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Converting timber into kilowatts
by Mark Anderson - 8.28.07

After more than two decades of declining logging levels in the Northwest, many companies are looking to renewable energy to breathe new life into an industry that has faced many challenges. State renewable portfolio standards in Oregon and Washington, along with Oregon's Business Energy Tax Credits, federal production tax credits and carbon taxes looming on the horizon, are bringing utilities and sawmill operators to the same table.

The promising collision of renewable energy, forest management and community revitalization received a boost in March when the U.S. Forest Service issued \$6.2 million in nationwide grants to help small businesses and community groups explore the use of woody biomass to create energy.

One recipient, Portland-based Sustainable Northwest, is using the bulk of its \$249,560 grant to spur woody biomass development in Oregon, Washington and Northern California as part of its Healthy Forests, Healthy Communities (HFHC) program. The money is helping fund four projects, according to HFHC project manager Ryan Temple.

"There's clearly a need for renewable energy," Temple says. "There's a need to restore forests. There's a need to revitalize rural communities. And woody biomass-to-energy, if done appropriately, has the opportunity to make positive impacts on all three of those fronts."

Logging restrictions set during the Clinton administration to protect wildlife such as the spotted owl led national forest timber sales to hit an all time low in 2000, according to *The Oregonian*. Sales have been slowly recovering since, but HFHC is trying to ensure rural communities have something to fall back on.

In addition to purchasing equipment, HFHC will help projects connect with each other and exchange information. A 30-megawatt (MW) cogeneration facility might be the most appropriate application in some communities, while a biomass boiler for heating a school might be the best use in another, Temple says.

Temple stresses HFHC is as focused on restoring forests as it is on helping loggers take advantage of economic incentives. Almost 4.5 million tons of the fuel is left on the forest floor each year, an amount that could deliver an estimated 300 to 500 MW of electricity, according to the Oregon Department of Energy. The need to clean up forest floors is largely the result of advances in firefighting over the past 50 years, says Mark Knaebe, a forest products technologist with the U.S. Forest Service's outpost in Madison, Wis. — the Forest Service branch that distributed the grants.

In addition to helping reduce the risk of forest fires, woody biomass power plants can provide regular, reliable power — unlike intermittent wind and solar energy resources. Yet Knaebe notes the cost of trucking fuel from forests to facilities is often prohibitive. Ideally, companies would build 10-MW woody biomass power plants every 50 miles by road, connecting them to grids throughout the United States. But finding the capital investment for such plants is also a challenge.

Such factors mean utilities aren't all likely to jump in with both feet.

"While we're very interested in power purchase agreements, I don't think it's close enough to our area of expertise or local enough that we'd get involved in trying to develop and own our own plants," says Joe Barra, director of customer energy resources at Portland General Electric (PGE), citing cost as the main barrier. "There are just too many other elements to this. You need third-party developers, and the economics can be tough because gathering that type of fuel and processing it is fairly expensive."

Barra notes woody biomass plants must be located near a good fuel source as well as transmission lines. Sawmills located in rural communities are ideal because they can add scraps from the lumber-milling process to the fuel mix.

PGE is reportedly considering purchasing power from a 16-MW biomass project being developed jointly by the Confederated Tribes of Warm Springs and a third party developer. The facility, which received a \$5 million investment from the Energy Trust of Oregon Inc., is planned at an existing sawmill in Central Oregon that is owned by the tribe.

PacifiCorp has added more than 30 MW of biomass resources to its renewable portfolio in the past year as part of a commitment to increase its renewable energy supply by 1,400 MW by 2015.

A subsidiary of Portland-based PacifiCorp, Pacific Power has a power purchase agreement for a 10-MW facility at Freres Lumber in Lyons, Ore. [see "Pacific Power taps into biomass," *nwcurrent*, March 2007]. The utility cites increases in natural gas prices, along with governmental incentives, as the motivation behind such projects.

Connecting sawmills to the grid can be challenging for developers. Most sawmills were originally sited near load areas such as small communities, and therefore didn't need transmission lines, says Bruce Griswold, commercial and trading manager at PacifiCorp.

With a \$1 million donation from an alumnus, the University of Washington is spending \$1.5 million advancing woody biomass projects in the state.

As public and private initiatives bring more biomass projects online, and information about the potential costs, risks and benefits becomes readily available, woody biomass could have a promising future in the Northwest.

"Whatever lessons accrue as a result of this should get shared broadly across the Pacific Northwest," says Temple of Sustainable Northwest. "Then everyone can benefit."



Biomass plant at Freres Lumber turns waste to fuel.

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There's a need to restore forests. There's a need to revitalize rural communities.



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