

Trends and Prospects
**UNECE Committee on Forests and the
Forest Industry**

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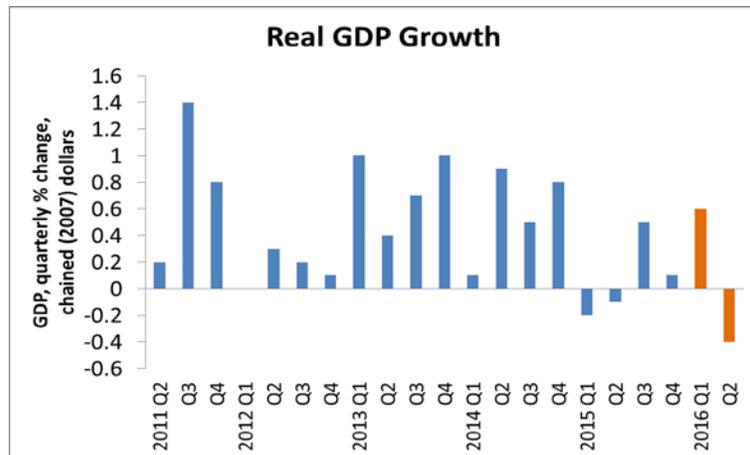
CANADA

I. An Economic Overview

General Economic Conditions

Tepid global growth and ongoing worldwide economic shocks continue to cast uncertainty for Canada’s economy. In the first and second quarters of 2016 respectively, the real gross domestic product (GDP) rebounded 0.6% then retracted 0.4%, mainly due to ongoing low commodity prices and the Fort McMurray (Alberta) wildfire. However, in general, the Canadian economy is expected to pick up slightly in the second half of 2016 as oil prices continue to firm and the rebuilding efforts in Fort McMurray start to offset some of the economic impact of the wildfires.

Further upside is expected in 2017 and 2018. First, the United States, the largest market destination for Canadian exports, continues to slowly recover, reporting positive GDP growth (1.4% in Q2 2016), low unemployment (4.9%), and rising wages. The growing demand associated with increased GDP is expected to buoy Canadian exports. Second, the Government of Canada has announced billions in investments for infrastructure, renewable energy, and clean technology, as part of Canada’s commitment to working towards a low carbon economy, consistent with global goals of limiting temperature rise to 1.5C to 2C degrees above pre-industrial levels under the Paris Agreement. These fiscal measures are expected to positively impact the Canadian economy starting in 2017.



Source: Statistics Canada

One of Canada’s main economic indices, Canadian housing starts, has remained resilient even under the weakening general economy. This, coupled with record level of household debt, has led to widespread concerns that the pace of housing starts and sales is not sustainable. Nonetheless, Canadian household final consumption expenditure continues to grow, up 0.5% in Q2 2016, following a 0.7% gain in the first quarter. Housing prices have also

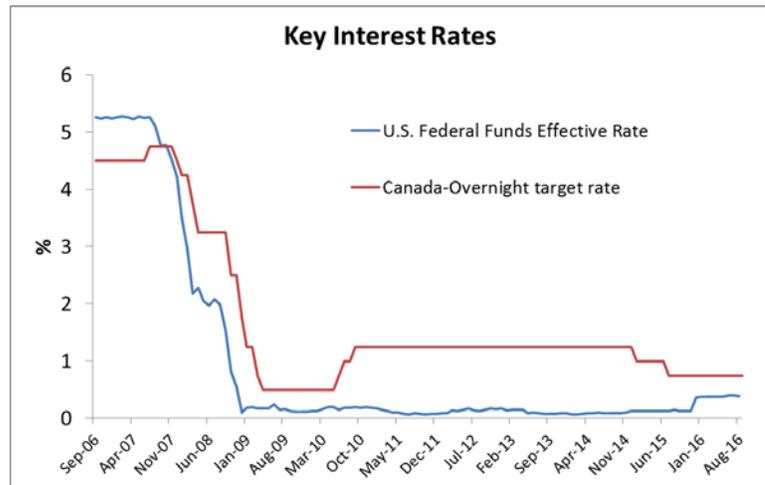


Source: Statistics Canada

continued to rise. In August 2016, Canada’s average housing price was up 11.4% compared to 12 months ago, largely driven by Vancouver (up 25.8%) and Toronto (up 14.6%) and their neighbouring cities. In contrast, prices in cities in other parts of Canada are flat to negative, with prices down 4.5% in Calgary and down 0.3% in Edmonton. Going forward, the pace of housing starts is expected to slacken slightly, again with higher levels of housing starts in British Columbia and Ontario offsetting declines other regions.

Interest rates have been key to the resiliency of Canadian housing and high household debt levels.

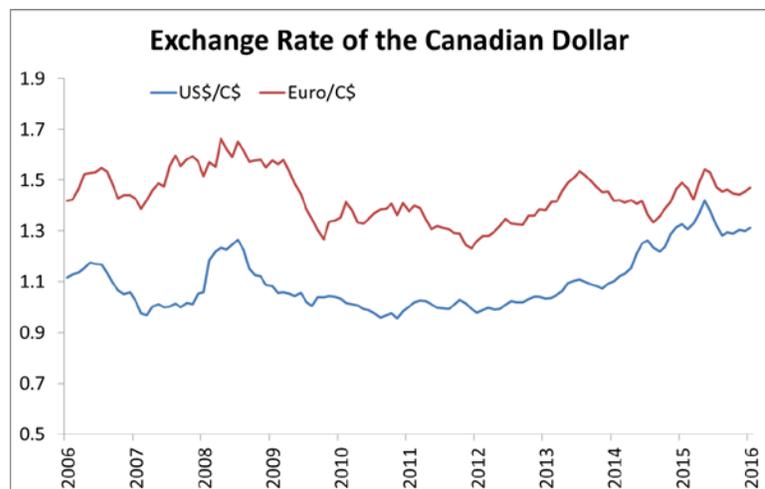
Although most analysts expect interests to rise “eventually”, the consensus is that many areas of the economy (e.g. employment, inflation) would have to greatly improve before the Bank of Canada could justify raising interest rates. Between December 2007 and March 2009 the Bank of Canada lowered its overnight rate target (ORT) from 4.5% to 0.5% as the nation’s economy weakened with the onset of the global economic downturn. In 2010 the ORT was increased to 1.0% and remained unchanged until January 2015, when it was lowered to 0.75%, and then to 0.5% in July 2015 in response to the global economic turmoil, the sharp drop in oil prices, and its negative impacts on growth and underlying low inflation in Canada.



Source: Bank of Canada

Employment increased by only 26,000 or 0.1% in August after it declined by 31,000 in July 2016. Compared to the same period in 2015, employment is up by 77,000 (+0.4%) and the unemployment rate remains at around 7%. On one hand, Canada is an aging society so the workforce participation rate is expected to be flat or decline into the future. However, the youth (ages 15-24) unemployment rate is 13.2%, whereas the unemployment rate for people aged 55 and older is 6%. Compared to a year ago, youth employment is down 48,000 (-1.9%) and employment among people aged 55 and older was up by 133,000 (+3.7%). This implies that Canadian youth are continuing to struggle to find gainful employment while older Canadians are delaying their retirement dates.

