

BIOMASS ENERGY WEBINAR SERIES SESSION 1 Q&A FOLLOW-UP

Economic & Environmental Opportunities for Woody Biomass in Maryland

June 2, 2020 – Answers Updated June 18, 2020

1) Do all systems use all sources? Does policy limit/shape sources used in some jurisdictions?

Systems would be designed to fit the needs of the facility, and a primary factor in the design process includes evaluating the type of wood fuels available, their abundance, and their costs. A few examples: a middle school in a suburban area would likely utilize wood chips made from arborist activities because the supply of wood chips from arborists is year-round, abundant and available at low cost (and sometimes negative cost). A hospital seeking to install a CHP plant (heat and electricity) would avoid using pellets because cheaper forms of wood are in abundance locally. Policies have been written to limit the sources of biomass that are eligible to be used. These policies can serve as a tool for supporting market development for materials that are in oversupply (e.g., mill residuals) or for protecting other sources (e.g., old growth). If policies are too limiting and too prescriptive, they can hinder investment in bioenergy systems by creating a hurdle that other energy investments don't face.

2) Could management of woody invasives such as Japanese wisteria & Bradford pears, be another source of biomass?

Yes, wood invasives have been used in bioenergy systems. An example is the district energy system in St. Paul, MN as a disposal site for buckthorn that is then used in their combined heat and power generation. Limiting factors are often the hauling distances and logistics of moving materials from the treatment site to the bioenergy facilities. It may be cost prohibitive to move the bulky materials, and on-site incineration may be the only affordable option.

3) How does the creation of biomass markets impact the creation/protection of forest reserves?

We are not aware of any direct connection. Many forest reserves in the US are well established and new forest reserves have been established throughout history as various forest product markets have emerged and changed over time. Recent global analysis has shown an increasing trend in forest reserve areas. For example, the Aichi Biodiversity Target to protect at least 17 percent of the Earth's terrestrial areas by 2020 has been achieved for forests. Over 30 percent of all tropical rainforests, subtropical dry forests and temperate oceanic forests are now located within protected areas.

4) Does removal of residues and other kinds of woody biomass disturb 'natural' decomposition processes?

The impacts of biomass harvesting, including the relationship to decomposition processes, are addressed in biomass harvesting guidelines that have been prepared by many states, including Maryland. One of the mitigations in biomass harvesting guidelines is to limit the percentage of biomass that can be removed so that a sufficient potential remains on site to maintain ecological processes and environmental services. Protecting soil functions (such as carbon cycling), retaining macro- and micro-habitats for wildlife, and preserving the long-term productivity of the forest itself were the specific objectives Maryland used in developing their guidelines.

5) How specific is analysis described in white paper to plantation systems? Do the conclusions need further examination if we're talking about native forest systems?

The analysis is not limited to plantation systems. There are studies from various regions, including areas where plantation management is not common. The environmental impact analyses also commonly focus on factors such as location and hauling distance that are independent of the management system. Forest plantations are actually relatively uncommon in Maryland and are typically composed of loblolly pine. The combined acreage of plantation and naturally regenerated pine forests is less than 13% of all forest types in Maryland.

6) How can the harvestable logs go to the sawmill and get into the timber pipeline vice be wasted and go to the dump?

Quality sawlogs that are harvested and routed to the sawmill will be processed into lumber. There are multiple by-products (or residuals) generated from this process, including bark, sawdust, shavings, and cull logs found to have defects during processing. These residual by-products are redirected to other markets, including biomass energy utilization, when these markets exist. A key motivation for establishing a biomass energy marketplace is to provide outlets for these residual by-products generated at sawmills and also by arborists, land clearing and waste disposal/recycling.

7) How does what's happening in adjacent states impact our options or opportunities in MD?

Most often, facilities using wood thermal systems are easily supplied with wood fuels within just 10 to 20 miles of the facility. There are a very few out-of-State electricity generation stations using wood that occasionally source wood from Maryland.

8) If demand rises for efficient biomass boilers, is there much potential for lower prices for customers?

Yes. The boiler manufacturers indicate that Maryland would have substantial market potential if we choose to develop it.

9) Anyone have experience with using wood heat for air chillers for air conditioning?

Absorption chillers are being used more often as engineers become more familiar with the technology. Unsurprisingly, they are specified more often in southern states and provide especially attractive financial returns in Combined-Heat-and-Power installations.

10) Are any of you looking at converting woody forest residues to hydrogen transportation fuel via gasification?

Not at this time.

11) What is happening now with biomass waste materials in Maryland not being used for heating?

Generally, if the wood isn't used, it is either left onsite or landfilled. The key is having markets for the various forms of wood biomass generated. Mulch markets consume a lot of arborist material and land clearing products, but have seasonal limitations and are typically offer very low prices to the suppliers. Paper mills consume bark-free wood chips meeting quality specifications and made to a very specific size; however, the regional paper industry has sharply declined in recent years.

12) The loss of the heating system at ECI on the Eastern Shore and the loss of the paper mill in Western MD has left a great amount of small wood that will either be left in the woods or will be put on the market as fuelwood.

Yes, without those facilities providing markets for the small diameter and low quality trees, loggers cannot afford to harvest them and they're left standing in the woods. This will have very serious negative consequences on forest health and wildlife for coming generations.

13) Come visit 15 or more schools, 2 hospitals, various government buildings, 2 power plants and various other businesses in neighboring PA.

Some of us have, and inspired by the success just over the border. Many facility managers report to us that even with the drastic reductions in fossil fuel prices they still prefer to use wood. The most common reason cited for this allegiance to wood is they can see the impact their fuel purchases have within their local communities.

The project manager will continue to provide updates to the pending questions (below), as details become available.

- Does the "opt out of oil" pitch work in MD? are there parts of MD where this is more applicable than others? has anyone taken a close look at this in MD?
- My current interest is in constructing a multistage biomass gasification system that could have added benefit of carbon sequestration. Is anyone aware of any similar systems currently in development or potentially available?
- It would be good to mention efforts to promote wood biomass in MD. The MEA Residential Wood Grant program actively promotes residential biomass and there have been commercial grant programs as well. Activities of the MD Wood Energy Coalition have helped move this issue forward in the past. Perhaps worth a mention
- The discussion reinforces the carbon neutral character of wood but the MD Dept of Env. does not seem to recognize the carbon neutral value of wood. Any suggestions on how that can be addressed?

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