

## California North Coast Agencies Wonder What to Do With All The Wood Waste

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As California ramps up attempts to reduce woodland fuels for destructive wildfires a parallel effort has been emerging to both keep that woody waste out of landfills and perhaps help with the state's need for always-on renewable energy.

In Marin County, a coalition of clean-energy, waste and natural-resources organizations is looking into how much woody green waste there is, where it's coming from, what's currently happening to it and what are other and potentially better things to do with it.

As part of that effort, the Marin Resource Conservation District in September was awarded \$500,000 for one of five pilot studies statewide on local biomass.

That's the term for shrubbery, trees and other vegetation. The agency inked a \$285,000 contract with TSS Consultants to talk with waste managers, foresters and land managers about how they collect, process and use biomass waste.

Beyond compost and mulch, potential uses for biomass waste include fertilizer, engineered wood products, securing renewable gases such as hydrogen and methane (natural gas), and generating electricity, according to Chad White, Ph.D., manager of the district's 3-year-old Marin Biomass Project.

“We’re looking what Marin has and look at what is most practical to build on existing infrastructure and meet carbon goals of Marin,” White said.

This parallels the Marin Carbon Project, a district effort since 2008 to research and undertake carbon sequestration on farmland. The district has completed 19 carbon farm plans, which lay out how practices will trap carbon into the soil, and 68 properties are on the waiting list.

“Landfill diversion and carbon farming are pillars of the project to help the biomass and carbon projects come together,” White said.

That merging could happen along the state’s 2030 and 2045 timelines for a zero-net-carbon economy, he said.

The Marin Biomass Project is partly an outgrowth of two state laws and a county parcel tax.

Assembly Bill 1383, a June 2021 law that requires a 75% reduction in food and plant waste going into landfills by 2025. The goal is to reduce the amount of human-produced methane, considered a potent greenhouse gas and generated by decomposing biomass in the landfills.

That followed Senate Bill 1385, which as of last year required curbside collection of organic waste.

And in 2020, Marin voters passed Measure C, a parcel tax that raises an estimated \$19.3 million annually for 10 years to establish the Marin Wildfire Prevention Authority. From this comes a drive to create defensible spaces around homes, clearing brush and reducing fire fuel.

Throughout this year, the Marin Biomass Project will be completing draft findings, wrapping the report by mid-2024.

Marin Sanitary Service currently takes in 25,000 tons a year of woody material, enough to fill three to five big trucks full daily that go to biomass-burned power plants in the Central Valley, in Woodland and Stockton, according to Justin Wilcock, director of operations.

“We receive that material from all over North Bay and other parts of the Bay Area,” Wilcock said. “They come from homeowners who bring loads in, to landscapers to tree companies doing bigger projects. We get green materials and clippings to big trunks and cut-down trees.”

Smaller material can go to the composting operation at Redwood Landfill north of Novato, he said.

At Napa Recycling & Waste Services, part of the same ownership as Marin Sanitary, the operation is about to go out with a request for proposals for a biomass gasification plant, according to Tim Dewey-Mattia, recycling and public education manager.

Gasification is a process that uses high heat without combustion and a certain amount of oxygen or steam to turn organic matter into carbon monoxide, hydrogen and carbon dioxide gases that can be captured. Hydrogen gas can be used for clean combustion or used in fuel cells to generate electricity.

Another conversion method for synthesizing such gases (called, syngases) is pyrolysis, which doesn't use oxygen and generates carbon dioxide and hydrogen gases.

A joint project with the city of Napa, the estimated \$20 million project would generate synthetic hydrogen that could be used to generate electricity and also biochar, a charcoal-like substance that has multiple industrial and agricultural uses.

"Generating green electricity from our wood still makes sense, and we will only need more electricity when we electrify our trucks," he said.

In 2018, the company replaced its fleet of 40 trucks with compressed natural gas models, but now the organization is looking at the proposed state phase-out of combustion heavy vehicles in favor of electric models. Those currently cost \$500,000 each and don't have enough torque to be suitable, he said. Hydrogen fuel cell trucks, which use the gas to produce electricity and output water vapor, could be an alternative.

### Biomass energy stigma

White emphasizes is that the bioenergy from biomass isn't the burn plants, with smoke-inhalation issues for surrounding residents, that have given the energy source a bad name in recent years.

"Historically, what's talked about is wood-fired power plants," White said. "That's one pathway. That concept has lost favor in California. It's hard to site them in California. Environmental groups hate them."

Among the concerns are emissions such as particulates from wood-fired power plants and their siting in economically challenged areas, he said.

That's why MCE, a community choice aggregation clean-power agency for Marin, Napa, Solano and Contra Costa counties, last year adopted its "principles on responsible biomass electricity development."

"MCE's principles create the parameters necessary to put environmental justice concerns at the forefront of decisions related to biomass projects to ensure that air quality and environmental harms are not borne by already disproportionately impacted communities," the agency told the Business Journal in an email.

Biomass has part of the agency's power portfolio since 2010, with biomass and biowaste power sources making up 6.1% of its Light Green service option in 2021, the most recent data MCE has available. Included are these projects:

- 4.8 megawatts at the Lincoln Landfill in Lincoln, Placer County
- 1.6 megawatts at the Ostrom Road Landfill in Wheatland, Yuba County
- Just under 1 megawatt at the Central Marin Sanitation Agency in San Rafael, Marin County
- 1.6 megawatts at the Hay Road Landfill in Vacaville, Solano County
- 3.5 megawatts at the Redwood Landfill in Novato, Marin County

The agency is advocating for Assembly Bill 843 by Aguiar Curry. It would direct the California Public Utilities Commission to expand the statewide BioMAT feed-in tariff financing mechanism beyond investor-owned utilities such as Pacific Gas & Electric Company to allow CCAs like MCE to use it also.

“By supporting the subsidization of smaller scale biomass facilities, the CPUC can help to ensure fair competition between CCAs and private utilities as we each seek to develop biomass projects that will improve grid reliability,” MCE told the Journal. “MCE believes that sustainably and responsibly produced biomass will continue to be a great base load resource in our communities, especially considering the amount of agriculture that occurs in West Marin, Napa, and Solano counties as well as the biomass produced through responsible forest management. Fair access to subsidies will promote the development of these projects and make long term economic sense.”

Sonoma Clean Power, a CCA for Sonoma and Mendocino counties, is “taking a cautious approach” to small-scale biomass power projects, according to spokesperson Claudia Sisomphou.

“AB 843 offers a pathway for local governments to be more involved in any new facilities, but SCP won’t be the first to develop any new biomass power because we are interested in observing how to ensure high environmental standards are met,” she wrote in an email.

Currently, 11% of the agency’s default power mix, its CleanStart rate plan, comes from biomass and biowaste sources in Central California. That’s ramping down to 9% this year and 7% in 2024.

“We do not have any contracts for biomass beyond this timeframe,” Sisomphou said.

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