



MAINE DEVELOPMENT FOUNDATION



Over the next three years, we recommend the following priorities:

Priority A. Conduct a global market assessment to assess future demand for Maine wood products.

Priority B. Conduct a statewide wood supply analysis to attract new markets.

Priority C. Conduct a transportation analysis to determine where infrastructure improvements are necessary to increase profitability for the forest products value chain.

Priority D. Support and grow markets for low-value, underutilized wood and biomass utilizing Combined Heat and Power (CHP) biomass plants, micro-grids, and modern thermal systems.

Priority E. Invest in the research, development, and commercialization of emerging wood technologies such as forest bioproducts as an opportunity for the utilization of low value fiber.

Priority F. Support small landowners who want to grow and harvest more wood.

Priority G. Invest in logger and forest products workforce development.

Priority H. Redevelop and reutilize or repurpose Maine's closed mill industrial sites.

Priority I. Diversify and strengthen Maine's rural economy.

Success will be measured by the following outcomes:

1. Employment: Sustain and create job opportunities in the forest products industry
2. Diversification: Invest in new value-added forest products
3. Exports: Increase value-added forest products exports
4. Income: Increase per capita personal income in Maine's rural communities

Recommendations to Strengthen and Diversify Maine's Forest Industry and Rural Economies

The recent loss of softwood markets has created an urgent need to create new markets for Maine's softwood pulp and biomass. Maine's forest products industry is deeply interconnected, and sustainably managing Maine's commercial forest requires customers for all the materials being harvested: hard wood and soft wood, saw logs and pulp wood, biomass and residuals. Competitive markets for softwood pulp and biomass support the critical mass needed to efficiently harvest, transport, and process all these materials.

The following priorities will create economic opportunity for existing companies as well as new and emerging investments. Together, we can sustain and create forest economy jobs in rural Maine.

Priority A. Conduct a global market assessment to assess future demand for Maine wood products.

Maine forest industries need to better understand emerging and potential markets for forest products, and match that with Maine's forest resource on both short term and long term time horizons (Priority B). A better understanding of global markets will create opportunities for new and expanded forest products businesses, a more diversified forest economy, high value exports, and increased jobs and wages.

Actions:

1. Hire a leading international forestry consulting firm with specialized expertise in global wood markets and trends to identify the current and emerging global forest products markets where Maine is likely to be most competitive.

Goals of the project:

- a. Determine the markets where Maine is competitive.
 - b. Determine what value added products Maine should manufacture based upon its forest inventory and future growth curves.
2. Include a competitive analysis benchmarking study comparing Maine to other forest industry states, provinces and countries (e.g. wood fiber availability and cost, cost of energy, workforce development, environmental review and permitting, taxation, transportation, and state economic development incentives). Maine forest industries, including solid wood, paper and biomass energy, need better benchmarking to understand how we fare in particular categories compared to other states and countries. We need to know what causes forest industries in Maine to be less competitive and not attract investment relative to other regions of the country. This study will build on previous benchmarking efforts and identify the necessary changes to make Maine forest products more competitive.

3. Conduct a Strengths, Opportunities, Aspirations and Results (SOAR) analysis of forest sectors, communities, and capital investors in Maine.
4. Hire a consultant to write a professional marketing plan to attract potential businesses considering investments in the forest industry. Aggressively market Maine's competitive strengths in an effort to attract investment in the forest industry. The plan should include, at a minimum: forest resource information; labor force demographics; potential development sites prospectus; Maine's competitive advantages and a listing of business incentives, based on the benchmarking study and forest modeling analysis. Create a system to connect promising business opportunities in existing forest products markets to industry networks, information, and resources, to keep the marketing plan current.

Priority B. Conduct a statewide wood supply analysis to attract new markets.

Model Maine's forest growth and harvest levels, by species, grade and geography. This should be an ongoing collaborative effort and responsibility of the Maine Forest Service and the University of Maine and be periodically updated. Action 1 data (below) will be very important to the goals set forth in Priority A and should be conducted simultaneously.

