

Questions and Concerns from the WBWG April 27th Meeting

Questions:

1) *What is the strategy for insuring a sustainable wood supply of woody biomass?*

The short answer is that appropriate scale and technology of a facility will ensure a sustainable wood supply. Our strategy is to conduct a feasibility study to help us determine the appropriate scale and technology. In addition, our work is guided by our operational principles:

We will focus on long term environmental, economic and social sustainability - only promoting infrastructure that fulfills the following environmental, economic and social equity criteria:

Environmental:

- We will seek state-of-the-art, Best Available Control Technology (BACT) to minimize the impacts on air quality , water use, forest, overall public health, and community quality of life
- We will ensure that we are carbon neutral, and maintaining the carbon sink to counteract global warming,

Economic:

- The project will be viable and able to give the developer the likely possibility of getting a fair return on his/her investment
- The project will likely be viable as the economy changes
- There will be a sufficient, reliable stream of wood products to sustain the project long term (foreseeable future)
- The project will not compete with or undercut the existing economic base of the County (fruit and wine production, tourism, recreation, etc.)

Community Equity:

- The project will provide well paying jobs
- The project will create long term improvement of the forests
- The project will promote a sense that the community is enthusiastic/proud about this project happening in their community
- The community will be empowered by this initiative creating a catalyst for other related initiatives.

Projects that do not fall within our Operational Principles will not receive our support. This does not mean that someone cannot come into our community and attempt to build a facility that would violate one, or more of these principles, but we feel that with a community mobilized behind these criteria that scenario would be highly unlikely.

2) How do we determine a sustainable level of removal of biomass?

The feasibility study will help determine the amount of biomass that is available on a sustainable level. There are a number of factors that influence sustainability. A few of these factors are: acres producing a biomass product, growth per year, land productivity, accessibility from a road system, distance from a facility and the amount of biomass needed. We do know already that many tons of biomass produced by forest management activities every year are not being utilized because there is not enough demand for the biomass produced. We also know that the annual growth in Forests results in fuel buildups that are susceptible to large scale stand replacement fires. Removal of biomass materials can reduce the risk of this type of fire.

3) Will public land be accessible in the long-term?

The Mendocino National Forest has a variety of land designations. Some such as wilderness do not allow for the removal of Forest products. Other designations allow or encourage the removal of Forest products. One of our priorities on the Forest and in the Region is ecological restoration. One key component of ecological restoration activities is the removal of small diameter trees to maintain healthy forests. Many acres of Forest Service land should be available in the long term for this type of management.

4) How many BDT will it take to power a city of 5,000?

It varies, but assuming the average California home using 1MW for 1000 homes, then 5MW would be required for 5,000 homes. Rule of thumb biomass quantities required are; 1BDT/hr per MW, 5MW = 5BDT/hr x 24hrs = 120BDT/Day, 120BDT/Day x 365 Days = 44,000 BDT/Year. At 2.5 tons a cord, that's 48 cords daily or 17,600 cords yearly.

Most likely the answer is within the range between 5MW and 7MW, using between 44,000BDT/Year and 61,000BDT/Year.

MEGAWATT (MW) - One-thousand kilowatts (1,000 kW) or one million (1,000,000) watts. One megawatt is enough electrical capacity to power 1,000 average California homes. (Assuming a loading factor of 0.5 and an average California home having a 2-kilowatt peak capacity.)

<http://www.consumerenergycenter.org/glossary/m.html>

5) Can hemp residue be used?

Highly recommended!

6) *Who will be the trained people to evaluate size/class of trees?*

The registered professional forester (RPF) was created, much like the registered professional engineer, because the potential of serious damage to people and property. Like engineers, the training for managing a forest is extensive and a forester (RPF) has the trained ability to design a post-harvest forest outcome that meets the need the public as well as for the client. (PRC55752).

