Biomass an option to Calif.’s epic tree die-off

Biomass plants emit steam, with most byproducts able to be repurposed. Photo/Kathryn Reed

Publisher’s note: ***This is the first of two stories about California’s tree mortality and how biomass is one solution to the problem.***

By Susan Wood

As California experiences what may be its worst wildfire year on record, a multi-agency working group has sparked new ways for the state to see the forest through the trees in fire hazard regions.

Since 2010 a record 129 million dead and dying trees on 8.9 million acres have been recorded. The crisis spurred by the cycle of drought stresses the trees – the majority in the Sierra Nevada – making them susceptible to bark beetle

infestation.

When agencies like the U.S. Forest Service – which manages about 80 percent of the forest around the Lake Tahoe Basin – have them cut down when they can, the trees are often thrown in slash piles ready for burning. Otherwise, they become a fire risk.

The process of open burning to deal with the huge issue lacks expediency, economic benefits and ecological sense in terms of air pollution. Moreover, the sheer volume of tree mortality is overwhelming.

“Tree mortality at this magnitude takes ongoing cooperation between public, nonprofit and private entities,” said Ken Pimlott, CalFire director and state forester.

California, where declarations of disaster from wildfires have become about as common as our holidays, needs other solutions.

Gov. Jerry Brown two years ago declared a state of emergency as the state faced “the worst epidemic of tree mortality in its modern history.”

The following year, Brown signed Senate Bill 859 into law and in part designated a working group to bring suggestions to the California Resources Agency that would define measures of how to handle the massive tree die-off posing an increasingly greater fire risk and emitting greenhouse gases into the air.

And if there’s a new and improved industry as a result, the better the state of business here, according to advocates. The climate change bill allocating $900 million to reduce carbon emissions goes as far as to direct electricity retailers to enter into contracts with biomass facilities generating energy from wood harvested in these fire hazard areas. Biomass is defined as organic matter used as a fuel source.

The move won applause from the California Biomass Energy

Alliance's Executive Director Julee Malinowski-Ball, who commended Brown for having the vision to see the industry as part of "the state's renewable energy portfolio standard."

"How do we treat the forest so it doesn't become a source of carbon emissions?" said Claire Jahns, assistant secretary of the California Natural Resources Agency – the lead organization in the nine-member working group. "The creation of biomass is a necessary outcome of doing active forest management."

The Lake Tahoe Basin Management Unit agrees.

"Biomass is one tool that can be utilized to aid in hazardous fuels reduction," LTBMU Fuels Management Officer Kyle Jacobson said.

Jacobson cited the ability of reducing smoke from burning the piles onsite as one significant reason to opt for the alternative method. Turning that tree debris into energy production is another.

The plan sounds like a win-win for the economy and environment, but it has limitations requiring "mechanical access" to the tree debris location, Jacobson pointed out.

It also commands a word of caution from the Sierra Club of California. The concern is that creating an industry built on tree cutting could lead to an overzealous nature of taking out alive-and-well-timber from the forest.

"At first glance, we assume there's an endless supply of trees to build an infrastructure from. One thing to be cautious about is not every dying tree needs to be taken out," Director Kathryn Phillips told *Lake Tahoe News*. "Snags left at the end of a forest fire have an ecological purpose and should be left alone."

The Sierra Club worries the hazard zones may be drawn too

large to accommodate this blossoming industry that could go on the offensive in seeking materials.

“All said, there are dead trees that have to be taken out. We just want sensible forest management,” Phillips said.

Bob Kingman, assistant executive officer for the Sierra Nevada Conservancy, understands the concern of making business the priority. He is also a member of the state working group. Kingman realizes his Lake Tahoe Basin homeland is inundated with clusters of trees ripe for out-of-control burning as well as other hazards. Kingman worked for years at the California Tahoe Conservancy.

“Yes, it could encourage tree cutting. But right now, our forest does need more tree cutting,” he said. Kingman referenced the Wine Country wildfires of October as a situation that “adds a whole new complexity” to the hazard.

It’s believed that no more than 15 percent of the dead and dying trees is removed as needed.

The least expensive way to dispose of wood is often to burn it on site. Photo/Kathryn Reed

A trio of goals in the report

The working group’s report released this fall was created with three aims in mind: Utilize the woody material pulled from

high hazard zones identified by the state's Tree Mortality Task Force; promote forest health and reduce carbon emissions from burning; and spawn rural economic development.

State Sen. Ted Gaines, R-El Dorado, is all over the latter idea, but if anything, would like to see more than $25 million dedicated to the effort and wants a wider area covered.