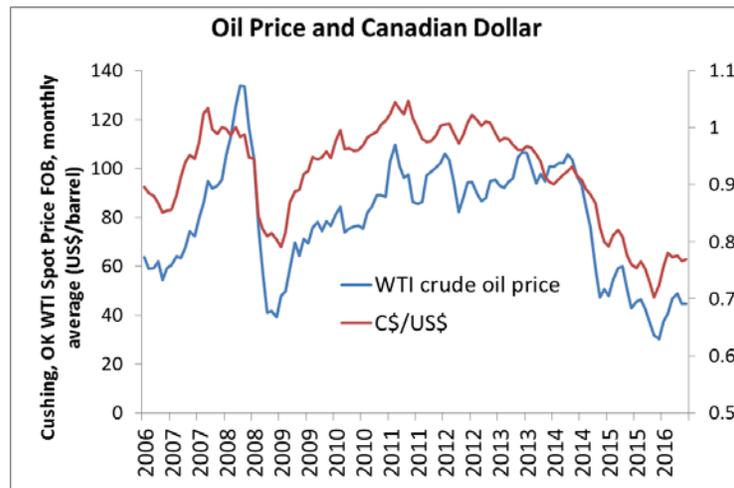
The Canadian dollar exhibited considerable variation during 2004 to 2009. During this period, as a result of the global financial crisis,



Source: Bank of Canada

the Canadian dollar followed the strong fluctuations of the U.S. economy, going from a monthly high of US \$1.04 in November 2007, to a low of US \$0.79 in March 2009. The Canadian dollar rebounded thereafter, peaking to a new monthly high of US \$1.05 in July 2011, and remained roughly on par until February 2013. It has since declined to US\$0.76 as of September 2016. However, the Canadian dollar has performed well against the Euro, remaining almost unchanged over the same period.

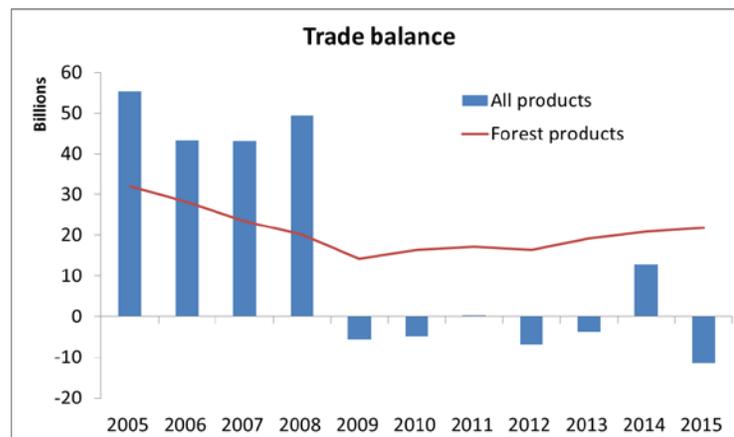
While the Canadian-US dollar exchange rate is largely driven by the relative strengths of the Canadian and U.S. economy, it is also influenced by commodity prices directly, including oil prices. A major benchmark for North American crude oil is the West Texas Intermediate (WTI). The WTI price increased significantly beginning in 2000, spiking at a monthly price of US \$133.88 in June 2008 before falling to US \$41.12 in December 2008. The price then averaged US \$95.60 a barrel over the period from 2011 to 2013 before collapsing again in late 2014 through to the first half of 2016. From July 2014 to February 2016, the WTI was down over 50% driven by ongoing excess supply, global economic turmoil and recent geopolitical developments. Over the same period, the exchange rate had dropped 21%. Both the WTI price and the exchange rate have slightly risen since then, up 47% and 6% respectively. As seen, the relationship between oil prices and the Canadian dollar is only somewhat related—the dollar is also impacted by other major factors such as US and Canadian fiscal and monetary policies, economic indicators and growth prospects.



Sources: US Energy Information Administration, Bank of Canada

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After nearly a decade of stability (from 2000 through 2008), Canada’s trade balance fell dramatically during the global financial crisis, turning to zero or negative from 2009 to 2013. It rebounded in 2014, followed by a deficit of \$11.6 billion in 2015. Canada’s forest product exports are a major contributor to Canada’s trade balance, even during the financial crisis. In 2015, it stood at \$22 billion, up 4% from 2014.



Sources: Global Trade Atlas

II. Policy Measures in Canada Impacting Forest Management and Forest Product Trade

Commitment to Growth and Innovation and to Sustainable Forest Management

In 2013, the Canadian Forest Service of Natural Resources Canada (NRCan-CFS) released *Growth and Innovation: Rooted in Sustainable Forests*¹, a strategic framework that guides federal programs, science, and policy initiatives. This framework outlines three key priority areas: supporting forest sector competitiveness, optimizing forest value, and creating prosperity for Canadians.

Sustainable Forest Management Certification

Canada has a comprehensive legislative and regulatory framework that governs forest management in each province and territory, which provides assurances that Canada's forests are managed sustainably. These laws, regulations and policies govern various aspects including planning land use, forest management, public consultations, Aboriginal participation, protected areas, tenure and allocation for wood for harvesting, and regeneration of forest land. In addition, third-party sustainable forest management certification demonstrates the integrity of forest management practices.

As of the end of 2015, Canada had 166 million hectares of forest land independently certified as being sustainably managed by one or more of three globally recognized certification systems: the Canadian Standards Association, the Forest Stewardship Council and the Sustainable Forestry Initiative.

Competitiveness Initiatives

The Government of Canada is playing a key role in supporting the transformation of the forest sector. In recent years, a number of initiatives have been implemented to help secure a more competitive forest industry by helping the sector develop new products and processes, and take action on new opportunities in the domestic and international marketplace. Since 2007, the Government of Canada has invested \$1.8 billion in these areas by: encouraging improved environmental performance and energy efficiency through the Pulp and Paper Green Transformation Program (2009-2012); fostering innovation through the Forest Innovation Program and the Investments in Forest Industry Transformation Program; and market development through the Expanding Market Opportunities Program. Most recently, Budget 2015 allocated \$86 million over two years, starting in 2016/17, to extend the Forest Innovation and Expanding Market Opportunities programs.

¹ For more information on *Growth and Innovation: Rooted in Sustainable Forests*, see the Natural Resources Canada website at <http://cfs.nrcan.gc.ca/publications?id=35238>.

Innovation

The Government of Canada has committed to a suite of programming that spans the innovation continuum from pre-commercial research and development in transformative technologies to later stage programs which focus on proving technologies at the commercial scale.

Forest Innovation Program

The Forest Innovation Program (FIP) provides funding to four main areas: FPInnovations, the Canadian Wood Fibre Centre, forest biorefinery collaboration and standards development.

FPInnovations

The Forest Innovation Program (FIP) provides funding to FPInnovations, Canada's national forest research institute, to generate collaborative, pre-commercial research and development and deployment in transformative technologies. Funded by the federal government, 9 provinces and over 200 industry members. FPInnovations has developed some 40 new forest product or process innovations that are at various stages of readiness. From the promise of cellulose filaments (CF) and cellulosic nanocrystals (CNC), to mid-rise and tall wood buildings, to drones providing forest inventory data, to lignin extraction and biomethanol, Canada's forest products industry is positioning itself to capitalize on new, higher-value opportunities such as those in the emerging bioeconomy. These new uses will also provide valuable climate change mitigation tools and solutions for a low carbon economy.