The licensing of a public utility will require that the feed stock be management sustainably if the public demands it. We currently do not have biomass-specific rules in the Forest Practice Act to address biomass specific outcomes; however, we can create rules to meet that concern. The current rules are for timber stand development with specific watershed protections which the public and current industry developed. These should be adequate for a small biomass facility – a larger county-wide program, maybe not.

One reason new regulations may be wanted is that a particular biomass industry MAY want a different sustainable feedstock and this feedstock may or may not meet the public values of the forest. Depending on the size and character of the biomass facility, Mendocino County can create its own “biomass” rule that meets both the industry and the environment.

7) *How do we engage others to build community will and reduce the opposition to biomass utilization- pilot project / gorse removal?*

Building community will begins with engaging others for the purpose of increasing awareness of the Woody Biomass working group’s current status as well as our operating principles. Prior to securing grant funding for the feasibility study or a pilot project, the specific information to promote includes all of the highlights of the PowerPoint presentation especially that the group will use the 3 E’s to guide the promotion of any given site and technology and that there will be ample opportunities for community conversations prior to any official public hearings, in order to address concerns that community members might have.

A concurrent pilot project is being considered, to provide on the ground veracity for a moveable pyrolysis and biochar facility, using a site that has targeted for forest restoration, The Usal Forest. The Woody Biomass working group will continue to explore additional options of technologies, transportability and sustainability in particular location(s) while pyrolysis/biochar, a seemingly low emission/low impact technology is researched as a pilot.

8) *Will this group compete with the Ft. Bragg group for funding?*

The Ft. Bragg biomass group is currently trying to locate a 15MW steam generation biomass facility at the old Georgia Pacific bark landfill just outside of Ft. Bragg. We are working with the Ft. Bragg biomass group to ensure that our goals do not impede with Ft. Bragg's ability to continue work on their project. While both of our groups are looking to promote woody biomass facilities in the County, the work of the two groups is very different. The Ft. Bragg group is looking at one specific location and technology. The Mendocino County Woody Biomass Group is exploring between five and ten different locations throughout the County. Based on the characteristics of each site we will create a matrix that lays the groundwork for investment in a number of possible biomass facilities.

From a funding perspective, the inland and coastal groups have written a joint appropriations request for funding biomass utilization in the County. The two groups applied for different dollar amounts to do different work in a combined request. The area of overlap for appropriations funding was to help fund community outreach which is part of the approach of both groups. The nature of the two approaches is different enough that it is unlikely that we will be competing for funding in the future.

9) How do we access biomass on rough terrain?

Easy answer - CAREFULLY; but really if we want to produce biomass from steep ground there are ways.

Currently there is substantial biomass that is dragged to log landings during forest harvest operations particularly by cable yarding systems. This material for the most part is left on the landing or burned later to reduce fire hazards. Most cable yarding systems are selective removal of a mix of large and small merchantable sized trees. This could be expanded to include sub merchantable species or trees injured in the removal operation.

Cable yarding is an expensive operation. The equipment used can run to \$500,000 or more but by increasing the cubic foot volume handled at each landing set up it would reduce moving and set up down time and spread costs. Nevertheless this would be an economic balancing act.

For a strictly biomass removal operation on steep ground the best source is a roadside skidding machine. Most of our local forests are fire prone and crisscrossed with roads. Using these roads to develop fire breaks above and below would provide a relatively economical source of biomass while improving the health of the forest.

In Idaho where most of the merchantable timber is of small diameter the small operators have developed a machine they call the Idaho jammer. It is a double drum

portable A frame cable yarder on skids or a trailer powered by a small gas or diesel engine.. It reaches out with a light cable moderate distances and could be adapted to developing an understory thinning creating park like fuel breaks. Fire agencies could use these fuel breaks as a line of defense particularly for night time backfires that would stay on the ground.

At the present time no specific small tracked or wheeled ground skidding machine have not to my knowledge been developed . There are machines out there that could be modified for biomass yarding on moderately steep slopes, say 50 % or less. A track laying Bobcat with extra wide rubber tracks and a lowered center of gravity would be a relatively inexpensive possibility compared with a hard track cat type skidding machine.

