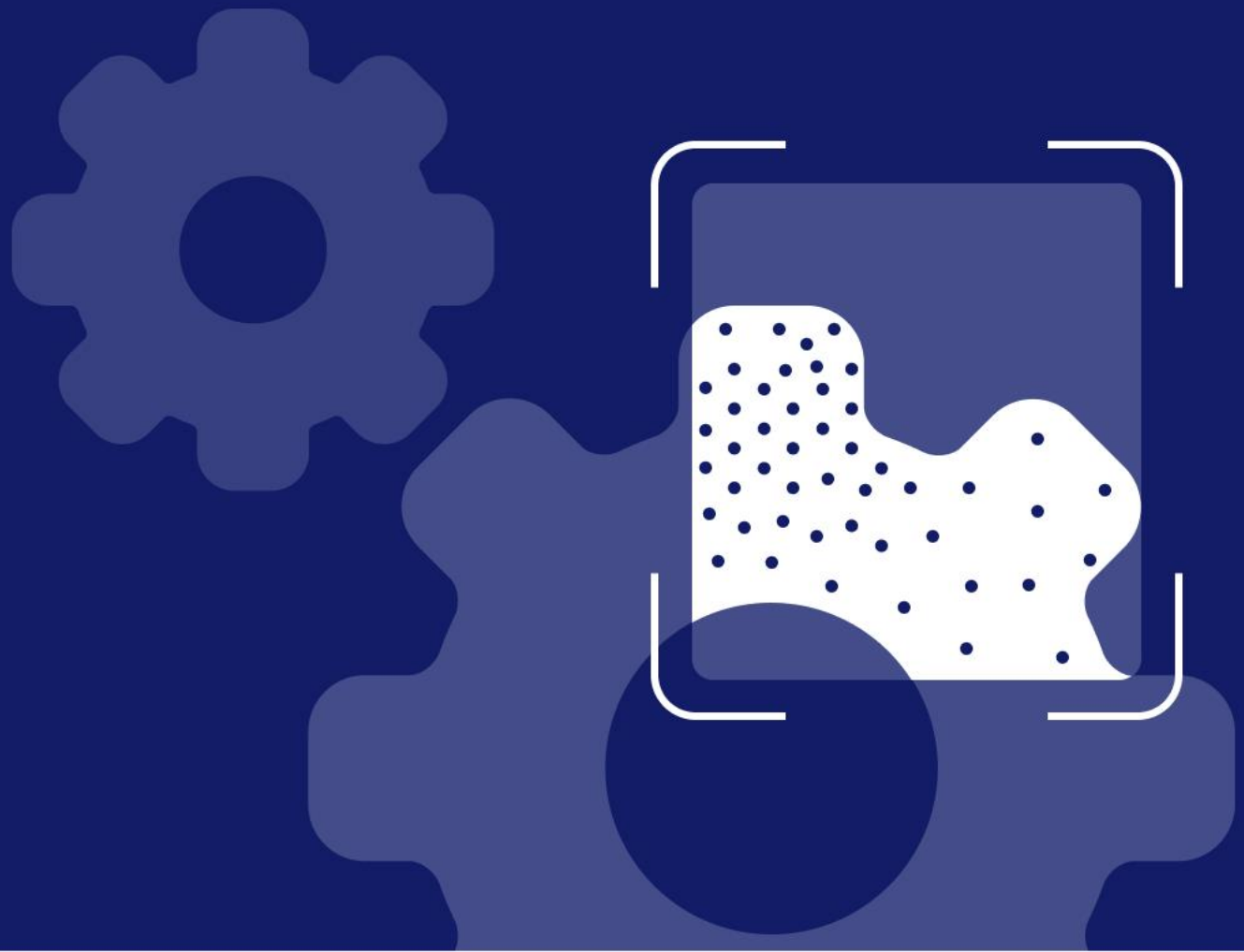
Lower costs

Costs are decreasing as technologies and projects mature



Dotz.SHIELD

In-product Authentication



Superior technology

Advanced and validated authentication solutions for anti-counterfeiting and monitoring.