Actions:

1. Conduct and regularly (every 3-5 years) update a statewide analysis that identifies the availability of wood fiber, including:
 - a. A forest resource assessment to provide a point in time estimate of the availability of wood fiber for commercial harvest, with estimates of annual levels of growth and removals.
 - b. An analysis of a landowner survey to assess the willingness of Maine private landowners to harvest timber.
 - c. An analysis of Maine's logging capacity and equipment mix.
 - d. Projections of future wood supply.
2. Produce a spatially-explicit analysis and map of the wood availability by species and dimension over the next several decades using new and emerging remotely sensed data (e.g., LiDAR). This work is an extension of modeling conducted for the Spruce Budworm Project. This technology needs to be in the public domain and available for updating and informing public policy.
 - a. This analysis would model forest outcomes under a range of market scenarios and project subsequent wood supplies.
 - b. Produce regional yield curves for spatially explicit modeling.

- c. This level of analysis will provide a state-of-the-art understanding about Maine's current and future wood inventory for providing various forest product markets, both in U.S. and Canada.
- d. A final report from this second phase will provide maps and projections of wood supplies for specific woodsheds where forest products manufacturing are and will take place in the state.

The pending Spruce Budworm Outbreak will exacerbate the softwood market problem. The modeling effort described here should include this and other forest trends. The recent action plan developed by collaborative industry, University of Maine and Maine Forest Service effort (available at <http://www.sprucebudwormmaine.org/>) relies on a strategy of ensuring markets for spruce and fir low grade wood.

Priority C. Conduct a transportation analysis to determine where infrastructure improvements are necessary to increase profitability for the forest products value chain.

The loss of wood consuming mills in the Penobscot River Valley has changed wood transportation patterns in Maine. New travel corridors are developing that need prioritization for upgrades and capital improvements.

Actions:

1. Inventory and analyze existing transportation infrastructure. Work with industry and Maine DOT to assess changing travel patterns and strategize capital improvements that will significantly lower wood transportation costs by road, rail and sea. Outline new wood flow demands on current system and interface with Maine DOT.
 - a. Roads/Bridges: Develop a list of priority trucking routes that need capital improvements to increase wood trucking efficiencies. Identify specific road/bridge projects that will significantly lower transportation costs.
 - b. Railroad: Continue to work with New England railroad interests to determine how to devise a more predictable and dependable freight service.
 - c. Sea Ports: In conjunction with market benchmarking, analyze current infrastructure at Maine ports (Bucksport, Eastport, Portland, and Searsport) and compare to what is needed to prepare for opportunities to export value-added forest products.
2. Identify trucking efficiencies. Work with landowners, consuming mills, and trucking/logging contractors to determine wood flow and hauling efficiencies that might be gained through trucking dispatch and backhauling. Reduce hauling distances and increase backhauling capability to reduce cost and increase profitability.
 - a. Develop a comprehensive list of wood supply and flow.
 - b. Identify best practices for trucking efficiency.

- c. Identify opportunities to reduce hauling distances.
- d. Determine if there is an opportunity for backhauling.

Priority D. Support and grow markets for low-value, underutilized wood and biomass utilizing Combined Heat and Power (CHP) biomass plants, micro-grids, and modern thermal systems.

As described earlier, the sectors of Maine's forest products industry are interdependent. Markets for low value wood and residuals, particularly from logging operations and sawmills, are critical to continued profitability for landowners, loggers, and manufacturing facilities.

Biomass electric energy interests in Maine would benefit from an inventory of federal resources to support CHP platform conversions, best practices related to micro-grid applications and technical assistance for project implementation. A similar exercise would also benefit the creation of new scalable CHP facilities and modern wood heating applications. Programs to encourage development of thermal and electrical energy campuses that are part of a micro-grid system are part of an important overall strategy for Maine.

Modern thermal heating applications represent important growth opportunities in the forest products economy and a critical opportunity to retain energy dollars in the state economy.

Actions:

1. United States Department of Agriculture (USDA) and Department of Energy (DOE) resources and experience are an important opportunity for Maine interests in developing a holistic biomass energy plan to promote CHP platforms, modern wood heat installations, and micro-grid options. Development of relationships with federal agency subject matter experts will be key, including Oak Ridge National Lab (ORNL).
2. Federal staff should also conduct site visits and offer CHP/modern wood heat workshops to provide access to expertise, best practices, and potential funding opportunities.
3. Provide technical and financial assistance to entities seeking to convert to wood heat to build demand for local wood pellets, chips, and wood heating appliances.
4. Work with federal, state and regional partners to build demand for local renewable biomass heating products.

