

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

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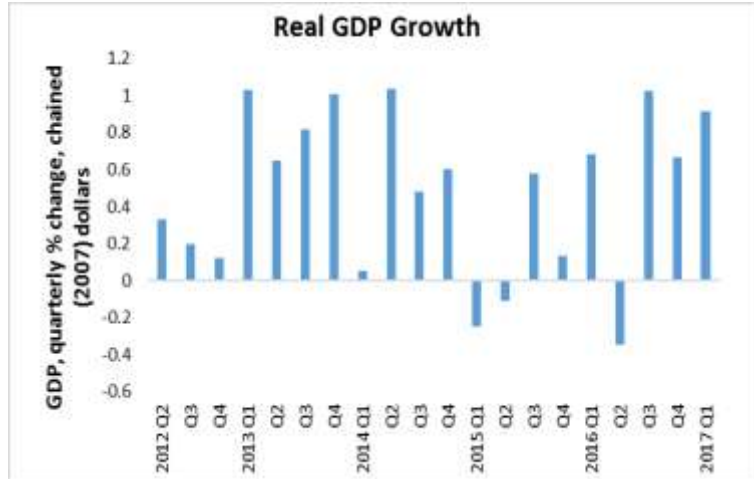
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CANADA

I. An Economic Overview

General Economic Conditions

Canada’s economy continued its growth momentum into 2017 amid improved global economic conditions. The Canadian economy, measured by Real Gross Domestic Product (GDP), grew by 0.7% in the last quarter of 2016 and a further 0.9% by the first quarter of 2017, driven by consumer spending and business investment, particularly in the energy sector.



Source: Statistics Canada

GDP is projected to grow by 2.6% in 2017 and 1.9% in 2018.

Continued recovery in Canada’s largest trading partner, the United States, is expected to support Canadian exports, but increasing trade protectionism within the U.S. has created a more uncertain environment. Canadian federal government investments in infrastructure, renewable energy, and clean technology will contribute to economic growth and support Canada’s commitment to working towards a low carbon economy, consistent with global goals of limiting the increase in global average temperature well below 2°C degrees above pre-industrial levels and aiming to limit the increase to 1.5°C, under the Paris Agreement.



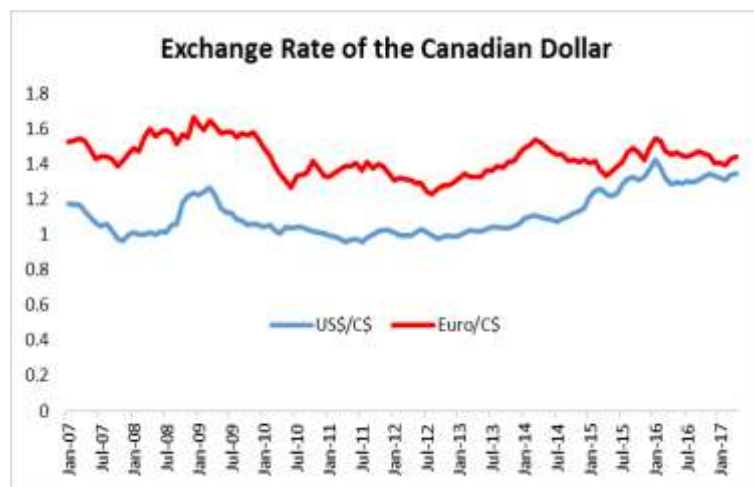
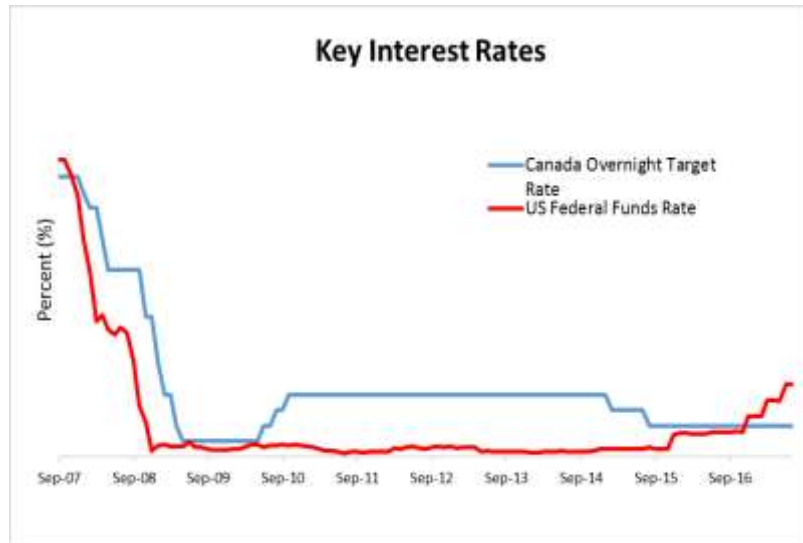
Source: Statistics Canada

