



IEA Bioenergy

Technology Collaboration Programme

Task 39
IEA Bioenergy

Country Update - Japan 2022



SAF Project in Japan

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New Energy and Industrial Technology
Development Organization (NEDO)

Japan, 12 September 2022

<https://www.youtube.com/watch?v=zzRwaGCjL8M>

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Fuel Situation in Japan

<General>

Japan's primary energy self-sufficiency rate is only 11.2% (2020 ^{*1}), and there are challenges in terms of energy security. In the field of fuel, there is a need to expand technological development toward carbon neutrality in 2050.

^{*1}: Japan's Energy White Paper 2022 (2022/06/07)

<Land / Passenger vehicle>

Gasoline is the majority of the current fuel types, and diesel passenger cars accounted for 5.2% (July 2022 ^{*2}) of new car sales, has declined since the latter half of the 1990s, while HEVs increased.

^{*2}: <http://www.jada.or.jp/data/month/m-fuel-hanbai/>

Biodiesel production (mostly FAME) accounts for only 0.1% of the world, and Land market is progressing to HEV/PHEV/EV/FCV.

<Maritime>

After IMO adopted the “Initial Strategy on reduction of GHG emissions from ships” In 2018, Japan established the “Shipping Zero Emission Project”, is working on the development of decarbonized fuels such as green hydrogen and green ammonia.

<Aviation>

In order to comply with the ICAO/CORSIA rules after 2027, while expanding the supply of SAF, we have also started developing new technologies other than HEFA technology(which was not developed in Japan). [FT Synthetic, AtJ, Synthetic Fuel]
Several R&Ds of SAF are currently underway as NEDO Projects.

Progress in energy policy

Japan's energy policies for 2020-2022 are as follows.

- 2020/10/26: Former Prime Minister Suga policy speech “Aiming for carbon neutrality in 2050”
- 2021/04/22-23: Climate Summit Statement
FY2030 Reduce GHG ▲23→▲46% (vs FY2013 levels)
- 2021/06/18: "Green Growth Strategy Through Achieving Carbon Neutrality in 2050" formulated
14 sectors/10years/2trillion JYE(14billion USD)
https://www.meti.go.jp/english/policy/energy_environment/global_warming/ggs2050/index.html
- 2021/06/11-13: G7 Summit
- 2021/10/22: “The Sixth Strategic Energy Plan” Cabinet Decision
FY2030 Reduce GHG ▲46→▲50% as the lofty goal challenge (FY2013)
https://www.enecho.meti.go.jp/en/category/others/basic_plan/
- 2021/10/30-31: G20 Summit
- 2021/10/31-11/13: COP26
- 2021/12/06: Prime Minister Kishida policy speech “Clean Energy Strategy”
being formulated over a year
2022/05~06 Interim Report: 10years/150trillion JYE investments required
https://www.meti.go.jp/english/policy/energy_environment/global_warming/pdf/clean_energy_strategy.pdf

NEDO SAF Project (FY2017-2024)

【Achievements of FY2021 NEDO Project】

- Jun, 2021 SAF produced in “Project: Construction of supply chain model through demonstration” were supplied to regular Domestic flights.

—Implementation of SAF Supply, contributing to carbon neutrality in 2050—

【1】 SAF made from wood waste

Date : 2021/6/17

Flight : JAL515

Section : Haneda→New Chitose

A/C : A350-900

【2】 微細藻類から製造されたSAF

Date : 2021/6/17

Flight : JAL515,

Section : Haneda→New Chitose, ANA031

A/C : A350-900, B787-8



SAF Fueling (Haneda, Tokyo)

NEDO SAF Project (FY2017-2024)

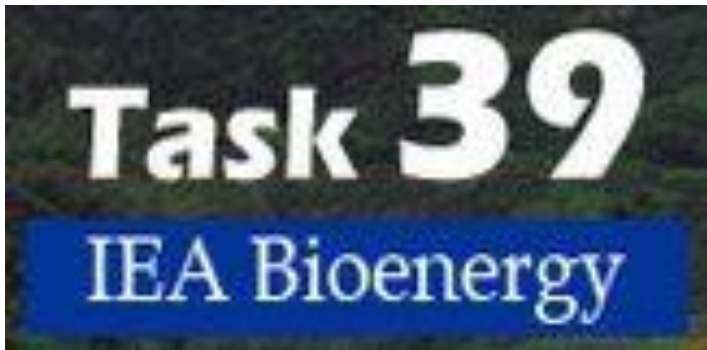
Project List	Raw Material	Period (FY)	Company in charge
1. Pilot scale R&D of SAF integrated production process			
① Demonstration of SAF production by biomass gasification FT synthesis and establishment of supply chain	2nd-BioEtoh	2017-21	IHI
② Development of integrated process for neat SAF production using fast-growing Botryococcus(Micro Algae)	MicroAlgae	2017-21	MHI, TEC, JERA, JAXA
2. Construction of supply chain model through demonstration			
① Demonstration of production technologies for SAF derived from Domestic 2nd generation BioEthanol	2nd BioEtol	2021-24	bits, Sanyu
② Building a commercial supply chain for SAF and reducing manufacturing costs through domestic UCO processes	UCO	2020-24	JGC, Revo Int'l, Cosmo Oil
③ Building a commercial supply chain for SAFI and reducing manufacturing costs using UCO processes	UCO, MicroAlgae	2020-21	Euglena
④ Demonstration of SAFI supply chain model using vegetable oil that does not compete with food	Non-edible plant, UCO	2022-24	J-oil mils
⑤ Construction of SAF demonstration supply chain model using low-pressure, low-hydrogen-consumption multifunctional catalysts	Non-edible plant	2022-24	Japan Green Electric

NEDO SAF Project (FY2017-2024)

Project List	Raw Material	Period (FY)	Company in charge
3. Fundamental technology development for MicroAlgae			
① Demonstration of a next-generation business model for SAF based on cascading use of microalgae biomass	MicroAlgae	2020-22	Euglena, Denso, Mitsubishi Chemcl, Itochu
② Development of open-closed hybrid culture technology for marine diatoms	MicroAlgae	2020-24	J-Power
③ R&D related to construction and long-term large-scale demonstration of a large-scale microalgae culture system that applies power plant exhaust gas and flexible plastic film type photobioreactor technology in an outdoor tropical climate environment	MicroAlgae	2020-24	Chitose Lab
④ Establishment and development of research bases and basic technologies related to the industrialization of microalgae-derived bio-jet fuel production and improvement of CO ₂ utilization efficiency	MicroAlgae	2020-24	IMAT
4. Technology development for SAF production (Green Inovation Fund Project)			
① Development and deployment of ATJ demonstration facilities using state-of-the-art ATJ process technology	BioEtoh	2022-26	Idemitsu

Arigou Gozaimashita.
Thank you for participating.

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