Priority E. Invest in the research, development and commercialization of emerging wood technologies such as forest bioproducts as an opportunity for the utilization of low value fiber.

Maine needs to manufacture value-added wood products here, including existing and commercially demonstrated products as well as new and developing products. Consider all possible new technologies, including those that have already been commercialized or are being used successfully at facilities around the world. Commercial feasibility including realistic time to commercialization should be a deciding factor. This effort should be informed by Priority A and Priority B. The manufacturing of new wood products in Maine will provide opportunities for new and expanded forest products businesses, a more diversified forest economy, high value exports, and increased jobs and wages.

Actions:

1. Assess whether there are viable technologies available globally that could be installed at the pilot scale (or larger) in the short-term (within 24 months).
2. Develop matrix of existing (or planned) projects across the U.S. that involve converting woody biomass into value-added biomaterials, organized by federal agency involvement (USDA, DOE) and which loan or loan guarantee program was used to finance the project (and dollar amount).
3. Augment and accelerate current efforts to develop and commercialize biofuels, such as the BioFuels initiative at Forest Bioproducts Research Institute at the University of Maine (FBRI), which recently received \$4.3 million in funding through the Department of Defense (DOD).
4. Support FBRI and other efforts to develop extractive sugars and polymers capacity in Maine recognizing that this effort is linked to the ability to connect to an active pulp digester and recovery loop, similar to the Old Town mill.
5. Continue to support nanocellulose (cellulose nanofibers, or CNF) research and development at the University of Maine and through development of public private partnerships. Recent meetings to explore research synergies with the Oak Ridge National Laboratory are very important to Maine's success.
6. Cross Laminated Timber (CLT) research at the University of Maine is linked to several potential manufacturing facilities seeking east coast locations. Immediately form a collaboration of appropriate parties to promote the siting of a CLT facility in Maine and identify recommendations to incentivize wider use of CLT and possible demonstration projects.

7. Integrate Biobased Maine's trade association project to market Maine biobased assets into overall forest product industry marketing efforts with the goal of making connections between producers and users of these materials.
8. With the establishment of the University of Maine as an Economic Development Administration (EDA) University Center, consider funding an extension team with:
 - a) manufacturing and b) forest business experience to act as liaison between industry and university research community, to increase business commercialization capacity, and to help product scale-up and monetize relevant research. It's important to maintain University of Maine research efforts and create strong linkage between forest inventory, global market analysis, and research.
9. Establish a demonstration project in Maine by 2020 that brokers a private/public partnership for production and sale of products into the bioeconomy.

Priority F. Support small landowners who want to grow and harvest more wood.

There are only 10 public foresters to assist 86,000 small woodland owners owning at least 10 acres. Only 25% of all small family woodland owners' harvesting involves professional forester involvement or advice. Maine needs to assist small woodland owners in this downturn in markets or they will either not harvest at all, causing problems for existing mills including the entire sawmill industry, or they will high-grade the forest due to lack of markets, which comes with its own problems long-term for the industry. This priority is critical to ensuring Maine's wood supply for the long-term.

Actions:

1. Identify the most efficient ways of encouraging small woodland owners to responsibly manage their land by reviewing options used in other places and identify which of those options (or new ones the consultant identifies) would work in Maine. Include recommended changes (or temporary variances) to federal and state programs, such as the rules related to cost share programs aimed at small woodland owners. That flexibility could be a test that could be applied in other parts of the country where the forest industry is under duress.

Priority G. Invest in logger and forest products workforce development to support forest economy workers and businesses.

Actions:

1. Ensure a diverse, well-trained logger workforce equipped to meet market and landowner needs. Address barriers to entry into the marketplace for loggers of all sizes.
2. Modern secondary/high school logging equipment training simulators are needed to prepare the workforce to meet modern demands.

3. Coordinate retraining resources for individuals who lost their jobs as part of the changes in the forest industry, including retraining for new jobs as the forest products industry evolves.
4. Ensure there is a future workforce development pathway for the entire forest products value chain. Summarize and catalogue training needs for existing and emerging forest products businesses to ensure workforce development system is prepared to provide targeted training to meet industry needs both now and in the future.

