



FOREST OPPORTUNITY ROADMAP / MAINE

## **EXECUTIVE SUMMARY**

Today, technology, globalization, and shifting consumer demands are bringing change and new opportunities to Maine's traditional forest economy. While some markets have declined, the forest products sector remains a critical component of Maine's economy. But, like all manufacturing businesses, production has shifted to higher-demand products, and even newer products are on the horizon.

The global forest products industry is changing, and if Maine adapts quickly and strategically, we can maintain our leading role in a global forest economy. The question is, will Maine take the necessary steps to ensure a strong and diverse forest products industry?

The Forest Opportunity Roadmap establishes a vision for a thriving and strong forest economy of the future and outlines the steps necessary to achieve the vision. The report describes a highly collaborative effort between industry, government, academia, and the people of Maine to achieve 40% economic growth for Maine's forest products industry by building on traditional strengths like saw logs and paper, and adding a whole new layer of innovative products.

The Roadmap presents the collaborative work of a statewide coalition including industry, communities, government, education, and non-profits, which have come together to realize the next generation of Maine's great forest economy.

The recommendations presented below are based on two years of coordinated research and strategy development, informed by extensive data collection, global benchmarking, and industry expertise. Among the research conducted by FOR/Maine are:

- A wood supply analysis to determine Maine's current and potential wood supply and how it can meet global demands.
- A global market analysis to identify current and emerging global demand for forest products, and the markets where Maine is likely to be most competitive.
- A transportation analysis, to determine necessary improvements to improve efficiency.
- A wood energy analysis, to analyze modern wood heat markets for forest and sawmill residuals.

- A stakeholder analysis, to understand needs and positions across the industry.
- An emerging technologies evaluation, to understand which new and emerging wood products are the best fit for Maine.

The wood supply analysis identified the sustainable level of harvest by species and concluded that there is a significant opportunity for increased use of Maine softwoods, most notably the Spruce/Fir resource as well as hemlock.

The global market analysis identified the most attractive products for Maine to fill gaps in the forest products economy and provide the best market opportunity, including a diverse mix of emerging and established products.<sup>1</sup>

The benchmarking comparison found that Maine has a number of competitive advantages, including a plentiful supply of moderately priced softwood raw material, available in an area with existing harvesting and logistics infrastructure. Maine's large private forest ownership and proximity to very large population centers in the Northeast were also identified as advantages. The University of Maine, which works with forest industry groups from around the world, is a unique and advantageous asset.

FOR/Maine's vision is that Maine will be a global leader in the forest products economy with a thriving, innovative, and diverse industry that provides good jobs in vibrant Maine communities. The recommendations below build on recent signs of optimism and significant investment in the future of Maine's forest industry, including Woodland's \$150 million investment to make tissue at its Baileyville mill, Sappi's \$165 million upgrade of a paper machine at its Somerset Mill in Skowhegan, Verso Corporation's \$17 million upgrade of a paper machine at the Androscoggin Mill in Jay, a \$12 million expansion at Pleasant River Lumber's sawmill in Dover Foxcroft, a \$30 million biomass plant investment at Athens Energy, a \$36 million biomass plant investment in Robbins Lumber in Searsmont, and the announcement that two Cross-laminated Timber (CLT) plants will soon be built in Maine. These projects bring hundreds of jobs to rural communities.

The next phase of FOR/Maine's efforts will focus on developing a marketing plan to capitalize on identified opportunities for growth and diversification in Maine's forest economy. We are committed to the focused and persistent effort accomplishing our goals will require.

1—The global market analysis and benchmarking focused on products newer to Maine rather than existing products that are well understood by the stakeholders, such as sawn timber or Oriented Strand Board (OSB), or that have seen recent investment like Cross-laminated Timber (CLT)

### **RECOMMENDATIONS**

#### GOAL 1

## Sustain and grow Maine's existing and emerging forest products economy, reaching \$12 Billion in economic impact by 2025.

We must strengthen and optimize existing wood products manufacturing, dedicate resources to a forest products industry attraction and diversification program to increase capital investment in markets that are a good fit for Maine, and improve Maine's attractiveness for new capital investment in the forest products industry. We need to accelerate innovation in new forest products and applications to strengthen Maine's leadership position. Maine must maximize the highest and best use of the wood supply, support the development of markets for efficient energy derived from wood, and improve transportation and logistics infrastructure for moving wood and finished wood products to market.

