

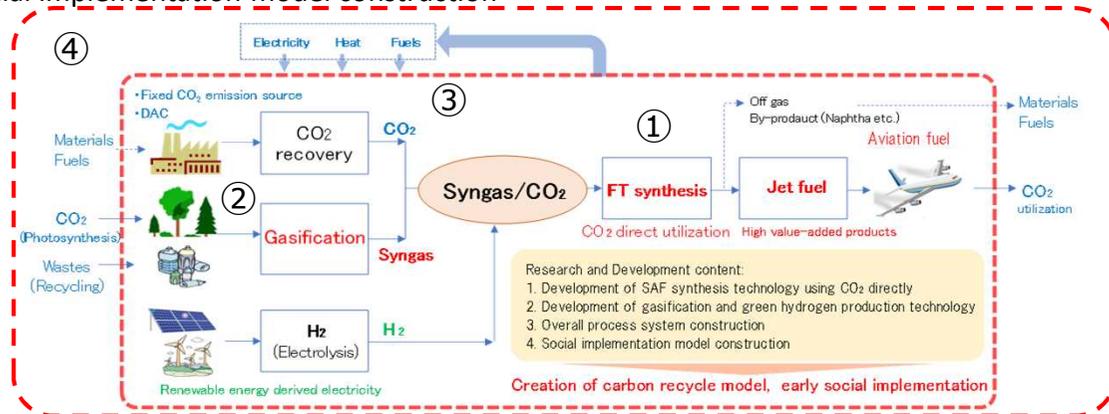
# Project Title: International Joint R&D of CO<sub>2</sub> Direct Utilization Jet Fuel Synthesis for Carbon Recycling (2021–2024)



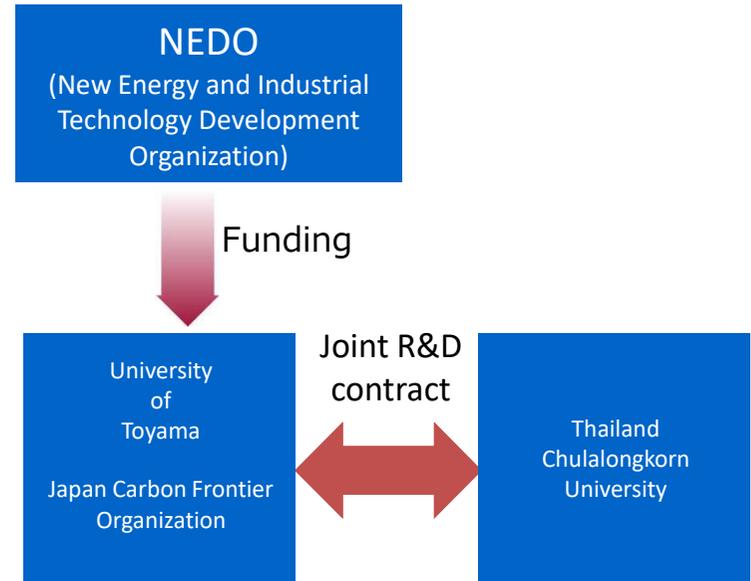
Entrusted Parties: University of Toyama/ Japan Carbon Frontier Organization

## Outline of the project

- **Background of this project:** In order to implement the Green Growth Strategy with Carbon Neutrality by 2050, attention has turned to making aviation fuel carbon neutral and utilizing CO<sub>2</sub> in biomass.
- **Purpose of this project:** Through international joint research and development, it is expected to be put into practical use from 2030, and the purpose is to develop clean energy and innovative technologies in the environmental field that contribute to solving climate change problems such as drastic reduction of CO<sub>2</sub> and so on.
- **Research and development content:** 1) Development of Sustainable Aviation Fuel (SAF) synthesis technology using CO<sub>2</sub> directly with high selectivity. 2) Development of gasification and green hydrogen production technology (advanced and low-cost tar reforming is possible with original oxygen-free tar reforming technology and an inexpensive catalyst that does not require oxygen). 3) Overall process system construction (system that is not excessively influenced by hydrogen cost or the CO<sub>2</sub> direct utilization SAF manufacturing process) 4) Social implementation model construction



## Project scheme



## Expected outcomes

- Domestic aviation fuel consumption is 2.7 million kL (FY2017) annually. Assuming that the domestic supply share of this technology is 20%, an annual production amount of 540,000 kL (crude oil equivalent 520,000 kL) and a CO<sub>2</sub> emission reduction amount of 900,000 tons-CO<sub>2</sub>/year (in the case of 50% reduction of baseline scenario) will be achieved.

About 10 facilities with about 1000 BPD\* of capacity will be constructed.

- Economic effects from fuel supply (54 billion yen/year for 100 yen/L, and so on) and economic effects from plant construction and job creation can be expected.

\*BPD=Barrel per day

## Significance of international R&D

- Chulalongkorn University is one of the world's rare institutions in that it works on all areas from gasification to FT\* synthesis, and it has accumulated a wealth of related elemental technologies (gasification, plastic pyrolysis, FT synthesis).
- The Biomass Fuel and Energy Research Center (Saraburi Prefecture, Thailand) acts as a base for specialized research on biofuels and energy with abundant research resources and is a leading organization for biofuels in Thailand. It is possible to collaborate with local, private companies, and carry out social implementation activities.

\* FT=Fischer • Tropsch