



February 2025

Nano Innovations Shaping Industry and Climate.

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Corporate Deck; info@dotz.tech**



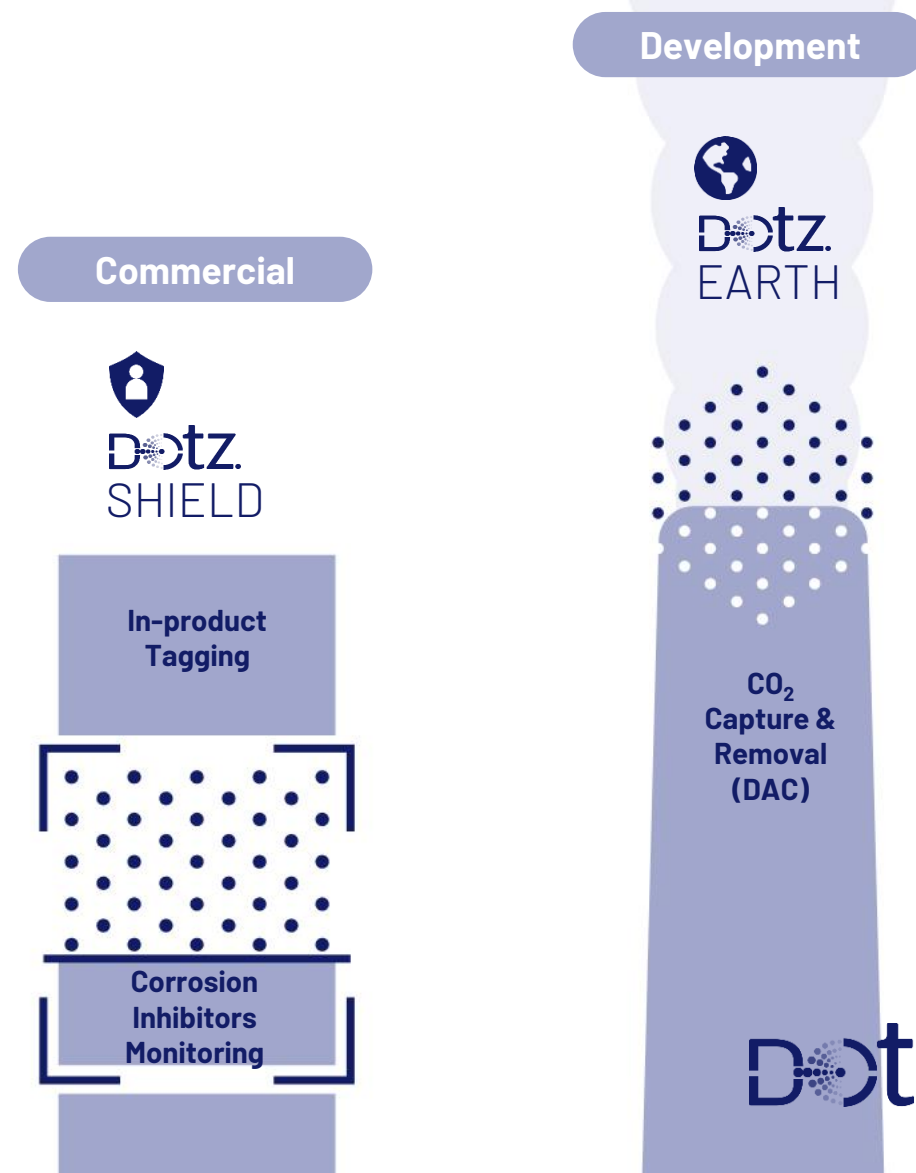
Dotz at a glance.

A pioneering developer of innovative climate and industrial nanotechnologies

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

ASX	DTZ
OTC	DTZZF/DTZNY
Global	HQ: Israel R&D: Israel Commercial: US

Partners



A global provider of carbon management technologies.

SUPERIOR TECHNOLOGY

- IP-protected nanotechnologies for a range of CO₂ capture and removal applications
- Superior performance delivering game-changing cost savings
- Validated by 3rd parties & piloting towards commercial viability

BUILT FOR GROWTH

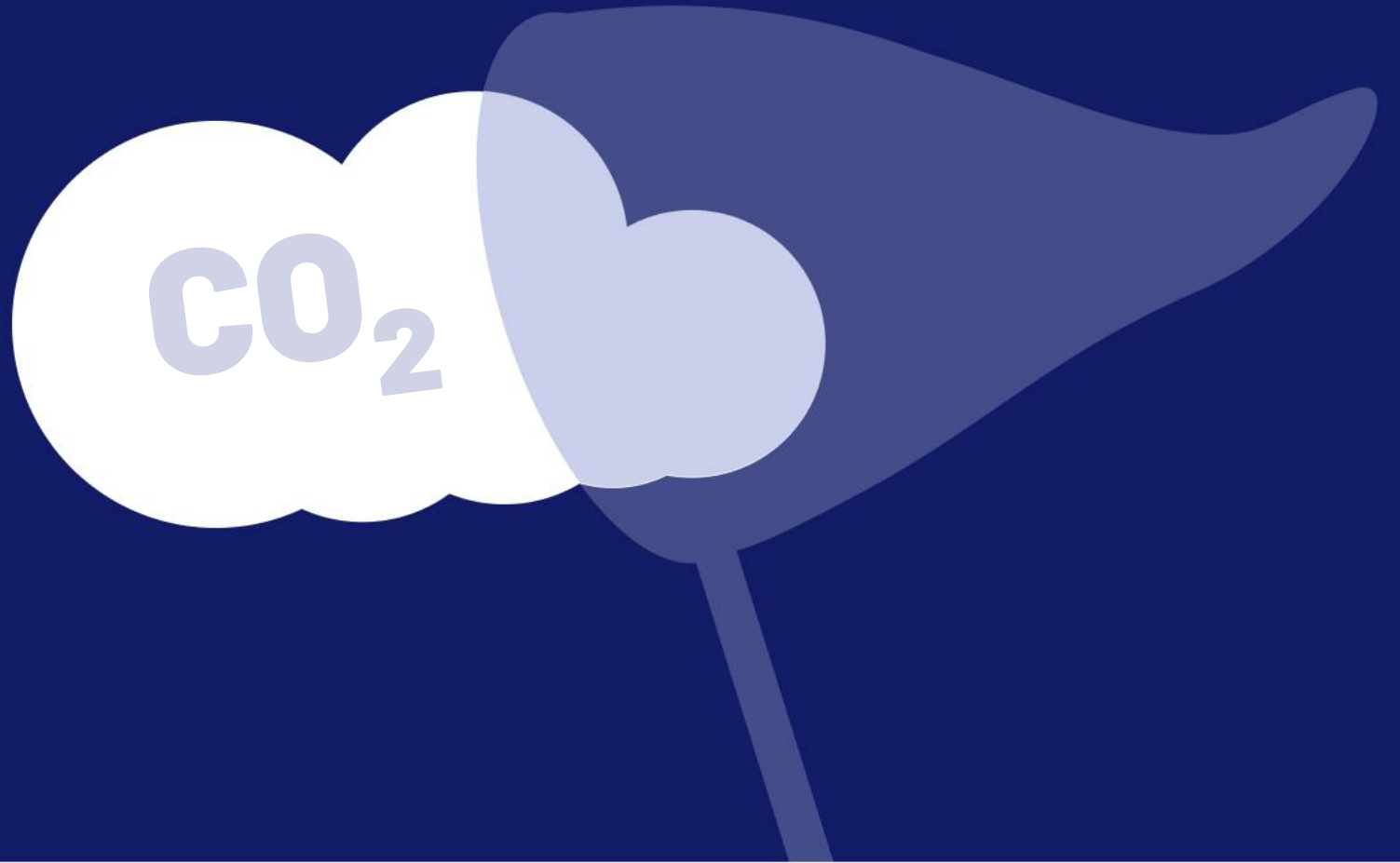
- Broad partnership opportunities for global scaling across various sectors
- Highly scalable and de-risked business model
- Multiple revenue streams

