

Rocky Mountain Restoration Initiative (RMRI)
May 1, 2020, 3:30 PM - 4:30 PM
RMRI Biomass Utilization and Colorado Energy Office Joint Discussion
Meeting Summary - FINAL

ATTENDANCE

Meeting Participants: Nate Beckman, Angela Boag, Ken Curtis, Keith Hay, Dan Hodges, Samantha Lichtin, Zach Pierce, Molly Pitts, Mike Preston, Tim Reader, Kelle Reynolds, Mark Shea, Garrett Stephens, and Laura Wolf

Facilitation: Heather Bergman and Samuel Wallace

ACTION ITEMS

Biomass Utilization Subcommittee	Send any remaining questions for the Colorado Energy Office to Angela Boag to forward to the Colorado Energy Office staff.
Colorado Energy Office	Send any remaining questions for the RMRI Biomass Utilization Subcommittee to Angela Boag to forward to the Biomass Utilization Subcommittee members.

DISCUSSION OVERVIEW AND PURPOSE

The RMRI Biomass Utilization Subcommittee has been working on scaling up forestry treatments in several priority landscapes across Colorado. One of the barriers to scaling up forestry treatments is the cost of treatments. Utilizing biomass and developing markets for low-value material is one way to reduce treatment costs. The RMRI Biomass Utilization Subcommittee wanted to learn more about the regulatory framework for biomass energy and how biomass energy fits within the State's renewable energy portfolio.

WOODY BIOMASS AND COLORADO'S CLEAN ENERGY FUTURE PRESENTATION

Samantha Lichtin, Colorado Energy Office (CEO), and Keith Hay, CEO, presented on woody biomass and its relationship to Colorado's clean energy future. Their presentation is summarized below.

- Colorado state law addresses biomass in several statutes. Colorado legislation encourages Community Wildfire Protection Plans to have a "plan for community-based and sustainable utilization of forest biomass for the production of energy, fuels, forest products, and other applications."
- The Colorado Renewable Energy Standard legislation considers biomass as an energy source alongside solar, wind, geothermal, and some hydroelectricity. Biomass is also defined broadly in the legislation as nontoxic plant matter from agriculture, urban wood waste, mill residue, slash or brush; animal waste; and methane produced at landfills or wastewater residuals.
- Each utility provider in Colorado has a requirement under the Renewable Energy Standard legislation to generate a certain number of megawatt-hours (MWh) under a renewable energy credit. Biomass is a material that is eligible to contribute MWh towards renewable energy credit. Most utilities exceed the statutory requirements under the Renewable Energy Standard legislation because the cost of wind and solar made renewable energy economically competitive in Colorado.
- There is currently limited biomass energy occurring in Colorado, especially at the utility level. Utilities, like Xcel Energy and Black Hills Energy, have not developed many biomass projects. Of the ones they did develop, the Public Utilities Commission did not approve them as they were not as economically competitive as other energy sources.

- There are opportunities to increase biomass energy in Colorado:
 - Biomass can serve as a direct heating source.
 - In a decarbonized energy grid, there is a need for firm capacity, and biomass energy could be an important contributor to baseload power.
 - Biofuels can be used as a replacement for other traditional fuels, like natural gas or transportation fuels.
 - Biomass energy allows for the generation of energy from material that is normally wasted.
- There are also potential barriers to increasing biomass energy:
 - It is difficult for biomass energy to be economically competitive with wind and solar.
 - There are additional costs for the collection and transportation of the biomass feedstock.
 - In terms of traditional resource acquisition, biomass energy is not something utilities developed into their electric utility portfolios.
 - Life cycle carbon accounting does not favor biomass as the most cost-effective process for carbon utilization.
- The State is currently in the process of conducting a Low Carbon Fuels Study (LCFS) to understand different fuel stocks and what their low carbon fuel potential could be. This Study includes the consideration of woody biomass utilization in Colorado. Woody biomass has a potential role to play in the low carbon fuel sector.
- Utilities are considering whether woody biomass can be used as feedstock in smaller generating facilities. Utilities need to manage energy reliability if energy production from other sources decreases, and biomass could potentially replace those energy sources. Utilities are also thinking about their liability as it relates to how they manage their distribution grids that go over forested areas.

Clarifying Questions

CEO staff asked several clarifying questions of the RMRI Biomass Utilization Subcommittee to better understand opportunities for woody biomass as a low carbon fuel source. Questions are indicated in italics with corresponding answers in plain text.

