

Economic Impact of Alberta's Forest Sector

The Alberta Government and Alberta's forest products' sector are working together to contribute to the economic and environmental prosperity of Alberta and our forests. Government and the private sector are working to expand market diversification and investigate new uses for forest fibre in new and innovative products including renewable green energy.





- Sawmills ▲
- Pulp Mills ▲
- Panelboard and Engineered ■
- Wood Product Mills ■
- Integrated Facilities ★
- Green Area ■

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 Corporate Services Division
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Over the decades, Alberta's forest products' sector has grown to become a significant pillar of the provincial economy. It plays a major economic role as Alberta's third largest manufacturing sector.

This success has come in the sector's ability to adapt and change as markets and demands for forest products have evolved. The future success of the forest products sector lies in strengthening core markets for existing products, improving current products and services, and seeking new opportunities.

The new model for the Alberta forest sector is well underway, with industry focusing on new infrastructure and energy conservation, new markets being identified and new forest products being developed.

Focusing on product innovation and green, renewable energy is opening doors to new opportunities for the sector. Alberta is demonstrating innovation and leadership in green technologies and products like bioenergy. The sector continues to show its trading partners the forest products produced in Alberta are second to none.

The Alberta Government and Alberta's forest products' sector are working collaboratively under the Alberta Forest Products' Roadmap to ensure the continued investment in the sector and the economic prosperity of thousands of Albertans and dozens of communities. The Alberta forest products' sector has been, and will continue to be, a key player in securing Alberta's economic future.

This report provides a snapshot of the contributions Alberta's forest sector makes to the province. It describes this contribution using a number of different metrics, and provides some context around the market conditions experienced over the last few years. It also provides some insight into the multitude of ways Alberta's forest fibre are being used, producing products we use every day, and some we may be using in the future in ways that many of us can, today, only imagine.

Honourable Minister Diana McQueen
Alberta Environment and Sustainable Resource Development



Alberta is demonstrating innovation and leadership in green technologies and products like bioenergy.



Introduction

Alberta is home to 38 million hectares of provincially owned forest, abundantly covered by both coniferous¹ and deciduous species. These forests not only help to maintain a healthy environment, clean water, diverse wildlife habitat and a backdrop for outdoor recreation and tourism, they also have played an important role in the province's development and continue to function as one of the cornerstones of the province's economy.

Alberta's Forest Resources

Alberta's forests support the ability to sustain an annual harvest level or annual allowable cut (AAC) of 18.7 million cubic metres of coniferous¹ and 12 million cubic metres of deciduous. Coniferous species include white and black spruce; lodgepole and jack pine; balsam; alpine and subalpine fir and tamarack. Alberta's deciduous species are represented by trembling aspen, balsam poplar and white birch.

Timber harvesting and forest products' manufacturing are critical to managing healthy and productive forests that not only serve Albertans, but all people who benefit from the resources managed for future generations. This AAC level is approved by the Province, and allocated to forest tenure holders through a mix of shorter term permits and longer term (20 year allocations) in the form of timber quotas, deciduous timber allocations (DTA) and Forest Management Agreements (FMA). During 2012,

20 FMAs, 260 timber licences (issued under 95 timber quotas and 39 DTAs), and 203 timber permits supplied forest fibre to forest products' facilities located across the province. From these tenures, 14.0 million cubic metres of coniferous and 6.9 million cubic metres of deciduous timber was harvested and delivered for processing. These log and chip deliveries are made by truck fleets piloted by skilled drivers via Alberta's well developed highway and off-highway road networks. Once manufactured, products were shipped by a mix of truck and rail within North America, and by ship to overseas markets typically through ports in Vancouver and Prince Rupert.

The Alberta government ensures the sustainability of the province's forest resources by balancing the harvest level with the requirement to reforest promptly. In 2012 an estimated 77 million seedlings were planted, reforesting over 61,000 hectares. Additionally, natural regrowth is found in all areas and managed on specific sites to reflect the biodiversity of species and site conditions present. This approach constituted a further 18,000 hectares of reforestation in 2012.