EXPANDING MARKETS

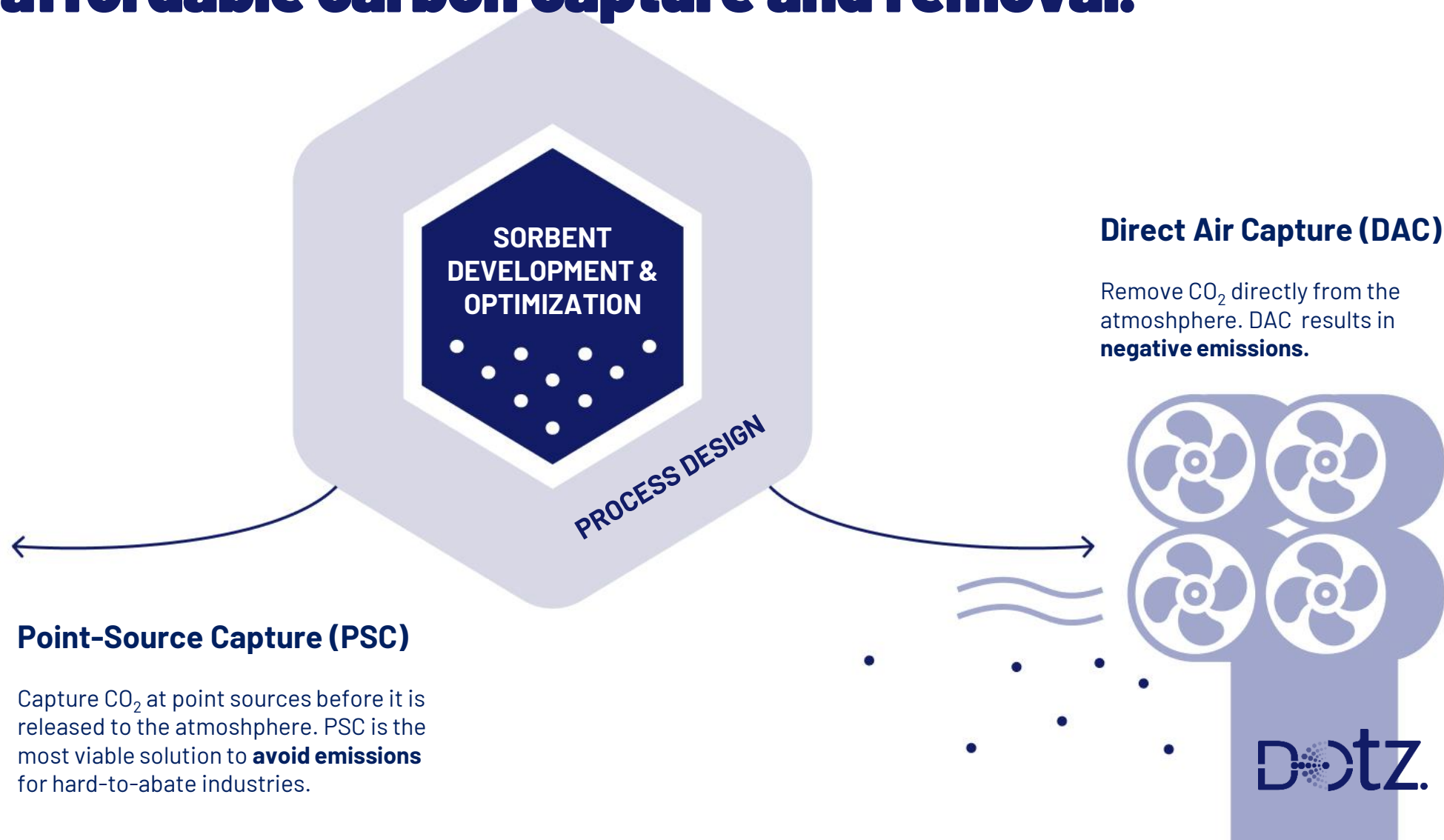
- CCS markets estimated to grow by more than 15x over the next decade
- Increasing regulatory pressure and corporate commitments to net-zero emissions are driving demand
- Governments are providing support and incentives to encourage carbon capture initiatives

dotZ.EARTH

**Transformative
CO₂ Capture
technologies**



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



 Superior technology

The worlds' best performing CO₂ capture sorbents.