Canadian Wood Fibre Centre

The FIP also provides funding to the Canadian Wood Fibre Centre, which is a collaborative effort between CFS and FPInnovations that conducts upstream research to help set the strategic direction of FPInnovations. Its work in forest inventory, fibre characterisation and production, and genomics is helping to ensure that the industry can get the right fibre to the right mill for the right product – in a way that supports industry competitiveness and public confidence. The Centre's work on Enhanced Forest Inventories has completely redesigned the best practices for monitoring and managing Canada's forests. This work has been recognized internationally in the US, New Zealand and Australia.

Forest Biorefinery

The Forestry Biorefinery Collaboration brings together the research capacity of NRCan's CanmetEnergy and FPInnovations, to further refine the technological solutions needed to support the forest industry's contribution to Canada's bioeconomy. The Canadian forest sector sees the bioeconomy as an important pillar in its transformation towards higher value added products. Biorefinery technologies including bioenergy (e.g. pyrolysis and gasification) and innovative uses of residues (e.g. lignin) are supporting new revenue streams for Canada's mills which increase their resilience and the security of the employment they provide. Three pulp and paper mills in Canada have added biorefinery applications to their operations and many more are expected. As a result, extracted lignin is now being used as an environmentally friendly

adhesive in plywood. Gasification and liquefaction technologies are creating biogas and biofuels that can be used for heat, power, and transportation.

Standards Development

The development of national and international standards for novel nanocellulosic materials and their applications is facilitated through FIP. This is being done in order to facilitate the regulatory approval and market acceptance of new products. In 2014, at the international level, Canada received approval to proceed with the development of the first phase of ISO standard for the measurement and characterization of cellulose nanocrystals.

Investments in Forest Industry Transformation

Since 2010, the Investments in Forest Industry Transformation (IFIT) program has been supporting the forest sector and the communities that depend on them to bring about first-in-kind innovation and transformation that has:

- Increased environmental performance (production of green electricity and renewable fuels, reduction of greenhouse gas emissions, increased energy efficiency, carbon capture);
- Diversified markets with new, higher value products (new biomaterials, advanced building products and construction materials);
- Increased competitiveness and economic sustainability (jobs created, jobs secured, new revenues streams for companies, diversification of product portfolios).

IFIT was renewed in February 2014, with an additional \$90.4 million provided for the program over four years. This continued commitment will help bring the next wave of innovation to market and will solidify Canada's position as a leader in forest industry transformation.

In July 2015, the program released its [“Performance Report 2010-2014”](#) designed to provide information regarding how the program operated, what it achieved overall (e.g. economic, societal and environmental benefits) and how funded technologies were innovative and transformative for the Canadian forest sector. The program is now working on an update to this report, expected to be published in the spring/summer of 2017.

To date, the program has successfully funded 25 projects involving mostly world-first technologies, with 80 percent of projects creating new products or diversifying proponents' product offerings. Current spending by proponents and contributions from other sources indicates that, for every \$1 invested by the Program, \$3.91 was leveraged from other sources. These projects are collectively expected to generate more than \$335 million per year in new revenues, increase renewable electricity capacity by 40 gigawatt-hours/year and decrease greenhouse gas emissions by more than 135 kilo tonnes/year. In terms of employment impacts, these projects are estimated to secure approximately 4,300 jobs in the forest sector, create 225 total new direct innovation related jobs and require over 600,000 person-hours of construction

work, including a significant number of project related expertise jobs through supporting the clean tech sector.

Over the past year, four projects were completed at facilities in Canada that represent first-in-kind innovations; these include:

- The conversion of an aging oriented strandboard plant to one that will produce a value-added exterior wood siding product for the residential and commercial market that is resistant to decay, fungi and termites.
- The installation of an innovative anaerobic digestion system at a pulp mill to produce biogas which can then be used to generate electricity and heat.
- A hemicellulose hot water extraction process that will replace the existing soda-based chemical pulping process with a more environmentally friendly one which could result in a number of products ranging from biofuels to zero-calorie sweeteners.
- The construction of a state-of-the-art, fully mechanized facility that will produce up to four million improved tree seedlings per year with enhanced resistance through mass inoculation against attacks from insects and fungi.

Markets

Expanding Market Opportunities Program

The Expanding Market Opportunities Program (EMO) helps to increase and diversify market opportunities for Canada's forest sector by promoting broader use of Canadian wood products.

The program provides funding to forest product associations to support market diversification and expansion activities such as: branding, demonstration of Canadian wood-frame construction techniques, international representation through in-market staff in offshore offices and technical support to address market access and regulatory issues. In addition, the program supports quality assurance and activities that reinforce the forest sector's environmental reputation through the promotion of Canada's strong record on sustainable forest management and a preferred global source of sustainable forest products. Activities in this area also include the development of science and outreach products related to forest management in Canada's boreal forest.

Over the past decade, this multi-faceted market diversification strategy has helped Canada's wood product sector increase its exports to emerging and fast-growing Asian economies. For example, the value of Canadian wood product exports to China increased almost 28-fold to \$1.62 billion between 2002 and 2015.. In addition, Canada is currently South Korea's 3rd largest supplier of softwood lumber, after Chile and Russia on a value basis with exports totalling \$80.2 million in 2015, an increase of 254.6% from 2002.

In North America, the EMO program has supported industry efforts to increase wood use in non-residential buildings such as schools, health care facilities and commercial outlets and in mid-rise buildings up to 6-storeys. As a result, wood has been used in more than 2,435 non-residential

construction projects in Canada and the United States since 2007, representing an estimated \$1.13 billion in new wood sales for the wood products sector.

The program has also supported the efforts of the National Research Council (NRC) to undertake scientific research which led the Canadian Commission on Building and Fire Codes to unanimously approve new provisions for mid-rise wood construction for up to 6-storeys in the 2015 edition of the *National Building Code of Canada* (NBCC). The vote took place in late March 2015 and the new edition of the NBCC was issued in early 2016.

EMO also continues to help advance public acceptance of taller wood buildings and realized a number of milestones under the Tall Wood Building Demonstration Initiative (TWB). Led by NRCan with support from the Canadian Wood Council (CWC), FPInnovations and NRC, TWB research and development activities enabled the design and approval process of two projects which are currently under construction and are scheduled to be completed by Summer of 2017:

- 1) The Origine building, a 13-storey condominium building (12 storey mass timber structure on top of a one storey concrete podium) in Quebec City which inspired the Quebec Government's interest in tall wood buildings and led to the publication of Quebec's Guide for mass timber up to 12 storeys tall in August 2015. The Guide is considered a "pre-approved" alternative solution in the Québec Building Code making Quebec province the 1st jurisdiction in North America to allow and facilitate the approval of mass timber tall wood buildings up to 12 storeys tall. Due to the increased interest from other jurisdictions in Canada and overseas in the Guide, it was also translated to English.
- 2) The University of British Columbia's Brock Commons student residence: an 18-storey hybrid mass timber structure comprised of a one storey concrete podium, two concrete cores and a 17-storey mass timber structure. The wood super structure and the façade of the building were completed in September 2016. The building is currently the world's tallest wood building and as such, is generating huge interest from various stakeholders including designers and developers.

