

Case Study



How We Helped Unlock Entry Into a \$2 Million+ U.S. Carbon Capture Market for an Automotive Client

Objective

A global automotive and mobility ecosystem player partnered with us to evaluate the role of carbon capture, utilization, and storage (CCUS) technologies in accelerating decarbonization. The study aimed to assess how carbon capture solutions can reduce vehicle-related emissions, support sustainability targets, and create demand-side opportunities for captured CO₂, enabling informed strategic and investment decisions.

Our Strategic Approach

To translate carbon capture potential into actionable strategic choices, leB evaluated the technological, commercial, and sustainability viability of CCUS solutions within the automotive ecosystem.

Technology & Application Assessment

Analyzed key carbon capture technologies applicable across automotive manufacturing, fuel production, and downstream mobility ecosystems. The assessment also considered capture materials and adsorption pathways, including temperature swing adsorption (TSA) and amine-based adsorbents, to evaluate capture efficiency, thermal management requirements, integration feasibility, and technology readiness for reducing vehicle lifecycle emissions.

Market & Demand Analysis for Captured CO₂

Assessed current and emerging demand for captured CO₂ across industrial and mobility-linked applications in the U.S., identifying supply-demand dynamics, pricing considerations, and near-term commercial opportunities.

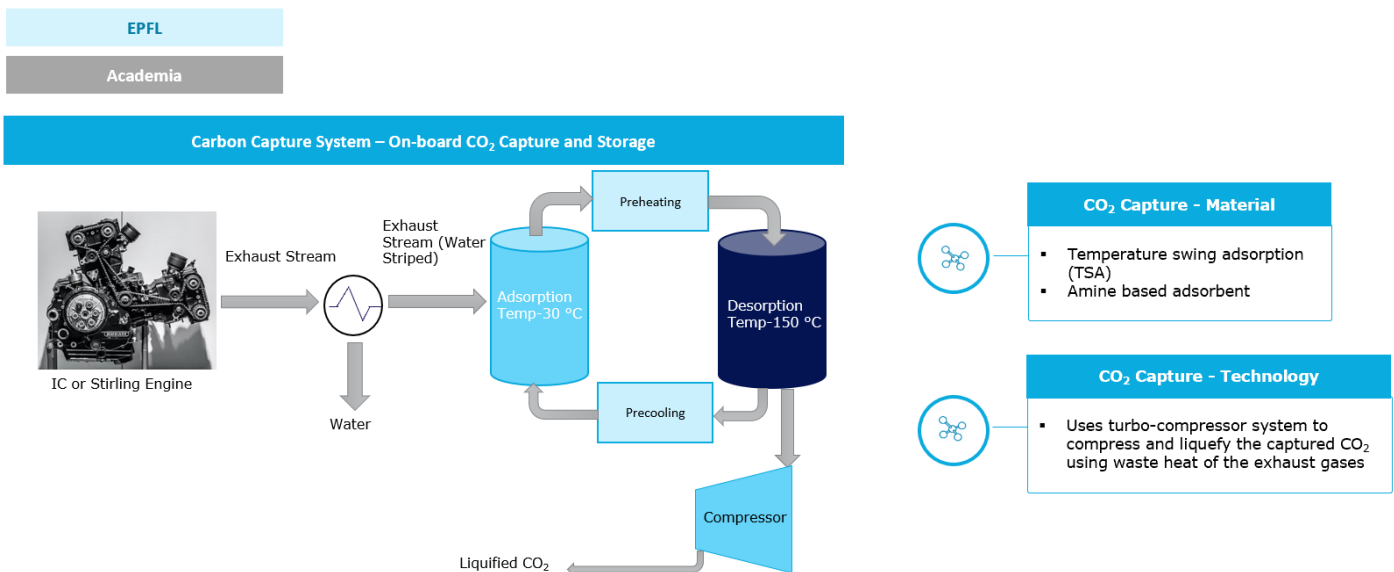
Sustainability & Decarbonization Impact Evaluation

Evaluated the contribution of CCUS technologies toward transportation sector decarbonization, including Scope 1, 2, and 3 emission reduction pathways. Assessed alignment with evolving sustainability goals and low-carbon transition strategies.

Ecosystem & Commercial Pathway Mapping

Mapped key stakeholders across the CCUS ecosystem, including technology providers, automotive players, industrial CO₂ off-takers, and policy enablers. Identified viable commercialization routes for captured CO₂, with a focus on scalable and revenue-generating use cases.


Snippets



Technology Overview

Technology	Purity	CO ₂ reduction	Challenges
On Board Carbon Capture (Adsorption)	99.5%	90%	All situations are considered ideal like exhaust variation and Rankine cycle

Economic Aspect

Indirect conversion	Direct conversion	Strategic alliance/JV
e-methane, e-fuel	Merchant market / Sequestration	

Impact

This assessment translated decarbonization ambition into measurable commercial and sustainability outcomes by:

- Enabling the client to immediately access a \$2 million+ market opportunity for supplying captured CO₂ in the U.S.
- Diversifying revenue streams through CO₂ supply, potentially safeguarding 10–15% of annual revenue.

Conclusion

Through a comprehensive evaluation of carbon capture technologies, market demand, and commercialization pathways, leB helped the client identify both environmental and economic value in CCUS adoption. The insights empowered the client to reduce emissions, unlock new revenue opportunities, and strengthen its strategic positioning in the transition toward a low-carbon transportation ecosystem.



Ingenious e-Brain is a global research advisory and management consulting firm that helps businesses future-proof their operations by addressing complex challenges with sustainable, strategic, and expert-led solutions. With a global network of industry experts, analysts, scientists, and consultants, we bring world-class research capabilities and a proven track record of delivering 5,000+ projects across various industries.

With over 13 years of proven excellence, we have successfully tackled complex business challenges for Fortune 500 and Global 1000 corporations, industry leaders, manufacturing giants, startups, investors, universities, and leading companies across domains including automotive, energy, chemicals, advanced materials, life sciences & chemistry, healthcare, medical technology, personal & home care, sustainability, consumer packaged goods, and hi-tech industries.

Our services empower organizations to accelerate innovation, optimize R&D portfolios, and navigate complex intellectual property (IP) challenges, all while scaling operations with resilience. We support clients at every stage of the innovation process, from product launches and IP co-creation to market intelligence, consumer sentiment analysis, and gathering actionable customer insights through surveys.

Copyright © 2026 Ingenious e-Brain

We are located at

India (HQ)

207-208 Welldone TechPark, Sohna
Road Sector 48, Gurugram, Haryana
122018

+91 124 429 4218

London (UK)

5, Brayford Square, London, E1 0SG

+ 44 770 014 9056

Delaware (USA)

8 The Green, Suite B, Dover, DE 19901

+1 302 450 1418

For enquiries e-mail us at
contact@iebrain.com

Find more about us at
www.iebrain.com

Follow us on