High CO₂ working capacity, low energy
consumption and low cost of sorbent

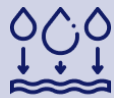
DAC SORBENTS

- Modified sorbents
- Chemical absorption
- Ultra-high surface area
- Regeneration via temperature swing (TSA)
- Applicable for low CO₂ 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 CO₂ content flue gases (>10%)

BENEFITS



High CO₂ adsorption
capacity



High selectivity



Low moisture
affinity



Resistance to
impurities



Lower energy
penalty



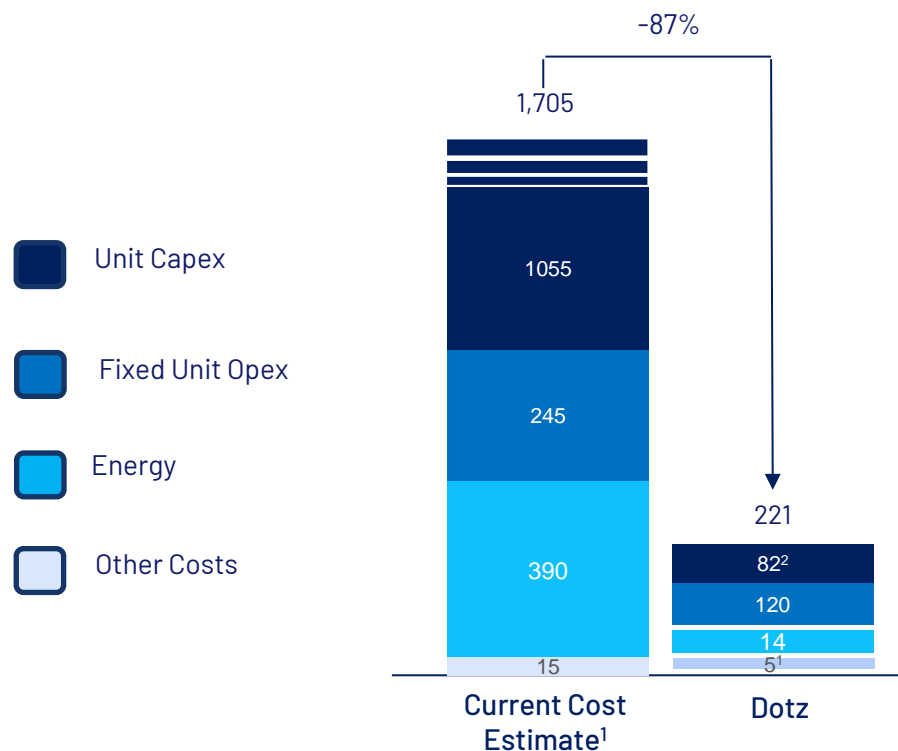
Regenerable and
reusable

**High-performance
DAC sorbents.**



Innovation driving low-cost direct air capture.

Direct Air Capture Costs (\$ per ton of CO₂)



Cost reduction key drivers

CO₂
High CO₂ working capacity

Low energy penalty

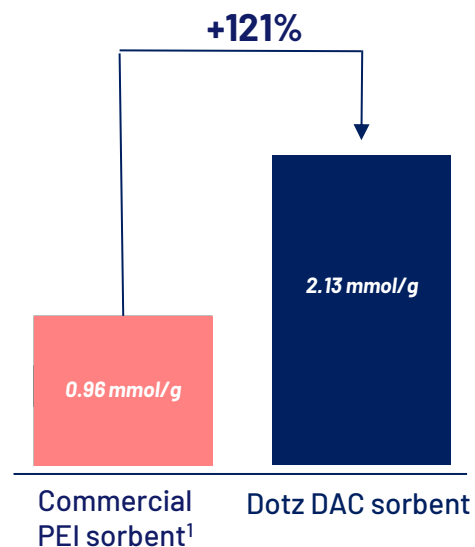
Reduced CAPEX & cost of sorbent

Sources:

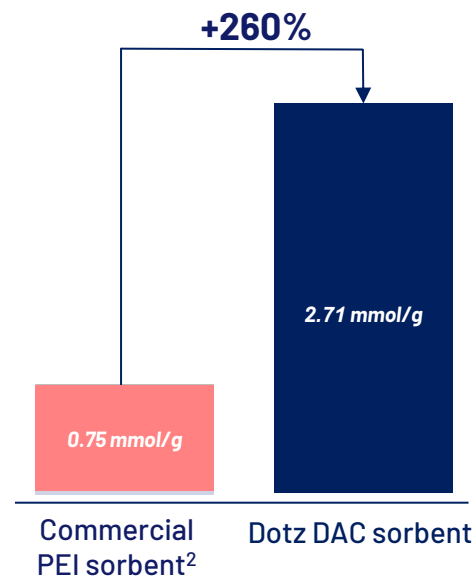
1. BCG Report (2023): BCG Analysis June 05, 2023
2. Fixed unit capex based on: Fasihi M, Efimova O, Breyer C, Techno-economic assessment of CO₂ direct air capture plants, *Journal of Cleaner Production* (2019)

Superior adsorption capacity vs. industry standard.

2X higher CO₂ adsorption capacity
with dry air (at 400 ppm, 25°C)



Very high CO₂ adsorption capacity with wet
air (at 400 ppm, 30 °C , 20% RH)



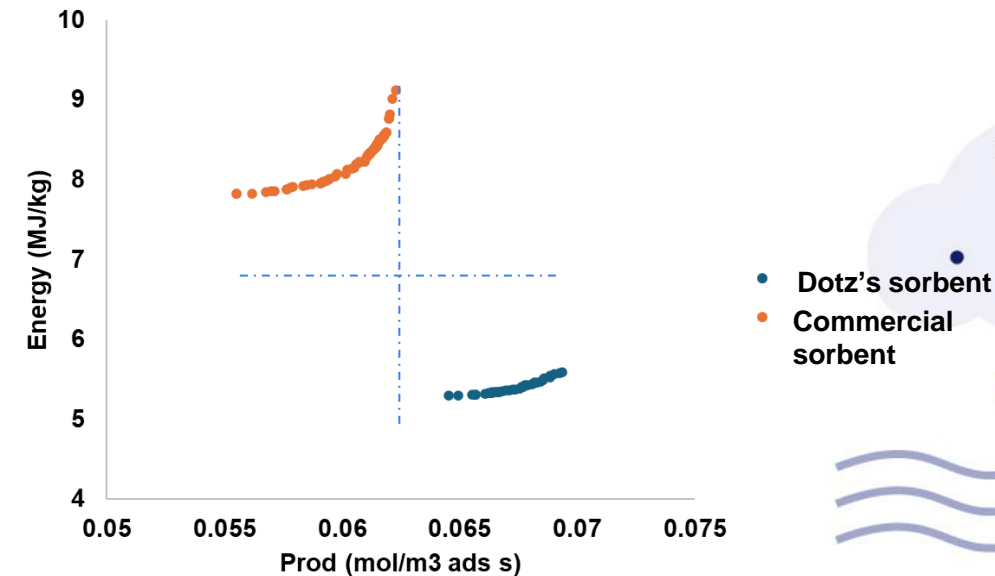
¹ Lewatit VPOC 1065; Source: [low-et-al-2023-measurement-of-physicochemical-properties-and-co2-n2-ar-o2-and-h2o-unary-adsorption-isotherms-of.pdf](https://doi.org/10.1038/s41467-024-53961-4)

