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Illinois Valley Community Biomass Forum
Information about Rough & Ready Lumber Co. Cogeneration Facility

Rough & Ready's cogeneration project is exciting because it solves one small company's problem using a technology that also helps solve a bigger national problem: the need for alternative sources of energy. And the project has the added benefit of supporting ecologically sound stewardship in the reestablishment of resilient, vigorous forests.

The company has to increase the capacity of the kilns it uses to dry lumber because its customers' preferences and its product mix have changed. In recent years, Rough & Ready has been cutting more pine (the company has always dried 100% of its pine.) They are also responding to customers' requests for more kiln-dried Douglas fir lumber.

Basically, Rough & Ready needs to be able to generate about twice as much steam as the current 30-year old boiler produces, which requires burning more fuel.

Enhancing the boiler system, as it happens, also provides the opportunity to do more than dry lumber: it's a chance to build in the capacity to make electricity at the same time.

This cogeneration technology may be new to Josephine County, but it's not new to the industry—larger-scale sawmills these days are routinely using the cogen process. Smaller companies have not been able to make the investment in it because the initial costs are so high and the payback on investment is so long. Big operations have the advantage of economies of scale.

But with the need for alternatives to fossil fuel becoming ever more apparent, and unusual patterns of wildfire emerging, government programs are offering more money – in the form of loans, tax credits, grants, etc. – to help even small companies make and sell kilowatts as a sort of sideline to their normal business operations.

Rough & Ready's expanded boiler operation will be half fueled by the sawmill's own waste products (sawdust and bark) and half by other sources. Those other sources include logging refuse (much of which is currently burned on site as slash) and the byproducts of fuel reduction programs (aimed at restoring the natural balance of forestland made vulnerable to fires after years of fire suppression.)

The outside wood supply to be used amounts to, essentially, two truckloads per day on average. That won't seem like much to Illinois Valley residents who remember the **traffic** activity at Rough & Ready back in the 1980s, when the mill ran three shifts with 225 employees. Nowadays, the company has about 80 employees working a single shift. The two truck-hauls a day will not bring the total anywhere near what it was in the company's pre-downsizing days.

Along with traffic, another obvious concern is the possible effect of the operation on **air quality**. But thanks, in large part, to a $600,000 "electrostatic precipitator," the plant will burn twice as much fuel, but release 85 percent <u>less</u> particulate. The design and controls of the new furnace will be much more precise than the existing system. The old relay logic will be replaced with modern solid-state controls that will more evenly burn fuel and control emissions.

The state Department of Environmental Quality will be monitoring air quality regularly, as part of its permitting process for the operation.

Another potential concern is **noise.** Although Rough & Ready is located on a large industrial site, the new plant has been designed to have no impact on community noise levels. The turbine generator will be inside an insulated building; an outside fuel dryer will be eliminated.

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As for **water** usage, the new boiler will use about the same as the current boiler plant, which itself does not require much water. Both the old and proposed new boiler are essentially closed systems, condensing steam back to water, after the heat is extracted from the dry kilns.

A final thought to consider is the positive impact of the cogeneration operation on the community. Rough & Ready is located in a federal Empowerment Zone, which is intended to stimulate economic development in areas of high unemployment. The State of Oregon has also recognized the area's troubled economy, designating it an Oregon Enterprise Zone. Surviving two decades of harsh changes in their industry and widespread mill closures, Rough & Ready has managed to adapt and thrive by being smaller, but smarter. The cogeneration project, with support from the company's partners in government and the community, can help Rough & Ready continue to provide jobs and hope for the industry and the region.

DETAILED INFORMATION

Rough & Ready is pleased to have the opportunity to: support forest health projects, generate clean renewable electricity that would power about 700 homes, and at the same time, produce steam to dry lumber and add value to long-lasting wood products the public cherishes.

Current boiler: 20,000 pounds per hour (pph) boiler capacity with low pressure (15 psi) steam and no power production.

New boiler: 40,000 pph high pressure (300 psi) steam; 1.2 net megawatts of power production.

Fuel needs: Old system - Total of 15,000 Bone dry tons (BDTs) per year; all provided by sawmill byproducts (bark, sawdust.)

New system - Total of 30,000 BDTs per year. Sawmill residuals 15,000 BDTs (1/2), and forest fuels 15,000 BDTs (1/2.)

Job creation: 2 direct jobs at R&R and 7-10 jobs in the woods. Additionally, 80 current jobs will be sustained by increasing the company's competitiveness.

Air quality improvement: The plant will burn twice as much fuel but will generate 85% less particulate, than the current system. A $600,000 electrostatic precipitator will be added to clean boiler emissions.

If R&R is able to participate in federal stewardship projects, the air quality improvements will be even greater as fuels are burned in a controlled environment rather than in the form of wildfire.

Traffic: R&R ran 3-shifts with 225 employees up until 1990. Current employment is 80, on a single shift. Log and lumber trucks, chip, sawdust and shavings trucks and employee vehicles, all were once significantly higher than today. The cogeneration facility will add an average of 2 fuel trucks per day.

Water Usage: The current boiler and cogeneration plant both require very little water. Boiler water is condensed from steam back to water, after the heat is extracted from the dry kilns.

Public lands potentially affected: In just a 30-mile radius of R&R, there are around 1-million forest acres outside of Wilderness. A great number of these acres are in need of some kind of fuel reduction to promote resilient forests and to protect the public from wildfire. R&R's cogeneration facility will be small and could consume just a fraction of the annual forest fuel accumulation. Biomass from about 2,000 acres per year would provide the 15,000 BDTs needed to fuel R&R's boiler.