

Charting the course for the Alberta forest sector

FOREST PRODUCTS ROADMAP

INNOVATION

GROWTH

SUSTAINABILITY

SOLUTIONS

DRAWING THE ROADMAP

The Government of Alberta has established various strategies to chart the course for the future of the province. Alberta forest companies recognize the many synergies the forest sector can provide government to assist in reaching its goals, while at the same time growing businesses through sustainable solutions.

In late 2010, representatives of forest companies met with officials from Alberta Sustainable Resource Development to discuss the future of the sector. There was optimism that the sector can be an engine of growth for rural Alberta and a stalwart of the emerging bio-economy. After a year of consideration and discussion, the result is an alignment of interests and a framework for partnerships. This Roadmap provides direction and mileposts for progress.

With funding from industry and government, two steering groups – one for wood products and bio-energy, one for pulp and paper – worked together to develop the Roadmap. They studied the sector's strengths, weaknesses and opportunities, and reported their findings to an executive team co-chaired by the Minister, Sustainable Resource Development, and the CEO of West Fraser Timber Company Ltd., with membership at the CEO level from other Alberta forest companies as well

as an academic expert on the energy and resource sector. The consultations focused on the prospects for growth, while recognizing the current realities for the sector and the challenges it faces.

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For background documents and further information visit albertaforestroadmap.ca

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his leadership and involvement
during his tenure as
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Rob Wellwood
Alberta Innovates Technology Futures

Dan Wilkinson
Alberta Sustainable
Resource Development

Gordon Giles
Alberta Sustainable
Resource Development

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WHY WE NEED A ROADMAP

Close examination of the forest sector makes it clear that there are both challenges to overcome and opportunities to seize. The challenges include changes in continental and global market conditions and specific Alberta issues relating to transportation, energy, labour and fibre access.

At the same time, however, Alberta has opportunities to remain a leader in the development and production of innovative forest products and “green” renewable energy. The consensus is that in the medium to long term, Alberta is well positioned to grow its forest sector and, through this growth, sustain and further develop rural communities.

These are the priorities identified for the years ahead:

- Consolidate the role of the forest companies as stewards of forested lands, aligned with and guided by policy and regulations set by government;
- Seek opportunities to grow the sector via a thorough understanding of markets, value chains, challenges and opportunities;
- Assist firms within the sector that are pursuing viable economic opportunities in a vibrant Alberta bio-economy;
- Strengthen the core business of the forest sector through a continued emphasis on secure and competitively priced fibre;
- Examine opportunities for innovation in business models, processes and products;
- Pursue partnerships between forestry and other sectors towards the sustainable use of natural resources.

This Roadmap is a plan of action for the forest sector as well as for government.

It is a call for immediate action. Companies will each make their own decisions about how best to align their activities and decisions with the broad strategies outlined here. The Roadmap provides context for these decisions and creates key certainties to facilitate and encourage actions and outcomes. It also proposes ongoing mechanisms for dialogue between industry and government, and a means to monitor progress systematically.

ROADMAP OBJECTIVES

GROW

The value of products and services from the greenest manufacturing sector in Alberta

DIVERSIFY

The Alberta economy

SUSTAIN

The strength and vigour of rural communities and healthy forests

ROADMAP STRATEGIES

1. Develop

The markets for Alberta forest products

2. Focus

On cost and performance competitiveness

3. Retain

Secure and economical access to fibre

4. Invest

In focused, market-driven innovation

MILEPOSTS ON THE ROAD TO THE FUTURE

BUILD AND CREATE MARKETS

Develop the Markets for Forest Products and Services

- **Core Business:** Sustain core markets for existing products
- **New Markets:** Reach new markets with a range of products and services
- **Product and Service Improvement:** Improve products and services through investments and partnerships

FIBRE TO SUPPORT GROWTH

Retain Secure Access to Fibre

- **Access to Fibre:** Retain a system of tenure and Crown royalties
- **Healthy Forest:** Develop a strategy to maintain a healthy forest and continue to manage the mountain pine beetle infestation
- **Strategic Intent:** Maintain a sustainable forest with fibre to support growth, innovation and development of the forest sector

EVERY DOLLAR COUNTS

Focus on Cost and Performance Competitiveness

- **Labour Productivity:** Continue to improve productivity; invest in skills development
- **Energy – Power:** Reduce reliance on “on-grid” electric power, improve energy efficiency, and secure long-term predictable pricing for energy
- **Energy – Fuels and Chemicals:** Increase the production and use of bio-fuels and bio-chemicals
- **Transport:** Manage logistics on a regional basis; improve rail service and reliability; ensure availability of truck drivers
- **Access to Capital:** Gain predictable access to capital in support of ongoing operations, innovation and the development of products and markets

NURTURE THE GREEN ECONOMY

Invest in Strategically Focused, Market Driven Innovation

- **Value Chain Optimization:** Support the continuous improvement of all business processes
- **Product Improvement:** Invest in product improvement, especially for new and emerging markets
- **New Products:** Invest in new products that increase the value of Alberta’s forest products, including bio-energy and bio-products
- **New Services:** Explore the potential for expanding ecological services provided by forest companies
- **Appropriate Funding:** Seek opportunities to support the research corporations so new products and services can be developed to demonstration and commercial scale

1. THE LANDSCAPE TODAY: WHERE WE START

Decades of far-sighted policy and investment have resulted in a modern and highly productive Alberta forest products industry and a high standard of stewardship for forest ecosystems. The Alberta forest industry today supports over 50 rural communities in Alberta through employment, taxation and other economic activity.