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 SINTEF¹
- **Summary of results:**
 - **Higher productivity of CO₂ adsorption** relative to commercial PEI-sorbents
 - **Low energy** usage compared to commercial PEI-sorbents
 - **Purity** nearly 100%, recovery 75-90%
 - Stability cycling tests indicated high retained CO₂ uptake after 2,500 adsorption/desorption cycles
- Lab-scale pilot demonstration is ongoing

Superior productivity & lower energy usage



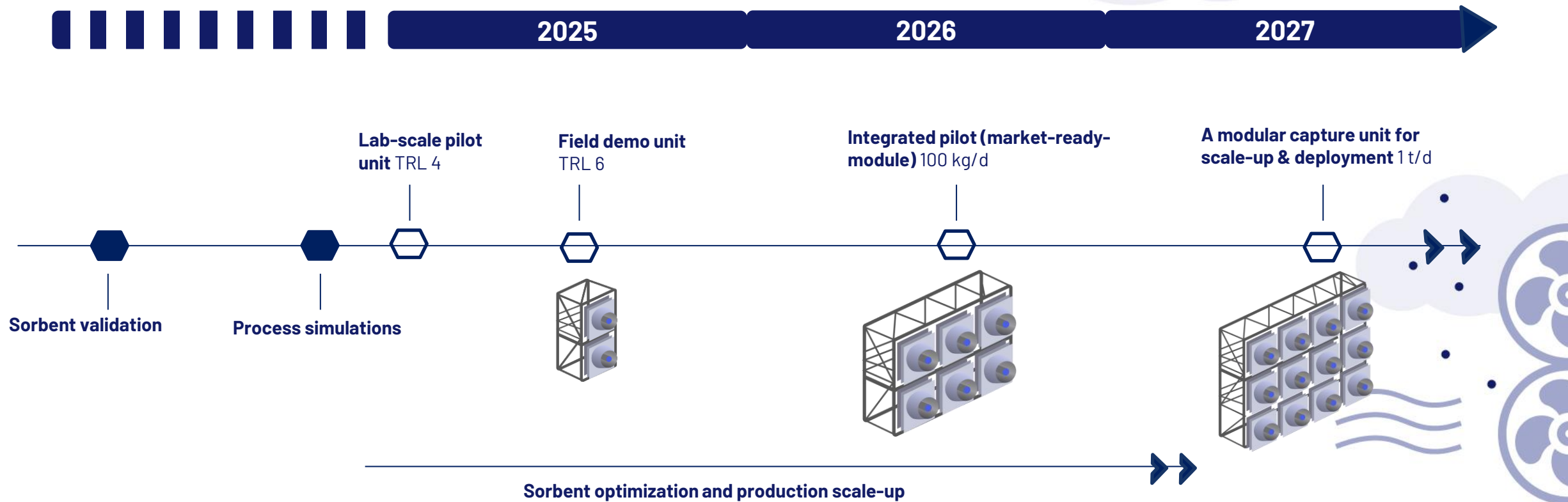
SINTEF DAC model to benchmark Commercial sorbent performance in a fixed bed VTSA process of DAC application in Norway²



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, for comparison with literature data generated by SINTEF

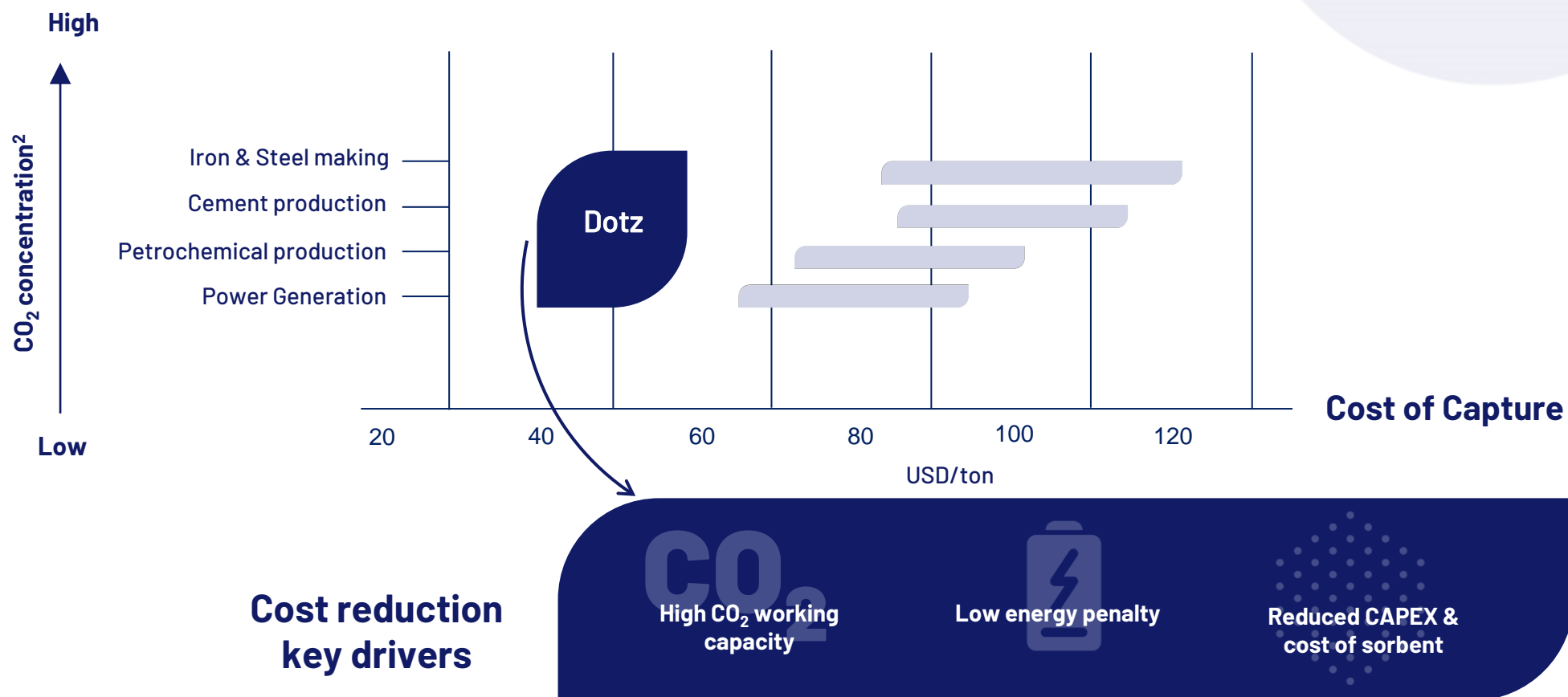
Piloting towards commercial viability in DAC.



Cost-efficient point-source sorbents.

Innovation driving low-cost point-source carbon capture applications.

