

“Wood Biomass: the Good, the Bad, and the Ugly”, by Luis Neuner was published on the Environmental Protection Information Center website on August 15, 2023.

Humboldt Sawmill Company found a number of comments that would benefit from additional correction, clarification or commentary which are presented on the right side of the page in green italics.

Substantial factual information on Mendocino and Humboldt Redwood forests and its practices are available at www.mendoco.com.

<p style="text-align: center;">Text of Article</p> <p><i>Text of article begins below, spaces placed to allow facts to line up with text of article.</i></p>	<p style="text-align: center;"><i>Humboldt Sawmill Company Facts, Corrections, Clarifications, and Commentary</i></p>
<p style="text-align: center;">[BEGINNING OF ARTICLE BELOW]</p>	<p><i>Humboldt Redwood Company (HRC) was created in 2008 from lands purchased in Humboldt county with the publicly declared mission to be good stewards of the forest and at the same time run a successful business. We have made significant progress in that regard:</i></p> <ol style="list-style-type: none"> <i>1. Adopting policies to make HRCs forestlands FSC® (C031337) certified (since 2009);</i> <i>2. Adding more than <u>1 billion board</u> feet of redwood and Douglas fir trees by lowering the rate of harvest;</i> <i>3. Defining of old growth down to the level of an individual tree, along with implementation of a policy to protect all individual old growth trees across our property;</i> <i>4. Elimination of traditional clear cutting from our property;</i> <i>5. Long term investments to improve habitat for fish across the property by controlling or holding back more than 470,000 cubic yards of sediment (more than 47,000 dump trucks of dirt) from the coastal streams flowing through our forest;</i> <i>6. Stormproofing approximately 680 miles of forest roads on our ownership.</i> <i>7. Operating as an open and transparent business; including an open invitation to take interested individuals anywhere in the forest;</i> <i>8. Completing a substantial rebuild of our Scotia sawmill, assuring that Humboldt</i>

<p style="text-align: center;">[BEGINNING OF ARTICLE]</p> <p>The concept behind wood-based biomass energy production is relatively simple: take forest debris, incinerate it, and use the released energy as a power source. Its large-scale usage, however, is often ethically tricky. In the best-case scenario, biomass could be a tool to address bad forest practices and help in the energy transition by producing baseload electricity or fossil fuel alternatives such as hydrogen. In most cases, however, using biomass for energy production can harm public health, incentivizes forest overharvesting, and contributes large quantities of greenhouse gas emissions (GHG) to an already burdened atmosphere.</p> <p>Understanding the pros and cons of biomass is tricky. It requires nuance, a case-by-case approach, and the dissemination of science and conflicting information. We at EPIC have broken wood-based biomass into three admittedly over-generalized, but still useful categories: the Good, the Bad, and the Ugly.</p> <p style="text-align: center;">[ARTICLE CONTINUES BELOW]</p>	<p><i>County will have infrastructure in the processing of wood products for many years to come; and</i></p> <p>9. <i>Employing more than 300 employees contributing a payroll of more than \$23 million and another \$75 million paid for contractors, supplies and raw material purchases flowing through the local economy</i></p> <p><i>In California, biomass used for energy is sourced from forest waste as a result of sustainable forestry, fuel reduction projects, and agricultural waste. In most cases, the removal of this waste is a cost that is unrecoverable at a biomass facility or breaks even at best. Therefore, using non-commercial forest waste for bioenergy disincentivizes forest overharvesting.</i></p> <p><i>This article ignores the findings of the California Environmental Protection Agency and California Natural Resources Agency who state in the California Forest Carbon Plan biomass energy reduces GHGs from the electricity sector and contributes to achieving the state’s Renewable Portfolio Standard (RPS) goals.</i></p>
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The Good: Sustainably-Fed Micro-Plants

Let's start with the best-case scenario. After centuries of systematic forest mismanagement, through means of fire suppression policies, clear-cutting, plantation creation, and overall gross negligence, our forests have become overloaded with fuels. To avoid high-intensity wildfires and push for healthier forest ecosystems, thinning operations generally use pile burning to reduce fuel levels. This fuel reduction is often considered a prerequisite to reintroducing low-intensity burns into the landscape.

