

Quick Facts on BIOFUELS

The Bioenergy Technologies Office (BETO) is working to sustainably transform U.S. renewable energy crops, residues, wastes, and algae into high-performance biofuels, bioproducts, and biopower. The U.S. bioindustry can be developed in a manner that simultaneously protects land, food, and water resources; strengthens America's competitive advantages; maintains a strong economy; and creates jobs while helping the environment. Recognizing that no single energy source can reliably meet all of America's growing energy needs, the Administration has adopted an "All-of-the-Above" energy strategy that includes responsible oil and gas development, increased vehicle fuel economy, and investment in renewable domestic energy.



Economic Growth

Even with increased U.S. petroleum production from shale, 7.4 million barrels/day of foreign oil were imported in 2014. Investments in the bioeconomy create jobs and keep U.S. dollars at home.



Energy Security

High-quality fuels grown in America reduce our dependence on foreign oil. Locally sourced biomass supply chains support U.S. energy security and economic health while maintaining our future competitive advantage.



Feedstock Diversity

Geographically diverse feedstock options enable the sustainable use of local resources. Advanced conversion pathways can flexibly produce a range of desired fuels and products.



Environmental Footprint

In 2013, U.S. greenhouse gas emissions from transportation sector accounted for about 27% of total emissions, the second largest contributor. On a life cycle basis, advanced biofuels reduce emissions by ≥ 50% vs. petroleum.

\$188 billion

U.S. trade deficit in petroleum products (2014)—dollars that could be kept within our economy.

7.4 million

Barrels of foreign oil imported daily in 2014. Domestic biofuels can help reduce this dependence.

30%

(5.7 million barrels/day)

Share of U.S. petroleum use in 2014 that domestic biofuels could displace by 2030.

400 million

Metric Tonnes of Carbon Dioxide (equivalent) emissions that could be avoided annually with biofuels by 2030.

Early Years: Corn Ethanol

The U.S. Department of Energy (DOE) did not need to make an investment in corn ethanol, which uses a mature technology. The existing infrastructure can be leveraged to utilize abundant cellulosic agricultural residues to produce advanced biofuels.

The cellulosic biorefineries demonstrate the sustainable production of fuels from plant residues and wood waste, create green jobs, and support U.S. competitive advantage.

Recent: Cellulosic Biofuels

In 2014, BETO-supported efforts culminated in two of the first commercial-scale U.S. biorefineries to produce cellulosic ethanol from non-food feedstock sources. The INEOS plant, commenced in 2013, was also supported by BETO.

2G Hugoton Project Hugoton, Kansas
Abengoa Bioenergy, opened October 2014:
25 million gallons of cellulosic ethanol capacity and
21 megawatts of renewable electricity produced
annually when fully operational.

Project Liberty Emmetsburg, Iowa
POET-DSM, opened September 2014: 25
million gallons of cellulosic ethanol capacity
annually when fully operational.

1,686 jobs created to construct, operate, or indirectly support the plants.

\$37+ million paid to local farmers annually for feedstocks.

220,000 metric tonnes of carbon dioxide emissions avoided annually (= 47,000 cars) when at capacity.

Current: "Drop-in" Biofuels

BETO conducts research and development (R&D) on advanced biofuels that are compatible with the existing U.S. infrastructure and military needs (replacing petroleum-based diesel, jet fuel, and gasoline).

Food AND Fuel

Sustainably producing food, feed, AND fuel (the latter from both agricultural residues and bioenergy crops) will increase local revenues.

Bio-Based Jet Fuel

Drop-in biofuels offer a potential non-petroleum fuel option compatible with current U.S. military and commercial aviation infrastructure.