Average Cost of CO₂ Capture, Transport and Storage¹



¹ Source: IEA

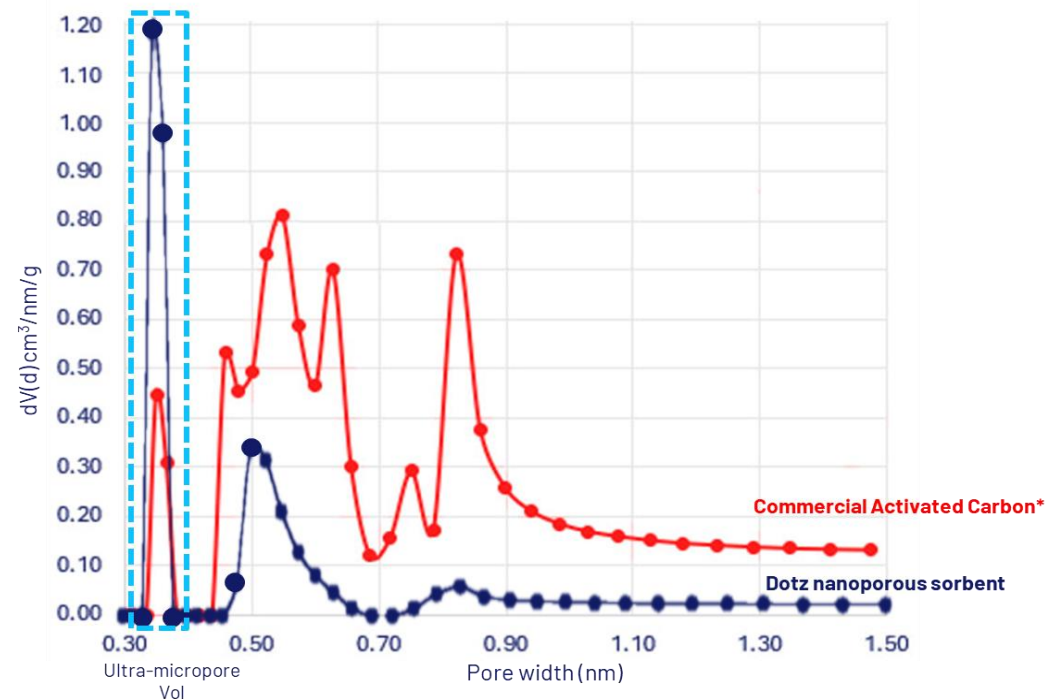
² Source: Bettenhausen, Craig. "The life-or-death race to improve carbon capture," Chemical & Engineering News

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

Engineered pore volume & distribution, ideal for CO₂ capture from flue gases.

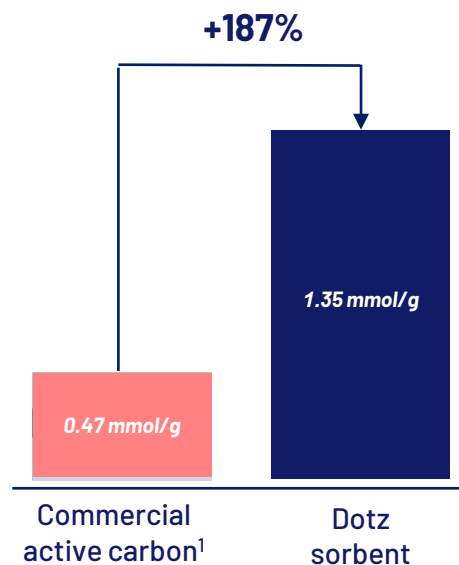
Dotz's innovative nanoporous sorbents have very high volume of ultra-micropores that are responsible for the physical adsorption of CO₂
(CO₂ molecule 0.33nm diameter)

Pore volume and distribution

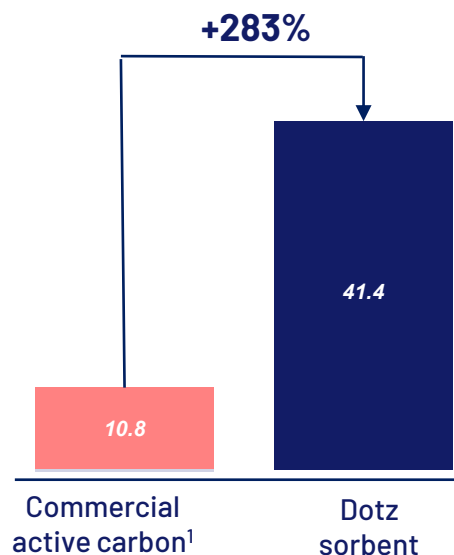


Dotz vs. commercial sorbents: superior CO₂ capacity, selectivity, and water adsorption resistance.

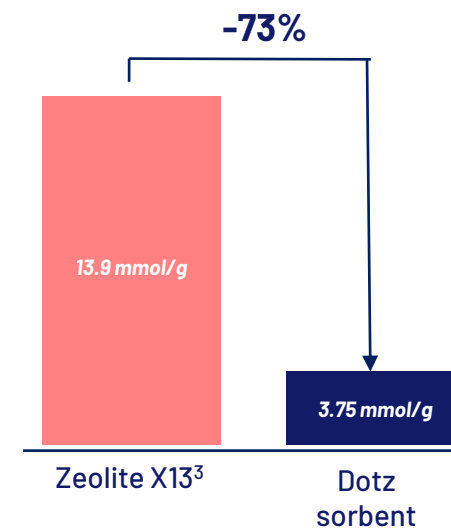
3X higher CO₂ adsorption capacity
(at 25°C, 15 kPa)



4X higher selectivity²
(at 25°C, 10 kPa)



~75% lower H₂O adsorption
(at 30°C, 1 kPa)



¹ Provided by Blücher (Germany)

² CO₂/N₂ adsorption capacity

³ Source: [low-et-al-2023-measurement-of-physicochemical-properties-and-co2-n2-ar-o2-and-h2o-unary-adsorption-isotherms-of.pdf](#)