"I support the idea of a focused effort to better manage our forests and incorporating biomass as a way of doing that," Gaines told *Lake Tahoe News.*

But in not necessarily supporting the cumbersome SB859 climate bill, he's disappointed the allocated funds were directed to more concentrated high hazard zones instead of covering larger areas.

"This is our largest opportunity for management of the most acres," said the senator who represents Tahoe.

Gaines reflected on the human tragedy by singling out fallen firefighter Michael Hallenbeck, who died two years ago when a tree struck him as he was fighting the Sierra blaze south of Echo Summit.

Turning tragedy into tree removal programs

The state study identifies four pilot programs to turn the tree debris into wood products or biomass.

First, retrofit old mill sites into biomass plants or wood manufacturing facilities.

Second, schedule a mass timber building competition that showcases how to slap together composite panel structures and use fabricated wood products.

Third, initiate a California Conservation Corps workforce training program to manage the transition from mass timber debris to viable wood product.

Fourth, convene a wood products summit featuring state and federal entities, entrepreneurs, community groups and industry partners.

“There is a critical need to bolster our biomass processing capacity and expand uses for wood products not only to handle dead trees in the short term but also to assist with ongoing forest management and restoration,” California Natural Resources Secretary John Laird said.

Even as convincing as the biomass idea is, the potentially burgeoning industry doesn’t come without challenges that go beyond the caution of turning a depleting resource into a state-sanctioned form of commerce.

For starters, the plants at this point are few and far between, as Caltrans program manager Lisa Worthington admits. The state agency must remove hazard trees along its highway system. Arranging for the trees to be taken through contractors to biomass facilities miles away can pose a big expense in transportation costs.

The hope is more plants get on board. Worthington counted 107,608 trees removed since just March 2016, so the need is great. As it stands today, there are about three times as many dormant biomass sites in the state as operational ones.

“The need is enormous,” Worthington said.

This material is refined wood product that the biomass plant will turn into electricity. Photo/Kathryn Reed

Specifics are on the way

The state resources report set into motion a breakdown of specific committees tasked with handling the goals and pilot programs associated with solutions like retrofitting more biomass plants. One such group will be tasked with removing barriers that hinder a convenient path to redevelop sites – as in the convoluted permitting process.

From there, an information clearinghouse would be formed to provide resources for developers of the wood products manufacturing industry.

Applied research like Humboldt State University's "Waste to Wisdom" Biomass Research and Development Initiative studying converting forest residue into renewable fuel would be supported by the state.

Plus, the California Wood Innovations Small Grants Program would be created to reward funds to those with enlightening ideas.

Local jurisdictions could seize state grant money to fund a

mass timber building competition similar to Oregon's, where $200,000 was awarded to a developer using cross-laminated timber.

Big timber projects featuring buildings six stories or taller made with pre-engineered wood products have been erected all over. One proposal, called the Splinter, features a building 100 stories high in London. In Chicago, an 80-story structure has been designed. Those following the trends have coined the term "plyscrapers." In some cases, hybrid buildings made from pre-engineered wood, concrete and steel are thought to be more rigid, according to architects working with the mixed use.

Governments at the state and federal level have been forced to look inward in coming up with solutions to getting rid of its wood debris.

Case in point, the wood on federal lands is prohibited from being exported overseas from the Western United States.

Through a little-known federal rule, U.S. Code 620, the export of federal timber west of the 100th meridian has been banned since 1973. Timber affected by the Forest Resources Conservation and Shortage Relief Act must be deemed a surplus species through a regulatory process involving the U.S. Department of Agriculture to waive the ban. The Forest Service has specifically declined to comment on the matter.

"The USFS does not comment on legislative activity or potential outcomes," Washington spokeswoman Veronica Hinke told *Lake Tahoe News.*

U.S. House Republican Tom McClintock of Elk Grove is attempting to circumvent obstacles. The congressman introduced legislation – the Emergency Forest Restoration Act – with the intent of using the state governor's emergency declaration to expedite the removal of dead and dying trees.

HR865 piggybacks off the Resilient Federal Forests Act, which

simplifies environmental regulations and hastens the removal of trees associated with fire-killed timber.

“After 45 years of experience with these laws (under the National Environmental Policy Act), I think we’re entitled to ask: ‘How are the forests doing?’ The answer is damning,” McClintock said in remarks in support of HR2936.

With more than 58 million acres of national forest at high or very high risk of severe wildfires, the crisis demands an all hands on deck approach.

The Tree Mortality Task Force said 860,000 dead trees have been removed — over half by the Forest Service, the agency revealed this week.

To help with the woody-biomass solution, the USFS recently announced $9 million to be awarded to competitive wood products and energy distribution projects. Applications are due by Jan. 22.