In 2010, the industry sold \$4 billion in goods and services and generated \$200 million in personal and corporate taxation. About 18,000 Albertans are directly and indirectly employed in the sector, and its products are shipped globally. A total of \$3.4 billion was spent by forest companies in 2010 on labour, goods and services; most of this spending was in rural Alberta.

Forestry is Alberta's greenest manufacturing sector. The sector has a long history of responsible, professional stewardship of the forested lands of Alberta and is globally recognized for its work. According to Certification Canada, 77 per cent of Alberta forest lands are third-party certified under one or more of the three recognized standards for sustainable forest management – Canadian Standards Association, Sustainable Forest Initiative, or Forest Stewardship Council. These 21 million hectares represent about 70 per cent of the allocated annual allowable cut (AAC) in Alberta.

In addition to their manufactured products, many Alberta forest products mills are generating energy from biomass, reducing demand on the electrical grid. The sector also has long provided or supported forest fire protection and suppression efforts, watershed and land disturbance management, reclamation, vegetation inventories and biodiversity monitoring, protection of endangered species' habitat, and most recently, carbon sequestration. Alberta forest companies are leaders in the development and deployment of innovative "green" technologies in their operations and products.

During the last five years, however, the sector has experienced some major challenges:

- Dramatic changes in markets due to the collapse of U.S. housing construction and shifts in the demand for newsprint and paper as digital technology grows and global competition increases
- High value of the Canadian dollar
- Higher energy, labour and transportation costs
- Increased regulatory complexity with respect to bio-energy

- Rapid expansion of non-forest-sector demands on an increasingly crowded landscape
- New approaches to land use, water conservation, species at risk, and Aboriginal consultation

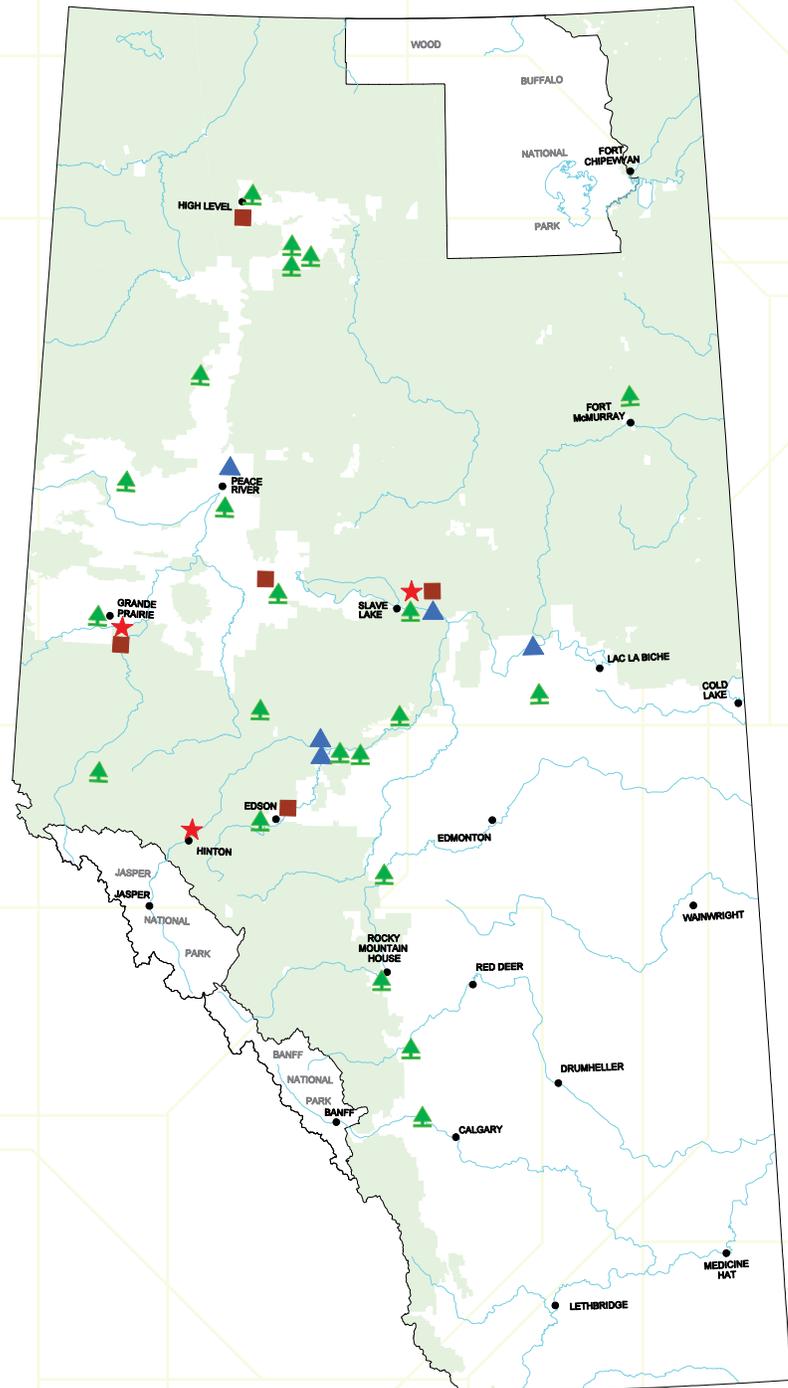
Yet demand for some products is growing – especially from emerging Asian markets, most notably China. For example, demand for pulp has been high for the past few years, and Alberta is expanding its exports to China, Korea and other Asian destinations.