One of Canada’s main economic indices, housing starts, has been strong in recent years. This, coupled with record levels of household debt, has led to widespread concerns that the growth in home prices is unsustainable. Home prices continued to rise in June 2017, with Canada’s aggregate housing price up 11% year-over-year, largely driven by Toronto (up 22.8%) and Victoria (up 18.3%). Toronto’s housing prices have soared over the last year, narrowing the gap with Vancouver. In contrast, prices in other parts of Canada increased marginally, and prices

were down 0.9% in St. John’s and flat in Saskatoon. Going forward, the housing market in Canada is expected to cool following recent policy changes in Ontario, the *Ontario Fair Housing Plan (April 2017)*, poor affordability in some markets, and rising interest rates.

Labour market continues to improve in Canada. Employment was up 352,100 (+1.95%) in July 2017, compared to August 2016. The unemployment rate has also fallen over half a percent point since August 2016 to 6.3%. However, the youth (ages 15-24) unemployment rate is 11.1%, significantly higher than the unemployment rate for people aged 55 and older (5.7%).

Consumer spending has been strong and remains a significant driver of the Canadian economy. Canadian household final consumption expenditure grew 1.1% in the first quarter of 2017, following a 0.7% gain in the last quarter of 2016. Prolonged low interest rates have supported the Canadian housing market and high household debt levels. In July, the Bank of Canada increased its benchmark interest rate to 0.75% (from 0.5%). Recent softness in inflation has been deemed temporary, and is forecasted to return near the 2% target by mid-2018. July 2017 was the first time in 7 years that the bank has raised its rate, which signals a positive economic outlook in the near term. For context, between December 2007 and March 2009, the Bank of Canada lowered its rate from 4.5% to 0.5% as the nation’s economy weakened with the onset of the global economic downturn. In 2010, the rate 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.

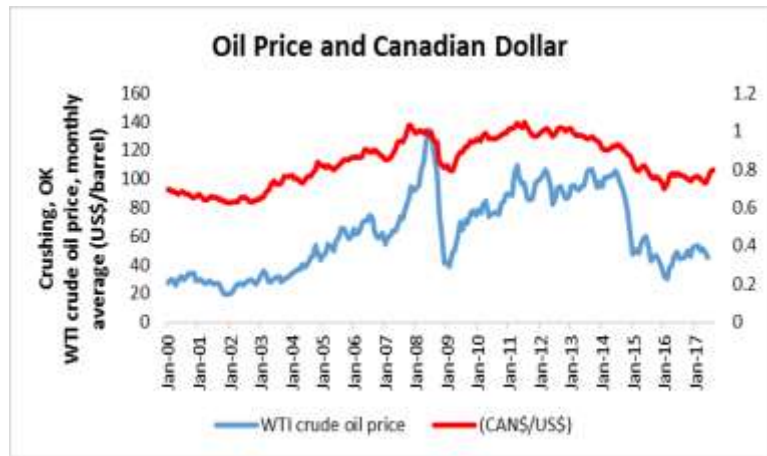


Source: Bank of Canada, US Federal Reserve

The Canadian dollar gained some strength in July 2017 against the US dollar, hitting US \$0.80. However, overall, the Canadian dollar has weakened against the US dollar since 2013, after

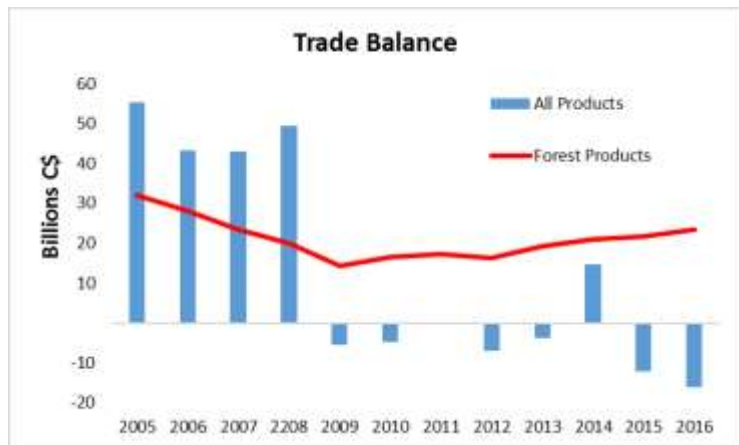
years of strengthening following the U.S. financial crisis. In contrast, the Canadian dollar has remained almost unchanged against the Euro since 2016, with an August 2017 value of \$0.67.

The Canadian-US dollar exchange rate is driven by the relative strengths of the Canadian and U.S. economy, and it is influenced by commodity prices, including the price of oil. 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 U.S. and Canadian fiscal and monetary policies, economic indicators and growth prospects. 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 mid-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 48% and 4% respectively (June 2017).