The energy that is currently released into the atmosphere during these localized, small thinning projects could potentially be harnessed to help power nearby rural communities through small-scale biomass plants. When, for example, transmission issues arise, and renewable energy options such as solar and wind drop out of the grid, these micro-plants could be used to generate a baseload of electricity.

Because pre-commercial thinning has historically not produced a merchantable product, these projects all have had to be paid out of pocket. The U.S. Forest Service has packaged pre-commercial thinning projects with commercial timber operations to help pay for the pre-commercial work. Small, local biomass plants could therefore provide some money to help offset the costs of this type of forestry, both saving money and reducing pressure to log for profit.

Public health concerns regarding air pollutants and carbon emissions would remain, but the alternative to pile burning is also associated with similar side effects.

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The California Air Pollution Control Officers Association found through a study of emissions comparing pile burns to emissions from a biomass facility that black carbon and particulate matter were reduced by 99 percent at biomass facilities. The following reductions were also found: 95 to 99 percent reduction in methane and other volatile

More importantly, these energy sources' minor, localized nature would also result in little risk of over-thinning forests compared to their large-scale counterparts.

The downside: small-scale biomass is mostly conceptual, as the costs to operate are high. Federal and state subsidies may make this a more viable tool in the future. There is also still the risk that once an investment is made to create a biomass plant, that facility would need to be fed in perpetuity, risking that energy production could force bad logging practices.

The Bad: Large-Scale Energy Dependence

Over the past 30 years, California has increasingly grown dependent on large-scale biomass facilities to supply a percentage of "renewable" energy units to the grid. While carbon emissions from biomass are part of the natural carbon cycle, unlike fossil fuels that put new carbon into the system which had been previously sequestered, the emissions from biomass are still considerable and are working to drive climate change now. Carbon emissions per energy unit produced from biomass are larger than that of coal. The fundamental importance of curbing emissions in the short-term means that large-scale biomass should not be heavily relied on in the green energy transition.

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organic compounds, 70 percent reduction in nitrous oxides, and up to a 40 percent reduction in carbon dioxide.

The state and the US Forest Service have entered into a MOU agreeing to reduce fuels on 1 million acres annually by 2025. This will result in a tremendous amount of waste material to feed small and large biomass facilities.

A key element in creating wildfire-resilient forests is the need to maintain the current projects as forests and vegetation grow back quickly in many portions of the state. This, too, will be a sustainable source of material for renewable energy at biomass facilities.

This statement has been used a number of times by those opposed to renewable biomass energy. This claim is based on studies from other states where trees are specifically grown and harvested for energy purposes. In California, woody waste is used for biomass energy and has a different emissions profile because of the alternate fates of that biomass, that being open pile burning or landfilling.

When this statement is made, it is in reference to the emissions coming from the stack at the facility only. To get a true sense of the effect on the environment,

One example of biomass we should work to move away from is the Humboldt Scotia Biomass Power Plant, which produces energy from Humboldt Sawmill Corporation's timber waste. The plant provides around 15 percent of Redwood Coast Energy Authority RePower energy portfolio and is rated for around 30 megawatts (MW). It is also one of the greatest carbon emitters in Humboldt County, emitting far more carbons per energy unit compared to Humboldt Bay's natural gas facility. Additionally, Humboldt Sawmill has frequently and periodically violated air quality regulations, emitting harmful, cancer-causing pollutants into the Scotia neighborhood and beyond.

To reduce these toxic emissions and address the climate crisis, the Scotia biomass plant will need to be phased out. How that happens—and how

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one needs to look at the complete life cycle which includes harvesting, transport, and facility operations in addition to the avoided emissions associated with an alternative fate for wood waste.