What is the regional or statewide supply of woody biomass feedstocks in Colorado, and how long could those woody biomass feedstocks last?

- There is an excess of biomass in Colorado, and there is a need to thin the National Forests. Although the exact numbers are not known offhand, there is an existing inventory of how many trees can be sustainably removed on National Forests and state lands. On private lands, this type of inventory does not exist, but there is some data available on the relatively minor supply of biomass that private lands could contribute. On the production side, there is biomass supply from byproducts, like sawdust.
- Traditionally, a lack of supply has not been a barrier for biomass utilization. The largest barriers have been transportation costs, collection, and quality issues.

From the US Forest Service (USFS) perspective, are there issues with accessing available supply (i.e., proximity to roads), or would infrastructure have to be built to access supply?

The woody material that can be removed exists in areas that have been cleared for timber management under the National Environmental Policy Act (NEPA). Any areas that are designated as roadless or wilderness are not available for harvesting.

Are there any estimates for the transportation costs for moving biomass material?

Kurt Mackes, Colorado State Forest Service (CSFS), has studied logging economics, including the cost of transportation. That information can be compiled if desired.

COLORADO GREENHOUSE GAS ROADMAP PRESENTATION

Keith Hay, CEO, presented on Colorado's Green Gas Roadmap. His presentation is summarized below.

- In 2019, the Colorado General Assembly passed House Bill 1261, which put into place greenhouse gas (GHG) reduction goals. The goal is to be 50% below 2005 GHG emissions by 2030. Governor Polis also aims to have 100% renewable energy by 2040.
- The CEO is coordinating with other state agencies to produce a GHG Roadmap to reach these targeted reduction goals, and they have started talking to different groups on the policies and strategies that the State should model to reach the carbon reduction goals. Their goal is to finalize the GHG Roadmap by September 30 and develop policies for the Colorado Legislature and Governor's Office to consider. They may have to shift the deadline due to COVID-19.
- The CEO has modeled three different scenarios to determine how Colorado can reach its GHG reduction targets. The reference scenario illustrates GHG trends based on existing Colorado policies before 2019. The Action 2019 Scenario, the second modeling scenario, includes the GHG reductions as a result of policies that were passed in Colorado in 2019 (e.g., adoption of zero-emission vehicles, Tri-State's intention to close coal-fired power plants, etc.). The CEO then worked with the economics consulting firm Energy and Environmental Economics to model the illustrative measures that are not already in Colorado policy but are needed to reach the 50% emission reduction target. This model represents the third scenario.
- For the State to reach a 50% reduction target, the electricity sector has to reduce its GHG emissions by 70%. This high reduction percentage required by the electricity sector is due to the effects of beneficial electrification, the process in which electricity replaces GHG emissions from other sectors (i.e., gas-powered cars are replaced by electric vehicles that then rely on electricity rather than gas). The transportation sector would need to decrease its GHG emissions by 40%.
- Solar and wind energy can be scaled up quickly, but they represent only two tools in the toolbox as Colorado looks to achieve broader emission reductions. The State is interested in pursuing cost-effective emission reductions. Woody biomass could contribute to the Roadmap by reducing GHG emissions through clean electricity, advanced biofuels, and agriculture, and do so in a cost-effective way.
- At a high level, natural and working lands are an important piece to help the State achieve its GHG emission reduction target goals. The CEO is also aware of the need to manage forests and water resources to be adaptive to environmental changes. Forest management can potentially have co-benefits by mitigating wildfires and reducing GHG emissions simultaneously.

Clarifying Questions

CEO staff and RMRI Biomass Utilization Subcommittee members asked each other several clarifying questions. Questions are indicated in italics with corresponding answers in plain text.

Have the benefits related to creating more resilient forests and watersheds that occur as a result of forestry treatments been quantified?

Cross-laminated timber has the potential to replace concrete in construction projects. Where do products like cross-laminated timber fit into the GHG Roadmap?

- There are a couple of bills that are going through the Colorado General Assembly that look at the global warming potential of construction material. From the policy perspective, it is not clear how building materials could be changed to reduce GHG emissions. The legislation proposes analyzing construction materials that emit less GHG emissions than steel and concrete and calculating the embedded carbon in existing buildings. The legislation may not pass this year.
- The economics consulting firm Energy and Environmental Economics has expertise in combustion-based emissions. Accounting for GHG emissions embedded in infrastructure or natural working lands represents non-combustion-based emissions. There may be the potential to broaden the scope of the Roadmap to include non-combustion-based emissions.