VALIDOTZ™

- Dozens of optical taggants
- Embedded in the product
- Compatible with a range of hosting materials

INSPEC™

- Hand-held devices
- Easy-to-operate
- Real-time, on-site, information reading

Dotz solution benefits:

In-field real-time Detection & measurement

Compatible with a range of hosting materials

Simple, **easy-to-use** solution

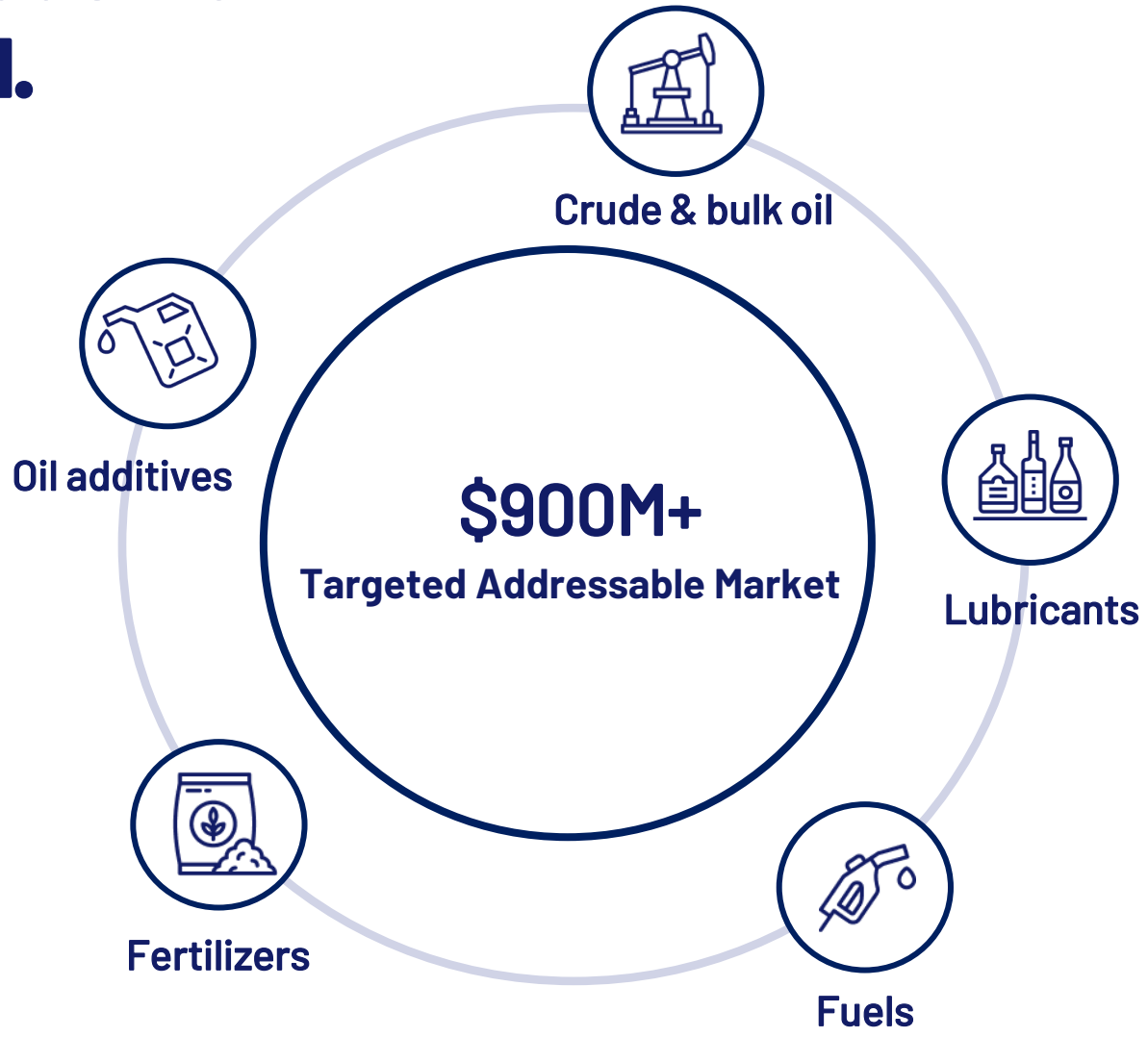
Validated solution – various successful field trials

Multiple applications across range of industries

Anti-counterfeiting & anti-alteration	Product liability & anti-dilution	Quality Assurance (QA)	ESG validation & circular economy

Attractive and focused industrial markets[1] with unmet need.

- Achieved **first commercial sale** to the oil & gas industry
- Increased losses due to counterfeiting and parallel markets
- Product ownership validation becomes common practice
- The need to connect physical goods to the digital world



1 Source: McKinsey's market research, 2023

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