For the last decade Alberta has undertaken an aggressive program to control, mitigate and rehabilitate forests that have sustained mountain

¹ As of 2011, the Province has approved an increased coniferous AAC, for the short term, on order to better manage the effects of the Mountain Pine Beetle infestation. The increased harvest approval allows for the removal of damaged timber and to proactively reduce the proportion of susceptible pine.

pine beetle attacks. Since the 2004/2005 fiscal year, the Government of Alberta has allocated just over \$336 million for mountain pine beetle control and mitigation work. The Governments of Canada and Saskatchewan provided approximately \$20 million to further assist Alberta in our attempts to stem the infestation's eastward progress. Recently, funding has been identified to focus on the rehabilitation of stands that have been killed by the beetles in previous years. To date, more than 1.5 million hectares have been impacted by this infestation. This control work helps to protect Alberta's vital watersheds, grizzly bear and caribou habitat, tourism and recreation opportunities and reduce the risk of wildfire from timber killed by mountain pine beetle.

Alberta continues to adapt and enhance wildfire management strategies based on new research, information and technology. In 2012, there were 1,555 wildfires in the Forest Protection Area, burning over 378,000 hectares of land. This compares to a 10 year annual average of 1,541 wildfires burning 221,000 hectares. Wildfire conditions are monitored throughout the year to provide the best protection to Albertans, communities, natural resources and other values at risk from wildfires. In order to meet the province's top wildfire priorities (protecting lives and the safety of communities), training firefighters for immediate mobilization and preventing and detecting wildfires are paramount.

Alberta's forest sector continues to be a leader in forest stewardship and sustainable forest management. Tenure holders have achieved third party forest management certifications for over 75% of the province's forest lands. These independent auditors recognize the elements of public consultation, habitat conservation, sustainable development and continuous monitoring of air, water and soil quality. These certifications are provided by the Canadian Standards Association (CSA) Sustainable Forest Management standard, the Forest Stewardship Council (FSC) and the Sustainable Forestry



Alberta continues to adapt and enhance wildfire management strategies based on new research, information and technology.



mountain pine beetle

Initiative (SFI)). Certification is pursued by the tenure holder, in response to their own market needs and pressures; the Government of Alberta does not favour one program over another. Alberta relies on the competence and professionalism of regulated forestry professionals to apply sound forestry principles and practices.

Forest Products' Facilities

Alberta is home to an array of world class forest fibre processing facilities, ranging in size from the very small to amongst the largest in Canada, producing varied products from commodity dimensional lumber to pulp and newsprint to engineered wood products such as oriented strandboard and plywood. Forestry activities occur throughout the province, from Athabasca to Zama City, and points in between – providing significant economic contributions and employment in more than 50 communities around Alberta.

In 2012, the forest sector employed, through direct and indirect employment, almost 13,000 workers (Figure 1). Despite the global challenges of a rising Canadian dollar, the collapse of the housing market in the United States and an overall softening of global financial conditions, Alberta's forest sector has remained competitive and robust. Compared to other parts of the country, the level of employment in Alberta's forest sector has remained relatively stable over the course of the economic downturn. These jobs continue to utilize a highly-skilled, educated workforce that supports community growth and long term stability.

Forest sector business clusters have formed around Rocky Mountain House, Hinton, Edson, Whitecourt, Slave Lake, Grande Prairie, Peace River and High Level.