Sources: US Energy Information Administration, Bank of Canada

Canada’s forest product exports are a major contributor to Canada’s trade balance, even during the financial crisis. In 2016, it stood at \$23 billion, up 8% from 2015. 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.



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, Indigenous 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 2016, Canada had 168 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 \$2 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, the Softwood Lumber Action Plan announced in June 2017 will support market and product diversification for the forest sector by extending the Expanding Market Opportunities Program (\$45M), Investments in Forest Industry Transformation Program (\$55M)

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>.

and Forest Innovation Program (\$63M) until 2019-2020. This plan includes a range of other measures such as the Indigenous Forestry Initiative (\$10M), also extended through to March 2020, to support forest-based economic development for Indigenous communities across Canada.

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: FPIInnovations, the Canadian Wood Fibre Centre, forest biorefinery collaboration and standards development.

FPIInnovations

The Forest Innovation Program (FIP) provides funding to FPIInnovations, 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, FPIInnovations 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 FPIInnovations that conducts upstream research to help set the strategic direction of FPIInnovations. 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 U.S., New Zealand and Australia.

Forest Biorefinery

The Forestry Biorefinery Collaboration brings together the research capacity of NRCan's CanmetEnergy and FPIInnovations, 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 it 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); and,
- Increased competitiveness and economic sustainability (jobs created, jobs secured, new revenue streams for companies, diversification of product portfolios).

IFIT was renewed in June 2017, with an additional \$55 million provided for the program until March 2020. 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 are helping to transform the Canadian forest sector. The program is now finalizing its follow-up report for years 2015-2016, expected to be published in the early fall of 2017.

To date, the program has successfully funded 28 projects involving 13 world-first technologies, with 75% of projects creating new products or diversifying recipients' product offerings. As well, based on current spending by proponents and contributions from other sources, for every \$1 invested by the IFIT program, \$3.17 was leveraged from other sources.

These projects are collectively expected to generate approximately \$367 million per year, with an average per project return on investment of 22.7%. In addition, these projects will also increase renewable electricity capacity by 41 Gigawatt hours/year and decrease greenhouse gas emissions by 210 kilotonnes/year. In terms of employment impacts, these projects are estimated to support approximately 5000 jobs in the forest sector and create 290 total new direct jobs.

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

- Developing the first made-in-Canada Passivhaus wood window system to produce energy-efficient windows for passive houses.
- Developing a portfolio of new, premium value grades of Northern bleached softwood kraft (NBSK) pulp (which have greater fiber bonding performance properties compared to conventional NBSK grades) which can be used to produce tissues, towels and personal care products and also incorporated into non-traditional, growing, and value-added markets such as fiber reinforced materials, including cement applications.
- Implementation of innovative fibre preheating technologies that increase the productivity in two separate particle board and medium density fibreboard facilities.
- The first industrial scale corrugating line to create high-end building materials, furniture and packaging using rejected wood fibers.

Newly funded projects include:

- The installation of a new system designed to use birch wood, a feedstock that is underutilized and typically unusable for this purpose, to produce dissolving pulp, an ingredient that is used in many everyday products, including clothing, car parts and medical equipment.
- Implementation of the first automated Face Laminated Timber manufacturing facility in North America.
- The construction of a biomass enhancement system to produce high-quality wood pellets from previously unusable raw materials.
- The world-first Catalyzed Pressure Reduction™ (CPR™) technology at a demonstration plant in order to make cellulosic ethanol and other fuels and chemicals from wood biomass.
- A new wood fibre screening technology that will enable the production of densified fibre that will be used to make wood-plastic material in various products like interior car door panels. This technology is the first of its kind in Canada.

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 26-fold to \$1.6 billion between 2002 and 2016. 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 \$77.4 million in 2016, an increase of 242.2% 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 2,500 non-residential construction projects in Canada and the United States since 2007, representing an estimated \$1.2 billion in new wood sales for the wood product sector.

The program has also supported the efforts of the National Research Council of Canada (NRC) to undertake scientific research, which led the Canadian Commission on Building and Fire Codes (CCBFC) to unanimously approve new provisions for mid-rise wood construction for up to six 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 tall wood buildings and realized a number of milestones under the Tall Wood Building Demonstration Initiative (TWBDI). Led by NRCan with support from the Canadian Wood Council (CWC), FPInnovations, NRC, provinces and industry, 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 fall 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 in August 2015. The Guide is considered a "pre-approved" alternative solution in the Quebec Building Code making Quebec the 1st jurisdiction in North America to allow and facilitate the approval of mass timber tall wood buildings up to 12 storeys tall.
- 2) The University of British Columbia's Brock Commons Tallwood House: an 18-storey hybrid mass timber super-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 hybrid wood building and as such, is generating huge interest from various stakeholders including designers and developers nationally and internationally.