Forestry treatments mitigate wildfires, which would otherwise be a source of GHG emissions. Does the GHG Roadmap account for the GHG emissions that are not emitted as a result of wildfire mitigation?

The Roadmap does not include wildfire emissions. The tool and models that the State has relied on assumes that wildfires are carbon neutral. This assumption is based on the idea that forest regeneration will offset the carbon emitted from a wildfire. Other states have also made this assumption in their modeling. There are problems with that assumption because forest regeneration is not guaranteed, especially in Colorado. As the State becomes more familiar with the historical emissions from wildfires and develops data products, they would eventually like to incorporate the GHG emission impacts that occur as a result of wildfire mitigation into the model.

Beetle-kill trees represent standing dead carbon and could potentially be turned into cross-laminated timber, which would lock that carbon into infrastructure. How were beetle-kill trees incorporated into the GHG Roadmap?

- Forests were not included in the GHG Roadmap at all, and neither were construction materials. One of the constraints of the model is that it is not great at accounting for GHG emissions in the built environment.
- Using pellets as biomass energy was also not included in the Roadmap because they would need to calculate the difference in GHG emissions from combusting pellets and the GHG emissions from a wildfire, which is not well-known information.
- The LCFS is analyzing data on the GHG emission impacts of woody biomass, but the CEO staff on the call is not familiar with the assumptions that are being made in the Study. There may be more work to do to better understand how woody biomass would impact the electric or low-carbon sector.

Are there any studies comparing the cost of wildfire against the cost savings from wind and solar?

The CEO and RMRI Biomass Utilization Subcommittee should consider getting numbers on suppression costs and the cost of new projects in the State, particularly those that power mountain communities.

How does the Forest Action Plan fit into the GHG Roadmap?

GHG ROADMAP DISCUSSION

Meeting participants discussed the GHG Roadmap. Their comments are summarized below.

- Although it is a complex issue, the GHG Roadmap should incorporate information on forests and forest management, and the CEO should further explore the benefits of biomass in the context of wildfire avoidance. This includes developing a better understanding of the impact

of wildfire avoidance on GHG emissions, the difference between the impacts of wildfire and combusting woody material in a controlled manner, the difference in GHG impacts between a standing tree and a burned tree, and the impact of burning piles on National Forest land. Avoiding wildfires and burn piles are a co-benefit of biomass energy. If the group could understand the climate resiliency impacts and the cost savings as a result of conducting forestry treatments, then it could impact how decision-makers look at biomass energy.

- One of the challenges with including forests and forest management in the GHG Roadmap is that the GHG Roadmap is based on 2005 emission profiles, and the CEO does not have good data on Colorado's forests from 2005. Once there is a better sense of what data is available, then the CEO can begin to better understand the benefits of a biomass approach.
- Protecting the power grid is another important factor and broad frame to understand the relationship between energy and forest health. There may be mutual benefits for those working on forest health initiatives and energy producers that want to protect their power grids. In Southwest Colorado, they want to take action to protect the power grid in combination with forest treatments.
- From a policy standpoint, solar and wind get a 3:1 green power credit, and biomass receives a 1:1 green power credit. There is also a 30% federal tax credit for wind and solar but not biomass. It is important to understand the policies and scientific data and how they to interrelate to better understand how to conduct data analyses to develop policy.
- Since the Renewable Energy Standard legislation was passed in 2004, municipally-owned utilities have been more interested in wind and solar energy because they are more economically feasible. There is not a lot of interest in developing any new energy resources, including the resources needed for baseload power. However, as the State tries to move from 80% renewable energy to 100% renewable energy after 2030, the State will have more interest in the net carbon benefits of biomass projects as they will likely be a necessary tool to reach the 100% renewable energy target.
- The discussion of woody biomass may fit within the context of the safe harbor discussion as baseloads shift.

NEXT STEPS

- Two points have arisen during this discussion: one around biomass being used for energy or thermal energy production, and the other around how to address policy to make biomass more economically feasible.
- The Biomass Utilization Subcommittee members will generate a list of questions to ask the CEO staff, and the CEO staff will make a list of questions to ask the RMRI Biomass Utilization Subcommittee. They can send those questions to Angela Boag, Colorado Department of Natural Resources, to exchange them and have a focused conversation based on those questions and topics.