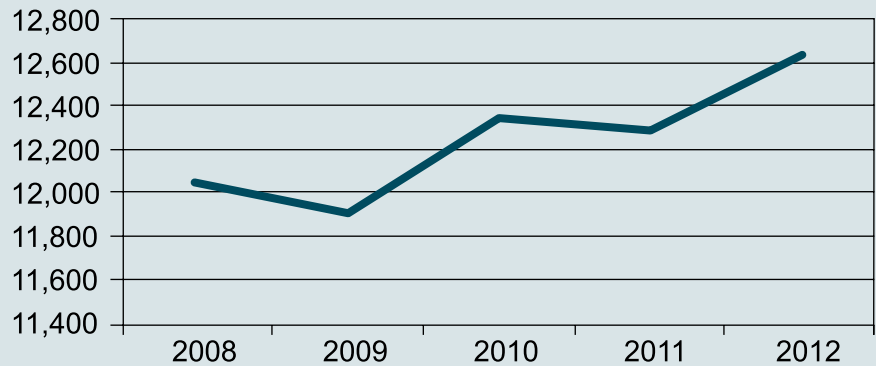


The Alberta Forest Products Association has developed a comprehensive forestry career awareness program in Canada, reaching out to youth to educate on the diversity of employment choices in forestry and the amazing benefits of having a career in sustainable resource management. This “Work Wild” campaign has connected with students and is regarded as the most successful recruitment initiative launched in Alberta for forest workers.

In response to labour challenges, the need to constantly improve efficiency in an increasingly competitive environment has been a priority. Since 2006, Alberta forest products' facilities have reduced overall manufacturing costs by 15% and Alberta's economic productivity in forest products is now higher than all other provinces in Canada. Every sector of the provincial economy has benefited from large inflows of capital investment, increased employment opportunities and strong business and consumer spending. Annual investments in forest product facilities across the province continue to improve the efficiency and competitiveness of the Alberta forest sector.

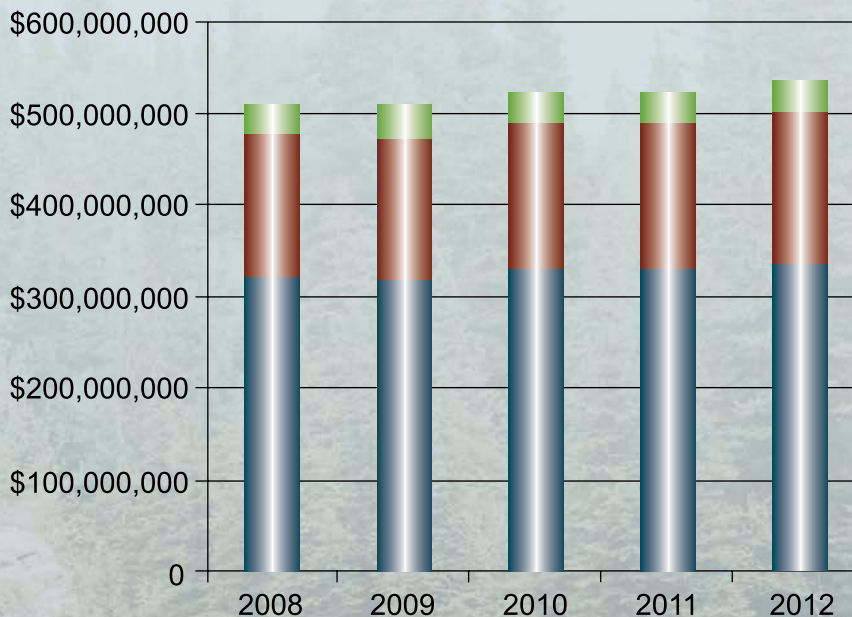
**Figure 1:
Total Alberta Forest Sector
Employment
(Direct and Indirect Jobs)**

Source:
Alberta Finance & Alberta
Environment and Sustainable
Resource Development



Revenues to Government

The sector continues to provide a stable and reliable source of revenue to all three levels of government (Figure 2). In 2012, federal, provincial and local government revenues from the Alberta forest sector amounted to \$537 million with personal, corporate and property taxes contributing \$383 million. Also included in these figures are such things as timber royalties, various taxes levied on production and products, and required fees and permits. Timber royalties during this period contributed approximately \$33 million to the Province. In aggregate, these revenues help to fund public programs in all municipalities across the province.