Results from research and development activities, funded by NRCan and used to support the design and approval process of the two TWB demonstration projects, have been shared widely with the NBCC Code Committee in support of the current code change proposal put forward by CWC to allow 12-storey encapsulated mass timber buildings in the 2020 NBCC code edition.

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. The CCTF has now completed its mandate after 8 years of activity from 2008-2016.

During its mandate, the CCTF developed and disseminated climate change adaptation tools and techniques to the forest sector that were designed to be readily mainstreamed into day-to-day forest management planning and decision-making processes. The tools include an assessment of tree species vulnerability and management options for adaptation, a scalable, nationally-applicable vulnerability assessment framework for sustainable management under climate change, a number of adaptation knowledge syntheses, and a guidebook for mainstreaming climate change into sustainable forest management. These tools, described in a special series of nine reports by the CCFM that are now all available at www.ccfm.org, are currently being field tested through several case studies across Canada.

The attention paid to the impacts of climate change and potential adaptation strategies has remained strong. The CCFM continues to support a Forestry Adaptation Community of Practice (FACoP, <http://www.ccadaptation.ca/facop>) to facilitate the sharing of best practices and lessons learned in adaptation among researchers, policy-makers, and forest managers across Canada.

In 2016, recognizing that business and industry lack timely access to applicable information on climate change impacts and adaptation, the federal government provided renewed funding (over five years) for Clean Growth and Climate Change work. 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 to understand climate change-related risks and address associated costs and opportunities.

The CFS 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 CFS is engaging with stakeholders to discuss the results of this national integrated assessment and developing partnerships to work together and produce regional-level assessments. The goal of this work is for stakeholders to be better informed of potential climate change impacts, become aware of adaptation options, and move forward on implementing adaptation actions.

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. The Forestry Adaptation Working Group of the Adaptation platform of NRCan produced a State of Play report describing current activities within Canadian organizations or jurisdictions with respect to policy and regulation on forestry adaptation, and new forest management practices that incorporate climate change considerations.

International efforts

With the adoption of the Paris Agreement under the United Nations Framework Convention on Climate Change (UNFCCC) 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 reduction targets, known as nationally determined contributions (NDCs), as well as raising the ambition of their efforts over time.

Canada actively participates in UNFCCC negotiations, including on the development of guidance for the implementation of the Paris Agreement, which entered into force in November 2016. In these negotiations, Canada supports the 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 ratified the Paris Agreement in October 2016.

Canada 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 final set of REDD+ methodological guidance under the UNFCCC was adopted in 2015 and, since then, the focus of global REDD+ efforts has been on facilitating

implementation. To that end, Canada has continued to support multilateral REDD+ initiatives such as the Forest Carbon Partnership Facility, to which Canada is a donor to both the Readiness and Carbon Funds. In 2017, Canada has taken a lead role in coordinating consultations on guidance for the operationalization of results-based payments for REDD+ under the Green Climate Fund, a part of the financial mechanism of the UNFCCC.

Canada provides international climate finance in support of mitigation actions by developing countries and support for adaptation by the poorest and most vulnerable countries. In 2015, Canada announced a new climate finance package valued at \$2.65 billion over five years, including a \$300 million contribution to the Green Climate Fund, which is aimed at supporting projects, programs, policies and other activities (including REDD+) to address climate change in developing countries. Further announcements regarding the allocation of the \$2.65 billion package are expected in the coming year.

Domestic Emission Reduction Efforts

In May 2017, Canada submitted its Nationally Determined Contribution (NDC) to the UNFCCC, reconfirming its previous pledge to achieve an economy-wide reduction in GHG emissions by 30% below 2005 levels by 2030. This pledge is in addition to Canada's commitment to reduce GHG emissions by 17% by 2020. Canada's 2017 GHG National Inventory Report (published in April 2017) showed that emissions were 722 Mt CO₂e in 2015 or 2.2% below 2005 emissions. Canada's NDC indicated projected emissions of 742 Mt by 2030, after taking into account policies in place as of October 2016, well above Canada's target of 523 Mt in 2030.

Pan-Canadian Framework on Clean Growth and Climate Change

In March 2016, Canada's First Ministers released the Vancouver Declaration in which the federal, provincial and territorial governments agreed to create an ambitious plan to reduce GHG emissions, create clean jobs and growth, and increase Canada's resiliency to the impacts of climate change. In December 2016, the governments adopted the Pan-Canadian Framework on Clean Growth and Climate Change (PCF). It outlines how Canada will meet or exceed its 30% emission reduction target under the Paris Agreement by taking action in four main areas: 1) carbon pricing, 2) complementary (mitigation) actions to reduce GHGs, 3) adaptation and climate resilience, and 4) clean technology and innovation. The PCF is projected to reduce Canada's emissions to 567 Mt in 2030, with further emission reductions to come from additional measures such as those involving stored carbon.