Climate Change

Adaptation

In 2008, the Canadian Council of Forest Ministers (CCFM) stated, in *A Vision for Canada's Forests: 2008 and Beyond*, that "consideration of climate change and future climate variability is needed in all aspects of sustainable forest management." In the same year, provincial and territorial Premiers, through the Council of the Federation, requested the CCFM Climate Change Task Force (CCTF) to undertake collaborative work on adaptation in forestry. Phase 1 of this effort was completed in 2010 and provided an assessment of tree species vulnerability and management options for adaptation (www.ccfm.org/pdf/TreeSpecies_web_e.pdf).

The attention paid to the impacts of climate change and potential adaptation strategies has remained strong. Phase 2 of the CCTF initiative moved beyond trees to consider adaptation for

forests and in the forest sector. A scalable, nationally-applicable vulnerability assessment framework for sustainable management under climate change and related adaptation knowledge syntheses have been developed and are now being disseminated to enable members of the forest sector to incorporate consideration of changing climatic conditions into sustainable forest management. The tools and techniques being provided to the sector are designed to be readily mainstreamed into day-to-day forest management planning and decision-making processes, and are being field tested through several case studies across Canada. They are described in a special series of nine reports by the CCFM that are now all available at www.ccfm.org.

The CCFM is currently supporting work on a third phase (2015-2016) of the CCTF. The CCTF is analyzing approaches for incorporating climate change into sustainable forest management criteria and indicators, supporting a Forestry Adaptation Community of Practice (FACoP, <http://www.ccadaptation.ca/facop>), and building climate change considerations into the work plans of the CCFM Forest Pest and Wildland Fire working groups.

Recognizing that business and industry lack timely access to applicable information on climate change impacts and adaptation, the 2011 federal budget provided funding for five years for work by nine federal departments on climate change adaptation. The main goal of the Natural Resources Canada (NRCan) program is to enhance competitiveness in a changing climate. Through the Forest Change initiative (www.cfs.nrcan.gc.ca/forestchange), NRCan is continuing working with members of the forest sector to develop and transfer targeted adaptation information, knowledge, and tools to help mainstream adaptation into sustainable forest management policies and practices to enhance competitiveness. This is meant to help members of Canada's forest sector, notably the industry, to understand climate change-related risks and address associated costs and opportunities.

The Canadian Forest Service of NRCan is disseminating adaptation information and tools to the public as they become available. In addition, trends and projections are being provided based on a logical and cohesive set of indicators of the effects of climate change on forests and forest management systems. Actionable science and decision-quality information relevant to competitiveness under a changing climate, including a range of knowledge products such as maps, synthesis reports, guidebooks, climate projections and decision-support systems are available via the above website. Multidisciplinary information and knowledge on past and projected climate change impacts is being analysed to produce an integrated assessment of the implications of climate change on Canada's forest and forest industry under a range of future, "what-if" climate scenarios. The integrated assessment will identify potential areas and timing of vulnerabilities to inform policies and investment by the public and private sectors. Future work will use this integrated approach at a more regional level, particularly in vulnerable regions.

Provincial and territorial governments are also continuing to advance adaptation of sustainable forest management activities. Within several jurisdictions, vulnerability assessments are being conducted at the forest management unit and regional level as a basis for incorporating climate change considerations into day-to-day management activities. Through the Forestry Adaptation working group of the Adaptation platform of NRCan, a Compendium of Forest Adaptation activities in Canada was developed to document what is currently happening within Canadian organizations or jurisdictions with respect to policy and regulation on forestry adaptation, and

new forest management practices that incorporate climate change considerations. Also, membership of FACoP is growing and has facilitated the sharing of best practices and lessons learned in adaptation among researchers, policy-makers, and forest managers across Canada.

International efforts

Following years of negotiations under the United Nations Framework Convention on Climate Change (UNFCCC), the international community reached a new, universal climate agreement that requires actions from all countries. With the adoption of the Paris Agreement in December 2015, countries indicated a collective will to accelerate and intensify the actions and investments needed to limit global average temperature rise to well below 2°C and pursue efforts to limit the increase to 1.5°C. As part of the new agreement, countries committed to putting forward their own emissions reductions targets, known as nationally-determined contributions, as well as raising the ambition of their efforts over time.

Canada continues to actively participate in UNFCCC negotiations, including on the implementation of the Paris Agreement which will come into effect in 2020. In these negotiations, Canada supports inclusion of forest and other lands in a manner that contributes to reducing anthropogenic emissions and enhancing carbon removals, and that strengthens incentives for sustainable land management, while taking into account national circumstances.

Canada has also participated actively in international negotiations under the UNFCCC on the development of a methodological framework to Reduce Emissions from Deforestation and Forest Degradation and to enhance sustainable forest management in developing countries (REDD+). The Warsaw Framework for REDD+ was agreed in December 2013, and the final set of methodological guidance was adopted in December 2015. Canada also participated in the REDD+ Partnership, a global voluntary initiative which was launched in 2010 to build momentum for REDD+, and which completed its work in December 2014. In September 2014, Canada endorsed the New York Declaration on Forests which has a global goal to halve the loss of forests by 2020 and to end net deforestation altogether by 2030. In December 2015, on the margins of the Paris climate conference, Canada participated in the #StandWithForests event to signal ongoing support for efforts to reduce global deforestation, particularly in developing countries.

Canada has also demonstrated its commitment to addressing climate change by providing international climate finance in support of mitigation actions by developing countries and support for adaptation by the poorest and most vulnerable countries. Canada fully delivered on its fast-start financing commitment by providing \$1.2 billion over 2010-2013, including funding for the Forest Carbon Partnership Facility, the Congo Basin Forest Fund, the Congo Basin Forest Partnership, and the BioCarbon Fund. More recently, Canada also announced a \$300 million contribution to the Green Climate Fund, which is aimed at supporting projects, programs, policies and other activities to address climate change in developing countries, including REDD+. In November 2015, Canada announced a new climate finance package valued at \$2.65 billion over five years.

Domestic Emission Reduction Efforts

In May 2015, Canada announced its intended Nationally Determined Contribution (NDC) pledge to achieve an economy-wide reduction in GHG emissions by 30% below 2005 levels by 2030. As part of this, Canada indicated that it intends to account for its land sector, account for harvested wood products, and exclude the impacts of natural disturbances. This pledge is in addition to Canada's existing commitment to reduce GHG emissions by 17% compared to 2005 levels by 2020.

In October 2015, a new Federal government was elected and it committed to working closely with provinces and territories on a range of issues, including on climate change. In March 2016, First Ministers released the Vancouver Declaration in which the federal, provincial and territorial governments agreed to create a pan-Canadian framework for clean growth and climate change. The framework will build on actions already being taken by provinces and territories, as well as the momentum of the Paris Agreement, by developing a concrete plan to achieve Canada's international commitments. Under this process, federal and provincial/territorial officials have been working to identify mitigation options in various sectors, including the forest sector, for consideration by First Ministers later in 2016, and the federal government provide a mechanism for public input. This work is expected to inform Canada's final NDC, which will be submitted upon ratification of the Paris Agreement.