**Figure 2:
Estimated Government
Revenues from the Forest
Sector (\$CAD)**

Source:
Alberta Finance

- Local Gov't Revenue
- Provincial Gov't Revenue
- Federal Gov't Revenue



Alberta has a long history of international leadership in the development of engineered wood products

Varied Products, Diverse Markets

Logs delivered to Alberta mills are processed in some of the most modern mills in Canada. A suite of products that serve customers within Alberta and throughout the world are shipped on a daily basis. The properties and diversity of Alberta's softwood and hardwood species enables the industry to produce a variety of forest products for interior and exterior uses, offering immense versatility, beauty and superior structural strength. Alberta has a long history of international leadership in the development of engineered wood products and has the production capacity in both structural (such as Oriented Strandboard and Plywood), and non-structural products (such as MDF and glulam), in addition to laminated veneer lumber (LVL) and I-joists. Alberta has

both high-yield chemo-thermomechanical pulp mills and kraft pulp mills, with their pulp used to manufacture a variety of products from high-quality paper, tissue products and cardboard to other packaging materials. Alberta is also home to one of the leading newsprint producers on the continent.

The Alberta forest sector is diversifying the range of products manufactured in its pulp mills by strategically investing in new business opportunities in such areas as bio-energy and new bio-products. Alberta also manufactures a wide range of processed products, including pre-fabricated wall, floor and roof components, building modules, and entire ready-to-move homes. They encompass a range of building systems such as North American-style platform frame components/structures, post & beam, log, and hybrid systems. Alberta producers focus not only on the residential but also the commercial building market, providing materials to build hotels, schools and municipal and government buildings. Interior home finishings, most notably flooring, interior wall paneling, interior doors and windows, moldings, stair parts, cabinetry and furniture are also manufactured in Alberta. Products are sold either fully or semi-assembled, or as components ready for further assembly. These may include pre-cut lumber and panels, blanks and veneers. Other products are intended for outdoor use, such as siding, soffits, fascia, decking and fencing or patio furniture.

Alberta is signatory to a national campaign called WoodWORKS! that promotes the increased use of wood in commercial, industrial and institutional construction. Growing a wood culture where Alberta and Canada are valued as leaders in building with competitive wood products and building systems will reinforce wood as the first choice and best value in building materials. Through research and development of new technologies, advanced engineered structural products and manufactured building systems, the twin concepts of sustainability and building

green communities can be achieved. Alberta's commitment to wood products research and new technologies supports the environmental, economic, social and cultural benefits derived from forests.

Lumber Products

According to Statistics Canada, Alberta's lumber production was 3.39 billion board feet in 2012, an increase from 2.81 billion board feet in 2009 (Figure 3). In 2012, 82 mills operated, with 21 large mills utilizing more than 100,000 cubic metres of forest fibre. In addition to lumber production, sawmills generate revenues from non-traditional products such as more than 90,000 tonnes of wood pellets and production of 3,200 tonnes of animal bedding annually, all derived from volumes previously viewed as 'waste' streams. The largest source of revenue from Alberta sawmills' by-product stream, comes from woodchips. These chips are the key feedstock for the province's pulp mills, highlighting the interdependency between the subsectors and the efficient use of forest fibre.

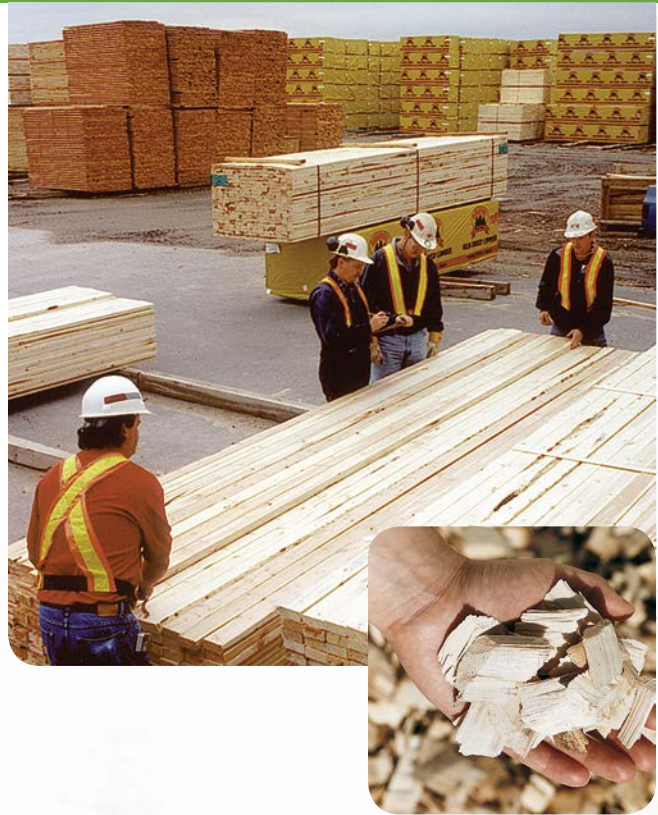


Figure 3:
Alberta Softwood Lumber
Production (billion board
feet)