#### GOAL 2

## Manage the wood resource using sustainable and responsible forest management practices.

We need to use accurate and current data about Maine's forest to inform investment and monitor sustainability.

#### GOAL 3

### Prepare workforce for the future of the forest products economy.

Maine needs to attract young people into the industry, and ensure that new, replacement and incumbent workers have the skills needed for existing jobs. We need to prepare our workforce for emerging products and new technologies in the forest products industry.

#### GOAL 4

#### Increase prosperity in Maine forest economy communities, especially those in rural Maine, including those affected by mill closures.

We must strengthen Maine's capacity for local, regional, and state community and economic development. We need to encourage community efforts to create the conditions that attract diverse investment, including efforts to redevelop mill sites, improve broadband and other infrastructure, and leverage community incentives to support these efforts.

#### GOAL 5

## Organize the forest products industry with committed public sector partners, including the University of Maine, to implement the vision and goals.

In order to succeed, we must communicate and implement an ambitious forest based economy strategy, and continue to work together to ensure these recommendations are implemented and that stakeholders remain engaged, committed and supportive of each other.

## THEMES FOR NEW GROWTH

While we have succeeded in the past, rapidly changing dynamics and markets require new approaches to sustaining and growing the forest economy cluster in order to leverage new opportunities.

The following principles will guide the growth and diversification of Maine's forest economy.

#### THEME 1

## Maine's forest products industry is highly inter-connected and interdependent.

The success of each subsector (landowners, loggers and truckers, mills) relies on the health of the whole.

#### THEME 2

### A strong forests products industry supports vibrant Maine communities.

For generations, forest products manufacturing has provided economic opportunity for Maine families and communities. Maine's forest economy communities have existing sites with the infrastructure to support new and re-development, and they are eager to attract forest products manufacturing. Maine's working forests also provide social and environmental benefits for Maine residents, including opportunities for recreation and habitat for wildlife. Our forests sequester carbon and produce clean water.

#### THEME 3

### Wood is a sustainable, renewable resource.

More than half of Maine's forests are certified sustainable by an independent third party, managed for the health of the forest, wildlife, water quality, and economic contributions to the surrounding communities.

Consumer demand for sustainable products and materials is growing globally, and companies from toy manufacturers to beverage makers are looking for safer, greener alternatives to petroleum. Wood can meet that growing demand.

#### THEME 4

#### Wood is versatile.

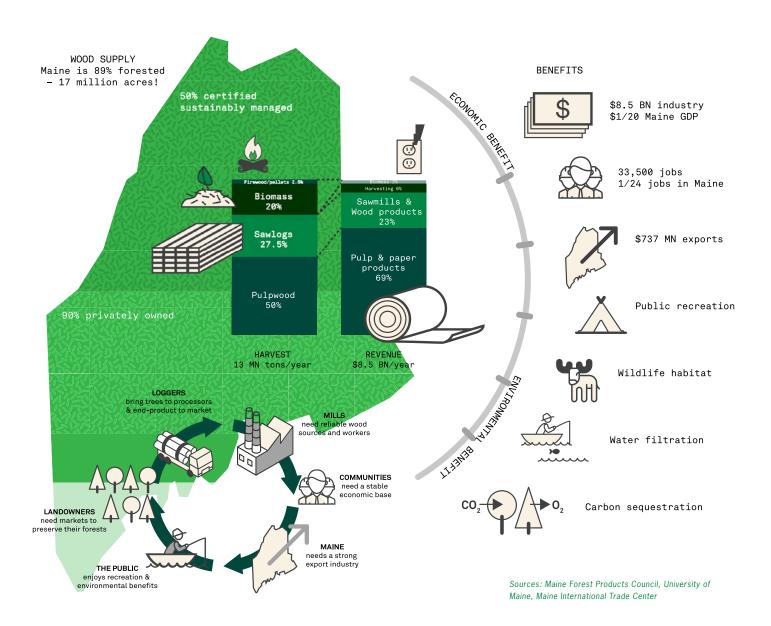
In addition to traditional products such as sawn timber and packaging papers that will continue to be a strength for Maine, forest outputs can be made into a staggering array of products, including advanced building materials, eco-friendly chemicals and biodegradable plastics (replacing petro-chemicals), textiles, and cutting-edge medical and technical products made of nanocellulose.