Environment Canada's most recent *Canada's Emissions Trends* report (December 2014) detailed projections of progress toward Canada's 2020 GHG emissions reduction target. The report shows that Canada's 2020 GHG emissions are projected to be 130 Mt lower relative to a scenario with no action. The projected reduction is a result of collective action by governments, consumers and businesses. Emissions intensity (emissions per dollar of GDP) has shown an average annual decline since 1990, a trend that is projected to continue to 2020. Emissions per capita (tonnes per person) have also been decreasing since 2005, and this is also projected to continue to 2020. However, the projections also indicate that further efforts will be required in order to meet the 2020 target.

Canada's *Second Biennial Report* to the UNFCCC, which was released in February 2016, provided an update on Canada's progress toward its 2020 emissions reductions target. The report noted that emissions in 2013 were 23 Mt (3%) below the 2005 level. The report also noted that Canada was in the process of developing an estimation methodology that focuses on anthropogenic Land use, Land-use change and Forestry (LULUCF) emissions and removals and removes the impacts of natural disturbances (e.g., forest fires, insect infestations) from estimates reported in the National Greenhouse Gas Inventory. As this work was ongoing at the time of publication, Canada did not provide LULUCF projections in the Second Biennial Report.

Canada expects that the LULUCF sector will provide an important contribution to its broader climate change mitigation efforts. The role of provincial and territorial governments is vital as they own 90% of Canada's forests, and federal, provincial and territorial governments are currently exploring how best to achieve forest-related mitigation. Analyses of how mitigation actions involving Canada's managed forests could contribute over the longer term were published in 2014 (<http://www.biogeosciences.net/11/3515/2014/bg-11-3515-2014.pdf>) and

2016 (<http://onlinelibrary.wiley.com/doi/10.1111/gcbb.12387/full>). Examination of forest-related mitigation potential is on-going, including mitigation related to changes in forest management; increased afforestation; increased use of harvested wood for long-lived products as a substitute for products that are more emissions intensive (on a life-cycle basis); and, increased use of harvest residues for bioenergy in place of fossil fuels. With respect to wood use, on-going efforts to promote the use of wood in mid-rise and tall building applications in Canada (see Market Drivers section) are expected to have mitigation benefits.

Provincial/Territorial Actions

In June 2012, the Government of Quebec launched its *Climate Change Action Plan 2013-2020*. The Plan included the allocation of \$2.7 billion for climate change mitigation and adaptation programs to work toward a GHG reduction target of 20% below 1990 levels by 2020. In 2013, a GHG cap and trade system began operating in Quebec and linked with California's trading system in 2014. Other measures under the Plan include the establishment of green building standards and promotion of renewable energy. Quebec's *Programme de biomasse forestière résiduelle* finances projects to use residual forest biomass for energy. In November 2015, Quebec adopted a 2030 target of a 37.5% reduction below 1990 levels, based on the outcomes of a public consultation process on climate change targets.

In April 2015, Ontario announced its intention to implement a cap-and-trade system as a key component of a new climate change strategy. The following month, the province announced a new 2030 GHG emission reduction target of 37% below 1990 levels and reiterated its commitment to the existing 2020 and 2050 targets. The Government of Ontario's *Climate Change Action Plan* was released in 2007 and included a set of short-term (6% below 1990 levels by 2014), medium-term (15% below 1990 levels by 2020), and long-term (80% below 1990 levels by 2050) targets for reducing the province's GHG emissions. The plan included a 50 Million Tree Program to plant trees on the settled landscape of southern Ontario, which is expected to sequester 6.6 Mt CO₂ by 2050 and help restore forest cover on this fragmented landscape. As well, the Ontario Greenbelt Plan has identified about 725 thousand hectares of prime agricultural land and environmentally-sensitive areas for permanent protection from urbanization. In November 2015, Ontario released its Climate Change Strategy (<https://dr6j45jk9xcmk.cloudfront.net/documents/4914/climate-change-strategy-report.pdf>), which outlined key actions including climate legislation that would establish a long-term framework for action, implement its cap-and-trade system, and expand its capacity for renewable energy. As part of the plan, Ontario will develop an approach to assess emissions and removals from agriculture, forestry and other land uses. Under the cap and trade system, emitters are allowed to purchase offset credits to use to fulfill part of their compliance obligation (i.e., to offset their emissions). It is expected that forestry and agriculture are sectors from which emitters will eventually be able to purchase offsets to comply with program rules.

In November 2015, Manitoba released its Climate Change and Green Economy Plan (<https://www.gov.mb.ca/conservation/climate/pdf/mb-climate-change-green-economy-action-plan.pdf>) establishing new GHG emission reduction targets, and signaled its intent to develop a new cap-and-trade program for large emitters.

In November 2015, the Alberta government released its new Climate Leadership Plan (<http://www.alberta.ca/climate-leadership-plan.aspx>) based on an Advisory Panel's recommendations (<http://www.alberta.ca/documents/climate/climate-leadership-report-to-minister.pdf>). The Climate Leadership Plan includes a \$20/tonne carbon price starting in 2017 that will rise to \$30/tonne the following year and increase in real terms each year thereafter. Out to 2020, the Alberta carbon levy is expected to raise \$9.6 billion, all of which will be reinvested in the Alberta economy. \$3.4 billion of the revenues will be allocated for large scale renewable energy, bioenergy and technology under the broader goals of diversifying the Alberta energy industry and creating new jobs. In 2011, the province implemented a Renewable Fuels Standard to accelerate the use of fuels derived from renewable sources.

In Paris, in December 2015, Ontario, Manitoba and Quebec signed a Memorandum of Understanding signalling their intentions to share information and link their cap-and-trade programs. This effort will strengthen and expand the coverage of the Western Climate Initiative. Quebec and California are currently the only two members of the WCI that have implemented cap-and-trade systems and linked them to create North America's largest carbon market. Following its signing, this Memorandum of Understanding was recognized as an important initiative by the Secretary-General of the Organisation for Economic Co-operation and Development. It should be noted that the carbon market revenues are entirely reinvested in mitigation and adaptation measures in the specific province.

Also in December 2015, the Government of Yukon released its Climate Change Action Plan Progress Report (http://www.env.gov.yk.ca/air-water-waste/documents/CCAP_progressreport_eng_2015.pdf). The report includes updates on existing commitments, provides information on actions taken beyond the original commitments, and details new actions and initiatives moving forward to help achieve the government's existing goals. The report also presents a summary of forest research programmes undertaken to date, as well as plans for future forest-related research.

In August 2016, the Government of British Columbia released its Climate Leadership Plan (https://climate.gov.bc.ca/wp-content/uploads/sites/13/2016/06/4030_CLP_Booklet_web.pdf) The plan highlights the first set of actions that help meet British Columbia's 2050 emissions reduction target, while building a clean economy. To enhance the carbon storage potential of British Columbia's public forests, the plan commits to rehabilitation of under-productive forests; recovery of more wood fibre; and reducing the emissions from the burning of wood slash. The Climate Leadership Plan includes a Low Carbon Fuel Standard of 15 per cent by 2030 relative to 2010, which builds on the standard of 10 per cent by 2020. Under the Climate Leadership Plan, the Government of British Columbia will work with the federal government and provincial and territorial partners to establish and implement coordinated climate action plans and more actions will be announced in the future.