Many Alberta forest companies have significantly improved their core operations. The industry has not been standing still. Productivity increased 120 per cent in the sector between 1998 and 2010. New logging methods and equipment, new business processes, and new markets have all been developed in the last five years. New engineered wood products, such as structural composite lumber (SCL), are emerging to meet market needs and replace other products used in construction.

Companies work closely with Alberta’s Aboriginal peoples, both as colleagues, partners (a number of Aboriginal groups hold forest tenure) and also as employers. Aboriginal contractors and enterprises provide services to the forest sector. Companies seek advice and assistance from Aboriginal communities and elders with respect to forest stewardship.

Major Mills in Alberta
Over 100,000 cubic metres
January 10, 2012

- Sawmills..... ▲
- Pulp Mills..... ▲
- Panelboard Mills..... ■
- Integrated Facilities..... ★
- Laminated Veneer Lumber Mills... ●
- Green Area..... ■



Produced by Resource Information Management Branch, Corporate Services Division. Base map date provided by Spatial Data Warehouse LTD. © 2010 Government of Alberta

The Road to Growth

Alberta's forest companies are ready to grow and transform as new uses for wood fibres emerge and become commercially viable.

A global shortage of fibre is looming as the world's population increases, bringing increased demand for environmentally responsible "green" products. Alberta's fibre supply remains sustainable, despite the devastating effects of mountain pine beetle and fire and the increasing amount of industrial activity in forest landscapes.

Alberta is well positioned to supply "green" structural wood products to the world, along with furniture, flooring and other products that use wood subcomponents.

There will be new demands for energy from Alberta's growing population and industries, with "green" energy providing an increased share of Alberta's energy supply, especially in terms of transportation bio-fuels (bio-diesel, ethanol and/or methanol) and bio-energy (electricity, steam and heat from biomass).

As the size of the middle class in the world grows, so too will demand for paper products (such as tissue, packaging, specialty papers) and furnishings. Forest fibres grown in Alberta are well suited to the manufacture of new products and substitutes for existing products:

- printable papers for electronic circuits
- specialty papers
- nanocrystalline cellulose and bio-composites made from it
- forest-based substitutes for fossil-based bio-chemicals and bio-plastics
- new textiles made from forest fibres

Alberta's long history and international leadership in engineered wood product development, especially production of oriented strandboard (OSB), positions this sector for growth.

For the Province of Alberta, the forest sector demonstrates a long-standing ethic of responsible land stewardship, effective environmental policies, and a sound approach to balancing wealth creation with environmental responsibility. Albertans can be proud of their forest sector and should celebrate its achievements.

2. STRATEGY FOR THE JOURNEY: DIVERSIFICATION AND SUSTAINABILITY

Much of Alberta's current well-being is highly dependent on sectors that are cyclical and non-renewable. Forestry, like agriculture and tourism, uses renewable resources to build an economy, society and environment that are resilient, diverse and sustainable over the long term. The forest products sector provides vital diversification of employment and economic opportunities.

Alberta seeks to balance its fossil fuel economy with a "green" economy. The forest sector has a long and impressive record for sound stewardship of forest lands. The sector already demonstrates the high environmental standards the world expects.

The strategic position of the Government of Alberta has been made clear in a variety of public documents and policy statements over the past few years:

- Realize the full potential of Alberta's energy resources from all sources;
- Broaden the economic base and diversify the economy;
- Strengthen Alberta's innovation system and align investments with the social, economic and environmental priorities of the Government of Alberta;
- Invest in the development of human resources and build a world-class workforce with wide-ranging skills, knowledge and commitment to lifelong learning;
- Provide a strong platform to sustain economic growth by investing in infrastructure and environmental management;
- Demonstrate environmental responsibility and leadership;
- Ensure Alberta is a great place to live, work and play;
- Sustain and develop Alberta's rural communities.

These principles will guide the next stage of Alberta's development. They require broadening the economic base through sustaining rural communities, sound environmental stewardship, and focused innovation toward the emerging bio-economy. The forest sector is key to fulfilling these aims. It is based on a strong core of traditional products, a strong focus on new products, bio-energy and other bio-products, and the provision of responsible ecological management.