#### THEME 5

#### **Embrace the global economy.**

The forest products industry is global, with companies manufacturing products and shipping them all over the world. Maine has to be ready to compete with other states and countries for the forest products investments of the future.

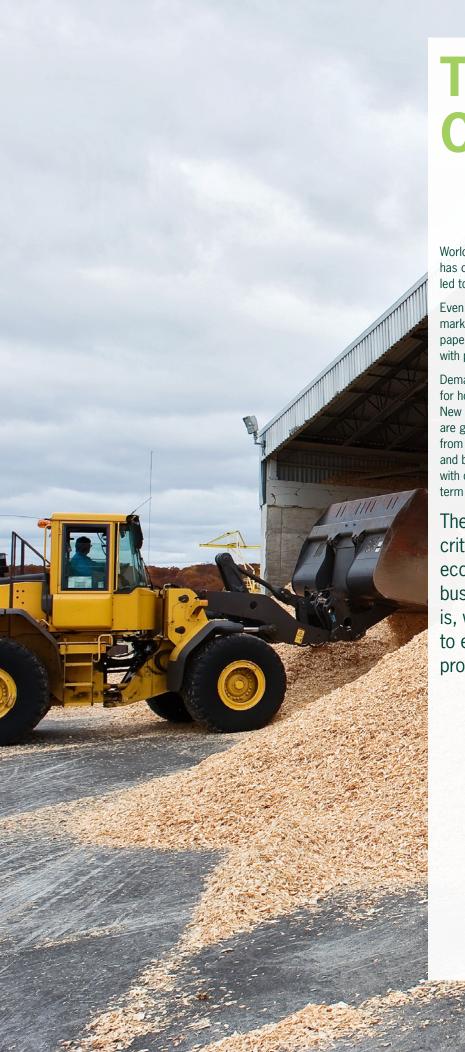
## **CURRENT INDUSTRY**



## Forest products are the backbone of Maine's economy, particularly in the rural areas of the state.

In 2016, the economic impact of the forest products industry was estimated at \$8.5 billion, equal to \$1 out of every \$20 of the state GDP. The industry sustains more than 33,500 jobs, or 1 out of every 24 jobs in Maine.

Who is part of the forest economy? The loggers who run the harvesters and skidders in the forest. The truckers who move the lumber from the forest to the processors. The workers in Maine's paper mills, sawmills, board mills, and lumber companies, that turn the wood into usable products. The craftspeople who make furniture and other finished products. The thousands of accountants, mechanics, salespeople, and other support staff who support the process at every stage.



## THE CHALLENGE

Worldwide, demand for newsprint, printing, and writing papers has declined in recent years. These rapid marketplace changes led to the closure of six Maine pulp and paper mills.

Even as some markets shrink, other paper products are filling market gaps. Global demand for packaging, labeling, and tissue paper is growing and is expected to continue to grow along with population and changing consumer preferences.

Demand for solid wood markets, including lumber and plywood for housing, experienced a slow recovery but now is strong. New building materials, such as engineered wood products, are gaining market share. New forest products and applications from wood, such as high performance fibers, natural chemicals, and biofuels, are rapidly being developed and provide Maine with opportunities to diversify our markets and provide long-term economic stability.

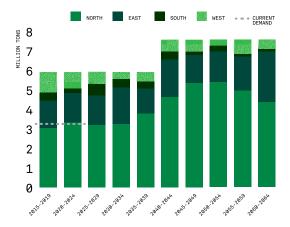
The forest products industry remains critical to Maine's current and future economy. Like all manufacturing businesses, it is changing. The question is, will Maine take the necessary steps to ensure a strong and diverse forest products industry in the future?

# OPPORTUNITY: GROWTH & DIVERSITY

Maine has an abundant forest resource. 89% of the state is forested, and Maine's 17 million acres of forest are incredibly diverse with a natural mix of hardwoods (56%, such as aspen, oak and maple), and softwoods (44%, such as pine and spruce). Maine's forests are 90% privately owned, and more than 50% are certified to independent sustainability standards.

A 2018 FOR/Maine wood supply analysis concluded that there is a significant opportunity for increased use of Maine softwoods, most notably the Spruce/Fir resource. Currently, there are more than 3 million tons of potential Spruce/Fir available, with further increases possible in the future.

#### MAINE'S SPRUCE/FIR FUTURE SUSTAINABLE HARVEST AND CURRENT DEMAND



Source: James W. Sewall Company, 2018, Maine Wood Supply and Projections Study

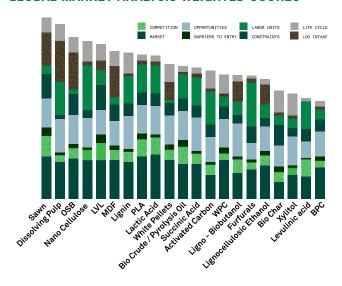
In addition to our forest assets, Maine has

- Current generation of skilled forest products workforce
- Well-established forest industry infrastructure that can sustainably produce more than 16 million tons of wood per year
- Leading forestry school and forest products R&D facilities at the University of Maine

- Proximity to the largest consumer market in the world on the US eastern seaboard
- Extensive re-use and co-location opportunities with the necessary infrastructure to support new development.

An analysis of global forest product markets conducted for FOR/Maine identified the most attractive products for Maine to fill gaps in the forest products economy and provide the best market opportunity.<sup>2</sup> They include a diverse mix of emerging and established products to ensure the resiliency of Maine's forest economy in the face of market fluctuations.

#### **GLOBAL MARKET ANALYSIS WEIGHTED SCORES**



Source: Indufor, 2018, Global Market Analysis and Benchmarking Study

The benchmarking comparison found that Maine has several competitive advantages, including a plentiful supply of moderately priced softwood raw material, available in an area with existing harvesting and logistics infrastructure, Maine's large private forest ownership, and proximity to very large population centers in the Northeast. The University of Maine, which works with forest industry groups from around the world, is a unique and advantageous asset.

2—The global market analysis and benchmarking focused on products newer to Maine rather than existing products that are well understood by the stakeholders, such as sawn timber or Oriented Strand Board (OSB), or that have seen recent investment like Cross-laminated Timber (CLT)



## CURRENT & FUTURE PRODUCTS

Maine's future forest economy will include a mix of traditional and new and emerging forest products that will diversify our portfolio of economic opportunities.

#### TRADITIONAL WOOD PRODUCTS

Sawn timber will continue to be a critical component of Maine's forest economy. Demand in the US is largely driven by the number of housing starts, which is expected to continue to strengthen. Lumber is the foundation of forest land ownership and the final product of long-term forest management.



Pulp and paper manufacturing continues to be the leader in contributing to Maine's forest economy. Maine's paper mills are shifting production away from print media and into tissue, labeling and packaging grades of paper.



**Orientated Strand Board (OSB)** is an alternative to plywood. It is used extensively as a structural panel in construction. This technology is produced by two major facilities in Maine.



Laminated veneer lumber (LVL) is an engineered wood product used in residential construction that uses layers of dried wood veneer. No manufacturing currently exists in Maine.



Medium Density Fiberboard (MDF) is a reconstituted wood-based panel product, manufactured from pulpwood and sawmill residues. Over the past 20 years, laminate flooring and modern furniture has become a major end use for MDF. No manufacturing capacity exists in Maine.



#### **NEW WOOD PRODUCTS**

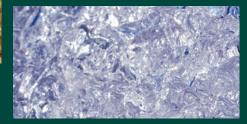
Cross-laminated Timber is an engineered wood product that is especially well-suited for buildings between 6-18 stories tall. It is very early in the growth curve in North America and rapid growth is expected. Two CLT facilities have announced they will be opening in Maine.



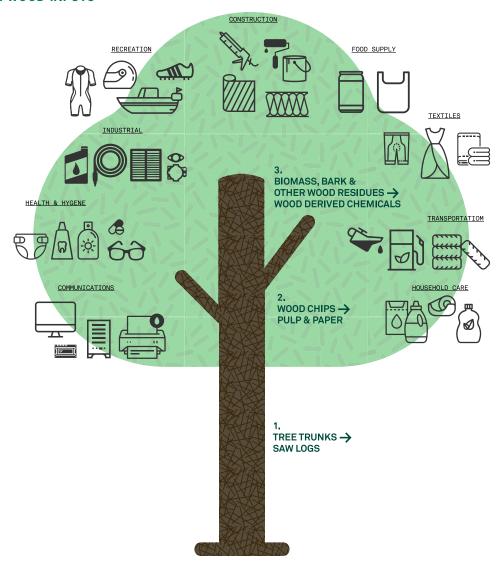
**Dissolving pulp** can be made into textiles (Viscose) and competes with cotton and synthetics (nylon and acrylic). There are no facilities with this capability currently in Maine.



Nanocellulose consists of incredibly light and strong fibers that can be used in a variety of applications, from coatings for packaging papers to high performance textiles and medical products. The University of Maine is a global leader in the R&D of nanocellulose applications.



#### PRODUCTS WITH WOOD INPUTS



**Cellulosic sugars** are a platform chemical for bioplastics such as Polylactic acid, Lactic acids which can be used as a preservative in food and beverages, and Succinic acid which is used in resins and coatings.



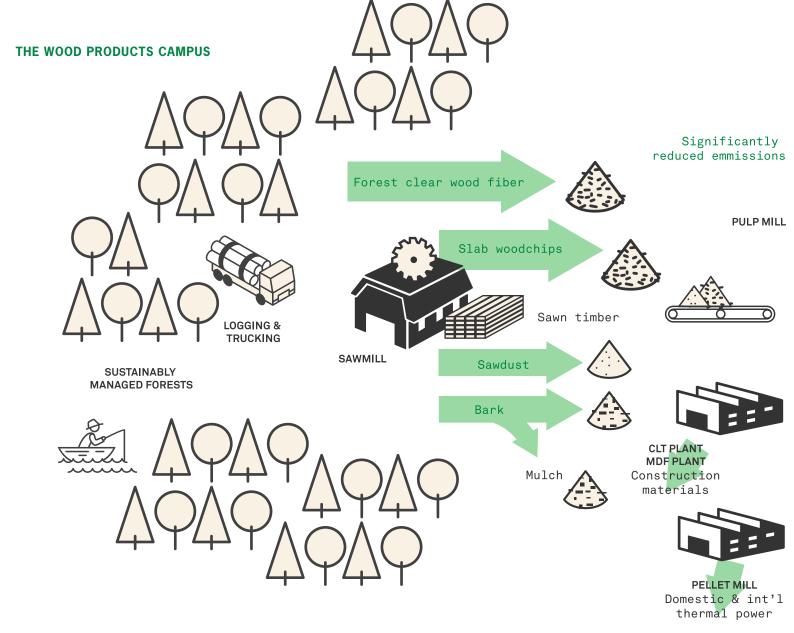
**Pyrolysis oil** is a liquid fuel produced from wood, that can be used in heat and power production to substitute for fossil-based-oil.



**Insulating wood fiber** composites is an alternative wood based insulating product for homes.



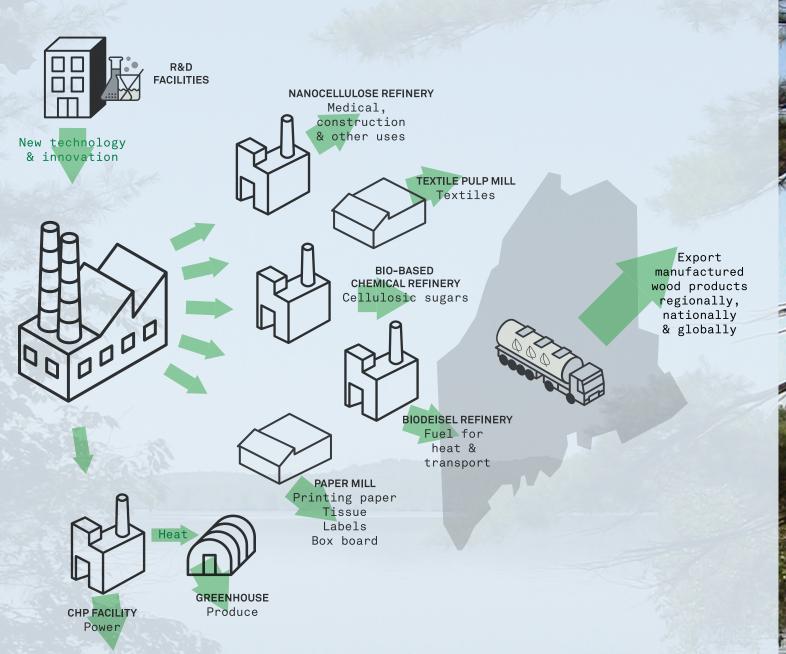
## THE VISION



Maine is a global leader in the forest products economy with a thriving, innovative and diverse industry that provides good jobs in vibrant Maine communities.

In the vision of the next generation of Maine's forest industry:

- Sawn timber continues to be the highest value to landowners of industry, while pulp and paper provides the greatest return to Maine's economy
- Sawmill and paper residuals provide feed stock for new and emerging high value products which are bolted on to those facilities.
- Combined Heat and Power (CHP) facilities strategically located around the state use wood to provide heat and power for manufacturing and other commercial uses such as greenhouses.



- A robust transportation network moves raw material to manufacturing facilities and finished product to market efficiently.
- Maine's working forests continue to provide recreation and environmental benefits to residents and visitors.
- Robust research, development and commercialization leverages the University of Maine and private R&D assets to maintain Maine's leadership position in innovation.
- Maine exports value-added manufactured products regionally, nationally and globally.

#### **RECOMMENDATIONS:**

## LEADERSHIP AND A PLAN

Global markets for new and existing forest products offer Maine an incredible opportunity. Maine has the forest resource and the economic assets, including a skilled workforce, industry infrastructure, and renowned research and development facilities, to be a global forest products leader. But to achieve the vision, we need to do more to aggressively market ourselves nationally and globally. We need to actively seek and attract capital investment. We need to accelerate innovation in forest products and applications in order to leverage our leadership position. And we need to work together, private and public sectors in partnership, with focus and persistence.

## GOAL 1: SUSTAIN AND GROW MAINE'S EXISTING AND EMERGING FOREST PRODUCTS ECONOMY, REACHING \$12 BILLION IN ECONOMIC IMPACT BY 2025.

In partnership with existing and new forest businesses, we need to attract capital investment, accelerate innovation, and maximize the highest and best value of the wood supply.

#### Strategy 1A

Strengthen and optimize existing wood products manufacturing in Maine. Maine's existing forest products businesses are the foundation for our future growth. We can support their efforts to strengthen and grow with a private/public market attraction team that can facilitate connections between Maine businesses and new markets as well as attract investment in existing technologies that are at commercial scale but aren't yet in Maine. We also need policies that encourage new facility construction and the co-location of new product manufacturing at existing facilities. The State of Maine can take a leadership position to stimulate demand for forest products, for example, by adopting a building code that promotes the use of new wood products such as Cross-laminated Timber (CLT) and requiring new state buildings

to consider mass timber construction, by requiring new state-owned facilities to install modern wood heat systems, and by adopting purchasing preferences for products such as wood-based plastics.

#### Strategy 1B

Dedicate resources to a forest products industry attraction program to increase capital investment in the state in markets that are a good fit for Maine. When deciding where to locate an expansion or new manufacturing facility, forest industry businesses are looking globally. Maine needs to go out and actively attract investment with a private/public business attraction team that identifies and engages potential investors, and markets Maine's assets at global industry conferences and through site visits to potential business recruits. The State of Maine should provide assistance to help businesses navigate regulations and incentives, including industry specific expertise. FOR/Maine and the Maine Technology Institute (MTI) should continue their collaborative effort to attract the most viable, commercially-relevant forest industry technologies.

#### **Strategy 1C**

Accelerate innovation in new forest products and applications to strengthen Maine's leadership position and diversify our forest products economy. A recent global market analysis conducted on behalf of FOR/Maine highlighted Maine's research and development capabilities as an important asset to grow our forest economy. The manufacturing of value-added forest products, such as advanced biofuels, biobased chemicals, bioplastics, nanocellulose, and other advanced materials are attractive compliments to Maine's traditional wood products. Maine must continue to support the University of Maine's role as a research and development partner to the forest products industry, as well as encourage and expand private research and development in the forest products industry. The State should invest in research and development that leads to the commercialization of new biobased forest products, and increase efforts to attract the manufacturing of those products.

#### Strategy 1D

Improve the attractiveness of Maine for new capital investment in the forest products industry. Maine has consistently ranked low in for ease of doing business compared to other states. We need to make the state more attractive for investment by making our regulatory environment more predictable for investors and addressing high energy prices that discourage investment in manufacturing facilities by examining the component

costs of power, transmission and distribution.

#### Strategy 1E

Maine's forest products industry is interdependent. We need to encourage markets for sawmill residuals, in-woods biomass and softwood pulp so that the forest can be managed responsibly because there is a market for every product produced. We must take advantage of new wood products and applications that use residuals and low-value wood, including ensuring that advanced biofuels made from Maine's naturally regenerating forests qualify for the federal Renewable Fuel Standard.

#### Strategy 1F

Sawmill residuals and low-value wood can be used to generate heat and electricity for Maine homes, businesses. and institutions, with significant and ongoing positive economic impact in the state and across the forest industry supply chain. Modern wood heat systems burn wood chips or pellets at stable, cost competitive prices using a local, renewable resource. Combined Heat and Power (CHP) facilities can provide a lower cost and value-added opportunity for manufacturing co-location and communities to take advantage of the heat and electricity they generate. If these facilities are part of a distributed energy grid, they make our electric system more resilient against natural disasters and other major events. To encourage markets for efficient wood energy, Maine should attract manufacturing to co-locate at existing biomass power plants, develop new CHP at existing sawmills and pellet mills, and encourage communities to invest in energy systems that keep their energy dollars circulating in the state. We need to encourage the installation of modern wood heat boilers in Maine homes, businesses, schools, hospitals and other institutions. Maine should also consider reforming the Renewable Portfolio Standard to incentivize wood energy projects with long-term contracts, with attention to minimizing energy cost impacts on manufacturing facilities.

#### **Strategy 1G**

#### Improve transportation and logistics infrastructure for moving Maine wood and value-added wood products to markets.

FOR/Maine is working with MaineDOT to identify priorities for capital investments, including existing highways, haul route upgrade projects, and forest transportation facilities and equipment. To ensure that Maine stays competitive, we need a long-term funding strategy to make critical investments in the rail, road and port infrastructure necessary to cost-effectively move wood out of the forest and wood products from manufacturing facilities to regional and global markets.

### GOAL 2: MANAGE THE WOOD RESOURCE USING SUSTAINABLE AND RESPONSIBLE FOREST MANAGEMENT PRACTICES.

Our forest resource is our greatest asset. Recently completed wood supply analyses demonstrate that Maine's forests remain highly diverse and sustainably managed. There is a significant opportunity for increased use of spruce/fir in particular that will assist with long-term responsible forest management.

#### Strategy 2A

Use accurate and current data about Maine's forest to inform investment and monitor sustainability. In order to continue to sustainably harvest wood from Maine's forests for forest product manufacturing, we must maintain and communicate current data about wood resources, ensure that wood harvest and growth will remain in long-term balance by updating forest modeling every 10 years, and use that data to ensure that the forest is managed to maintain Maine's forest stewardship legacy. Encouraging small woodlot owners to harvest more regularly will increase supply.

#### GOAL 3: PREPARE WORKFORCE FOR THE FUTURE OF THE FOREST PRODUCTS ECONOMY.

Maine needs to provide the skilled workforce employers need in order to attract new forest products opportunities. This includes providing incumbent workers with new skills as well as attracting new workers to replace retirees and to fill new jobs created in emerging products manufacturing.

#### Strategy 3A

Attract young people into the industry. We need to help young people become aware of forest products career opportunities and pathways by communicating and partnering with grades 7-12 guidance counselors and teachers, community college career offices, and career and technical schools. Maine should establish forestry education programming in K-12. We also need to provide industry resources to market career opportunities requiring post-secondary training and education and beyond.

#### Strategy 3B

**Ensure that new, replacement and incumbent workers have the skills needed for existing jobs.** We need to assess the need for replacement workers in the industry based on expected retirements and develop a plan for recruiting new workers that includes identifying the skills needed for employment and working with education and training providers.

#### **Strategy 3C**

Prepare workforce for emerging products/technologies in the forest products industry. In some cases, new and emerging forest products manufacturing will require new skills. We need to identify the skills and competencies needed to support emerging products, e.g. chemists, and work with educators and trainers to develop and deliver curriculum that address the new requirements.

## GOAL 4: INCREASE PROSPERITY IN MAINE FOREST ECONOMY COMMUNITIES, ESPECIALLY THOSE IN RURAL MAINE, INCLUDING THOSE AFFECTED BY MILL CLOSURES.

Maine's forest products economy provides jobs, including forestry, logging, trucking, and manufacturing jobs as well as indirect employment in the local businesses that provide supporting goods and services, such as banks, accountants, and machine repair. Finally, the industry also helps to support other businesses in the community, such as when a sawmill worker takes her family out to dinner, which provides income to a local restaurant owner. Maine's working forests provide social and environmental benefits for all Maine residents, including opportunities for recreation, and habitat for wildlife.

#### Strategy 4A

Strengthen Maine's capacity for local, regional and state community and economic development. We need to invite Maine communities to participate in forest products economy opportunities, working closely with local, regional, and state economic development entities to attract capital investment using a coordinated economic development approach. For example, FOR/Maine has begun developing a database of locations for potential new forest products companies, including mill sites to be redeveloped as well as operating forest products facilities interested in co-location opportunities.

#### Strategy 4B

Encourage community efforts to create the conditions that attract diverse investment, including efforts to redevelop mill sites, and improving broadband and other infrastructure. We must support community and regional efforts to be ready for economic development, including identifying what they want and marketing their competitive advantages. We need to increase funding to support the Rural Manufacturing and Industrial Site Redevelopment Program at the Maine Rural Development Authority (MRDA), which was established to provide technical assistance, planning, and implementation grants for the rehabilitation and marketing of manufacturing and industrial sites in rural Maine. Finally, we need to support community efforts to improve quality of place and make Maine communities places where people want to live and work.

#### Strategy 4C

#### Leverage community incentives to support these efforts.

We need to encourage communities to understand and utilize all available economic development tools, including Pine Tree Zones, Tax Increment Financing, federal Opportunity Zones, and expedited

permitting for desired capital investment projects. The State of Maine and economic development partners should provide technical assistance and training for communities on the use of these incentives.

#### Strategy 4D

**Leverage federal resources to support these efforts.** We must engage with appropriate federal agencies to support community economic and community development efforts, such as USDA Rural Development and the U.S. Economic Development Administration.

## GOAL 5: ORGANIZE THE FOREST PRODUCTS INDUSTRY WITH COMMITTED PUBLIC SECTOR PARTNERS, INCLUDING THE UNIVERSITY OF MAINE, TO IMPLEMENT THE VISION AND GOALS.

In order to accomplish our vision for a thriving and diverse forest products industry, we must stay organized, focused, and persistent.

#### Strategy 5A

**Develop and communicate an ambitious forest based economy strategy.** We must position Maine as a leader in the global forest bio-economy to national and global audiences.

To do that, we need to have a clear, focused, and sustained commitment from partners, keep track of changes to the market and competitive landscape over time, update the benchmarking studies regularly and organize annual or biannual meetings with relevant stakeholders. We need to brand Maine forest products and tell our story to the public, consumers, investors, entrepreneurs, educators, researchers, and potential workers.

#### Strategy 5B

Continue to work together to ensure the recommendations are implemented and that stakeholders remain engaged, committed and supportive of each other. We will adopt the appropriate governance structure for FOR/Maine, emphasizing private sector involvement and including state and federal government, education and non-profit participation, to oversee the implementation of this plan. We must also work with Maine state government to ensure appropriate levels of public investment, regulatory control, and marketing and promotional leadership.



### **CREDITS**

Many people participated on the committees whose research and ideas are the foundation for the recommendations in this report. We are grateful for their contributions. Responsibility for the final recommendations rests with the Executive Committee.

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### **APPENDICES**

With special thanks to the members of Maine's Congressional delegation and their staff for their support.

We would also like to express appreciation to our community partners for their assistance and contributions, including:

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Mike Wilson, Northern Forest Center

Charlie Woodworth, Greater Franklin Development Council

The following background reports are available at formaine.org:

#### **Global Market Analysis and Benchmarking**

Identify forest product markets where Maine is most competitive

#### **Wood Supply Analysis**

Determine Maine's wood supply and how it meets global demands

#### **Emerging Technologies Evaluation**

Develop and attract investment in new and emerging wood product markets

#### **Transportation Capital Improvement Plan**

#### **Wood Energy Cost Benefit Analysis**

Analyze modern wood heat markets for forest and sawmill residuals

#### **Stakeholder Analysis**

Understand needs and positions across industry

#### FOR/Maine Community Revitalization Overview

Summary of community FOR/Maine committee efforts

#### FOR/MAINE PARTNERS









James W. Sewall Company **Innovative Natural Resources Solutions** Camoin Associates and Innovation Policyworks

**Better Yet Studio** 





MAINE DEVELOPMENT FOUNDATION

Photography Credits

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p9 - Andy Feliciotti: Timber Resource Group