Source: Statistics Canada & Alberta
Environment and Sustainable
Resource Development

The value of Alberta shipments showed a return to stronger performance in 2012, after a few difficult years, as shown in Figure 4. The lumber price benchmark used to set some of Alberta's timber royalty rate, shown in Figure 5 shows this recovery well, more than doubling since early 2009 to the end of 2012.

Due to the pressures felt in British Columbia by their mountain pine beetle infestation (and the subsequent impact to their wood supply) and production from BC mills increasingly targeting emerging Asian markets, some Alberta mills are increasingly supplying North American demand. Other Alberta producers are diversifying into Asia and the Middle East themselves.



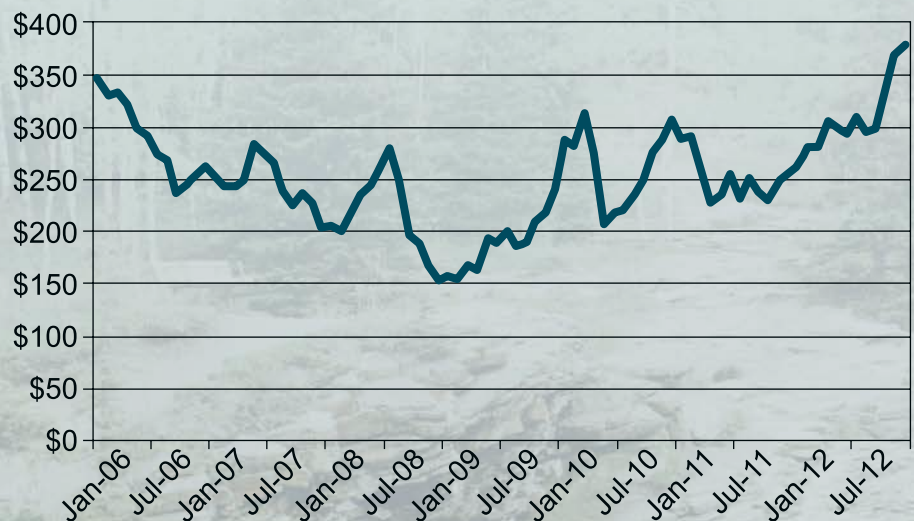
Figure 4:
Value of Alberta Softwood Lumber Shipments (million \$CAD)

Source: Statistics Canada



Figure 5:
Average Monthly Lumber Price (\$US per thousand board feet) – Western SPF 2x4 #2 & Better by Month

