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Economics of forest biomass raise hurdles for rural development, new study finds

The use of residual forest biomass for rural development faces significant economic hurdles that make it unlikely to be a source of jobs in the near future, according to new research by economists from Oregon State University.

In a model of the forest industry, researchers in the College of Forestry combined an evaluation of costs for collecting, transporting and processing biomass with the potential locations of regional processing facilities in western Oregon.

Each location was chosen because it is adjacent to an existing or recently-closed wood product operation such as a sawmill or plywood manufacturing plant.

The study, published in *Forest Policy and Economics*, focused on biomass generated during timber harvesting operations.

Biomass consists of branches and treetops that are generally left in the woods or burned. In some highly accessible locations, these residues are ground up or chipped and used to make a product known as “hog fuel.”

“There’s a lot of interest in focusing on the use of biomass to meet multiple objectives, one of which is support for rural communities,” said Mindy Crandall, who led the research as a doctoral student at Oregon State and is an assistant professor at the University of Maine.

“We thought this might provide some support for that idea,” she said. “But from a strictly market feasibility perspective, it isn’t all that likely that these facilities will be located in remote, struggling rural communities without targeted subsidies or support.”

Public investments

While researchers do not dismiss the possibility of reducing costs by increasing the efficiency of biomass operations, the future feasibility of such development may depend on public investments and the creation of new markets.

And while the study considered the possibility of generating biomass from restoration or thinning operations on federal forestlands, it concluded that the additional supply does little to change the economic feasibility of processing facilities.

It would take changes in technology from transportation to processing as well as the development of new value-added products — such as aviation fuel and industrial chemicals — to improve the economic feasibility of biomass, according to the scientists.



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The study may be the first to combine a model of biomass operations with specific locations for regional processing facilities where the material could be processed and stored. Researchers identified 65 likely locations in western Oregon for such facilities, which they call “depots.”

The cost of harvesting, chipping and loading biomass at timber harvesting sites comes to about \$37.50 (€26.96) per dry tonne, researchers estimated. Operating costs of a regional depot — including labour, fuel, maintenance, electricity and supplies — would add another \$11 per dry tonne. These estimates do not include transportation and depot construction.

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