The PCF includes four specific commitments by federal, provincial, and territorial governments related to forests and mitigation.

1. *Increasing stored carbon* - work together to protect and enhance carbon sinks, including in forests.
2. *Increasing the use of wood for construction* - collaborate to encourage the increased use of wood products in construction, including through updated building codes.
3. *Generating bioenergy and bioproducts* - work together to identify opportunities to produce renewable fuels and bioproducts.

4. *Advancing innovation* - work together to enhance innovation to advance GHG efficient management practices in forestry.

Federal Carbon Pricing Benchmark

The Federal government has established a benchmark to ensure that carbon pricing applies to a broad set of emission sources throughout Canada with increasing stringency over time. The benchmark aims to ensure that all provinces and territories have carbon pricing by 2018, with pricing applied to a common and broad set of emission sources. Provinces and territories have flexibility in terms of implementing an explicit carbon price or a cap and trade system, and all revenues raised will remain in the jurisdiction of origin. The benchmark also includes legislated increases in stringency; for jurisdictions using an explicit carbon price, it should start at \$10 per tonne in 2018 and rise by \$10 per year to \$50 per tonne in 2022, and for jurisdictions using cap and trade, the annual caps should produce emission reductions corresponding to what a carbon price would produce. The federal government will introduce a backstop – an explicit price-based carbon pricing system that will apply in jurisdictions that do not meet the benchmark – and the overall carbon pricing approach will be reviewed by early 2022 to confirm the path forward.

The Low Carbon Economy Fund

To support new provincial and territorial actions under the PCF, the federal government launched the \$2 billion Low Carbon Economy Fund (LCEF) in mid-2017. The LCEF will support projects that meet the following criteria: material reductions in GHG emissions; incremental to existing actions; contribute to meeting Canada's 2030 emission reduction target; and are as cost-effective as possible. Priority areas for action include enhancement of carbon sinks and reducing GHG emissions in the forest sector.

The LCEF has two envelopes. The \$1.4 billion Leadership Fund will support commitments by provinces and territories that have adopted the PCF, with each receiving a specific funding allocation. After approval of provincial/territorial projects, bilateral funding agreements will be put in place starting in the fall of 2017. The remainder of the LCEF funds will support implementation of the PCF and the Low Carbon Economy Challenge in which projects will be selected from among those submitted by provinces and territories, municipalities, Indigenous governments and organizations, businesses and both not-for-profit and for-profit organizations.

The Role of Forests

In its NDC, Canada indicated that it intends to account for the land sector as well as for harvested wood products, and exclude the impacts of natural disturbances. Emissions and removals in Canada's forests reflect large inter-annual variability due to the impact of natural disturbances that mask the impact of forest management activities. Starting with its 2017 National GHG Inventory Report, Canada has applied an improved approach for estimating anthropogenic emissions and removals in managed forests that separates forest stands impacted by anthropogenic and natural drivers. As a result, emissions and removals from stands dominated by the impacts of natural disturbances are now temporarily excluded from GHG inventory reporting until they attain commercial maturity and re-enter reporting as they are actively

considered within forest management planning, or are directly affected by forest management activities (see the 2017 National GHG Inventory Report for details). Canada will also apply this methodology when reporting on forests in its *Seventh National Communication* and *Third Biennial Report* to the UNFCCC, due in late 2017.

As indicated in its NDC, Canada expects that the land sector including forests will provide an important contribution to its broader climate change mitigation efforts. The role of provincial and territorial governments is vital as they own over 90% of Canada's forests, and federal, provincial and territorial governments are currently exploring how best to achieve forest-related mitigation. Analyses of the climate change mitigation potential of Canada's forest sector 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>), both of which helped to inform the PCF process described above. 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.

On-going efforts to promote the use of wood in mid-rise and tall building applications in Canada are having mitigation benefits and a new 4-year \$40 million federal program will begin in early 2018 to further these efforts. Building on the work initiated under the EMO Tall Wood Building Demonstration Initiative, it will seek to catalyze long-term transformational change in which more intensive use of wood becomes a commonly considered option in all construction projects in Canada. It seeks to offset the cost of being the "first mover" of such wood intensive projects, provide guidance and expertise to facilitate their success, and help catalyze a greater awareness of, and domestic capacity for, innovative tall wood buildings and other wooden structures.

Provincial/Territorial Actions

Each of Canada's provinces and territories is taking action to address climate change and reduce GHG emissions, but this section only summarizes actions of the four largest provinces. More details on actions of all provinces and territories will be available in Canada's *Seventh National Communication* to the UNFCCC, which is expected to be released in late 2017.

