

Where's the Biomass?

BECKY KRAMER, AP Writer

KETTLE FALLS, Wash. (AP) — Roaring furnaces unleash the energy of wood at Avista Corp.'s Kettle Falls generating station.

Chips and bark become white-hot ash as temperatures soar to 2,500 degrees inside the massive seven-story furnaces. The searing heat produces steam, which runs a turbine for electricity.

The plant should be a national model for alternative energy. Using waste salvaged from sawmills and logging operations in northeast Washington and southern British Columbia, it produces electricity for nearly 40,000 homes.

Instead, the Kettle Falls operation is an example of a cruel irony facing the Northwest biomass industry: Located in the timber belt of the Selkirk Mountains, the plant has trouble getting wood fiber at prices that produce affordable electricity.

"People think, 'OK, it's the Northwest. There's lots of wood up there,' " said John Lyons, Avista's power supply analyst.

And there is. But grinding up low-value wood and trucking it out of the mountains is expensive. On a per-kilowatt basis, electricity from the biomass plant costs more than electricity from Avista's dams, a coal-burning plant in Montana or the company's gas-fired turbines in Boardman, Ore.

When fuel costs climb too high, the Kettle Falls plant shuts down. It can be idled for weeks at a time.

For Avista and other biomass advocates, it's a frustrating conundrum.

As the nation searches for alternatives to fossil fuels, the heavily timbered Northwest offers a potentially vast energy reserve. Trees are abundant, renewable and carbon-neutral, but the fiber isn't necessarily cheap.

"The Western U.S. is biomass rich but it's still about fuel. Can you get it in reasonable quantities and affordable costs? That hasn't been solved yet," said David Naccarato of McKinstry Co., a Seattle-based firm that works on biomass projects.

Avista opened the Kettle Falls plant in 1983. One of the U.S.'s oldest and largest utility-owned biomass plants, it's a case study in the promise and pitfalls of wood-to-energy plants.

Before the plant was built, the skies of the Inland Northwest were filled with a smoky haze from "tepee burners." Mills burned their wood waste in cone-shaped

Where's the Biomass?

Published on Chem.Info (<http://www.chem.info>)

structures that didn't have pollution controls.

When the federal government banned tepee burners, Avista saw an opportunity to turn the wood waste into electricity. The furnace's high heat produces a clean burn, said Ron Gray, Kettle Falls' fuel manager. Nearly all of the plume visible above the stack is steam.

Scientists also consider trees a "carbon-neutral" energy source. That's an added benefit in an era of concern about climate change, Gray said.

As trees grow, they take in carbon dioxide through photosynthesis and store it. When the wood burns or decays, the carbon is released. As new trees grow, the carbon is absorbed again.

"It's a continuous cycle, not a net addition of carbon to the atmosphere," said Kevin Booth, Avista's environmental compliance coordinator.

But fueling the plant is a challenge. Each hour that Kettle Falls generates electricity, the furnaces consume 70 tons of wood waste — 60 truckloads per day.

Timber industry downturns have made the fuel harder to get. "Every time a mill shuts down, that's a huge amount of wood waste that's no longer on the market," said Avista's Lyons.

Over the years, the company has branched out, buying fuel from B.C. mills and working with loggers to salvage treetops and limbs that would otherwise burn on slash piles. Most fuel comes from within a 100-mile radius of the plant. Any farther and diesel costs make the wood too expensive.

Avista declined to disclose how electricity produced at Kettle Falls compares cost-wise with the company's other electrical generation. The Spokane-based utility sells renewable energy credits from the plant to California utilities, which offsets some of the higher cost.

But the plant was idled for 2 1/2 months last year. The downtime was related to maintenance work as well as fuel costs.

Despite the challenges, biomass holds intriguing possibilities, said Jeff King, a senior resource analyst for the Northwest Power and Conservation Council in Portland.

Sweden gets about 6.5 percent of its electricity from biomass. In the United States, biomass accounts for less than 2 percent of the nation's electrical generation, according to 2008 figures from the U.S. Department of Energy.

"Europeans have done this for a long time. They use every part of the forest," King said.

Europeans are also used to high energy costs, he acknowledged. In the Northwest, where hydropower is abundant and residents pay pennies per kilowatt for

Where's the Biomass?

Published on Chem.Info (<http://www.chem.info>)

electricity, "a new biomass plant is only barely cost effective," King said.

Fuel supply is also an issue. Banks want assurances of long-term fiber availability before they finance projects. That's difficult in the Northwest, where so much of the forest is publicly owned.

Still, King and others have noticed a flurry of interest in woody biomass projects in recent years. Last year, the city of Post Falls fielded two to three calls per week from private companies interested in building a large biomass plant in North Idaho, though "some of them may have been kicking the tires," said Mayor Clay Larkin.

The interest is driven by the prospect of changes in U.S. policy, King said. Government subsidies and tax credits could brighten the economics of biomass generation. So could federal "cap and trade" legislation, which is aimed at reducing the nation's carbon emissions.

But so far, only one large Northwest biomass project appears to be moving forward. Adage LLC, of Maryland, has announced plans for a \$250 million, 60-megawatt power plant near Shelton, Wash. The plant would tap the Olympic Peninsula for fiber.

In the meantime, the Seattle firm McKinstry is among those finding success with small biomass projects.

Rural schools, hospitals and prisons have cut their utility bills by installing wood-burning boilers. The boilers heat buildings with steam. They're particularly effective when they replace high-cost propane or oil furnaces, said Naccarato, the McKinstry manager.

Heating one building typically requires 400 to 600 tons of wood waste annually. In Enterprise, Ore., thinning 60 acres of trees each year provides enough fiber to heat a 400-student school, said Chad Davis of Sustainable Northwest in Portland, which works on rural economic development.

Idaho's Shoshone County is one of the rural areas interested in biomass, said Vince Rinaldi, a county commissioner.

It's been a century since 1910, when one of the nation's largest wildfires burned more than 3 million acres in Idaho, Montana and Washington. Some of the trees that grew up after the fire are overcrowded and diseased. Rinaldi said thinning projects could help protect towns in Shoshone County from wildfires while providing fuel for a biomass plant.

The county's put together a working group to identify opportunities. A small electrical plant is one of the ideas. The working group has representatives from business as well as environmental interests, including the Lands Council of Spokane. Taking too much fiber out of the forest raises concerns about soil productivity, said Mike Petersen, the council's director. Decaying wood plays a role in the ecosystem.

Where's the Biomass?

Published on Chem.Info (<http://www.chem.info>)

"You need adequate safeguards so you're protecting the ecological process," he said. "But I think in these rural communities, something on a small scale is possible."

Small scale is exactly what Shoshone County is thinking, according to Rinaldi.

"This biomass stuff needs to be right-sized," he said.

Source URL (retrieved on 10/20/2014 - 6:49am):

<http://www.chem.info/news/2010/05/wheres-biomass>