Fuel break thinning would involve falling numerous small tree stems; a labor intensive job. A small trackscavator /sheer machine on rubber tracks could be used on moderately steep ground. This would reduce labor costs and safety concerns.

With a stable guaranteed biomass market these types of machines could be developed to expand the biomass sources by coping with the steep terrain in this county. Biomass harvesting has been going on for some time in other parts of the country but almost exclusively on flat ground. Some of the machines could possibly be modified to operate on moderate slopes.

Most any solution to the problem of harvesting biomass is a function of the economics involved in the value of biomass and the desired result in the forest plus the stability of the biomass market. We are looking at new problems that need innovative solutions.

Concerns:

1) Commoditization of the wood material

Commoditization of the wood material could in theory drive prices so low as to make biomass utilization uneconomical, bringing pressure to create cost cutting measures that might ultimately come at the expense of the forest and our community.

If used for energy (electricity, bio-oil, heat etc.) we are capable within this region of creating local markets that would utilize most if not all of the energy production. This would require local control of the markets resulting in an ensuing premium for this energy by selling it direct to the consumer through locally controlled retail mechanisms at already established retail prices. This will reduce negative economic

pressure on our forests by keeping the profits in the region where they can go to supporting good forest management, instead of transferring these profits to shareholders all over the globe

2) *Concerned about the ideas of “waste”- reduction of “waste” is critical. Why if trees are getting larger are we creating more waste?*

Larger trees individually create less sawmill residuals (waste) because a higher percentage of the fiber can be milled into solid lumber products leaving a smaller percentage to go into residual products like sawdust, chips and hog fuel.

As the forest grows older and the trees get larger, there will be more trees available to mill into lumber on a sustainable basis. This will require more sawmills and these sawmills will produce more residuals that can be used to supply biomass plants.

3) *Vertical integration of the project will be necessary*

Vertical integration can help reduce costs, but other models may be able to achieve these cost savings as well. For example, a non-profit cooperative community approach to owning a biomass facility could eliminate the need to have excess revenues that go back to shareholders. This would allow the facility to operate with lower profit margins than a traditional privately owned company.

4) *Regulations to guide removal/ use of biomass*

USFS, environmentally concerned state governments and state universities have studied the effects of biomass removal for the past decade. A set of biomass harvesting guidelines, developed and field tested throughout the country have been compiled by the non-profit Forest Guild. <http://www.forestguild.org/publications/> The intent of these guidelines is to protect forest values especially wildlife habitat, soil resources, water quality and biodiversity. The forest practice rules with small adjustments based on these guidelines, can accommodate biomass harvesting into our local regulations.

5) *PG&E monopoly (except in Ukiah) on generated electricity*

The fact that PG&E has a monopoly as the only electricity buyer in the region is only an issue if the WBWG pursues a technology that produces electricity. This obstacle is one of the many reasons that we are looking at several different types of technologies that produce a variety of end products such as bio-oil, bio-char and direct heat.

6) *Any facility will have truck traffic issues and water issues*

The severity of truck traffic and water issues at any location will depend on the scale and type of technology that is used. Obviously, smaller scale technologies will require less hauling into and out of the facility. Certain technologies, such as pellet producing facilities use much less water than other technologies such as an electricity generation facility. The WBWG is conducting a feasibility study to determine appropriate scale and technology at 5-10 locations in the County. Traffic and water variables will be part of the study.

7) Politics- the people who are not in the room

The WBWG is conducting community outreach in an attempt to spread awareness about this project and collect feedback from political leaders and other members of our community. If we do our job correctly, we will develop the political will to move forward in a way that does not make our project a contentious issue. The April 27th meeting was a first step towards that end.

In Progress Questions:

- 1) What are the limitations of each technology? Size, cost, quality of material input, market for product?