

These assessments were projects of the Northwest Advanced Renewables Alliance (NARA).

Using residual biomass from logging operations as feedstocks, NARA aims to create a sustainable industry to produce aviation biofuels and value-added co-products.

ABOUT NARA

<https://nararenewables.org>

Led by Washington State University, the NARA project includes a broad alliance of private industry, government laboratories, and educational institutions throughout the United States. The project includes study sites affiliated with the North American Long-Term Soil Productivity Network (Fall River, Matlock, and Molalla) which were established with support from the forest industry and U.S. Forest Service Research and Development through the Agenda 2020 Program.

WASHINGTON STATE  UNIVERSITY

WOOD TO WING

Environmental Effects of Using Postharvest, Residual Biomass to Produce Wood-Based Jet Fuel



November 2016:
Alaska Airlines made the first commercial flight powered in part by renewable fuel made from wood waste salvaged from tribal and private lands in Washington, Oregon, and Montana.



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Highlights from an economic analysis for a proposed biorefinery and related economic sectors in western Washington and Oregon

A wood-fueled biorefinery: What would it produce?

A case study—Longview, Washington

SUSTAINABLY PRODUCED PRODUCTS FOR REGIONAL, NATIONAL, AND INTERNATIONAL MARKETS

Products include:

- Biofuel blend for refueling planes at regional airports.
- Lignosulfonates, used by the concrete industry around the world.
- Activated carbon, used in air filters at U.S. coal-fired power plants.

JOBES AROUND THE REGION

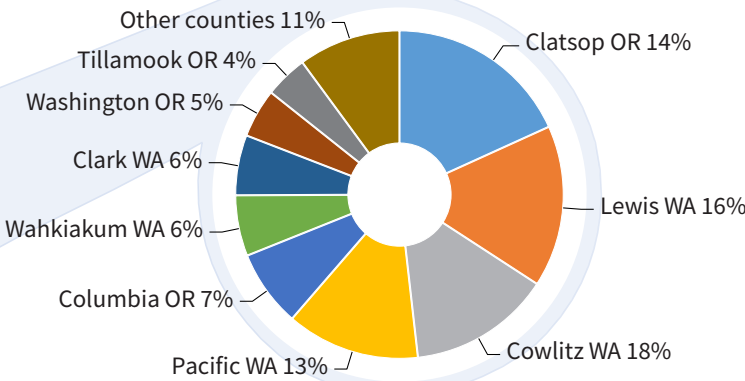
A wood-fueled biorefinery would lead to jobs in many different sectors. The estimates below are for the Pacific to Cascade Crest region of western Washington and Oregon, assuming construction of a bio-refinery in Longview, Washington.

- **10,000 jobs** over 3 years related to construction of biorefinery.
- **2,170 jobs** related to annual operation of bio-refinery and meeting needs of plant employees, their families, and plant suppliers:
 - **170 jobs** at the biorefinery
 - **820 jobs** to meet household needs of plant owners, employees, and suppliers (restaurants, hospitals, local retail, etc.)
 - **1,170 jobs** associated with meeting supply needs of the biorefinery

INDUSTRIES WITHIN THE REGION THAT WOULD MOST BENEFIT FROM A WOOD-FUELED BIOREFINERY:

Industry	Projected revenue
Biorefinery	\$327,000,000.00
Logging	\$48,500,000.00
Nonresidential remodeling and repair	\$40,800,000.00
Electric power distribution	\$40,700,000.00
Sawmills	\$22,700,000.00
Truck transportation	\$17,400,000.00
Wholesale trade	\$17,400,000.00
Owner-occupied dwellings	\$14,400,000.00
Industrial gas manufacturing	\$11,400,000.00

Volume of woody material by county



LOGGING AND TRUCKING: ECONOMIC BENEFITS TO THESE INDUSTRIES BY COUNTY

Branches, bark, and other forest residuals from timber harvests would fuel the biorefinery. Because of transportation costs, the forestry sectors in counties closest to the proposed plant benefit the most:

