

Economics Research Unit Explores Biomass Utilization Opportunities on the Bitterroot National Forest

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Almost a million tons of biomass left over after thinnings designed to reduce hazardous fuels and increase tree vigor, thus decreasing susceptibility to insects and disease, could provide significant small business opportunities in the Bitterroot Valley. Researchers with the Forest Service Economics Research Work Unit and the University of Montana are exploring opportunities to use forest waste material for industrial and public facilities. An example would be the biomass heating systems recently installed in the Darby and Victor, MT school districts. Biomass utilization 1) encourages sustainable community development, 2) reduces environmental effects associated with open burning of excess forest fuels, and 3) defrays costs of necessary hazardous fuel reduction treatments on public and private lands. Biomass utilization can help the Forest Service achieve its goal of reducing hazardous fuels.

Availability and costs of obtaining materials are key factors in deciding whether biomass industries are financially viable. As such, researchers have evaluated potential volumes and costs of collecting biomass from fuel reduction treatments in Ravalli County, MT. A recent study showed that 12 to 14 green tons per acre of biomass are available from approximately 67,000 acres identified as high priority for selected fuel reduction treatments. This results in over 800,000

tons of potentially available biomass material (enough material to fuel over 50 schools the size of Darby for 20 years). The researchers estimated it would cost approximately \$9 per ton to chip the residual material from a whole tree logging operation and transport it to a central collection location in Darby. Collection and delivery costs for the whole tree logging system are comparable to the cost of piling and burning the material on site. Cut-to-length logging systems that process materials in the woods are more expensive—\$31 per ton to collect and deliver the materials to Darby.

Additionally, researchers are using landscape modeling tools to determine how small-diameter timber utilization could change fuel treatment opportunities on the Bitterroot National Forest and the Colorado Front Range. These models take into account how the forests change over time because of growth and how fuel treatments can best be scheduled to reduce the effects of wildfire. This information will be incorporated into the Trapper Bunkhouse Land Stewardship Project to estimate potential biomass volumes available from proposed treatments.

Biomass utilization is an integral component in any solution that addresses the hazardous fuels issues currently experienced in much of the western United States. BEMRP research funding is leveraged with other Forest Service funding to identify potential solutions to this challenging problem.



Wood chips ride a conveyor to Darby School's new biomass boiler. This alternative reduces school heating costs and effects associated with open burning of excess forest fuels. (Photo courtesy of USDA Forest Service.)



A slash bundler collects biomass as part of a field trial in the Bitterroot Valley to study the economics of collecting and using biomass from fuel reduction projects compared to burning it on site. (Photo courtesy of the USDA Forest Service.)



Biomass boilers use wood chips, needles, and bark from hazardous fuel reduction projects to provide efficient fuel for school heating systems and reduce air quality impacts from open burning of wood materials. (Photo courtesy of USDA Forest Service.)