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Advisory To: Biomass R&D Board

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Issue: *Findings of the Committee on Opportunities for Woody Bioenergy from Southeastern U.S. Forestlands*

The Committee travelled to New Bern and surrounding forest areas in North Carolina in mid-September for an immersive introduction to the forest products industry, forest management, and bioenergy and bioproducts opportunities in southeastern U.S. forestlands. This tour followed the Committee’s visit to Missoula, Montana two months prior to learn firsthand about similar issues in the nation’s other dominant forest basket.



The Committee toured a major corporation’s holdings to learn about the full life cycle of a southern pine forest. The Committee saw working forests at various stages along the management life cycle of a sustainable southern pine plantation, ranging from seedlings and early growth stands to first thinnings to mature stands and active final harvest operations and preparing harvested sites for replanting. The Committee also visited a sawmill to better understand that critical link in the forest products chain. The Committee explored in depth the recent emergence and growth of the wood pellet market in the southeast, looking at regional economic and resource impacts as well as community and carbon cycle perspectives.



These visits to northwest and southeast forestlands provided both some common themes and some stark contrasts for the Committee, especially about managing different types of forest lands and addressing growing fire risk threats. The lessons drawn from these two trips will give the Committee a broad national perspective for our fourth quarterly meeting of 2019 when we will develop our final recommendations to the federal government for improving research, policies and regulations for growing woody bioenergy capacity and markets, while also improving forest health.



A Building Blocks Are In Place

- In contrast to northwest forestlands, those in the southeast are characterized by well-developed infrastructure and supply chains: roads are built and maintained, equipment is available and accessible, skilled and trained labor are locally available. Forests support an existing, but fluid, industrial ecosystem.
- In another contrast to the northwest, southeastern forests are overwhelmingly privately held and managed (86%), and more than two-thirds of all privately held forests are owned and managed by individuals (non-corporate). This privately-owned and largely-unregulated landscape allows forestland management to respond to market signals and promotes sustainable management practices.
- There are good examples of corporately-held and managed forests in the southeast that serve as models for well-run and sustainable forest resources.
- A spike in trees planted 30 years ago is fueling oversupply and inventory accumulation in southern forests, leading to annual “growth to drain” rates greater than 1.5 for the foreseeable future, meaning southern forests are adding biomass at a rate that is 50% greater than forest removals.

- Sustainable forest management—ecologically and economically—is culturally ingrained among southern forest landowners.
- All of these advantages position the southeast to take a leadership role in launching advanced bioenergy industries.

B Healthy Markets Drive Healthy & Sustainable Forests

- Southeastern markets for woody biomass are dynamic. Despite continuing contraction in the pulp and paper industry (with steep increases in mill closure rates), demand for pulpwood and chips has actually trended upward with growing demand for wood products like oriented strand board (OSB) and sharp increases in wood pellet demand, particularly for export markets.
- New and growing markets for lower value pulpwood, mill residues (like chips, sawdust, and shavings), and forest harvesting thinnings and residues all promote sustainable forest management practices. This allows the cost of healthy forest management practices to be spread across a portfolio of uses, ranging from high value sawlogs to high volume pulpwood as well as lower value but economically important forest and mill residues; those uses could also include new industrial growth in woody biofuels and biobased products.
- Forest landowners have the option to defer or accelerate certain forest management activities like pre-commercial thinnings or final harvest (to a limited extent) to better align with market economics. Promoting best management practices in a forest stand and maintaining optimum timing of management activities requires reliable and stable markets for all components of forest biomass.
- As traditional pulp and paper jobs and demand have declined, pellet manufacturing has stepped in to stabilize local economies and help preserve forest management infrastructure and supply chains.

C Region-Specific & General Challenges

- While basic infrastructure and dynamic and responsive markets are in place, southern forests are threatened by macro trends:
 - Trucking is a growing bottleneck in southeastern forest communities and the outlook is challenging. New trucking regulations are making it more challenging and more expensive to meet insurance requirements and attract drivers. As truck drivers age, the trucking industry struggles to attract younger replacements, let alone fill projected growth in demand.
 - Continued downward pressure on pulp and paper markets threatens the delicate economic balance of forest markets in the southeast. The scale of the woody biomass supply chain serving an existing pulp mill is large, averaging thousands of tons a day per mill, amplifying the ripple effects of any single mill closure.
- Public involvement and support for new forest management practices are critical for success. There are public perception concerns around managing sensitive lands as forest resources for biomass use (e.g., pellets), and plantation life cycle management of forestlands.
- While opportunities to better utilize all parts of the vast forest ecosystem have been identified and technically proven, financing and policy hurdles are limiting—or even preventing—large scale capital investments. The root of the problem is addressing the multiple dimensions of risk, which is particularly problematic around opportunities to increase the value of residual woody biomass by extending the range of commercial products or enhancing the value of residuals with further processing.

D Common Themes

- The scale of available forest biomass resources is massive in both the northwest and the southeast.

- Both regions have sizable quantities of secondary, residual resources left on the forest floor, and both would benefit from having long-term, stable solutions for residue removal.
- Infrastructure is critical. Where infrastructure is healthy, it makes it much easier for changes to happen quickly. Where there is a lack of infrastructure, options that would otherwise appear very attractive are not even considered due to the high hurdle of developing the infrastructure.
- Financing and government policy are hurdles to larger scale new capital investments, like woody biofuels. The root of the problem is dealing with the multiple dimensions of risk, which is particularly problematic for new uses of residual woody biomass.
- Public involvement and support for new forest management practices in both regions are critical for success. Active engagement with public sensitivities about greater use of forest materials for energy purposes should be anchored in sustainability and economic growth.
- An economically healthy and environmentally sound forest management strategy must integrate markets for every component of forest biomass. Carbon accounting should be incorporated into commercial decisions as a matter of course.