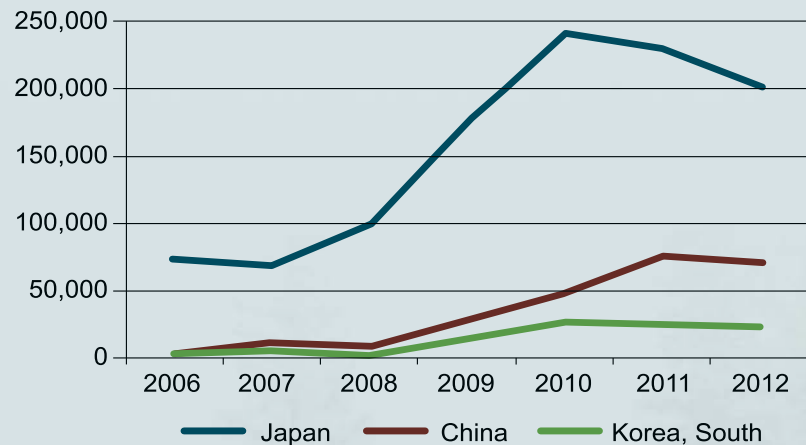
Source:
Random Lengths



While the United States by far remains our largest export market for lumber, the growth in shipments to Asia (Figure 6) has been noteworthy over the last 6 years. Demand in the US and Canada for lumber products has been led by residential construction while Asian markets are importing raw materials for export of finished or in-process goods. Japan and Korea have long used wood frame construction, like Canada, while this style of construction is only recently beginning to develop to any significant degree in China. Educational and promotional missions and wood demonstration projects like the ones led by Canada Wood increase wood product knowledge of consumers, builders and architects and establish a presence for gaining acceptance around wood frame construction for residual, institutional and commercial applications.

Figure 6:
Alberta Softwood Lumber Exports (m³) to Selected Asian Countries

Source: Statistics Canada



Panel and Engineered Wood Products

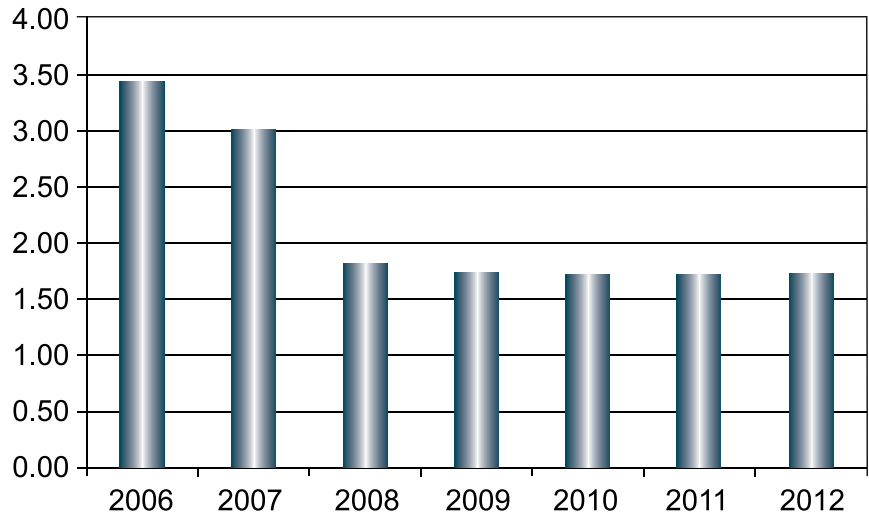
Alberta has been a pioneer in engineered wood products in Canada. The evolution towards oriented strand board began with the first successful commercial production in Edson, Alberta, in 1981 at Pelican Spruce Mills (currently Weyerhaeuser Canada) in collaboration with the Alberta Research Council (presently Alberta Innovates Technology Futures).

This innovative commercial development led to the construction of an additional six OSB mills in Alberta over 20 years with a manufacturing capacity of 3.36 billion square feet (sq .ft.) (3/8" basis) annual production (Figure 7). The collapse of the US housing market in 2008 led to the closure or curtailment of OSB facilities

throughout North America and Alberta was not immune. Although a number of our facilities are currently curtailed, their prospects are improving to the point that many operations are now projected to return to more historical levels of production, doubling the current production figures as the US market recovers.

**Figure 7:
Alberta Panelboard
Production
(billion sq ft 3/8" basis)**

Source:
Statistics Canada & Alberta
Environment and Sustainable
Resource Development



With the expansion into Asian markets and the expected commercialization of new products, prospects for Alberta producers are outstanding. Shipments (Figure 7) were beginning to show modest recovery in 2012, with much optimism for better times ahead with recovery in the US housing market and other market initiatives. Alberta is also home to Canada's largest plywood facility and one laminated veneer lumber facility. These markets have enjoyed significant strength in recent times (so much so that Canada has become a net importer of plywood). The province's medium density fibreboard (MDF) mill produces a range of products from spruce and pine sawdust that is ideally suited for laminating and painting applications and shipped to North American and Asian markets.

