

JAL's GX Strategy for Carbon Neutrality by 2050

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JAPAN AIRLINES

Measures to Achieve Carbon Neutrality by 2050

GX Framework, Policies

ICAO

Adjustment of CORSIA*1 Baselines

Government Policy

“Basic Policy for the Realization of GX”

<2021-2023>

Less than 2019 emissions



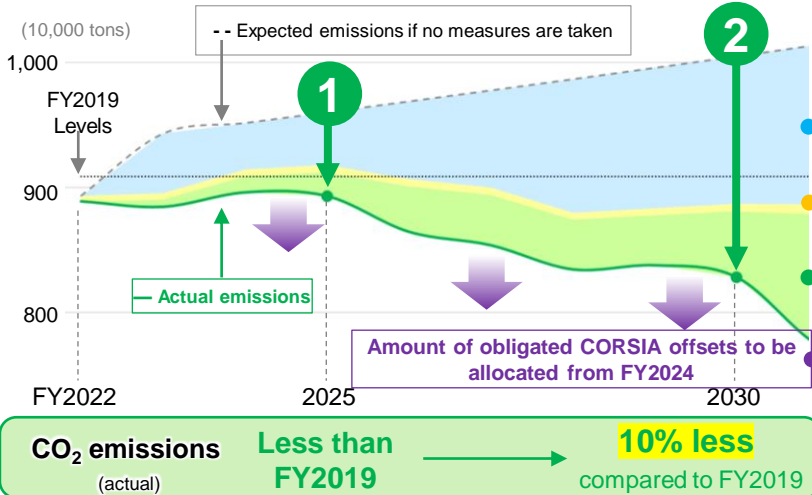
<2024-2035>

Less than **85%** of 2019 emissions

Roadmap established for the next **10** years to simultaneously address climate change, ensure a stable energy supply, and achieve economic growth

Roadmap for reducing CO₂ emissions up till FY2030

CORSIA will be addressed separately, with no change in JAL's reduction targets



Internal emissions reduction

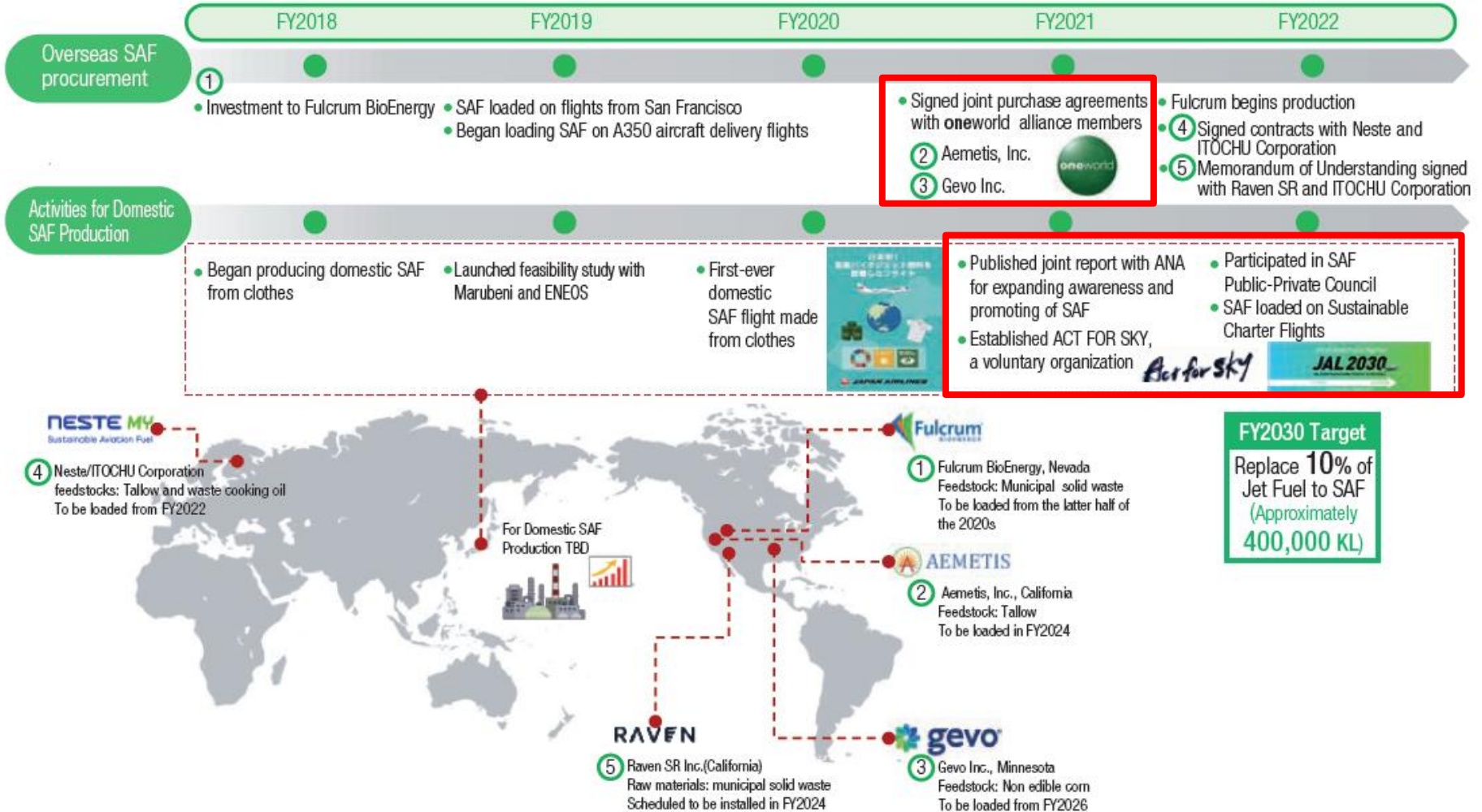
	2025	2030	
Upgrade to Fuel-efficient Aircraft	370,000 tons	1,200,000 tons	Accelerate and expand introduction of state-of-the-art aircraft A350 787 737MAX ATR: Approx. 70 aircraft
Reduction in daily operations	50,000 tons	100,000 tons	Set flight schedules aimed at reducing CO ₂ emissions
Use of SAF*2	80,000 tons	700,000 tons	Expand procurement from overseas and expand coordination aimed at production and stable supply of Japan-made SAF
CO₂ reductions	500,000 tons (Approx.)	2,000,000 tons (Approx.)	