Major Forest Pest Disturbances in Canada

The Spruce Budworm Infestation in Eastern Canada

Spruce Budworm (SBW) is one of the most damaging pests in North America, with most regions of Canada reporting damage by defoliation each year. During periods of major outbreaks, SBW causes disruptions to the forest industry and affects jobs, recreation and tourism, especially for those communities and regions that are heavily forest-sector dependant. The last extensive outbreak of Spruce Budworm in Canada reached its peak in the 1970s, and covered more than 50 million hectares across Quebec, Ontario, and Atlantic Canada, resulting in fibre losses of approximately 500 million m³ of spruce and fir, with a commercial value of approximately \$12.5 billion in Quebec alone.

The most recent Spruce Budworm outbreak began in 2006 in Quebec and as of 2014 had already spread to cover more than 4.2 million hectares; with the potential to spread further through Canada's Atlantic provinces and the eastern United States. Due to the potential negative effects of an outbreak in eastern Canada, the federal government is working with provincial partners, industry, and academia to test and evaluate early intervention strategies aimed at minimizing the extent of the epidemic by targeting high-population Spruce Budworm epicentres.

The Mountain Pine Beetle Infestation in Western Canada

The Mountain Pine Beetle is a native insect that attacks pines in Western North American forests and the infestation has caused widespread timber losses in the province of British Columbia. Since the current beetle epidemic started in the early 1990s, it has killed more than 50% of British Columbia's commercial pine volume, largely dense stands of lodgepole pine in the central interior of the province.

The beetle has since spread far beyond its historic range into northern British Columbia and eastward into the boreal forest of north-central Alberta. Scientists are assessing the risk that the beetle may continue to spread eastward across Canada's boreal forest. Because of the vital role the forest industry plays in Canada's economy as a whole, and the growing threat the beetle poses to forests throughout Western Canada, the Government of Canada is concerned about the impact of the beetle infestation on forest communities and is working in collaboration with the provinces, territories, stakeholders and communities across Canada to respond to the challenges it poses.

Trade Policy

In addition to the *North American Free Trade Agreement* with the United States and Mexico (1994), Canada has free trade agreements in force with Korea (2015), Honduras (2014), Panama (2013), Jordan (2012), Colombia (2011), Peru (2009), the European Free Trade Association (2009), Costa Rica (2002), Chile (1997) and Israel (1997). Negotiations are currently concluded with Ukraine (2016), the TransPacific Partnership (2015) and the European Union (2014).

Negotiations for free trade agreements are underway with Japan as well as with Morocco, the Caribbean Community, Dominican Republic, India, Singapore, Guatemala, Nicaragua and El Salvador. Negotiations are also underway to modernize the existing free trade agreement with Costa Rica. Finally, Canada is engaged in exploratory trade discussions with Turkey, Philippines, Thailand and Mercosur.

Phytosanitary Measures

Canada is a strong supporter of the International Plant Protection Convention (IPPC) and is active in the development of regional and international phytosanitary standards (e.g. wood packaging standard, ISPM No. 15, and the draft international movement of wood standard). Canada has demonstrated leadership in implementation of wood-related standards through the development of certification systems for wood exports and for wood packaging. The Canadian Heat Treated Wood Products Certification Program (CHTWPCP) is the official certification system for the export of wood products to countries requiring heat treatment prior to entry. The Canadian Wood Packaging Certification Program (CWPCP) certifies that the wood packaging materials for export satisfies the international requirement of ISPM-15.

Canadian experts continue to take an active role in international fora related to phytosanitary measures, including: the North American Plant Protection Organization (NAPPO), the International Plant Protection Convention (IPPC) and the International Forest Quarantine Research Group (IFQRG). Phytosanitary scientific research is conducted nationally and coordinated internationally to ensure that import regulations for internationally traded wood commodities are based on the best available science.

III. Market Drivers

The Canadian forest sector continues to emerge from the global economic downturn of 2008/09. Recovery in the sector has been driven by growing demand from Asia (particularly by China) for wood products and a strengthening of the U.S. housing market. More recently, over the course of 2013 to present, the weakening of the Canadian dollar also facilitated exports from Canada and supported solid profit margins for Canadian producers.

The current wealth of the sector is still dependant on the traditional market (the US) and on traditional uses of wood (pulp, paper and softwood lumber). However, the ongoing strength of emerging markets has maintained a significant trend of market diversification over the past decade. While in 2004, 79.5% of forest product exports were destined to the U.S., this percentage has dropped to 68.6% in 2015. The demand for wood products and wood pulp in Asia, and China in particular, has grown significantly over the course of the past decade as a result of rapidly developing economies. As a result, the value of Canadian wood product exports to China has increased by 1400% through 2005 and 2015. Likewise, the demand for Canadian pulp has been strong in China which has seen exports increase by 276% between 2005 and 2015. Overall, the share of forest products exports destined to China increased from 2.4% in 2005 to

22.64% in 2015. Unlike pulp and wood products, China is not a big market for Canadian paper products since they produce their papers domestically or import mostly from the U.S. Canada's forest sector still faces challenges such as fibre supply availability in some regions and the rapidly declining demand for some of the major pulp and paper products. In addition, the reliance on exports exposes the sector to risks from currency fluctuations, lower cost overseas competitors, trade disputes, and long transportation routes/costs.

Emerging Opportunities

While many traditional markets for Canadian forest products are mature, there are still opportunities for growth by pursuing developing or emerging markets. This also includes increased use of wood in non-residential and mid-rise construction and expanding offshore export opportunities for Canadian wood products in emerging markets. Furthermore, consumer preferences and government priorities to move toward a clean, low-carbon economy are increasing market demand for sustainably-produced forest products, such as engineered wood products that store carbon for the lifetime of the building and bioproducts and bioenergy that substitute for fossil fuel based products. The bioeconomy in Canada is still a nascent but rapidly expanding sector with innovations and opportunities in new materials, new processes, and more value-added uses from forest fibre.

Energy Prices

Oil prices have remained soft as OPEC oil producing states have ramped up production in a bid to maintain market share in 2015-2016. After the price of oil (West Texas Intermediate) peaked at over US\$100 per barrel in 2014, it collapsed to a low of US\$30.35 per barrel in February 2016 and has since recovered slightly to US\$44.75 per barrel in August 2016. Significant increases in oil production over the past decade in North America coupled with ramped up production in OPEC states in a bid to maintain market share have kept oil prices low, though a preliminary deal in September 2016 among OPEC nations to cut oil production may boost prices moving forward.

Natural gas prices remain weak in North America due to an oversupply in the market. The National Energy Board anticipates that the North American natural gas market will remain saturated from 2015 to 2017. Propane prices have also seen significant declines due to excess supply in the market. Liquid propane prices are almost half of peak prices in 2014, fluctuating at around CAD\$0.60 per litre.

Lower energy costs have a mixed impact on the competitiveness of the forest industry. For traditional wood products, the lower cost of transportation and oil-based resins (an input material for certain panels and engineered wood products) have improved margins; however, the cheap cost of natural gas puts many bioenergy producers as well as pulp and paper mills running on bioenergy at a pricing disadvantage.

Exchange Rates

Exchange rates continue to benefit the forest industry since most Canadian forest products are sold in U.S. dollar terms while the sector pays most of its costs in Canadian dollars. The Canadian dollar appreciated against the U.S. dollar between 2009 and 2012, to reach parity in 2012. It decreased over the course of 2013 to US\$0.97 and 2014 to US\$0.91. The Canadian dollar value decreased significantly in 2015 to US\$0.78, in large part due to the weakness in oil prices coupled with two Bank of Canada interest rate cuts and a rate hike by the U.S. Federal Reserve. However, the CAD-USD exchange rate stayed fairly stable through 2016, averaging US\$0.77 in August 2016.