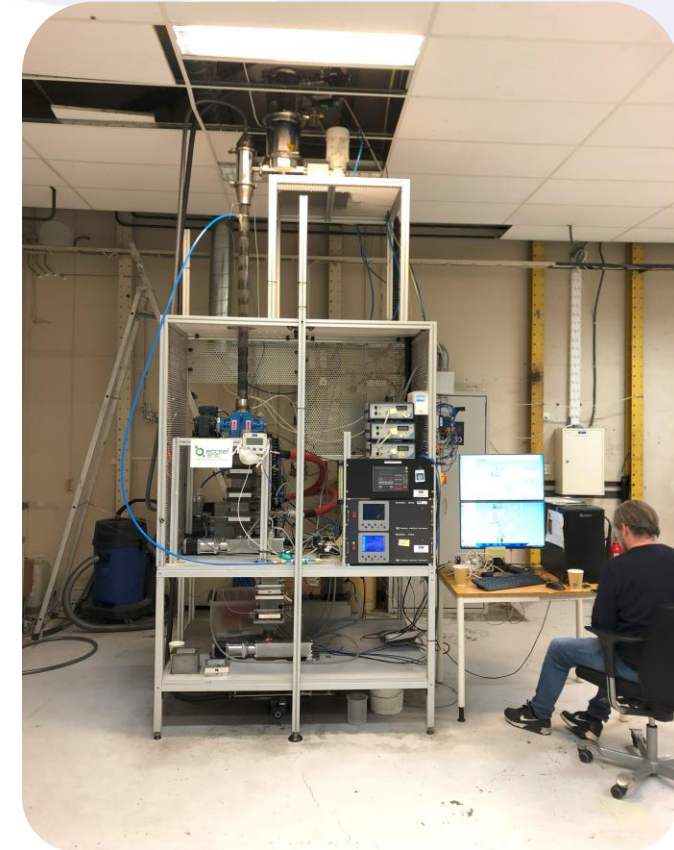
Lab-scale piloting demonstrates superior adsorption capacity, low energy use and improved cyclability.

VSA¹ process simulations resulted in ultra-low energy requirements

- Process simulation resulted in 97% purity CO₂ at **an energy consumption of <1 GJ/ton CO₂**, from post combustion flue gases
- Dotz's AC can also handle humid flue gases

TSA² lab-scale pilot demonstration resulted in superior adsorption capacity and cyclability

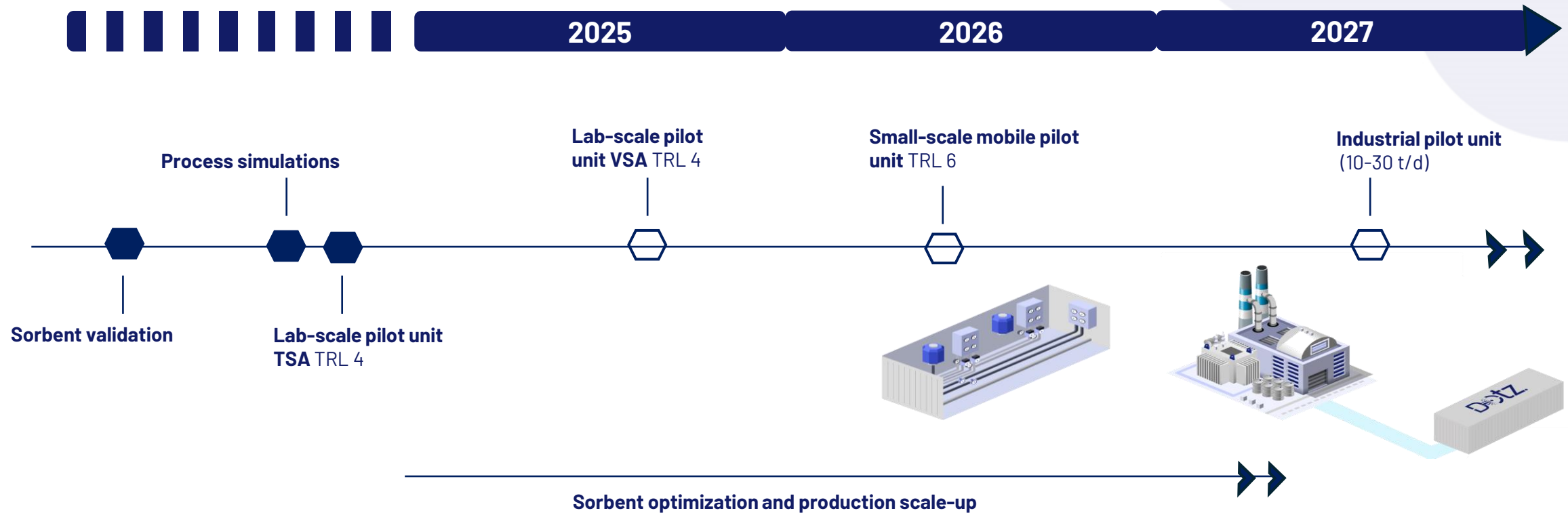
- **Higher effective adsorption capacity** relative to a commercial reference
- **Higher in situ CO₂ purity** compared with a commercial reference (based on its higher selectivity of CO₂ over N₂)
- Demonstrated **thermal stability** following approximately 140 adsorption/desorption cycles



¹ multi-column fixed bed vacuum swing adsorption (VSA) using Dotz's sorbent process modelling

² Moving bed temperature swing adsorption (MBTSA) lab scale pilot rig, simulating Waste-to-Energy flue gas fixed operating conditions: Adsorbent benchmarking 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)

Piloting towards commercial viability in point-source.



🕒 Built for growth

Broad partnerships & licensing opportunities along the CCUS and DAC supply chains.

KEY BENEFITS:

Accelerated Market Penetration

Leveraging established networks

Innovation Scalability

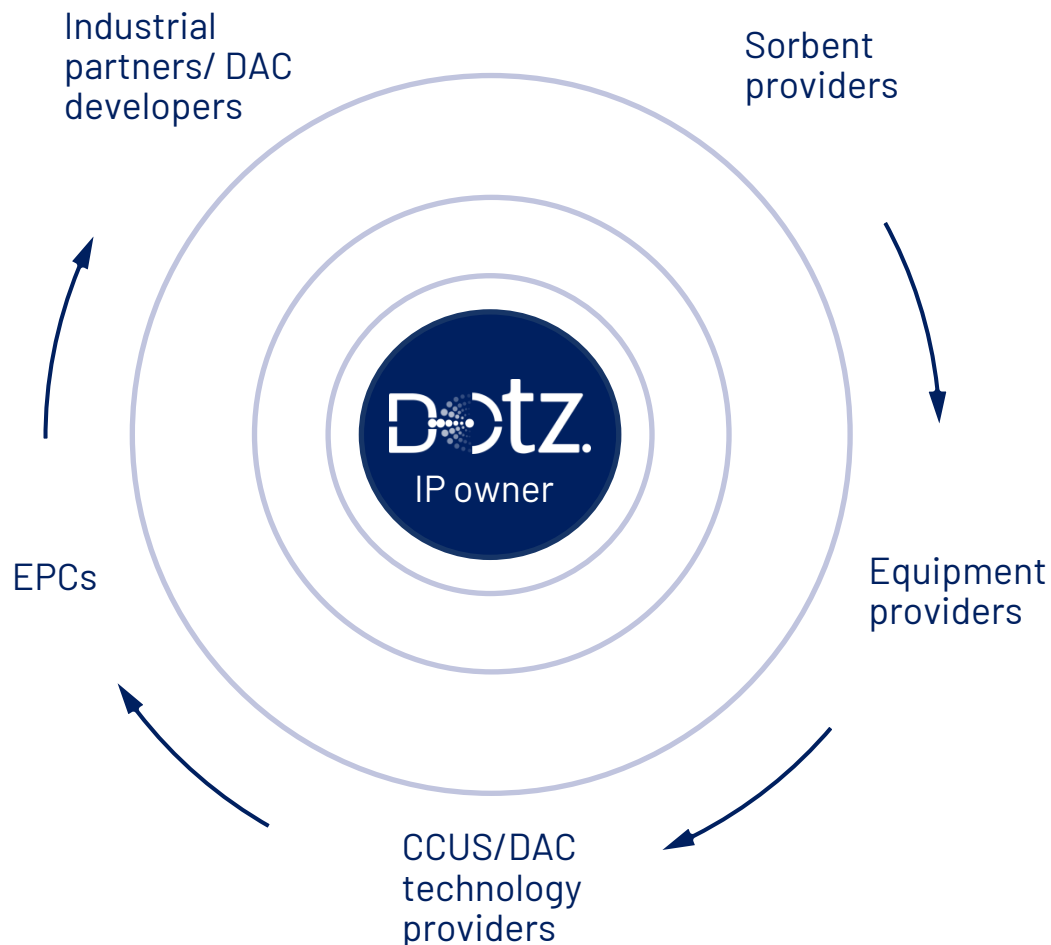
Licensing into multiple sectors globally

Capital-Light Growth

No need to own or operate CCUS plants

Diversified Revenue Streams

Long-term, recurring revenue stream



MULTIPLE REVENUE STREAMS:

Licensing Fee & Royalties

Recurring revenue from deployed carbon capture systems

Carbon Credits

Monetizing captured CO₂ through voluntary and compliance markets

Sorbent Supply

a stable and consistent revenue stream

🕒 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 emissions¹: 12%
Annual CO₂ emissions (2020)¹: 2.6GT



Cement

Share in global emissions¹: 8%
Annual CO₂ emissions (2022)¹: 1.6GT



Power Generation

Share in global emissions¹: 40%
Annual CO₂ emissions (2022)¹: 36.8GT



Chemicals

Share in global emissions²: 5%
Annual CO₂ emissions (2022)¹: 1.3GT

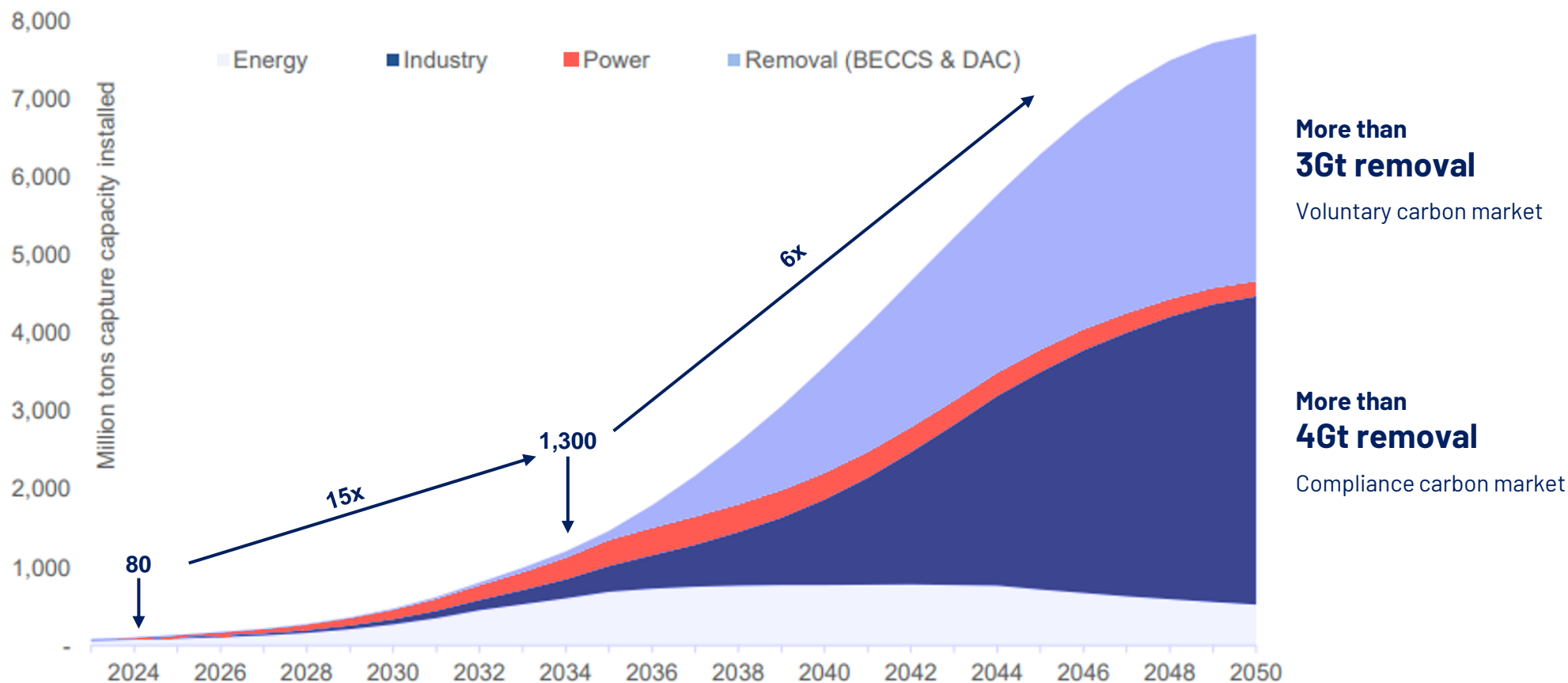
Direct Air Capture



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

Early phase of a rapidly expanding market.