In 2012, the Government of Quebec launched its *Climate Change Action Plan 2013-2020* (<http://www.mddelcc.gouv.qc.ca/changementsclimatiques/plan-action-fonds-vert-en.asp>) to work toward its GHG emission 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 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 2015, Quebec adopted a target of a 37.5% reduction below 1990 levels by 2030, based on the outcomes of a public consultation process on climate change targets. Quebec's Wood Innovation Work Plan unveiled in 2016 supports the transformation and modernization of the forest products industry, with over \$86 million in government investments by 2022. Quebec also began a Wood Innovation Program in 2015 to

encourage applied research, demonstration and implementation of innovative products, processes and systems in the forest products industry.

In 2015, the Government of Ontario announced a 2030 GHG emission reduction target of 37% below 1990 levels and reiterated its commitment to its existing 2020 (15% reduction) and 2050 targets (80% reduction) established in its 2007 *Climate Change Action Plan*. That plan included a 50 Million Tree Program to plant trees on the settled landscape of Ontario, sequester 6.6 Mt CO₂ by 2050 and help restore forest cover on the fragmented landscape. By 2017, the program had planted over 20 million trees involving over 4,000 landowners. In 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. In 2016, Ontario released a new Climate Change Action Plan (<https://www.ontario.ca/page/climate-change-action-plan>) to implement the strategy over the next five years. As part of this, Ontario plans to develop a Land Use Carbon Inventory and a Forest Carbon Policy Framework, and will seek to enhance carbon storage in natural systems through actions such as: expanding the Greenbelt, a large area of environmentally sensitive land and farmlands in Southern Ontario, protected from urban development (<http://www.mah.gov.on.ca/Page187.aspx>); protecting grasslands; and increasing tree planting. Ontario's cap-and-trade system, a key component of its climate change strategy, began in 2017, and could link to the Quebec and California systems in 2018. Forestry is a sector from which emitters may eventually be able to purchase offsets to comply with their caps.

In 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. The Alberta government expects that the carbon levy will raise \$9.6 billion by 2020, all of which will be reinvested in the Alberta economy. Three billion four hundred million dollars 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 2016, the Government of British Columbia released its Climate Leadership Plan (https://climate.gov.bc.ca/app/uploads/sites/13/2016/10/4030_CLP_Booklet_web.pdf) highlighting a set of sector-specific actions to help meet British Columbia's 2050 emissions reduction target (80% reduction below 2007 levels). To enhance the carbon storage potential of British Columbia's public forests, the plan commits to the rehabilitation of under-productive forests; recovery of more wood fibre; and reducing the emissions from the burning of wood slash. In early 2017, British Columbia announced the Forest Carbon Initiative, an investment of \$150 million to restore up to 300,000 hectares of forests impacted by mountain pine beetle and wildfires. The initiative aims to enhance the carbon storage potential of the province's public forests by increasing the rate of replanting and fiber recovery and by improving forest management practices to capture the carbon benefits of reforestation, while avoiding emissions

from burning slash. The province has estimated that the ten-year program could lead to a reduction of annual GHG emissions of up to 11.7 million tonnes by 2050.

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 2016 had already spread to cover more than 7 million hectares; with the potential to spread further through Canada's Atlantic provinces, Ontario 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. Research results to date are positive, indicating that an early intervention strategy may be a viable option to manage the spruce budworm.

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.

Emerging issue

Among emerging issues, spruce beetle has erupted in the interior of British Columbia. This is not a new issue as the insect is native to this area. What has changed is the impact on timber supply as pine in the area was previously devastated by mountain pine beetle. There is also concern that in a warming climate these outbreaks will be more frequent and longer in duration, as observed in the Yukon and more recently in the western United States.

Trade Policy

In addition to the *North American Free Trade Agreement* with the United States and Mexico (1994), which began a modernization process in August 2017, Canada has free trade agreements in force with Ukraine (2017), 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). The free trade agreement with the European Union, the *Comprehensive Economic and Trade Agreement* (CETA), will come into force in September 2017. Canada signed the TransPacific Partnership-12 (TPP-12) agreement in 2016 but is also engaged in TPP-11 negotiations that were initiated following the withdrawal of the United States from the TPP-12 agreement in early 2017.

Negotiations for free trade agreements are also 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 China, Turkey, Philippines, Thailand, Mercosur and the Pacific Alliance.

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 international movement of wood standard, ISPM No. 39). Canada has demonstrated global 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. 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 recover from the global economic downturn of 2008-09. Recovery in the sector has been driven by a strengthening U.S. economy and housing market as well as demand in Asia (particularly in China) for wood and pulp products. A weakened Canadian dollar since 2013 has also facilitated exports from Canada and supported growing profit margins for Canadian producers.