Outside of the U.S. market, the exchange rate has been less beneficial to Canadian forest products' competitiveness. In recent years, other countries' currencies—such as the Russian Ruble and the Euro—have depreciated against both the Canadian and US dollars. As a result, Canadian producers have had to contend with increased competition and lost market share in some international markets, such as China.

US Housing Market

The U.S. housing market is a major driver behind softwood lumber and wood panel demand in North America. The U.S. housing market has strengthened considerably from the depths of economic recession, though the recovery continues to be slower than anticipated. Starts have grown considerably since 2012, when they totalled 784,000 units, to 1 million units in 2014 and 1.1 million units in 2015. In the first 7 months of 2016, annualized starts averaged 1.2 million units. This level of housing starts is still below the long-term (20 year) average of 1.4 million annual starts, with a higher proportion of multi-family housing starts (about 35%) than the historical average (25-30%). The higher instance of multi-family housing starts further dampens softwood lumber demand, as single family homes use many times the amount of structural lumber than multi-family units.

National Building Codes Changes In Support of Wood in Mid-Rise Building and Tall Wood Construction

As given in last year's report, in late March 2015, new provisions that allow wood-frame construction up to six storeys at the national level were unanimously approved by the Canadian Commission on Building and Fire Codes. The changes are reflected in the 2015 edition of the *National Building Code of Canada (NBCC)*. The 2015 edition of the NBCC was published earlier in 2016.

These new mid-rise provisions will better enable the construction of larger and taller wood buildings and will help foster greater use of wood in public and private buildings across Canada. NRCan, along with the Canadian Wood Council (CWC), FPInnovations, the National Research Council (NRC), the governments of British Columbia, Ontario and Quebec, and a number of provincial and municipal authorities, played a key role in influencing these code changes.

These code changes can have a substantial impact on the way mid-rise buildings are constructed and hence the Canadian wood industry's competitiveness by creating new demand for wood products. For example, since these changes have been implemented in British Columbia in 2009, over 269 mid-rise projects have been initiated (each project can comprise multiple buildings). Of the total, 68 projects are completed, 51 are under construction and 150 are in various planning stages.

NRCan, CWC, NRC and FPInnovations continue to work together to demonstrate the performance of wood looking towards even taller wood buildings with the 2020 edition of the NBCC. The code change and process have already started and NRCan has kicked start the code change process by contributing to facilitating the establishment and meetings of the various TGs focused on discussing the code change requested submitted by industry partners (e.g., CWC).

IV. Developments in Forest Products Markets Sectors

Bioenergy in the forest sector

In 2013, bioenergy from wood and wood waste accounted for the second largest share of renewable energy production after hydro-electricity. The Canadian forest sector makes widespread use of forest biomass in the cogeneration of heat and power for use in industrial processes and sale to 3rd parties.

Bioenergy accounted for 60% of forest sector energy use in 2013, up from 49% in 2000. Between 2000 and 2013, the sector has also reduced its energy consumption by more than 29% and its fossil fuel consumption by more than 44%. Cleaner fuels and more energy efficient processes have helped the forest sector to reduce its GHG emissions by more than 50% during the same period.

In 2015, the biomass installed generating capacity in the pulp and paper facilities was 4,116 MW for the production of heat and 1,507 MW for the production of power. Independent power producers are also using biomass as a fuel; this sector has a production capacity of 622 MW for power and 187.8 MW for heat.

The wood pellets industry is a growing subsector of the Canadian forest industry. Canada's wood pellet production capacity has grown from 500,000 tonnes in 2002 to 3.33 million tonnes in 2015. Production was over 2.57 million tonnes in 2015 and exports were representing 63% of the total production. The UK is the main destination for Canadian exports with a total of 1,206 million tonnes (74% of total Canadian exports).

Canadian wood pellets are produced in a sustainable way; 87.5% of the wood pellet production is from mill residues. The domestic market is still small (estimated at a maximum of 433,000 tonnes in 2015) and the conversion of two coal-fired power plants into wood pellets fired power plants in Ontario (Atikokan and Thunder Bay) did not stimulate the domestic demand because

those power plants are only used for peak demand. In the short and medium terms, demand for Canadian wood pellets will likely be affected by the Province of Alberta's decision to close all its coal fired power plants by 2030, by the content of the new European Union Renewable Energy Directive (2020-2030) and by new markets like Japan and South Korea.

Developing liquid fuels from biomass continues to be an important focus for Canada. The Federal Fuel Regulation has required since December 2010 the blending of a minimum of 5% ethanol in gasoline, as well as the addition of 2% of biodiesel into diesel since July 2011 (Unlike in the U.S., there is no separate cellulosic biofuel element). In addition, provincial mandates are increasing the total demand for ethanol in Canada where the total consumption is closer to 6.8% to 7% of the total gasoline consumption.

Biojet fuel is also attracting some interest and could play an important role in reducing Canadian GHG emissions in Canada.

Value-Added Wood Products²

Market acceptance of Engineered Wood Products (EWPs) —the shift from larger dimension lumber to EWPs and the shift from stick-built homes to factory-built homes— contributed to the significant growth of this segment that began in the mid-1990s.

In 2015, Canada exported about \$3.4B of value-added products with the majority of it supplying the US market (97%). The value of total exports of value-added wood products increased 24% compared to the year prior.

Sawn Softwood (also known as softwood lumber)

Since the marked improvements between 2009 and 2010, sawn softwood production has continued to recover but at a slower pace. In 2015, Canada produced 62.97 million cubic metres of sawn softwood, a 21% increase compared to 2010; however the production level has not yet reached the pre-recession levels. North American sawn softwood prices increased substantially, growing 35% over 2010 to 2014, due to the strengthening U.S. housing market, along with increasing demand from China. However, the prices fell in 2015 by 13% compared to 2014 as production capacity ramped up while U.S. housing starts fell short of projections, resulting in a period of oversupply that took months to absorb.

The U.S. remains the primary destination for Canadian sawn softwood exports. While the pace of demand growth is tapering, the U.S. demand for Canadian softwood lumber is still rebounding thanks to improvements in the housing market. In 2015, Canada exported 31 million cubic metres of sawn softwood to the U.S. an increase of 9% over 2014. However, the stand still period established by the 2006 Canada-U.S. Softwood Lumber Agreement expires in October

² In the Canadian context, the value-added wood products group includes wood windows and doors, factory-built homes, millwork and joinery products, shingles and shakes, containers and pallets, wooden furniture, engineered wood products (EWPs) such as I-beams and roof trusses, and other structural products.

2016 and uncertainties about the future of a Canada-U.S. agreement are impacting the sawn softwood prices and the export levels to the U.S.

China is still a significant offshore market for Canadian sawn softwood products as exports have increased tremendously over the span of a decade. From 2005 to 2015, sawn softwood exports to China increased by almost 2500% on a volume basis. However in 2015, the Canadian sawn softwood export volume to China decreased by 14% compared to 2014 and in the first six months of the 2016, exports further decreased by 8% compared to the same period in 2015. Slower growth in China and increased competition from Russian and European producers have contributed to the decline of Canada's sawn softwood market share in China. Nonetheless, with continued urbanization and economic growth, as well as increasing environmental conscientiousness, China will likely remain a key market for sawn softwood in the years to come.