**Figure 8:
Value of Alberta
Panelboard Shipments
(million \$CAD)**

Source:
Statistics Canada



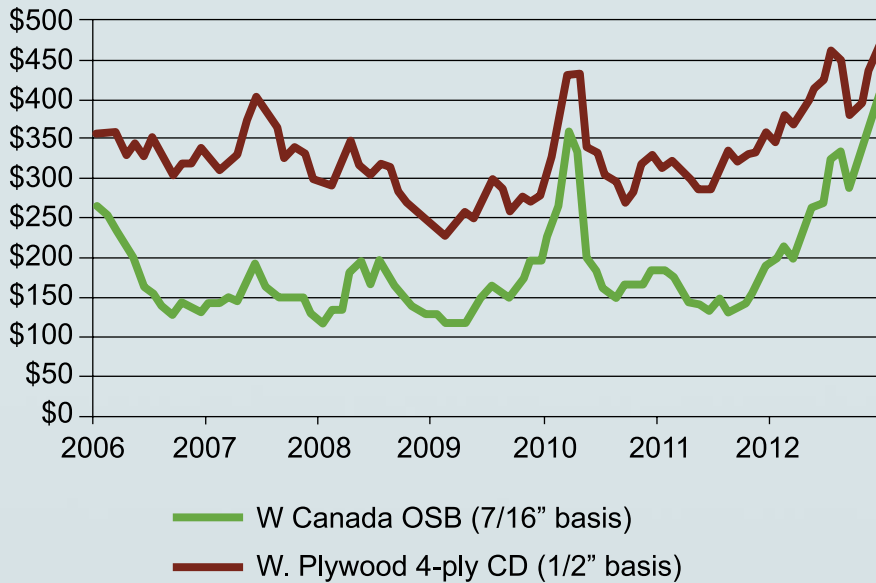


Figure 9:
Average Monthly Panel
Commodity Price
(\$US per thousand sq ft)

Source:
Random Lengths

Pulp & Newsprint Products

The province has 4 kraft pulp mills, 2 high-yield chemo-thermomechanical pulp mills (BCTMP) and one newsprint mill. The kraft mills produce both northern bleached softwood (NBSK) and northern bleach hardwood (NBHK) kraft pulps, used predominantly in end-use applications like packaging, printing and specialty papers used in magazines and catalogues, while the BCTMP mills produce predominantly consumer products (e.g. tissue, paper towel and hygiene products), packaging and printing papers. Alberta pulp mills serve global markets in North America, Europe and Asia.

Alberta's pulp and newsprint production (Figure 10) remained strong in 2012, while the value of shipments (Figure 11) slid slightly, due in large part to the softening of market prices (Figure 12).



Figure 10:
Alberta Pulp & Newsprint
Production (million air dried
metric tonnes)

Source:
Statistics Canada

Figure 11:
Value of Alberta Pulp Shipments (million \$CAD)