3. DETOURS AND POTHoles: CHALLENGES TO COMPETITIVENESS

The forest sector sees several major challenges to its core business and ability to develop new products and services, but is optimistic that, with strong support from government and rural communities, it can grow.

There are four key challenges:

- A. Markets for Alberta's forest products and services;**
- B. Cost and performance competitiveness;**
- C. Secure and economical access to fibre; and**
- D. Investment in strategically focused, market-driven innovation.**

Overcoming these challenges will increase the value of products and services from Alberta's greenest manufacturing sector, diversify the economy, sustain the strength and vigour of rural communities, and continue to provide Albertans with a fair return on their forested lands.

Let us look at the specific ways the sector is affected by each of these challenges. In the next section we will look at the actions needed to respond to these challenges.

A. Markets for Alberta Forest Products and Services

Building with Wood – Lumber: Shifts in demand for softwood lumber following the significant decline of the U.S. housing market and the reduced demand for new homes across the developed world are placing a new focus on the wood used in buildings in Asia, especially in China, and on new models of supply. In 2000, North America and Europe accounted for 70 per cent of the global market. In 2020 these markets are expected to be 60 per cent. Emerging markets, particularly China, need wood for construction.

Building with Wood – Engineered Wood Products: Alberta had six oriented strandboard (OSB) plants in operation and two under construction prior to the collapse of the U.S. housing market. In 2011, this sector was operating at just 28 per cent of its production in 2005-2006. OSB has become a major substitute for other panels and lumber, especially in Asian markets. There is a need to continue to support research and innovation in relation to the production and marketing of engineered wood products.

Living with Wood (housing interiors, surfaces, furniture, laminates): Alberta has one manufacturer of medium density fibreboard (MDF) widely used in *Living with Wood* furnishings. However, Alberta does not have a particularly strong secondary wood sector focused on windows, doors, cabinets, furniture and other products associated with these design philosophies and construction methods.

Kraft Pulp: Demand for kraft pulp continues to be relatively strong, though varying with market conditions. There has been strong demand from Asia, particularly from China, as well as other emerging economies. Alberta companies have focused on cost competitiveness together with energy cost reduction and are now also focusing on product enhancements to sustain their competitive position.

High-Yield Pulp: As the cost of electricity, labour and transport has risen, the competitive position of Alberta's two high-yield (bleached chemo-thermo-mechanical pulp or BCTMP) operations has been affected. However, there are also new patterns of demand for this pulp in tissue, towel and packaging products. Alberta mills seek to sustain their competitive position by a focus on productivity, product enhancements and moving to off-grid power.

Newsprint: Significant structural shifts in market demand for newsprint and paper have changed the way in which the newsprint sector operates and have forced newsprint companies to become focused on reducing costs – especially energy, transport and labour – while sustaining their competitive position. Alberta's newsprint mill remains a low-cost supplier in North America and is among the lowest-cost providers in Europe. Demand, however, continues to weaken.

B. Cost and Performance Competiveness

Labour: A challenge for the sector in Alberta is the availability of skilled labour and the willingness of individuals to train, live and work in forest communities. Projected labour demand is significant, mainly due to retirements, and this is a major problem in a province with many existing labour shortages. The Forest Products Sector Council has projected the likely demand for labour in this sector across Canada, given demographics and the emergence of new technology: Some 120,000 job vacancies will be posted between 2011 and 2020, with Alberta likely to experience very high demand at a time when labour supply (especially for skilled labour) is constrained.

Transport: As a land-locked jurisdiction competing against other jurisdictions nearer to ocean ports or markets, transport costs are a major component of the end-price to consumers of Alberta wood products. As more products are shipped to China and other parts of Asia and as costs of shipping within North America rise, transport will become a major barrier to growing the sector. The situation is made more complex by the concerns over the efficiency and costs of the northern Alberta rail network and a significant shortage of truck drivers in the province.

Power: In Alberta, energy costs have grown steadily during the last five years and are expected to grow further over the coming decade. Forest companies are looking to reduce consumption, find other sources of energy to create cost predictability and to better manage these costs. This requires significant capital investment. Ending grid dependency and offsetting greenhouse gas emissions are major challenges.

Fuels and Chemicals: The costs of chemicals used by the pulp and paper sector have risen over the last five years to an average of \$61/tonne for bleached softwood kraft pulp, or around 10 per cent of the costs of production. For engineered wood products, hydrocarbon chemical costs (mainly resins) are about 25 per cent of the costs of production. Lowering these costs by the use of locally produced, wood-based chemicals would reduce both operating costs and the sector's reliance on hydrocarbon sources of fuel and chemicals. Companies are making increased use of recovery, recycling and bio-fuels and are seeking innovative products to make their chemical use more environmentally responsible. "Green" branding is also an asset in the marketplace.

Value Chain Optimization: The value chain is the sequence of activities, costs and revenues from initial infrastructure to delivery of final goods and services. The value chain in the forest sector is changing, especially the market dynamics; examples include the demand for increased renewable content in papers, smarter packaging, prefabricated building systems, or new engineered wood products.

Access to Capital: At a time when labour costs, energy costs and transport costs are rising, companies look to modernize plants and equipment to reduce energy consumption, increase productivity and provide the capital required to produce new products. One key to securing capital in the forest sector is a secure supply of wood or fibre. Equally important, forest companies need performance gains, efficiencies and new product streams that increase the return on capital employed. Access to capital is also a growing challenge for contractors employed by the forest sector.

Exchange Rates: As the Canadian dollar strengthens against its U.S. counterpart, exchange rate differentials affect the industry's cash flow and cost structures.

The U.S./Canada Softwood Lumber Agreement: Terms of this Agreement impose an export tax of 15 to 22.5 per cent on Alberta lumber shipped to the U.S.

C. Secure and Economical Access to Fibre

Mountain Pine Beetle: This beetle poses a serious and ongoing threat to Alberta's forests. Continued investment and monitoring is needed to maintain Alberta's strong focus on managing this threat and containing the damage. There is also a need to develop a focused plan to salvage damaged wood and to provide for the reforestation of unsalvaged areas to mitigate the impact to Alberta's forest ecosystems.

Land Use: Changes to Alberta's land-use policies will have an impact on the amount of available land dedicated to forest sector operations, with forest lands being set aside for conservation or other industrial users. Land-use tradeoffs are leading to a reduction in the available land for forest management operations.

Biodiversity: Biodiversity monitoring and protection are seen as key components of land use planning. Some forest companies have been actively engaged and investing in this work for a considerable time, notably through their support of the Alberta Biodiversity Monitoring Institute and other monitoring programs. Forest companies play a key role in managing habitat and species protection.

Competing Uses: A growing number of companies are seeking access to forest lands for other purposes (e.g. oil and gas exploration and extraction, mining, bio-industrial manufacturing, ecological services), and these all have impacts on the available land base.

Access to Fibre: Above factors and others continue to have a negative impact on fibre access.

D. Strategically Focused, Market Driven Innovation

Complexity: While Alberta's innovation support system has many strong features, it remains overly complex and difficult to navigate. To support innovation, a single pulp mill must deal with all four of the Alberta Innovates corporations as well as regulators across a variety of ministries and agencies. Companies remain unsure how best to use the resources of the Alberta system.

Support: Support for forest-related research is modest and unpredictable.

Partnerships: Partnerships and alliances with other forest-related research organizations (especially FPInnovations) need to be strengthened.

4. THE ROADMAP: AN ACTION PLAN FOR RESILIENCE AND GROWTH

Here are the actions that need to be taken by industry, by government and by partnerships between them to reach the Roadmap destinations – to support the continued competitiveness and productivity of Alberta’s forest sector, to take advantage of new opportunities in non-traditional products and markets, and to enable innovation and growth in the sector.

A. Develop and Grow Markets for Alberta Forest Products and Services

Alberta needs to support, sustain and grow a healthy forest sector – one that sustains local communities and rural employment, sustains the health of the forest, secures profitable returns to investors, and provides value to the people of Alberta. The sector needs to grow the value of its products and services and seek access to new markets.

To make this possible, Alberta should ensure that the conditions exist that permit and encourage forest companies to continue to invest in their people, plants and processes. This requires continued secure, sustainable and economical access to fibre, economical transportation, and access to skilled labour.

The partnership demonstrated throughout the process of developing this Roadmap must continue. The sector needs engagement at the Cabinet-level to support discussions of its “green” and growing opportunities. Partnerships must focus on the future, be strategic, and enable ongoing dialogue.

For the forest sector as a whole to succeed, a number of points of leverage need to be exercised. These are:

Ongoing investment in plants and equipment: Companies across the economy need to make these investments, and those can be supported and enhanced through tax regimes such as those that exist in Alberta which have helped weather recent global fiscal challenges. The key, however, is for industry to secure a higher return on the capital they employ in order to attract investment.

Market Access: The Government of Alberta is seeking to stimulate the export of Alberta products and services to Asia and other emerging markets. Alberta forest companies have the same intent. Coordination among industry, the governments of Alberta, British Columbia and Canada, and other Alberta bio-industry sectors (e.g. agriculture, bio-chemicals) is needed to provide a strong and growing presence in these markets. A three-year strategy is needed for government and industry to focus on positioning Alberta in these emerging markets.

Markets are evolving rapidly – more rapidly than ever before – due to new technologies, developments in global logistics, new management practices and shortened supply chains. While each company gathers its own relevant intelligence, a partnership between government and industry would be useful in the gathering and sharing of market intelligence concerning overall trends in emerging markets and more generic market studies.

Also needed are:

- An enhanced ability to use **information technologies** to inform decision making by government and industry and support strategic foresight analysis. Good decisions require good science and evidence.
- Sustaining the recently announced **Value Chain Sustainability program** from Alberta Innovates BioSolutions, Alberta Innovates Energy & Environment Solutions, Alberta Livestock and Meat Agency, Foothills Research Institute and the Alberta Crop Industry Development Fund. Assured ongoing support is needed. The sustainability of the value chains for the forest sector requires long term investment.
- Closer **cooperation among firms** that produce different products required at different stages of the same value chain; for example, close collaboration between lumber and panel producers as well as architects and builders.
- Alberta has a small **secondary manufacturing** sector. To encourage growth in the secondary manufacturing (e.g. furniture, cabinetry, floors, doors, windows), investments should target mill efficiencies, productivity and improved marketing expertise.

Industry and government can do more for each of the specific products and services manufactured or provided by the sector:

1. **Primary producers of softwood lumber have promising futures, requiring both vigilance and value chain optimization**
 - a. This sector is competitively positioned to take maximum advantage of a future upturn in U.S. housing starts, new markets in mid-rise and commercial wood frame construction and housing, and the potential of sales across North America beyond traditional markets.
 - b. Build on opportunities to vertically integrate and build closer relationships with prefabricators and builders.
 - c. There is a strong need to actively pursue and develop Asian market opportunities, collaborating with others (e.g. Canada Wood and other Western Provinces) so as to increase sales of products for *Building with Wood* residential and commercial construction and *Living with Wood* applications.

d. A holistic approach for Alberta should include, but not be restricted to, initiatives such as *WoodWORKS!* and “*wood first*” type programs focused initially on North America and later on Asian market development. Alberta needs to focus on these market opportunities including trade missions, market intelligence and industrial partnerships.

2. Reducing engineered wood products’ reliance on U.S. markets, particularly in the U.S. South, and growing the range of Alberta-made engineered wood products.

- a. This sector needs to focus on markets in which it has strong competitive advantages, which include selected markets in the U.S. and Western Canada, as well as emerging markets in Asia. For example, the OSB and strand-based engineered wood products sector has invested over \$2.3 billion in capital in new and modern facilities capable of producing a variety of products.
- b. The sector needs to focus on the development of new opportunities in Asia, including a focus on emerging value-added opportunities (e.g., components in engineered wood flooring and decorative paneling). Of particular interest are residential and commercial construction applications.
- c. The engineered wood products sector and the Alberta Innovates corporations need to build on their 30 years of collaboration to develop new products in response to market needs and to secure efficiencies in the production of existing products.
- d. Government procurement should encourage and enable the extensive use of engineered wood products in public buildings.

3. Developing and implementing an integrated bio-industrial strategy in partnership between industry and government

- a. Alberta has moved to encourage a balanced approach between “green” and fossil fuel production, inclusive of agriculture, forestry and oil and gas sectors. However, the Province has yet to focus on a comprehensive, inclusive development strategy (a *Bio-Industrial Strategy for Alberta*) that identifies Alberta’s jurisdictional advantage, leverages the natural resource base and corporate capacities, and creates economic diversification.
- b. Forest companies recognize that bio-energy production is an incremental first step towards a more sophisticated and potentially higher value bio-refinery operation, based at current sawmill or pulp mill sites. Without a strategy and a systematic approach to innovation and capacity building, any move to develop bio-refineries will be piecemeal.

- c. Companies in the forest sector should strengthen and expand synergies with the energy sector, including petroleum and electric power producers. The focus should be on the development of bio-products that can be used to support the “greening” of these sectors.
- d. Improvements in energy efficiency and biomass energy production need to continue and be encouraged, both in terms of accelerated and simplified regulatory approvals and access to capital.

4. Diversifying and strengthening Alberta kraft pulp operations through new bio-refinery opportunities

- a. New products coming from Alberta’s pulp mills require the industry to build new product streams around the current core business, utilizing waste streams for new product opportunities. The new product streams are additional (“bolt on”) operations rather than alternatives to the core business, at least at this time.
- b. There is also need for a strong focus on high value bio-based chemicals (“green” chemistry solutions) and bio-based composites that show the potential of a high return on capital.
- c. Alberta’s kraft mills also need to partner with intermediary manufacturers further up the product value stream (e.g., oil and gas, electric power, chemical, pharmaceutical and composite industries) to identify potential win-win product substitutions or import replacements. This is best done on a regional cluster basis, company to company.
- d. The industry needs to capitalize on existing technological capacity within Alberta, utilizing skills of the research community and corporate resources. Market-focused capacity building is needed.
- e. Alberta should support a communications’ strategy that strongly positions these “green” energy and emerging technologies from the forest as clean, green and sustainable.

5. Building a sustainable high-yield pulp and paper industry

- a. Thermo-mechanical mills need innovation and technology to continue to improve processing cost, energy consumption and carbon footprint, and to mitigate specific deficiencies, such as yellowing. Alberta Innovates corporations and FPInnovations should support investments in securing competitive advantage for Alberta’s high-yield pulp and newsprint operations.

- b. Companies should continue their focus on diversification into products and applications of higher value paper grades or very light weight papers with high filler content, taking advantage of Alberta's high-quality northern softwood fibres (e.g. black spruce).
- c. Companies should also take advantage of the unique range of product qualities such as opacity, bulkiness, yield and printability for use as additives in packaging, fine papers, tissue grades and specialty products. Forest scientists should partner with companies to look at the opportunity to improve growth and yield of trees grown in Alberta.
- d. Unconventional applications offer potential avenues for using the wood pulp fibre as a substitute for glass fibres in automotive applications or other composites or as a core in composite honeycomb sandwich panels. Each company needs to assess the potential of such developments. Alberta Innovates Technology Futures should support this exploration.

6. Better understand the conditions, risks and market opportunities for ecological services offered by forest companies in Alberta

Forest professionals possess high-level capabilities as land stewards to manage the forest to support multiple values and outcomes. Some already provide a range of ecological services for communities and other industries. There is potential to grow these services where a clear market can be demonstrated and appropriate regulations and policy are in place. Analysis should be undertaken to better understand needs and opportunities.

B. Focus on Cost and Performance Competitiveness

1. Labour

Industry, working with Government of Alberta and the Forest Products Sector Council, should revisit the *Workforce Strategy for Alberta's Forest Industry*, with a strong focus on:

- a. Positioning the industry as Alberta's leading sustainable manufacturing industry.
- b. Enhancing the apprenticeship process (learning design, supervisory arrangements, certification steps) for key trades.
- c. Increasing supply of labour in areas in high demand.

- d. Seeking to attract under-represented groups within the labour force, especially Aboriginal people, women and immigrants.
- e. Sharing key skills across sectors (forestry, mining, energy) in regional clusters.
- f. Companies across the natural resource sector should develop, where proximity permits, labour sharing arrangements to maximize the use of available skills and minimize disruption. This could include a collaborative approach to maintenance and shutdowns, in skills development, and in managing scarce trades.
- g. Accelerated recognition of foreign credentials and the enabling of immigration should be seen as strategic priority for the Governments of Canada and Alberta – an issue that spans the economy.
- h. Increased information and education aimed at helping Albertans understand the forest as a green, diversified sector with an environmentally sound and growth-oriented future. Industry and government should continue strong leadership and investments in the *WorkWild* program.

2. Energy

- a. Wood waste and fibre not necessarily required for products and services may be better used to support bio-fuels and bio-energy. Reduced use of fossil fuels helps Alberta meet its growing electricity demand, greens the power supply and may lower the unit cost of energy to the forest company. Continued support from governments for this transition is required.
- b. All facilities need to continue to pursue improvements related to energy efficiency.
- c. All kraft pulp mills in Alberta are on track to be net electricity exporters by 2015. This will release some 300-350 megawatts of industrial energy for the province and significantly reduce the environmental footprint of the energy produced. Several sawmills are also seeking to secure grid-neutrality by this date. This will reduce the need to build new transmission infrastructure in Alberta.
- d. A key strategy could be regional networking of energy resources. Companies in any sector generating energy surplus to their own use should be able to either export to the grid or to sell that energy directly to other local companies. This would reduce line loss and increase efficiency of the electrical supply. Currently, there are regulatory barriers to such developments.

3. Transport

- a. The forest sector, at a local and regional level, should explore new transportation strategies within the sector and with other sectors. Whether this involves logistics management across sectors or labour sharing arrangements, the sector needs to prepare for increased costs and labour challenges. A regional cluster approach to logistics management should be explored.
- b. Companies need to continue to work with the rail networks to significantly improve service and efficiently manage costs. The development of the Asia Gateway as well as proposed new intermodal facilities in Surrey, Prince George, Calgary and Grande Prairie should be fully explored. Alberta's strategy for road and rail needs to integrate with these developments.
- c. The Government of Alberta should encourage the adoption of the recommendations of the *Rail Freight Service Review* and work with shippers across the economy to influence the review of rail services prior to the review of the Rail Act in 2016.
- d. Alternative routes and potential collaborations to reach Asian markets should, where feasible, be explored.
- e. The shortage of truck drivers in Alberta poses serious problems for all industries, including forestry. Three strategies now need to be pursued:
 - i. Accelerating recruitment, training and certification of drivers.
 - ii. Continued and enhanced partnering with FPIInnovations on modifications to the configuration of chip, hog and logging trucks to increase payload, safety, fuel efficiency and ease of operations.
 - iii. Forest companies should also explore the value of cooperative procurement to lower the costs of chemicals and simplify logistics.

4. Regulation

- a. Alberta also needs a clear and current forest strategy, separate and distinct from this Roadmap, focusing on the maintenance of a healthy forest.
- b. Regulation should also enable resource efficiency, technology innovation, information gathering and outcome monitoring. Smart regulations should reduce uncertainty and provide tools by which industry can enhance its competitiveness.

C. Retain Secure and Economical Access to Fibre

A strategy for the forest sector and for the forest needs to provide that:

1. Those firms operating in the forest should have stable, economical and secure access to wood fibre

The tenure system in Alberta has served the province well for several decades and should continue to provide the basis for companies' forest management. The companies need secure, sustainable and economical access to fibre to secure their access to capital.

2. The province's fibre supply expands rather than shrinks over time

The world will be short of wood fibre, and Alberta can supply fibre from sustainably managed forests. Forests are threatened by mountain pine beetle, continued expansion of Alberta's urban population, and competing land-use demands. Activities that support an increase in the amount of wood fibre produced on available land, including marginal farm land, should be encouraged and supported to the extent such activities are consistent with Alberta's forest management policies.

3. Forests are valued for their environmental, social and economic contributions in systematic ways

Forest companies, through policy and regulation, should be encouraged and enabled to build on their current offering of market-based products and services. Rather than focusing one aspect of the forest (e.g. manufacturing), forest tenure holders and the Government of Alberta should agree on a broad range of stewardship functions that reflect the holistic value attached to the forest by Albertans and enable effective and economical markets for these services. Emerging ecological services should reflect social, environmental and economic values. Companies wishing to leverage these market opportunities should be enabled to do so.

4. Alberta supports a competitive forest sector through appropriate fibre pricing

Alberta's forest sector relies on predictable fibre costs that allow tenure holders to remain competitive on a global basis. The current system of Crown timber dues should be retained, consistent with terms of the U.S./Canada Softwood Lumber Agreement.

5. A plan for the effective and efficient use of forest areas is agreed upon

In developing plans for the use of forested areas, the Government of Alberta should ensure that both the full impact of mountain pine beetle and the emerging market opportunities offered by the forest are taken into account. Agreement should be reached to permit the fair, efficient use of available wood fibre, taking full account of market conditions and opportunities.

D. Invest in Strategically Focused, Market-Driven Innovation

These steps would enable Alberta to sustain and grow a competitive forest sector able to move in appropriate ways to diversify the products it produces and maximize the value of the fibre grown in Alberta.

1. The Government of Alberta, working with the bio-industrial sector, should develop a strategy for the future of the bio-economy in the province. In doing so, the potential role of the forest sector should be clearly identified. Such a development is urgent, since competing jurisdictions are already pursuing such strategies.
2. Alberta needs a single, focused centre dedicated to bio-energy and bio-industrial research, development, demonstration and deployment (referred to here as a *Centre for Bio-energy and Bio-industrial Deployment*) which is: (a) industry driven and government/industry funded; (b) focused on commercial outcomes; and (c) driven by values that reflect the commitment of Alberta to environmental stewardship, sustainability and economic diversification. Critical to this work is further reduction of the fragmentation of the innovation system, which continues despite the significant consolidations of the past five years. Investment in this centre should reflect the scale of commitment to diversification. This centre should be supported at a level to deliver significant outcomes over the medium to long term. One precedent is the Alberta Oil Sands Technology Research Agency, founded in 1974: R&D commitments of about \$1 billion each by industry and government over the following decades led to creation of the modern industry, with capital investments totaling about \$150 billion today.
3. Alberta should use government procurement and building codes to stimulate innovation in the use of energy efficient wood products in public buildings; a “wood first” strategy would be a significant boost to the industry.
4. Forest companies in Alberta should identify their key research and development needs at an annual meeting with the Alberta Innovates corporations and Alberta Advanced Education and Technology, as well as FPInnovations, so that the work of all innovation centres can be better aligned with the major challenges faced by industry. As the *Centre for Bio-energy and Bio-industrial Deployment* operates, a cyclical planning process needs to be in place to enable focused, applied research through to commercialization.
5. Alberta forest companies should explore opportunities for closer working relationships with energy companies as a means of spurring cross-sector innovation.
6. Alberta forest companies should have access, on the basis of a level playing field, to government programs aimed at stimulating the growth of new markets (e.g. Canada Wood) and supporting innovation. This would enable them to take advantage of emerging markets.

5. DESTINATION: GREEN AND GROWING

The future is rarely a straight line from the past. There will be disruptions to current arrangements, unforeseen market changes and other challenges during the coming years. The key is to make Alberta's forest sector resilient, nimble, ready to face challenges, and focused on the future. Growth, diversification and a commitment to remaining Alberta's leading green manufacturing industry will drive the response.

For Alberta to sustain and grow its forest sector as clean and green, the Roadmap should be seen as a starting point for meaningful, focused partnerships based on a common commitment to the prosperity of the sector overall – successful companies, sustainable forest-based communities, and successful environmental stewardship. The opportunities described in Section 4 are achievable and realistic.

The Roadmap is the basis for action and collaboration. Detailed, measurable action plans will flow from this work and enable performance monitoring. Market-driven initiatives to sustain existing markets and increase sales in emerging markets will demonstrate the robustness of the Roadmap.

Sustaining rural communities is at the heart of this Roadmap – forest-based communities want to see companies grow and prosper. Communities need to be engaged in dialogue about the future of their forested lands, the delivery of products from those natural resources, and how to sustain and grow the forest sector.

Most importantly, the people of Alberta, who are the owners of the forest, need to realize the holistic value of these landscapes and resources. Albertans need to see that their forests are producing the social, economic and environmental returns they expect. This Roadmap provides a basis for ensuring that they will.

FOUR ACTION PILLARS OF THE ROADMAP





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