

Economics of forest biomass raise hurdles for rural development

Oregon State University
Department of Forestry

CORVALLIS — 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 an analysis by economists at 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."

While researchers don't 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



Photo courtesy Oregon State University
Research by Oregon State University notes that rural areas will be limited if they pivot to a forest biomass economy.

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, scientists say.

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 per dry ton, researchers estimated. Operating costs of a regional depot — including labor, fuel, maintenance, electricity and supplies — would add another \$11 per dry ton. These estimates do not include transportation and depot construction.

"The actual levels of these costs that operators experience will be really critical to feasibility," added Crandall.

Researchers have explored the potential for biomass to be used to make aviation fuel, said John Sessions, an OSU professor of forestry who did not take part in this analysis. Sessions has studied the use of forest harvest residues to produce aviation fuel in a project led by Washington State University. While it is technically possible, the economic feasibility of making aviation fuel from biomass would depend on generating income from co-products as well. The first commercial airline flight using aviation fuel made from forest harvest residues was flown by Alaska Airlines last month from Seattle to Washington, D.C., said Sessions, using residues from this project.

Other efficiencies in biomass processing and transportation could improve economic feasibility, added Sessions. They include reducing its moisture content and increasing its density to reduce trucking costs. The scale of processing facilities could be adjusted to minimize the cost per ton.

Crandall and her colleagues estimated that a depot operating three shifts per day and producing 75,000 dry tons per year would create about 19 jobs.

They also considered the possibility that an increase in material from federal forests would make a difference, but transportation costs would rise because such lands tend to be remote from likely depots.

"Just like with real estate, it's 'location, location, location' that matters here, and national forest lands are not uniformly distributed across the landscape," said Darius Adams, co-author on the paper. "They are frequently in less accessible areas, and it would cost more to transport material."

The potential for biomass, the researchers said, will likely depend on the ability to achieve other aims in addition to generating biomass as a product: wildfire risk reduction, forest restoration, energy and rural economic stimulus.

KNOCKING ON WOOD



Steve Tool/Chieftain
This Pileated Woodpecker is looking for some snacks in this pine tree at the foot of Mt. Joseph on the morning of Dec. 29.

GOMES

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"We're real excited to have Cole as a field shooter this year," she said. "He's gung-ho ... he hunts, he's going back for more state competitions. He's on fire for the sport and he has a real passion for it."

Gomes said he got into archery after watching his sister

and brother-in-law become consumed with the sport. It's also how he became familiar with the La Grande store.

The young archer said he applied for the position in October, not thinking he had a shot.

"You have to think that they have other kids applying for it. I plan to do a good job for them so I can reapply next year," he said.

OUTLAWS

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"Shane (Lund) had a really great match against a kid from Pendleton, he won the match 9-8 for the championship," said Farwell. Cole (Farwell) had a great match against a kid from Mac-Hi in the semifinals that he won 4-1 after being down 1-0 with 30 seconds left."

Cole Farwell injured his knee during the match, which forced a forfeit for the championship match.

The Eagles placed 11th in the Pomeroy tournament, scoring 58 points. Coach Tim Kiesecker was unavailable for comment.

Pomeroy Tournament top three places: 106 lbs. 2. Ken-nisen Knifong, Ent. 3. Steven Beckman, Jos. 113 lbs. 1. Shane Lund, Ent. 126 lbs. 1. Cole Farwell, Ent. 182 lbs. 2. Riley Warnock, Joseph.

Rollin Schimmel Tournament top four places: 113 lbs. 1. Shane Lund, Ent. 126 lbs. 2. Cole Farwell, Ent. 183 lbs. 4. Jonny Sarbacher, Ent.

Student of the Week

Kacie has been an outstanding member of our student body. She currently maintains a 3.81 cumulative GPA. She has taken many advanced courses while being active in FFA and an athlete as well. Thanks Kacie for your contributions to our school!

Kacie Melville
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ATHLETE OF THE WEEK

This week's Athlete of the Week is Enterprise High School senior Tiffanie George. During the Outlaws 42-22 win over Tri-City-Prep on Dec. 29, George was one of several players leading the team scoring with 12 points, including one three-pointer.

George, 18, also participates in volleyball, track and the Future Farmers of America along with making regular appearances on the school's honor roll.

Tiffanie George

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