Source:
 Statistics Canada

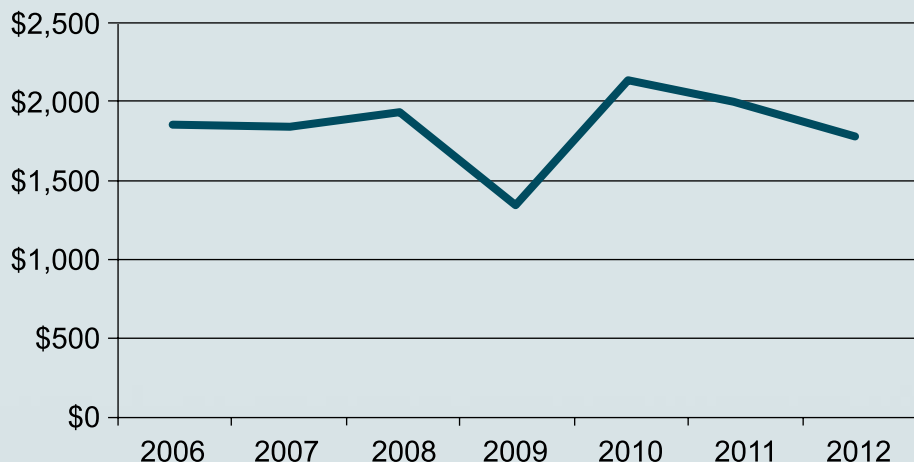
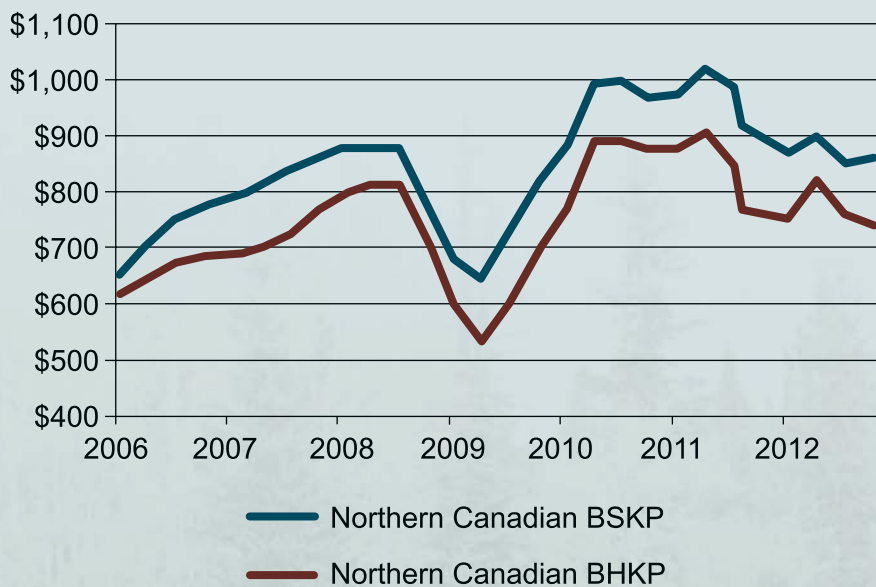


Figure 12:
Average Monthly Pulp Prices (\$US per metric tonne)

Source:
 Pulp and Paper Week



Alberta's kraft pulp mills generated more than 400 megawatts of "green" electricity in 2012.

Alberta's pulp and newsprint sector is looking at transforming and sustaining the sector through the increased generation of energy from biomass and waste streams and developing methods to isolate and market products from the effluent streams of the pulping process. These diversification efforts are aimed at reinforcing and sustaining Alberta's pulp and paper sector, while maintaining a solid base of pulp production.

A strong ability to generate electricity exists at the province's kraft mills, with them tapping into their efficient pulping processes and transforming waste by-products 'green' electricity. The BCTMP mills are close behind with bio-energy projects currently underway. This environmentally friendly bioenergy is used to offset the power demands of the facilities themselves, but also to provide power to the province's electrical grid, helping to deliver on the province's objectives under the Alberta Alternative and Renewable Energy Policy Framework. All of these mills are investing in their electricity generation capacity as a contribution towards the renewable energy strategy.

The Future

Much effort, by both industry and government, is being put into identifying and pursuing new markets for Alberta products. Initiatives aimed at increasing demand for traditional wood products are underway in North America and Asia. Organizations like Alberta WoodWORKS! are working with architects and the structural wood systems industry to increase the use of wood in libraries, health centres and an array of other commercial and residential projects.

One of the premier examples of innovative designs is the Lois Hole Library in Edmonton, Alberta. Western Archrib and Barr Ryder Architects were central to an important milestone in community development and sustainable design in the region through a tribute to one of Alberta's former Lieutenant-Governors, Lois Hole. The natural elements are highlighted using a vaulted ceiling accented by Glulam columns and trusses, capturing Alberta's magnificent blue sky and natural light.

Partnerships around the world, identifying new products that Alberta producers could aggressively compete for market share is a priority. Alberta Innovates and Technology Futures has recently commissioned a crystalline nano-cellulose pilot plant to investigate applications for this innovative fibre based product. FP Innovations, Biorefining Conversions' Network and many other research partners continue to contribute in significant ways, to the opportunities available to forest product producers around non-traditional products based on forest fibre, such as bio-materials, bio-composites and bio-chemicals.



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