Oriented Strand Board

OSB represents a large portion of Canada's total structural panel exports (about 90%). Given that 94% of OSB is destined for the U.S. market, and in particular goes towards housing construction end-uses, OSB exports suffered during the downturn in the U.S. housing market that began in 2008, but have started growing again thanks to a recovery that has gained traction. Between 2009 and 2015, total exports of Canadian OSB grew by 85% by volume. In 2014, OSB production was significantly outpacing the demand and OSB prices were struggling. However, in 2015 the export levels increased by 17% due to strong demand and the OSB prices started showing signs of growth in the first six months of 2016 (17% increase compared to 2015).

Paper and Paperboard

The value of Canadian paper and paperboard exports has increased since 2012. The Canadian paper and paperboard products export revenues increased by 6% in 2015 compared to 2014 in part due to the exchange rate and in part due to the increasing demand for packaging and tissue which somewhat offset the declining export revenues from newsprint and printing and writing papers. . The main issue facing paper and paperboard producers lies in the demand outlook for newsprint and other graphic paper, which is dire. In fact, demand for all types of paper used to communicate printed information is declining, due to the transition towards electronic media, particularly in the U.S. In addition, an ongoing trade dispute with the U.S. further challenges the competitiveness of some Canadian paper exports. In July 2015, the U.S. Department of Commerce imposed tariffs on Canadian supercalendered paper based on allegations that Canadian exporters receive subsidies. On the positive side, the weaker Canadian dollar has enhanced the sector's competitiveness in the U.S.

There are some segments facing positive outlooks such as packaging paper and household and sanitary papers. However, given the decline in newsprint and other graphic paper demand around the world, a large number of producers are converting from graphic paper to packaging, tissue

and specialities, increasing the competition and depressing growth potential for new entrants in these sub-segments.

Wood Pulp

In 2015, the volume of Canadian wood pulp exports increased by 4% while the value of overall Canadian wood pulp exports actually increased by 7% compared to 2014. The improved performance in 2015 was largely due to a weaker Canadian dollar and strong Asian demand.

The volume of Canadian pulp exports to China has grown by 148% from 2005 through 2015 and China has surpassed the U.S. to become Canada's number one pulp export market since 2012, accounting for 48% of Canadian wood pulp exports (exports to US accounted for 31% of total) in 2015. The Canadian wood pulp export to China increased by 16% in 2015 while the exports to the U.S. were down by 5%.

The Chinese market is expected to keep growing, fuelled by two main factors: first, China has greatly expanded its paper capacity and this is contributing to increased demand for pulp). Second, China has significantly reduced its domestic non-wood pulp capacity (e.g. reed, bamboo and bagasse), causing Chinese paper producers to further source pulp supplies from international markets. The drive to reduce inefficient, highly polluting non-wood Chinese pulp capacity will likely continue.

However, the market share of Canadian wood pulp producers in China could decline in the future due to an influx of low-cost foreign competition. For instance, Southern Bleached Softwood Kraft (SBSK) and Bleached Eucalyptus Kraft (BEK) are not perfect substitutes for Canadian Northern Bleached Softwood Kraft (NBSK), but they have become established as partial substitutes in some (primarily Asian) paper markets. While products requiring premium reinforced pulp cannot utilize SBSK or BEK as a substitute, producers of non-premium products may be willing to sacrifice some quality and substitute SBSK or BEK if the price differential to NBSK is sufficiently large. We expect SBSK and BEK substitution for NBSK in China to increase for uses that do not require premium strength. In addition, new NBSK capacity coming from Europe and Russia are suppressing Canada in the pulp sector especially for the NBSK.

Dissolving pulp demand has been steadily growing for several years, primarily driven by the textile industry. China is the primary market for Canadian dissolving-pulp exports (30%) followed by India (20%) and Indonesia (13%). However, Canadian exports to China were down 42% in 2015 relative to 2014, mainly due to the anti-dumping duties imposed by China against Canadian producers.

Overall, low-cost producers, new capacities coming from Europe and Russia and the trade dispute with China are all affecting the Canadian pulp sector, which could lead to mill closures and a reduction in the pulp supply and export revenues, unless more market diversification (new products as well as new countries) is pursued.

Appendix

Statistics and Prospects

* Figures for 2016 and 2017 are estimated/forecasted

Sawn Softwood (000 Cubic Metres)

	2014	2015	2016*	2017*
Production	41,891	45,360	48,149	46,404
Apparent consumption	13,543	16,179	16,060	15,698
Imports	595	1,091	1,148	1,159
Exports	28,943	30,272	33,237	31,864

Coniferous Veneer and Sawlogs (000 Cubic Metres)

	2014	2015
Imports	2,147	2,468
Apparent consumption	111,685	112,727
Exports (Total)	6,222	5,501

Sawn Hardwood (000 Cubic Metres)

	2014	2015	2016*	2017*
Production	1,460	1,754	1,769	1,658
Apparent consumption	1,598	4,193	1,985	1,971
Imports	700	2,960	754	881
Exports (Total)	562	521	538	568

Oriented Strandboard (OSB) (000 Cubic Metres)

	2014	2015	2016*	2017*
Production	6,877	7,074	7,728	8,159
Apparent consumption	2,607	2,467	2,336	2,336
Imports	134	183	177	178
Exports (Total)	4,404	4,790	5,569	6,001

Plywood (000 Cubic Metres)

	2014	2015	2016*	2017*
Production	1,810	1,929	1,935	1,893
Apparent consumption	2,914	2,942	2,912	2,990
Imports	1,587	1,550	1,532	1,610
Exports (Total)	482	537	555	513

Particleboard (000 Cubic Metres)

	2014	2015	2016*	2017*
Production	8,587	8,796	9,540	10,107
Apparent consumption	4,345	4,324	4,061	4,094
Imports	1,036	1,227	1,053	999
Exports (Total)	5,278	5,699	6,532	7,012

MDF (000 Cubic Metres)

	2014	2015	2016*	2017*
Production	849	970	1,020	1,175
Apparent consumption	718	660	579	729
Imports	451	392	369	354
Exports (Total)	582	702	810	800

Fibreboard (000 Cubic Metres)

	2014	2015	2016*	2017*
Production	1,361	1,054	1,104	1,259
Apparent consumption	1,446	857	788	931
Imports	760	601	565	543
Exports (Total)	676	798	882	872

Wood Pulp (000 tonnes)

	2014	2015	2016*	2017*
Production	17,277	16,552	16,658	16,733
Apparent consumption	7,886	6,973	6,849	6,621
Imports	289	333	416	360
Exports (Total)	9,680	9,912	10,225	10,472

Paper and Paperboard (000 tonnes)

	2014	2015	2016*	2017*
Production	10,755	10,257	10,014	9,760
Apparent consumption	5,003	5,309	5,024	4,750
Imports	2,641	2,670	2,637	2,631
Exports (Total)	8,412	7,618	7,627	7,641

n/a – Data are unavailable

Figures in grey shading and blue font indicate revised 2015 data

Note 1: Figures above have been adjusted to reflect actual volumes as opposed to nominal. Figures are consistent with those provided for the *2015 UNECE Timber Committee Forecasts (Forest Products)*.