Priority H. Redevelop and reutilize or repurpose Maine's closed mill industrial sites.

A number of pulp and paper mill sites are currently idle. Every effort should be made to redevelop and reutilize or repurpose these sites consistent with new market opportunities, local economic development, and community goals. Utilizing these assets will create opportunities for Maine communities and businesses and contribute to a more diversified forest economy.

Actions:

1. Conduct an asset analysis for each site, including mapping existing infrastructure (natural gas, wastewater treatment, water supply) and identifying permits, to support the redevelopment and repurposing of the sites.
2. Support locally-driven community and regional engagement efforts to plan for and realize the community's vision for the future, including but not limited to the former mill sites. Cultivate local leadership for and during those processes. For example, support local community planning efforts such as the Orton Heart and Soul initiative in Bucksport, Our Katahdin and Making Headway initiatives in the Katahdin region, and the efforts of private investors and the University of Maine and/or the City of Old Town, as well as the economic development committee in the Town of Lincoln.
3. Establish capacity through a State or regional redevelopment authority to assist with the redevelopment of industrial mill sites in affected Maine communities including, for example, expanding the capacity and use of brownfields funding to enable effective and timely clean-up of the former mill sites for potential reuse.
4. Where appropriate, encouraging the co-location of manufacturing using CHP systems which can utilize steam or waste heat from an energy or power plant and send low pressure steam to the co-located user(s).

Priority I. Diversify and strengthen Maine's rural economy.

The forest products industry will continue to be an anchor industry for Maine's economy. But it is critical that Maine's rural communities develop greater economic diversity. Diversification into other industries creates deeper economies which are less susceptible to wholesale community failures. Rather than a large savior project, Maine's rural communities need a series of successes across industries and communities.

Small businesses and entrepreneurs represent important sources of creativity and economic diversification. They also provide critical opportunities for new job creation and economic growth.

Many of the region's communities have declined to a point where aging infrastructure, housing stock, school, hospitals and downtowns make it difficult to retain businesses, working age adults, and families. Assistance is needed to plan for and invest in strengthening community cores, including mitigating the loss of population and maintaining community infrastructure. Local leaders need resources and skills to build business and community capacity.

Tourism and recreation represent important growth sectors in some parts of rural Maine—including the Katahdin, Lincoln Lakes and Moosehead areas. The past several years have seen growing local interest, organization, and investment in destination development as an economic and job creation strategy in high amenity areas. Tourism stakeholders are increasingly committed to working with the forest products industry to minimize conflicts with recreationists and explore long-term access and incentive systems.

Affordable, reliable, and high-speed broadband access is a prerequisite for any business in the 21st century. Along with training in basic digital literacy, broadband is also fundamental to the overall quality of life for current and potential new residents. Building on current efforts, communities need additional support for planning to build out "the last mile" from the existing 3-Ring Binder; incentives to encourage/leverage private and municipal investment in physical broadband infrastructure such as hot spots, wireless, cable/fiber; and digital literacy training for local residents and businesses.

Actions:

1. Provide small business assistance including business planning, technical assistance, and financial assistance to local entrepreneurs, including high value-added wood product manufacturers.
2. Invest in community infrastructure to diversify local/regional economies, and support entrepreneurial people. Provide municipal and business leaders financial and technical assistance needed to upgrade basic community infrastructure to support local economic development goals; advance downtown revitalization; improve housing stock; and

enhance business development sites and community facilities to support the retention and attraction of new businesses and residents.

3. Expand broadband infrastructure and digital literacy. Support community broadband planning initiatives to identify what is needed and what assets exist to build on, and provide incentives and other strategies to increase access to affordable broadband services in rural areas.
4. Support rural destination tourism development.
 - a. Create a Rural Destination Development Road Map in conjunction with the Maine Office of Tourism Rural Destination Area program, tourism stakeholders, and the forest products industry to guide business and community investment in targeted high potential recreation and tourism areas
 - b. Create a Community Destination Training program to build local business, non-profit, and community capacity for strategic tourism development
 - c. Invest in purpose-built recreation infrastructure and downtown/Main Street improvements to ensure high quality experiences across a full spectrum of rural destination tourism activities.

Maine Forest Economy Growth Initiative

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