2024

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BIOENERGY UPDATE: A U.S. OUTLOOK

Key Takeaways

The 2023 Billion Ton Report identified capacity for production of up to 1.5 billion tons of biomass and unutilized waste material annually without compromising current and anticipated requirements for food, feed, fiber, and export demand.

1.5 billion tons

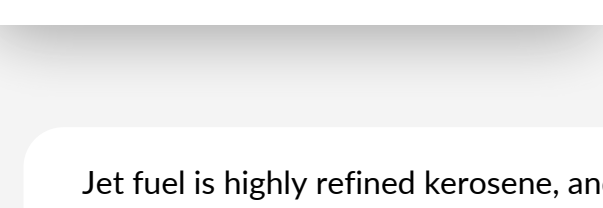
The production of 1.5 billion tons of biomass could provide annual energy supplies equivalent to 28% of US primary energy production or 75% of natural gas derived energy.

In 2004, biomass energy represented about 50% of all renewable energy production in the United States; but by 2022 biomass represented only **37%** (a 25% drop). During the same time period, solar rose from 1% to **over 14%** and wind from 2% to **nearly 30%**.

	2004	2022
Biomass	50%	↓ 37%
Solar	1%	↑ 14%
Wind	2%	↑ 30%

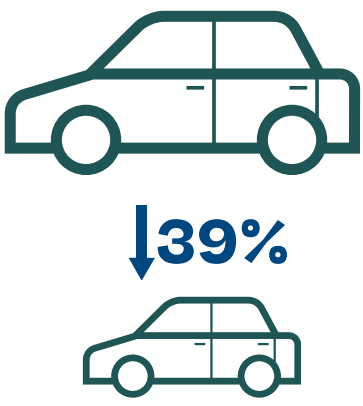
Produced from a full suite of bioresources, including: **starch, vegetable oil, agricultural wastes, forest biomass, energy crops, municipal solid waste and wastewater organics**,

100%



Biofuels could provide **100%** of the combined fuel needs of the **aviation, maritime, and rail sectors** by **2050**.

With improvements in production, today's ethanol has **39% less** GHG emissions than gasoline.

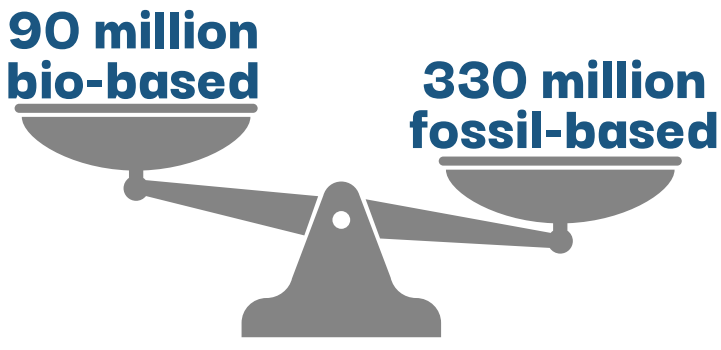


Ethanol has 43% lower GHG emissions than natural gas.

Jet fuel is highly refined kerosene, and it turns out that **liquid fuels made from biomass** are almost chemically identical to **kerosene**.

Liquid fuels from biomass are a **drop-in substitute for conventional fuel** requiring little adaptation by the airline industry.

It is possible for biomass to **replace fossil fuels** for almost all **industrial chemicals and polymers**.



Current global production of **bio-based chemical and polymer production** is at **90 million metric tons**, compared to **330 million metric tons** from **petrochemicals**.

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Read the full Report

**data sources can be found in the report*