The avoided emissions from diverting this material away from pile burning is significant. The California Air Pollution Control Officers Association found through a study of emissions comparing pile burns to emissions from a biomass facility that black carbon and particulate matter were reduced by 99 percent at biomass facilities. The following reductions were also found: 95 to 99 percent reduction in methane and other volatile organic compounds, 70 percent reduction in nitrous oxides, and up to a 40 percent reduction in carbon dioxide.

The North Coast Unified Air Quality Management District issued a Permit To Operate (PTO) for the biomass plant owned by Humboldt Sawmill Company (HSC). HSC is in compliance with the PTO. Periodically the biomass facility has received a corrective action and has responded as needed to stay in compliance.

The EPA website "Enforcement and Compliance History Online" shows no violations for this facility in the last five years. <https://echo.epa.gov/detailed-facility-report?fid=110070388738#characteristics>

fast—is a question for public debate. A successful shutdown requires an operational alternative that prevents waste from turning into landfill emissions. That could be large-scale composting, other wood products, biochar, or a cleaner, more efficient hydrogen production plant. For that to happen, however, decision-makers must incentivize alternative ways to dispose of that mill waste now.

The Ugly: Poor Forest Management

Large-scale biomass schemes are uncomplicatedly bad ideas. Because the energy density of woody debris is relatively low compared to its coal cousin, trucking thinned forest debris over long distances is financially unfeasible. Therefore, a large facility that can consume a lot of residuals would require extensive tree-cutting within a certain radius to remain economically profitable. At EPIC, we see this as incompatible with responsible forest management practice.

A proposal brought forward by Golden State Natural Resources (GSNR) would build two new pellet plants in Lassen and the Sierras to process biomass into pellets (a more energy-dense form of wood) to ship across the seas for energy purposes. These proposals all but guarantee to contribute to greenhouse gas emissions heavily, resulting in bad forest management practices by

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While not yet at scale, hydrogen production could be an alternative use of mill residuals. Humboldt Sawmill Company’s sister company, Mendocino Forest Products, is currently looking into the feasibility of such a facility in Ukiah, CA.

Humboldt Sawmill Company’s biomass facility produces biochar as a byproduct of energy production. This biochar has been certified under the European Biochar Certificate (EBC), the first U.S. based company to receive the certificate.

From an economic standpoint, commercially-sized trees have the greatest value being sent to a sawmill. Therefore, these trees are not harvested to provide material for a biomass plant. Biomass plants can generally pay a rate that gets woody biomass waste out of the woods and to a biomass plant within 30 miles. Recent state funding to aid in removal of this excess fuel has expanded this range to treat a larger number of acres, furthering the state’s goal of treating 1 million acres annually by 2025.

creating the need to feed the beast — all while providing little benefit to local communities. Large-scale biomass, such as the GSNR plan, will likely never be effective, and EPIC is committed to fighting against it.

[END OF ARTICLE]

Timber harvesting is regulated by the California Forest Practices Rules which are the most rigorous regulations in the nation when it comes to forest management. CalFire, the Lead Agency on forest regulations, independently reviews and verifies all Timber Harvest Plans (THPs). THPs are considered a California Environmental Quality Act (CEQA)-equivalent Environmental Review Document. THPs are also reviewed by Regional Water Quality Control Boards and the CA Department of Fish and Wildlife.

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County will have infrastructure in the processing of wood products for many years to come; and

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HRC and MRC is regulated by seven (7) state and federal agencies, including CalFire. Additionally, HRC and MRC voluntarily subjects themselves to third part verification of forest practices under the guidelines of the Forest Stewardship Council FSC® (C031337) and has done so since 2009. We publish our inventory and many other details of our forest management on our website. It is straightforward to find information on our management of the forest.

From our inception we have encouraged transparency and we have a publicly stated policy of taking anyone to anywhere on the property to see our practices first hand. If you are unable to make the trip you may find videos of our activities in the forest at <https://www.hrllc.com/videos>

Please contact HRC through their website to arrange for a tour. Additionally, we post our inventory and other forest facts on our website. You can find more information at www.mendoco.com