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Sojitz Corporation

Carbon Xtract Corporation

Shimizu Corporation

Installation of m-DAC[®] Technology in Tokyo to Capture and Utilize Carbon Dioxide from the Atmosphere

- A GX Project Selected by the Tokyo Metropolitan Government -

Sojitz Corporation (“Sojitz”), Carbon Xtract Corporation (“Carbon Xtract”), and Shimizu Corporation (“Shimizu”) have proposed a joint business to install direct air capture (DAC) systems within new building projects that will remove CO₂ from the atmosphere for use across a range of applications. This project was selected to be commissioned by the Tokyo Metropolitan Government.

The Tokyo Metropolitan Government’s program for “Commissioning of early social implementation support projects for the creation of GX (green transformation) related industries” aims to support companies who are working to transform economic and social systems by reducing CO₂ and other greenhouse gas emissions and utilizing clean energy. This project was selected by the Tokyo Metropolitan Government after an open call for companies engaged in such initiatives to promote installation of new GX-related technologies and services.



[Futuristic city with carbon capture technology]

To realize carbon neutrality by 2050, negative emissions technology is being advanced as a means to collect and absorb CO₂ from the atmosphere for carbon storage and fixation, which enables CO₂ to be removed from the atmosphere. Carbon Xtract's membrane-based Direct Air Capture (m-DAC[®]) technology* is a negative emissions technology that utilizes a gas separation membrane. While industrial size DAC equipment is common, m-DAC[®] is notable for its small-scale devices that enable distributed installation, and m-DAC[®] devices are anticipated to be an effective solution for CO₂ collection. Sojitz, Carbon Xtract, and Shimizu aim to advance urban implementation of negative emissions technology through these small-scale, distributed CO₂ collection systems. At the same time, storage and reuse of collected CO₂ will create an urban development model for carbon recycling.

Sojitz, Carbon Xtract, and Shimizu will install m-DAC[®] devices over the course of the FY2024 through FY2028 period as part of a demonstration project at Shimizu's Smart Innovation Ecosystem NOVARE (Koto-ku, Tokyo). The m-DAC[®] devices will collect CO₂ emissions from daily activities, and the demonstration project will be conducted in stages starting with use of the collected CO₂ for plant cultivation to promote photosynthesis. Additionally, multiple other applications for collected CO₂ are under consideration, and Sojitz and its partners plan to continue to trial new business opportunities with new partners leveraging Sojitz's wide ranging business fields and expansive business networks.

In the future, tech trends and social needs will be considered when installing m-DAC[®] devices in urban areas, and the captured CO₂ will be stored in cement and concrete or alternatively used for manufacturing carbonated water or carbon shower heads, among other urban development systems for carbon recycling.

*m-DAC[®] technology: A direct air capture (DAC) technology based on nanomembrane separation that isolates and captures CO₂ directly from the atmosphere. Carbon Xtract and Kyushu University are advancing the development of m-DAC[®] technology, which captures CO₂ by simply passing air through membranes having high CO₂ permeability. The m-DAC[®] technology is a registered trademark of Kyushu University.

[Related Information]

[Overview of Sojitz Corporation]

President & COO	Kosuke Uemura
Established	April 1, 2003
Website	https://www.sojitz.com/jp/

Sojitz Group is engaged in a wide range of businesses globally, including manufacturing, selling, importing, and exporting a variety of products, in addition to providing services and investing in diversified businesses, both in Japan and overseas. Sojitz operates with a 7-division structure comprising the Automotive Division; the Aerospace, Transportation & Infrastructure Division; the Energy Solutions & Healthcare Division; the Metals, Mineral Resources & Recycling Division; the Chemicals Division; the Consumer Industry & Agriculture Business Division; and the Retail & Consumer Service Division.

[Overview of Carbon Xtract Corporation]

President	Tetsuo Moriyama
Established	May 26, 2023
Website	https://c-xtract.com/

Carbon Xtract is a startup established through cooperation among Sojitz Corporation, Kyushu University, and Nanomembrane Co., Ltd. Carbon Xtract has been promoting the early-stage practical implementation of DAC technology using nano-level thin gas separation membranes, which Kyushu University has been researching and working on over the course of several years, as well as of technology for utilizing captured CO₂.

[Overview of Shimizu Corporation]

President	Kazuyuki Inoue
Established	1804
Website	https://www.shimz.co.jp/

Shimizu Corporation was founded in 1804 in Japan. Kisuke Shimizu I, a carpenter from Toyama Prefecture, launched his carpentry business in the Kanda district of Edo (now Tokyo). From the start, Kisuke Shimizu devoted himself to building reliable structures of the highest quality. Today, Shimizu continues to invest deeply in technology to meet the needs of its clients and society. Shimizu Corporation co-creates with diverse partners and conducts activities transcending the boundaries of the construction business with the aim of contributing to the realization of a prosperous and sustainable society.

[For questions, contact:]

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