



August 7, 2023

ENEOS Corporation

### **The World's First Initiative for Bio-Paraxylene origin "Biomass to PET Bottles"**

Establishment of Sustainable PET Resin Supply Chain in Collaboration with Suntory and MC

ENEOS Corporation (President: Takeshi Saito) has agreed with Suntory Holdings Limited (President: Takeshi Niinami, hereinafter "Suntory") and Mitsubishi Corporation (President: Katsuya Nakanishi, hereinafter "MC") to establish a supply chain for sustainable PET resin made from Bio-PX.

Although the introduction of plastics made from biomass<sup>\*1</sup> has been investigated and promoted for various resins, with regards to PET resin used for PET bottles, only ethylene glycol, which accounts for about 30% of the main raw material of PET resin, has been converted to bio-based materials. The major challenge will be commercial conversion of the remaining 70% high-purity terephthalic acid (PTA) derived from paraxylene (PX), a raw material to bio-based materials.

In this supply chain, ENEOS will produce the world's first<sup>\*2</sup> Bio-Paraxylene ("Bio-PX") using unutilized bio-based resources such as used cooking oil on a commercial scale applying a mass balance approach<sup>\*3</sup> at its Mizushima Refinery.

This will enable production of PTA derived from Bio-PX contributing to solving the issue of bio-oriented PET resin main raw material.

Bio-PX, which is equivalent to approximately 35 million PET bottles, is planned to be produced by ENEOS in 2023, and will be used as raw material for Suntory's sustainable PET bottles from 2024.

In addition, compared to 0.74 tons of CO<sub>2</sub> emissions per ton of PX in the conventional production of PX derived from fossil resources<sup>\*4</sup>, this initiative will reduce CO<sub>2</sub> emissions by 2.46

tons per ton of PX<sup>\*5</sup> by absorbing CO<sub>2</sub> at the plant growth stage through the bio-processing of raw materials, and contribute to the reduction of CO<sub>2</sub> emissions of PX production.

The bio-based feedstock to replace fossil naphtha will be supplied by NESTE Corporation<sup>\*6</sup> (President: Matti Lehmus). MC will be responsible for managing the entire supply chain from Bio-PX to the production of PET resin.

By realizing "Biomass to PET Bottles" through Bio-PX production, ENEOS is aiming to increase "Non-fossil resource ratio of petrochemical feedstocks" as stated in ENEOS Group Carbon Neutrality Plan<sup>\*7</sup> and to contribute to the realization of a carbon-neutral society by FY2050.

\*1 A concept that expresses the quantity (mass) of biological resources (bio), i.e., organic resources (excluding fossil resources such as oil and coal) derived from plants and animals that can be recycled into energy and materials. Specifically, used cooking oil, etc.

\*2 As of July 31, 2023

\*3 A method in which raw materials with specific characteristics, such as biomass raw materials, are mixed with non-biomass raw materials in the distribution and processing process from raw materials to finished products, and those characteristics are assigned to a portion of the product in proportion to the input of raw materials with those characteristics. A system that connects the value of the characteristics of raw materials to the final product by managing the balance of In and Out for each company in the supply chain.

\*4 Joint survey by WasteBox and ENEOS based on actual emissions from April 2021 to March 2022.

\*5 Calculated in August 2023 using joint survey and emission reductions data provided by biomass feedstock supplier.

\*6 Neste uses 100% renewable raw materials such as waste and residue oils and fats, e.g., used cooking oil, to produce the feedstock

\*7 [ENEOS Group Carbon Neutrality Plan](#) published on May 11, 2023

["Biomass to PET Bottles" Supply Chain]