The current wealth of the sector is still dependant on the traditional market (the U.S.) 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 2006, 78.2% of forest product exports were destined to the U.S., this percentage has dropped to 69.4% in 2016. 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. The share of forest product exports destined to China increased from 3.3% in 2006 to 14% in 2016. More specifically, the value of Canadian wood product exports to China has increased by 1244% between 2006 and 2016. Likewise, the demand for Canadian pulp has been strong in China, which has seen exports increase by 181% between 2006 and 2016. 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, and new opportunities in existing 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

Significant increases in oil production in North America coupled with ramped up production in Organization of the Petroleum Exporting Countries (OPEC) states in a bid to maintain global

market share have kept oil prices low since mid-2014. After the price of oil (West Texas Intermediate) peaked in June 2014 at a monthly average of US \$105.79 per barrel, it collapsed to a low of US \$30.32 per barrel in February 2016 and has since recovered slightly to US \$45.20 per barrel in June 2017.

Natural gas prices remain weak in North America due to an oversupply in the market, largely related to the surge in shale gas production in the U.S. The National Energy Board anticipates that the North American natural gas market will remain saturated from 2015 to 2017. This will be contingent, however, on the volume of liquefied natural gas (LNG) exported from the U.S., which could affect domestic supply in that country. Propane prices have also seen significant declines due to excess supply in the market. Liquid propane prices are about two-thirds of peak prices in 2014 (CAD \$1.11 per litre), fluctuating at around CAD \$0.81 per litre (August 2017). Low propane prices, however, also present an export opportunity for Canada.

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 low cost of natural gas puts many bioenergy producers as well as pulp and paper mills running on bioenergy at a pricing disadvantage.

Exchange Rates

Current exchange rate conditions continue to benefit the forest industry since most Canadian forest products are sold in US dollar terms while the sector pays most of its costs in Canadian dollars. The Canadian dollar appreciated against the US 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. The Canadian dollar strengthened to 80 US cents at the end of July 2017 for the first time in more than a year. This is up about 10% from early May. One negative impact of the Canadian dollar depreciation is that firms with US dollar denominated debt have higher debt servicing costs.

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.

U.S. 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. In the first 6

months of 2017, 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. Starts have grown considerably since 2012, when they totalled 780,600 units, to 1 million units in 2014 and 1.1 million units in 2015. Another feature of the housing recovery is a greater proportion of multi-family housing starts, which has averaged about 33% since 2013, up from about 25% between 2007 and 2012. The higher proportion of multi-family housing starts dampens softwood lumber demand, as single-family homes use about three 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

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 in early 2016.

These new mid-rise provisions will 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 supporting 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 319 mid-rise buildings have been initiated. Of the total, 75 buildings are completed, 60 are under construction and 184 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 (up to 12 storeys proposed). The code change process has already started and NRCan has provided funding to support the code change process (i.e., developing the code change proposal and facilitating code committee meetings) and research needed to fill knowledge gaps.

IV. Developments in Forest Products Markets Sectors

Bioenergy in the forest sector

In 2016, bioenergy accounted for the second largest share of renewable energy production (heat and electricity) after hydro electricity. The Canadian forest sector provides over 80% of biomass-based energy in Canada, mainly for cogeneration of heat and power for use in industrial processes and sale to third- parties.

Bioenergy accounted for 56% of forest sector energy use in 2014, up from 49% in 2000. Between 2004 and 2014, the sector has also reduced its energy consumption by more than 35%. Cleaner fuels and more energy efficient processes have helped the forest sector to reduce its GHG emissions by 49% during the same period.

In 2016, the biomass actual capacity in the pulp and paper facilities was 3,427 MW for the production of heat and 1,384 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 3.41 million tonnes in 2016. Production was over 2.89 million tonnes in 2016 (an increase of 12.3% between 2015 and 2016). Exports represented about 82% of the total production in 2016. The UK is the main destination for Canadian exports with a total of 1,664,145 million tonnes exported in 2016 (70% of Canada's wood pellet exports).

Canadian wood pellets are produced in a sustainable way; 90% of the wood pellet production is from mill residues. The domestic market is still small (estimated at a maximum of 616,750 tonnes in 2016) 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 Federal Government 2030 coal phase-out plan, by the content of the new European Union Renewable Energy Directive (2020-2030) and by emerging markets in Japan and South Korea. Impacts from political changes in the United States and Brexit in the European Union are difficult to predict.

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. In 2016, Canada became a signatory to the International Civil Aviation Organization's Carbon Offsetting Reduction Scheme for International Aviation. The agreement requires the aviation industry to become carbon neutral by 2020 and reduce total carbon emissions 50% by 2050.

Value-Added Wood Products²

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

In 2016, Canada exported about \$4.1B of value-added products with the majority of it supplying the U.S. market (95%). The value of total exports of value-added wood products increased 22% compared to the year prior.