Measures to comply with revised CORSIA baselines

Utilization of carbon-offset program	Push forward with securing credits that conform to CORSIA Offset obligations are calculated and allocated based on industry-wide emissions
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*1: CORSIA: A system that requires international flights to purchase CO₂ credits etc. for the amount of CO₂ emissions in excess of the baseline *2: Sustainable Aviation Fuel

SAF Initiatives at JAL



Joint purchase by oneworld

- In FY2021, we signed a joint agreement with oneworld alliance member airlines to purchase SAF from the United States, where SAF is already produced.
- SAF will be purchased from Aemetis Inc., which produces SAF from tallow, and Gevo Inc., which produces SAF from non edible corn.
- This is the first initiative of the alliance, and by showing the need for SAF by multiple airlines, we will contribute to the diffusion and market expansion of SAF and promote carbon neutrality in the airline industry.



AEMETIS



Aemetis (California)

- Amount : 350 million gallons (7years)
- Start : FY2024~ (Plan)
- Raw materials : Animal fat/ Waste cooking oil
- Airlines:AS/AA/BA/CX/AY/IB/QF/QR
- Scheduled to be installed at San Francisco Airport



gevo®



Gevo (Minnesota)

- Amount : 200 million gallons (5years)
- Start : FY2026~ (Plan)
- Raw materials : inedible corn products
- Airlines :AS/AA/BA/AY/QR
- Scheduled to be installed at Los Angeles, San Francisco, and San Diego Airports

Efforts to Produce and Secure SAF Stably in Japan



ANA and Japan Airlines Towards 2050 Carbon Neutral Joint Report on SAF

Date Issued : October 2021

Conducted research on usefulness of SAF and the necessary quantity in order to establish a stable supply system for SAF in the future.

Formulation and dissemination of "Towards net zero CO2 emissions in air transport by 2050"

Cross-industry collaboration ACT FOR SKY

Establishment Date : March 2022

Management Company : JAL/ANA/JGC HOLDINGS CORPORATION REVO International Inc

Membership : 30 companies (as of SEP2023)

Purpose : Popularization of SAF and expansion of production

Activity : Promote awareness and behavioral change among citizens and companies while publicizing the importance of SAF, carbon neutrality, and resource recycling.



Sustainable Challenge Flights during the UN SDG Summit period



- JAL operated “Sustainable Challenge Flights” on the JL6 flight from Tokyo (Haneda) to New York, from September 14th to 20th, under the slogan “A sustainable future together”



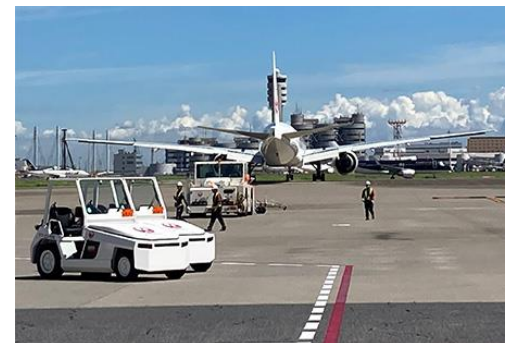
- **Use of SAF**
 - SAF made from animal fat is used for approximately 11% of the total fuel load.
 - By using about 11% of SAF, Co2 emissions equivalent to about 9% is reduced.

- **Reduction of CO2 in operations**
 - Implemented measures to reduce Co2 emissions, such as choosing the optimal altitude and flight course.

- **Use of carbon credits**
 - Valid credits will be used during the pilot phase of CORSIA*, and together with SAF and operational initiatives, we aim to achieve net zero CO2 emissions.



- **Efforts to reduce CO2 emissions on the ground (Electric towing tractors)**



JAL, the World's First Airline to Issue Transition Bonds



- The newly introduced aircraft will use funds raised through a public offering in FY2020.
- It will also be funded by the SDGs Bonds, the world's first transition bond issued by the airline industry in March 2022, and will be utilized to steadily upgrade to fuel-efficient aircrafts.



(1) Name	Japan Airlines Co., Ltd. 11 th and 12 th Series of Unsecured Corporate Bonds (with inter-bond pari passu clause; Transition Bonds)	
(2) Maturity	5 years	10 years
(3) Issue amount	10.0 billion yen	20.0 billion yen
(4) Timing of issue	March 2022	June 2023
(5) Use of proceeds	Upgrading to fuel-efficient aircraft (Airbus A350, Boeing-787, etc.)	

Accelerate upgrade to fuel-efficient aircraft

■ Existing aircraft: 777, 767, 737-800
■ New aircraft: A350, 787

