September 19, 2025
Idemitsu Kosan Co.,Ltd.

Idemitsu Invests in U.S. Startup Vycarb Advancing Carbon Dioxide Removal (CDR) Through Ocean Alkalinity Enhancement

Driving the Development of a CDR Business Model in North America

Idemitsu Kosan Co.,Ltd. (Headquarters: Chiyoda-ku, Tokyo; President and CEO: Noriaki Sakai; hereinafter "Idemitsu") today announced that, in mid-September, it invested in Vycarb Inc. (Headquarters: United States; hereinafter "Vycarb"), a startup developing carbon dioxide removal (CDR) technologies using ocean alkalinity enhancement* (OAE). Through this investment, Idemitsu aims to gain expertise in OAE and accelerate the development of CDR business models in North America. The investment was made via Idemitsu Americas Holdings Corporation (Headquarters: U.S.; President and CEO: Keitaro Sugihara; hereinafter "IAH"), a wholly owned subsidiary of Idemitsu.

*OAE is a CDR method that fixes dissolved CO_2 in water by adding alkaline minerals found in nature, such as limestone. By lowering the concentration of CO_2 in water, atmospheric CO_2 dissolves more easily into water, thereby contributing to the removal of atmospheric CO_2.

Achieving carbon neutrality by 2050 requires not only reducing CO_2 emissions but also capturing and storing CO_2 already in the atmosphere. To this end, social implementation of CDR technologies—methods that directly or indirectly remove atmospheric CO_2—is increasingly anticipated. Beyond OAE, CDR approaches include DACCS (Direct Air Capture and Carbon Storage), enhanced weathering (using minerals to capture and store CO_2 on land), afforestation and reforestation. Among these, OAE is considered to have gigatonne-scale potential, with the ability to remove billions of metric tonnes of CO_2 annually and is regarded as a promising global CO_2 reduction measure.

Vycarb is advancing the development of technologies to capture and store CO_2 from seawater and river water, with particular focus on OAE. Its proprietary containerized onshore system reacts alkaline minerals with seawater or river water, converting dissolved CO_2 into carbonates and which are safely discharged back into the ocean or river. While measurement, reporting, and verification (MRV) of CO_2 removal is typically a challenge in OAE, Vycarb overcomes this challenge by employing sensor technologies capable of real-time measurement, enabling highly accurate MRV.

Vycarb's system reacts seawater or river water with CO_2 and alkaline minerals in a proprietary onshore reactor, producing bicarbonates and carbonates that permanently store CO_2, while safely returning the treated water to the natural environment.

Idemitsu will continue to advance its CDR initiatives by strengthening collaboration with startups and organizations in Japan and overseas. In North America, a leading market for CDR, we will focus on monitoring technology trends, expanding demonstration opportunities, and building sustainable business models.

Comment from Keitaro Sugihara, President and CEO, IAH:
"Vycarb is an innovative startup developing a CO_2 removal process in the OAE field that does not require large-scale infrastructure. Their technology has the potential to deliver large-scale carbon removal at low cost. IAH is very pleased to form a strategic partnership with Vycarb as we expand our business in North America and work toward carbon neutrality by 2050."

Comment from Dr. Garrett Boudinot, CEO & Founder, Vycarb
"By combining Vycarb's ability to deliver measurable, permanent carbon management with Idemitsu's expertise in energy and blue carbon solutions, we can unlock new pathways for large-scale impact. Together, we are confident our collaboration will advance our technology development and create meaningful opportunities for decarbonization across North America, Asia, and beyond."

Reference: Company Overview of Vycarb

URL: https://www.vy-carb.com/
Founded in 2022, Vycarb leverages expertise in ocean carbon cycling to develop innovative water-based technologies for CO_2 storage and measurement. Its system operates under ambient temperature and pressure, requiring no large-scale centralized infrastructure, and can be deployed in a distributed manner at low cost. Addressing climate change and achieving sustainable growth will require long-term, gigatonne-scale CO_2 capture and storage. Through multiple real-world demonstrations, Vycarb has already shown the potential of its approach and aims to further develop, deploy, and commercialize tools that enable gigatonne-scale carbon management.

Vycarb's unit installed at its Brooklyn, New York site

Idemitsu Initiates Blue Carbon Business Exploration with Hatch Blue in Japan, Concurrently Investing in the "Blue Revolution Fund" (August 7, 2023)
https://www.idemitsu.com/en/news/2023/230807.html

Idemitsu Invests in Fund Focused on Carbon Dioxide Removal (CDR) Accelerating Efforts Toward Net-Zero Emissions
https://www.idemitsu.com/jp/news/2025/250428_en.pdf

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