Carbon capture capacity estimated to grow by more than 15x within the next decade



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



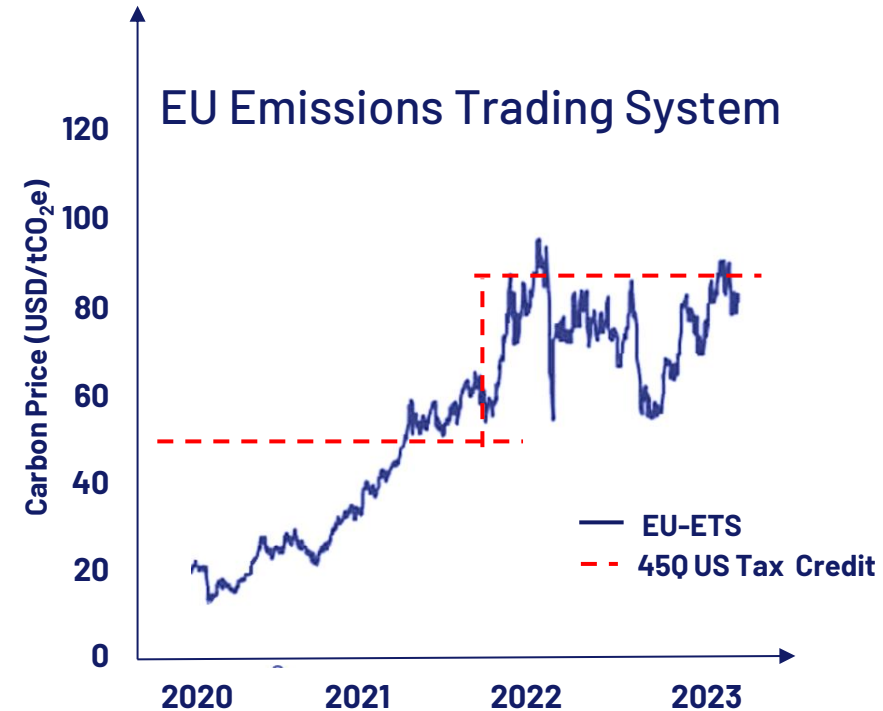
Incentives

CCS incentives are increasing globally



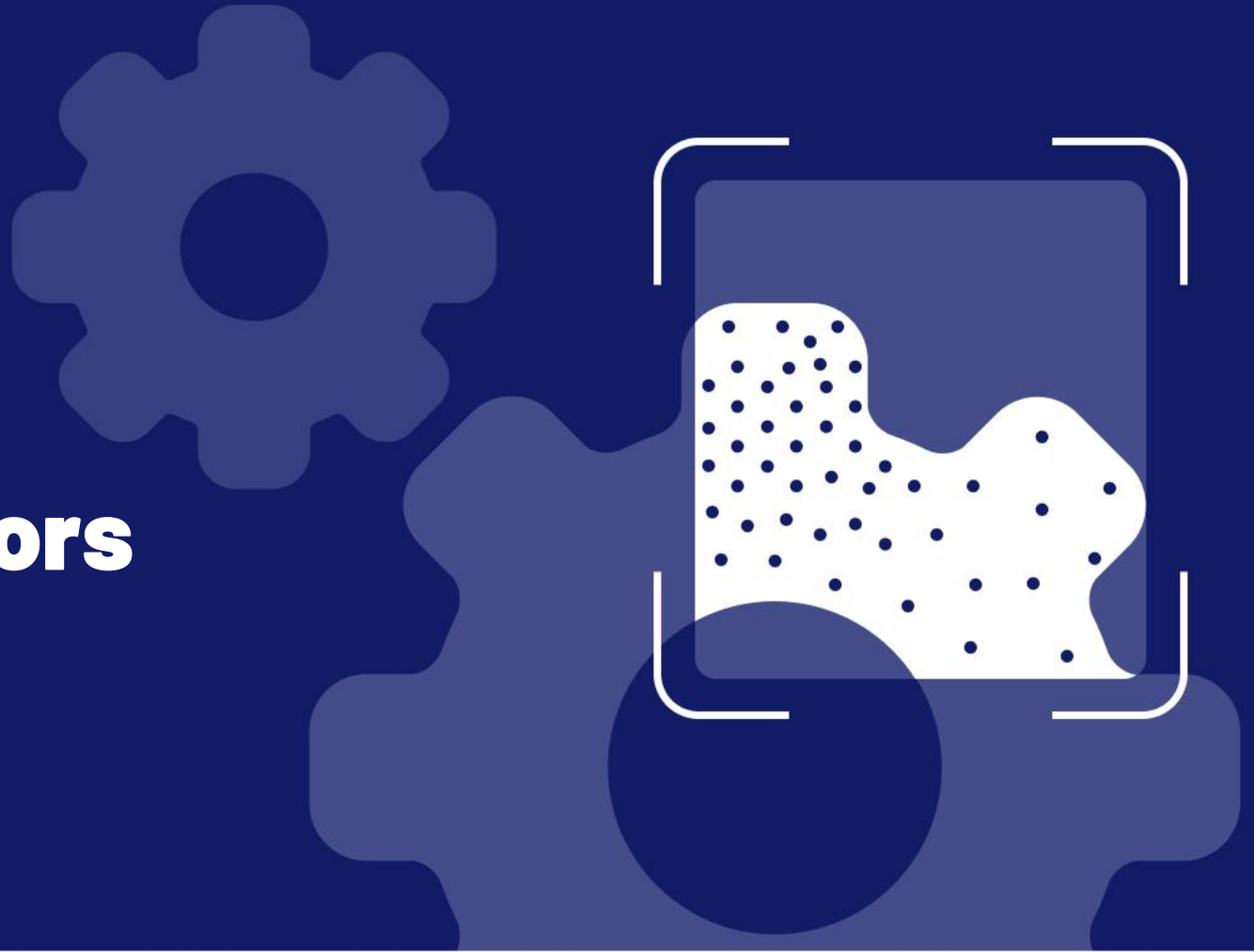
Lower costs

Costs are decreasing as technologies and projects mature



dotz.SHIELD

**In-product Tagging
For Corrosion Inhibitors
Monitoring**



In product tagging technology for monitoring and authentication.



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

Quality Assurance
(QA)

Anti-counterfeiting &
anti-alteration

Product liability & anti-
dilution

ESG validation &
circular economy

Cutting-edge solution for corrosion inhibitor (CI) management.

First commercial sale for the Oil & Gas industry in the U.S.

- **CHALLENGE:** detection and quantification of corrosion inhibitor in drilling fluids – expensive, slow, inefficient
- **SOLUTION:** On-site detection and quantification of CI
- **IMPACT:** significant maintenance cost savings, on-site dosage management , reducing risk of infrastructure damage
- **CI MARKET:** The CI industry is projected to grow from USD 8.79 Billion in 2024 to USD 12.22 Billion by 2032¹



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If you're in **INDUSTRY** and want to pilot a solution to reduce your CO₂ emissions—**TALK TO US.**

If you're a **PARTNER** looking to co-develop DAC or point-source capture solutions—**LET'S COLLABORATE.**

If you're an **INVESTOR** ready to scale transformative carbon capture solutions—**JOIN US.**

Join our Journey.

