

**Voluntary Report** – Voluntary - Public Distribution

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**Report Name:** Flying Green - Sustainable Aviation Fuel in the Philippines

**Country:** Philippines

**Post:** Manila

**Report Category:** Biofuels, Climate Change/Global Warming/Food Security

**Prepared By:** Florence Mojica-Sevilla

**Approved By:** Mark Hanzel

**Report Highlights:**

Aviation is responsible for more than two percent of all global carbon dioxide (CO<sub>2</sub>) emissions. Most of this CO<sub>2</sub> is emitted when fossil-fuel-derived jet fuel is combusted. Sustainable aviation fuel (SAF) is a key part of the aviation industry's plan to reduce carbon emissions. SAF reduces the carbon intensity of air travel by up to 80 percent over its life cycle. In the Philippines, aviation fuel consumption reached its peak of 2.8 billion liters in 2019. When the COVID-19 pandemic disrupted transportation in 2020, jet fuel consumption went down by 65 percent, but showed a recovery in 2022. A local airline, Cebu Pacific started using SAF in 2022. New investments in SAF production are also being studied. The Philippines shows initiative in addressing the effects of climate change resulting from domestic and international aviation. With jet fuel greenhouse gas (GHG) emissions growing, commercial aviation needs an immediate decarbonization solution through SAF.

As airlines chart a path to recovery from the COVID-19 pandemic, attention is again focused on reducing carbon dioxide (CO<sub>2</sub>) emissions. Sustainable aviation fuel (SAF) is a key part of the aviation industry’s plan to reduce carbon emissions. According to the United Nations International Civil Aviation Organization (ICAO), greenhouse gas (GHG) emissions from aviation could increase to two to four times 2015 levels by 2050. With jet fuel GHG emissions growing, commercial aviation needs an immediate decarbonization solution.

## Background

Sustainable aviation fuel (SAF) is an environmentally sustainable alternative to fossil jet fuel. Producers make SAF from a variety of sources, including used vegetable oils, household waste, waste gases, animal fats, forestry residue, and even CO<sub>2</sub> captured directly from the air.

SAF can be used as a direct replacement (drop-in) for fossil jet fuel, as it is chemically similar, and can be safely mixed with regular jet fuel to varying degrees. It is compatible with existing jet engines and fueling infrastructure, requires zero additional investment, and does not have any negative impact on performance or maintenance. SAF can also use existing infrastructure for transportation, storage, and distribution at airports.

According to the International Air Transportation Association ([IATA](#)), SAF reduces the carbon intensity of air travel by up to 80 percent over its life cycle. That makes SAF the most viable option to decarbonize the aviation sector. Globally, SAF has helped to power more than 450,000 flights with over 100 million liters of SAF used in 2021. More than 50 airlines and 13 major airports already use and supply SAF. Finnish energy company Neste, the biggest producer, has an annual capacity of 100,000 tons (approximately 34 million gallons). By the end of 2023, Neste’s target capacity is 1.5 million tons (515 million gallons) of SAF annually. To date, SAF makes up only one percent of all jet fuel. To meet the industry’s net-zero targets, SAF needs to be the primary fuel source by 2050.

In the Philippines, aviation fuel consumption reached its peak of 2.8 billion liters in 2019. When COVID-19 pandemic disrupted transportation in 2020, jet fuel consumption went down by 65 percent, and continued to slow down in 2021. From a 10 percent share in total consumption in 2019 (pre-pandemic), aviation fuel went down to only four percent share in 2021. The aviation industry started to recover in 2022, and demand for jet fuel is on its way to reach the pre-pandemic level providing much opportunity for SAF as a better fuel for decarbonization.

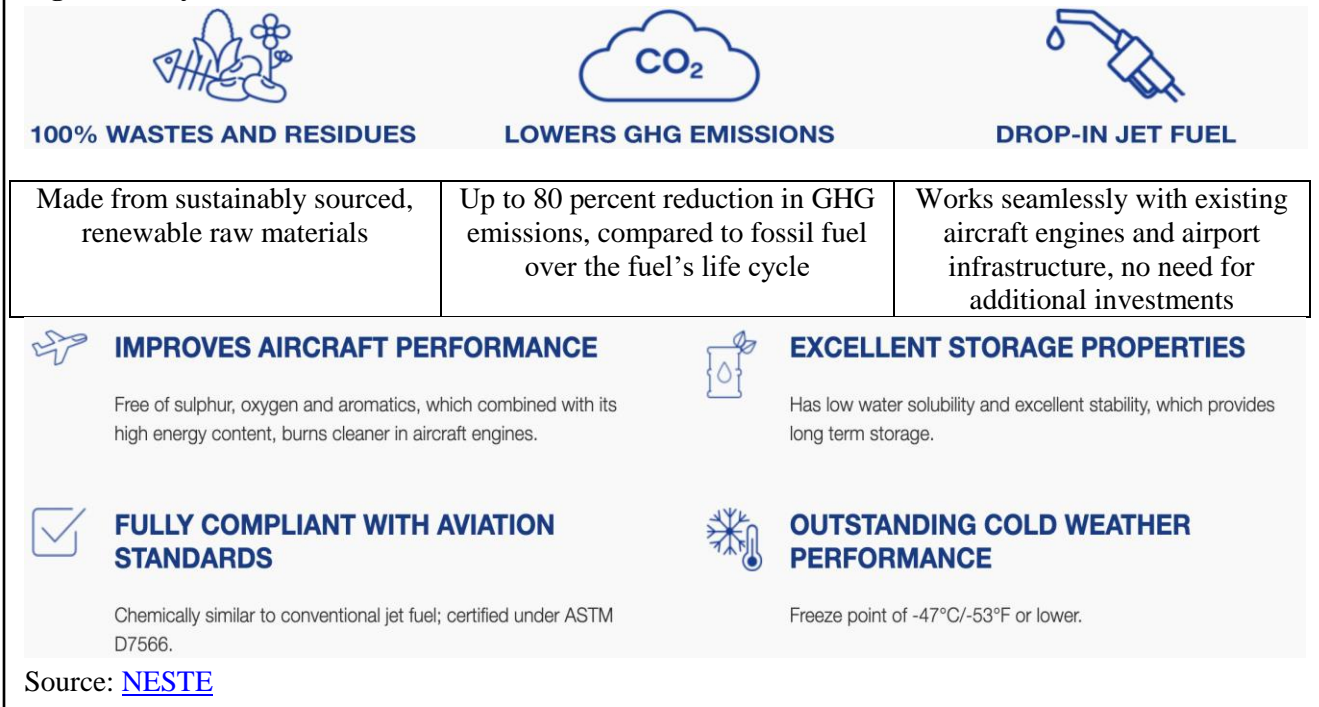
**Table 1. Oil Products Consumption, Philippines**  
In Million Liters

