

FOR IMMEDIATE RELEASE:

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NEWS RELEASE

"GEI Adopted to NEDO's Green Innovation Fund Project for R&D of Manufacturing Technology Using CO₂, H₂ by Hydrogen-Oxidizing Bacteria"

Green Earth Institute Co., Ltd. ("GEI") has been adopted as an implementer to a subsidy program of New Energy and Industrial Technology Development Organization ("NEDO"), "Green Innovation Fund Projects" for R&D of innovative manufacturing technology using CO₂ and H₂ by Hydrogen-oxidizing Bacteria for realizing the de-carbonized society. ^{*1} This project was proposed by Central Research Institute of Electric Power Industry, DIC Corporation, Daicel Corporation, Toray Industries, Inc. and GEI, with Sojitz Corporation as the managing company.

This R&D project aims to contribute to the realization of carbon neutrality by making various chemicals from CO₂ and H₂ using a species of Hydrogen-oxidizing bacteria ^{*2} with particularly high growth capacity among those with large CO₂ fixation ability and to reform the industrial structure by utilizing emitted CO₂. In this project, GEI will develop Hydrogen-oxidizing bacteria that produce chemicals that can be used as raw materials for bioplastics and conduct a scale-up demonstration for commercialization. The chemicals produced this way are expected to be used in chemical product applications such as inks and paints in addition to plastic raw materials.

Among sectoral CO₂ emissions in Japan (after electricity and heat allocation), manufacturing and industrial processes account for 36.7% ^{*3}. The chemical, textile, and food/beverage manufacturing industries emit 21.9% or 89,017,000 tons of CO₂ per year ^{*3}. Therefore, a large-scale reduction of CO₂ emissions can be expected, by promoting innovative bio-manufacturing technologies, using the capabilities of plants, microbes, and other living organisms in these industries.

Despite the precedence of R&D of biomanufacturing technologies using sugars and fats, if emitted CO₂ from domestic power plants and factories can be efficiently used as raw materials, it may contribute to carbon fixation and reduction of CO₂ emission during the transportation of biomass resources in Japan. Through this project, GEI will embark on demonstrating the practicality of Hydrogen-oxidizing bacteria as a means of CO₂ fixation with the goal of mass production of biochemicals.

GEI has been working to solve various global problems under its management philosophy (mission) of "Fostering Green Technology and Walking with the Earth." for the realization of a decarbonized society.



※1 NEDO News Release dated March 22nd, 2023 (Japanese version only) :

"Determination of the Implementation Structure for the "Green Innovation Fund Project: Promotion of Carbon Recycling Using CO₂ as a Direct Raw Material through Biomanufacturing Technology"

"Green Innovation Fund Project, "Promotion of Carbon Recycling Using CO₂ as Direct Raw Material through Biomanufacturing Technology"

※2 Hydrogen-oxidizing bacteria:

A type of autotrophic bacteria. Autotrophic bacteria have 50-70 times higher carbon fixation capacity than algae (cyanobacteria), making them a promising absorber of CO₂. Among the autotrophic bacteria, hydrogen-oxidizing bacteria can fix CO₂ with the chemical energy of hydrogen without relying on light energy, and can be cultured at high speed and density, meaning a high potential for industrialization. Compared to the material production process derived from fossil resources, a significant reduction of CO₂ emission is expected not only by the smaller amount of CO₂ emission but also by the benefit of absorbing CO₂. (Excerpted from METI document. Japanese version only) :

"Direction of R&D and Social Implementation of the Project "Promotion of Carbon Recycling Using CO₂ as a Direct Raw Material through Biomanufacturing Technology"

※3 Quotation from NEDO's website, background of this project :

"Green Innovation Fund Project, "Promotion of Carbon Recycling Using CO₂ as Direct Feedstock through Biomanufacturing Technology"

GEI is listed on the Tokyo Stock Exchange.

Corporate Website: <https://gei.co.jp/en/>
