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Japan Airlines Co., Ltd.

Marubeni Corporation

Mitsubishi Chemical Corporation

Chugoku Lumber Co., Ltd.

Boeing Japan KK

Obayashi Corporation

Commencement of a Pre- Feasibility Study for the Commercialization of Sustainable Aviation Fuel, Bio-naphtha, and Renewable Diesel Utilizing Domestic Forest Residues

Japan Airlines Co., Ltd. (hereinafter, “JAL”), Marubeni Corporation (hereinafter, “Marubeni”), Mitsubishi Chemical Corporation (hereinafter, “Mitsubishi Chemical”), Chugoku Lumber Co., Ltd. (hereinafter, “Chugoku Lumber”), Boeing Japan KK (hereinafter, “Boeing”), and Obayashi Corporation (hereinafter, “Obayashi”), have concluded a memorandum of understanding on a preliminary business feasibility study for the manufacture and sale of sustainable aviation fuel (hereinafter, “SAF”), bio-naphtha, and renewable diesel from domestic forest residues (hereinafter, the “Pre-Feasibility Study”).

Background and Significance

Japan is among the leading countries in terms of forest resources worldwide, with high expectations that thinning materials and residues generated from wood usage can be leveraged as sustainable raw materials due to their potential volume. In addition, the use of wood in large-scale wooden buildings, including high-rise buildings, is currently in the spotlight from the perspective of resource circulation, and it is expected that there will be an increase in opportunities to utilize the residues generated as a result of such initiatives.

< Current status and initiatives of the aviation and chemical industries >

Aviation industry	<ul style="list-style-type: none">• The use of SAF is considered a realistic and effective measure in the context of the increasing urgency of the need to reduce CO₂ emissions.• A consistent domestic supply chain, from raw materials to production and use, is needed to build a stable system for the supply of SAF in response to the expansion of demand from 2030 onwards, when full-fledged use of SAF is set to commence.
Chemical industry	<ul style="list-style-type: none">• Initiatives are currently underway to reduce greenhouse gas emissions during product manufacturing and to transition to sustainable feedstocks (such as biochemical products from biomass resources and chemically recycled products from waste plastics), aiming to achieve carbon-neutrality and circular economy.



Overview of the Pre-Feasibility Study

This study envisions the potential use of manufacturing technology developed by Licella^{*1} to produce a bio-intermediate (renewable oil) from wood residues, which will then be reformed and refined for use in making products such as SAF, bio-naphtha, and renewable diesel towards the building of a domestic supply chain. This supply will leverage a model involving local consumption of locally produced products. Specifically, the study will assess the economic viability of the business; consider the raw material supply and processing system as well as the manufacturing process; and evaluate product logistics and effectiveness in reducing CO₂ emissions. The study is scheduled to run until December 2025 and aims to commercialize the product around 2030 depending on the progress of the study.

^{*1} Licella is an Australian-based global technology pioneer delivering the next generation of low carbon solutions. Its patented Cat-HTR™ platform is the world's leading hydrothermal liquefaction (HTL) technology, using water to sustainably transform abundant waste feedstocks into an advanced bio-intermediate, upgraded to advanced biofuels, biomaterials and circular plastic through advanced recycling.

Roles of each company in the Pre-Feasibility Study

Japan Airlines	Manufacturing business Study Entity; Consideration on SAF use
Marubeni	Manufacturing business Study Entity; Overall summary of the Pre-Feasibility Study; Consideration on respective products use
Mitsubishi Chemical	Manufacturing business Study Entity; Technology evaluation support; Consideration on bio-naphtha use
Chugoku Lumber	Consideration on raw material procurement and supply methods
Boeing	Technical certification support
Obayashi	Consideration on renewable diesel use

Future prospects

The companies participating in this study will pool their knowledge and expertise towards the realization of the domestic production of sustainable products; the creation of new industries utilizing forest resources throughout Japan; and the promotion of regional revitalization. In addition, by promoting the circulation of forest resources, they will aim to contribute to the resolution of Japan's forestry challenges, including carbon fixation^{*2}, water resource conservation^{*3}, and disaster prevention.

^{*2}The process of capturing carbon dioxide from the atmosphere in plants, soil, etc. and storing over long periods of time.

^{*3}Namely, the function of forests in storing rainwater which then acts as a supply of groundwater.

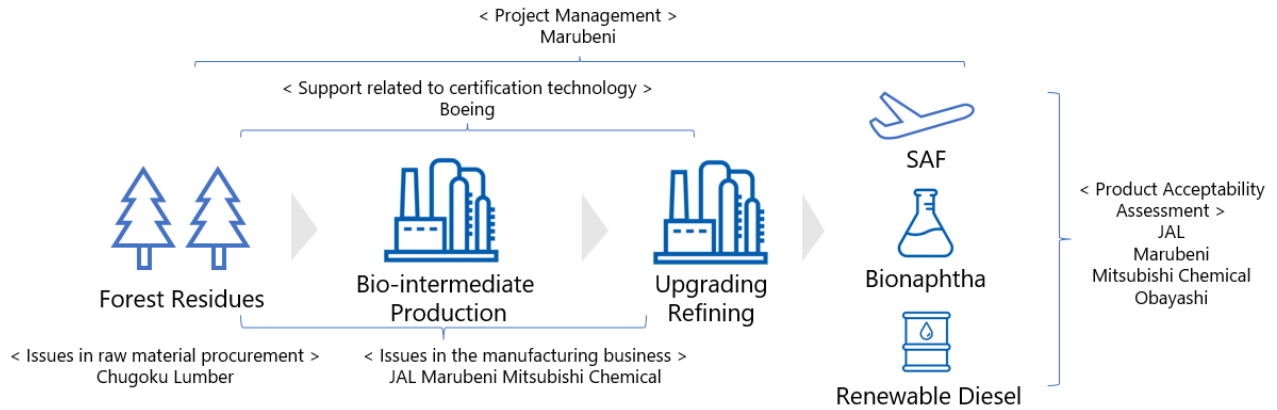


JAPAN AIRLINES

Marubeni



< Projected design for the Pre-Feasibility Study >



< Future Vision > Aiming to utilize forest residues in various regions of Japan through a hub-and-spoke approach