Type	2019	2020	2021
Gasoline	6,293	5,356	6,097
Diesel	11,305	9,595	10,382
Fuel Oil	1,356	1,161	1,120
Aviation Fuel	2,810	984	913
LPG	3,304	3,161	3,273
Kerosene	93	85	90
Biodiesel	228	191	208
Bioethanol	680	579	659
Others	1,248	1,467	1,811
Total	27,319	22,581	24,553

Note: \*includes asphalt, naphtha/reformate, condensate

Source: Department of Energy

**Figure 1. Key Benefits of SAF**



### Local airlines initiatives to fly green

Among local airlines in the Philippines, Cebu Pacific (CEB) has started to use SAF in its Airbus 320neo (New Engine Option), with its ninth aircraft [using SAF](#) received on January 1, 2023 from the Airbus Hamburg facility in Germany. There are reports that CEB is expecting 10 brand new Airbus NEO planes in 2023. To date, CEB has 55 Airbus planes which can be fueled with SAF in its fleet.

CEB used SAF for the first time in May 2022, the [first low-cost airline to incorporate SAF](#) into its operations when it delivered its third A330neo from Toulouse, France, using 35 percent blended SAF. On September 28, 2022, CEB operated its first commercial passenger flight from Singapore to Manila using SAF produced by Neste in Singapore, and supplied by Shell Eastern Petroleum at Changi International Airport. The neo Airbus is certified to operate with a 50 percent SAF blend, and Airbus is committed to enabling the use of up to 100 percent SAF by 2030.

In September 2022, [CEB signed a Memorandum of Understanding](#) (MOU) with Shell Eastern Petroleum to make SAF more widely available. The MOU explores the supply and purchase of SAF in Asia-Pacific and the Middle East, with an initial supply volume of at least 25 kilotons per year. CEB seeks to further utilize SAF by launching green routes in approximately three years. One challenge, however, is the high price, making it uncertain if the higher use of SAF will impact CEB's low-cost business model.

Philippine Airlines (PAL), the country's flag carrier, is also working toward developing sustainable fuel for its airline fleet. PAL supports the zero-emission initiative of the IATA. PAL is already working on its plan to incorporate SAF into its operations.

PAL began its process on Net Zero goal by shifting to renewable energy for the electricity supply of its major offices and has started working on the potential use of SAF to power its fleet.

### **Green investment in SAF**

A local company, Prime Infrastructure Capital, Inc, owned by Enrique Razon, has established a new subsidiary for its waste-to-fuel project being developed in partnership with US-based WasteFuel Global. [WasteFuel](#), a California-based SAF start-up, is aiming to have its first biorefinery in the Philippines. WasteFuel Philippines is evaluating the feasibility of putting up a biorefinery in Luzon that would convert one million metric tons of municipal waste into 30 million gallons of SAF annually. The Philippines was chosen as the location because it has a huge feedstock opportunity in municipal waste. Solid waste management remains a problem in the country, especially in Metro Manila, which generates around 10,000 metric tons (MT) of garbage per day. A biorefinery that will convert solid waste into SAF will make a big impact in reducing solid waste and the related environmental and health hazards, landfill GHG emissions, and fossil fuel use. The project to develop the Philippines refinery will cost around \$600 Million. According to a [report](#), NetJets, a leader in private aviation, has committed to purchase a minimum of 100 million gallons of SAF from WasteFuel over the next 10 years.

### **Policy in place**

The Philippines shows initiatives in addressing the effects of climate change resulting from domestic and international aviation. In support of this effort, the Civil Aviation Authority of the Philippines (CAAP) works collaboratively with the International Civil Aviation Organization (ICAO) to address aviation's impact on the environment. The ICAO adopted [Resolution A37-19](#) for its policies and practices related to environmental protection. The objective of the resolution is to reduce the aviation emissions' contribution to climate change. The CAAP supports the policy of ICAO, Department of Transportation, Department of Environment and Natural Resources, and Climate Change Commission. The Department of Energy plays a role in the implementation of the renewable energy policy. SAF is not specifically mentioned in the [Renewable Energy Act](#) and [Biofuels Act](#) of the Philippines. There were initial discussions on SAF on December 2022, and developments on SAF initiatives in the country are expected to continue.

### **Attachments:**

No Attachments.