

Background

The Sierra Nevada region has a long history of providing wood and wood products for a multitude of uses. The amount of wood produced from the region has also varied dramatically over the years reflecting changes in economic, environmental, and social policy. Many of the communities throughout the region were built around and have depended upon forest management and the production of forest products. At the same time, aggressive fire suppression, lack of restoration resources, and conflict over forest management have resulted in an overall decrease in forest health due primarily to overgrown forests. Total forest biomass is accumulating at a dramatic rate and creating unnatural conditions susceptible to disease, drought, large damaging wildfires, and massive emissions of stored carbon.

With decreased amounts of forest material being removed from the landscape, the wood processing infrastructure has decreased. In the early 1990s, approximately 66 biomass power plants were operating in California, producing about 950 MW of renewable energy, and 117 sawmills were operating in the state. Approximately 300,000 acres of private and public forestland were treated each year to sustain those facilities. The Forest Service estimates that it needs to treat approximately 500,000 acres/year for the next 15-20 years to keep up with the growth and biomass accumulation. Today, there are 22 biomass power plants operating producing about 557 MW of renewable energy (about 2.96 percent of total California energy budget) and 27 sawmills operating.

The presence of wood and biomass facilities is essential to restoring the health and resilience of Sierra forests. When material removed as a part of restoration activities has value, it reduces the cost of restoration operations, allowing for more area to be treated. The activity associated with restoration and wood and biomass utilization likewise creates jobs and contributes positively to local economies. Without this infrastructure there are adverse environmental implications, as alternatives such as pile burning produce air pollution and release greenhouse gas emissions.

Communities throughout the region are forming collaborative biomass utilization groups to address the threats of increased fire danger, preserve valuable recreation assets, and maintain economic viability. With broad acceptance of the need to maintain existing facilities and establish new wood-processing capacity in the region as a means to help restore forest health, the SNC has been engaged in and supporting several efforts. SNC provides support through technical assistance, grants, and meeting facilitation. SNC staff also participates in state-sponsored working groups (Tree Mortality Task Force, SB 859, and Bioenergy) to assist in developing new markets for biomass and other wood products.

The attached map ([Attachment A](#)) illustrates the geographic distribution of idle, operating, and proposed biomass energy facilities; and the locations of existing wood processing facilities that produce dimensional lumber, mulch products, animal bedding, biochar, and other products.

Current Status

Challenges persist related to the economics of producing energy from woody biomass. Prices of natural gas and other subsidized sources like wind and solar make it difficult for biomass energy production to compete. Creative solutions to level the playing field or mandate biomass usage have been employed and remain necessary.

Efforts to sustain existing biomass energy infrastructure that services the region have realized some recent success with the signing of SB 859, which dictated that 125 MW of electricity generated from biomass harvested primarily from high fire hazard areas, be purchased by the major investor-owned energy companies through five-year contracts. Attached map ([Attachment A](#)) details locations.

In addition, in 2012 the legislature passed SB 1122 which designated up to 50 MW of energy be purchased from small scale (less than 3 MW) biomass facilities generating power using byproducts of sustainable forest management. No contracts have yet been executed for this energy due to the high costs and permitting challenges facing project developers, but several community-based efforts are approaching completion (see attached map – [Attachment A](#)).

Other innovative approaches to facilitate new production or re-fire idle plants has also gained some traction. Placer County is close to implementing a Community Choice Aggregation to become the energy provider for most of the county and intends to purchase some of its energy from biomass generation. The idled Loyaltan biomass plant in Sierra County intends to restart operation by selling energy to buyers specifically interested in purchasing renewable power. The Loyaltan facility is also marketing industrial campus opportunities to attract other wood processing businesses that can benefit from co-locating and obtaining more economical power.

State and Regional partners recently commissioned detailed research on opportunities to develop markets and new products using dead trees as the result of the tree mortality crisis (Dead Tree Utilization Assessment, the Beck Group, December 2016). To address the immediate needs related to clearing dead trees, the most effective options identify exporting logs to Japan and Asia for energy production. Several other opportunities are identified ranging from small-scale firewood operations to domestic energy production. Looking beyond the immediate emergency of removing dead trees, the National Forest Foundation sponsored in-depth research resulting in the *California Assessment of Wood Business Innovation Opportunities and Markets* which identifies several longer-term investment and development opportunities to produce high-value forest products ranging from fuel to mass timber structural products. Much attention has been focused recently on the opportunities to expand usage, and possible manufacturing, of advanced wood products like Cross Laminated Timber (CLT). Large CLT panels are manufactured by gluing and pressing together several layers of milled boards (typically 2" by 6"). The large panels are then used to construct walls, floors, and ceilings in buildings up to eight stories tall. Benefits of using CLT include high resistance to fires and earthquakes, good

insulation properties, long-term storage of carbon, and reduced time and costs for construction. The potential market for this type of product in California is huge and is expected to grow rapidly after building code updates are finalized.

Next Steps

Staff will continue to participate and engage with established bioenergy and wood utilization workgroups. Staff will also facilitate training and education sessions for local building and planning officials to explore options for permitting use of advanced wood products in new construction projects.

It is important to note that while there is a high degree of support for biomass utilization among a wide range of stakeholders, there remains some groups who oppose such efforts. SNC and its partners will continue to meet with these groups and will continue to provide information as to the environmental and economic benefits of the utilization of biomass and wood products produced in an ecologically sound manner.

Board members are encouraged to participate in free tours given by biomass plant operators throughout the region on October 18, 2017, to celebrate National Bioenergy Day. Tours will provide first-hand look at how biomass energy is produced.

Recommendation

This is an informational item only; no formal action is needed by the Board at this time, although Board members are encouraged to share their thoughts and comments.