Sawn Softwood (also known as softwood lumber)

In 2010, sawn softwood production showed signs of marked improvement. It has continued to recover since then, but at a slower pace. In 2016, Canada produced 66.86 million cubic metres of sawn softwood, a 29% increase compared to 2010; however the production level has not yet reached the pre-recession levels.³ North American sawn softwood prices were generally strong in 2016 into the first half of 2017 due to improved demand and market conditions. However, preliminary duties from the U.S. on Canadian imports brought volatility to the market and is expected to continue through 2017.

The U.S. remains the primary destination for Canadian sawn softwood exports, and U.S. demand for Canadian softwood lumber is still rebounding thanks to improvements in the housing market. In 2016, Canada exported 35 million cubic metres of sawn softwood to the U.S., an increase of 16% over 2015. However, after the expiry of the 2006 Canada-United States Softwood Lumber Agreement, the United States launched countervailing duties and anti-dumping investigations into Canadian exports of softwood lumber and this led the U.S. Department of Commerce to issue preliminary duties. This situation has caused instability in softwood lumber prices and export levels.

China is still a significant offshore market for Canadian sawn softwood products as exports have increased tremendously over the span of a decade. From 2006 to 2016, sawn softwood exports to China increased by 1675% on a volume basis. However, in 2016, the Canadian sawn softwood export volume to China decreased by 10% compared to 2015 and in the first six months of the 2017, exports further decreased by 10% compared to the same period in 2016. 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.

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.

³ Source: Statistics Canada CANSIM Table 303-0064.

Oriented Strand Board (OSB)

OSB represents a large portion of Canada's total structural panel exports (about 90%). Given that 93% 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 grown since as the housing market picked up. As demand increased, OSB prices started showing signs of growth in both 2016 and 2017 (in the first six months of 2017, the prices increased by 40% compared to 2016).

Paper and Paperboard

The total value of Canadian paper and paperboard exports declined in 2016 for the first time since 2012. The Canadian paper and paperboard product exports decreased by 3.8% in 2016 compared to 2015. The main issue facing paper and paperboard producers lies in the demand outlook for newsprint and other graphic paper, which is dire. This results from a decline in demand for all types of paper used to communicate printed information, due to the transition towards electronic media, particularly in the U.S. In addition, U.S. duties on paper and paper products challenge the competitiveness of some Canadian paper exports. In July 2015, the U.S. Department of Commerce imposed tariffs on Canadian supercalendared 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 2016, the value of Canadian wood pulp exports decreased by 5% compared to the previous year while the volume was roughly stable. From 2006 to 2016, the volume of Canadian pulp exports to China has grown 177% and China has surpassed the U.S. to become Canada's number one pulp export market since 2012, accounting for 44% of Canadian wood pulp exports (exports to U.S. accounted for 32% of total) in 2016. Canadian wood pulp exports to China decreased by 6% in 2016 while the exports to the U.S. went down by 9% compared to 2015.

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.

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.

Canadian dissolving pulp exports experienced significant growth in the past decade as well as substantial declines in recent years. In 2015, Canada's top market for dissolving pulp was China, but exports have been on a downward trend since the Chinese imposed anti-dumping duties, reducing its share by 39% in 2015 (from 2014 values), and further reducing its share by 58% in 2016 (compared to 2015). Conversely, exports to India, Indonesia and Thailand have all been growing. By value, India was the primary market for Canadian dissolving pulp exports (25%) in 2016 followed by Indonesia (15%), Thailand (15%), and China (14%).

Overall, low-cost producers, new capacities coming from South America, Europe and Asia and trade disputes are all affecting the Canadian pulp sector, challenging Canadian competitiveness and increasing the need for market diversification (new products as well as new countries).

Appendix

Statistics and Prospects

* Figures for 2017 and 2018 are estimated/forecasted

Sawn Softwood (000 Cubic Metres)

	2015	2016	2017*	2018*
Production	45,360	48,161	49,413	48,584
Apparent consumption	16,277	16,377	18,042	17,810
Imports	700	854	935	968
Exports	29,784	32,638	32,307	31,741

Coniferous Veneer and Sawlogs (000 Cubic Metres)

	2015	2016
Imports	2,468	2,225
Apparent consumption	117,639	116,632
Exports (Total)	5,501	6,264

Sawn Hardwood (000 Cubic Metres)

	2015	2016	2017*	2018*
Production	1,754	1,563	1,284	1,322
Apparent consumption	1,813	1,651	1,340	1,380
Imports	580	618	634	644
Exports (Total)	521	530	578	585

Oriented Strandboard (OSB) (000 Cubic Metres)

	2015	2016	2017*	2018*
Production	7,074	7,913	8,199	8,915
Apparent consumption	2,467	2,607	2,576	2,548
Imports	183	132	144	135
Exports (Total)	4,790	5,438	5,768	6,502

Plywood (000 Cubic Metres)

	2015	2016	2017*	2018*
Production	1,929	1,951	2,016	2,028
Apparent consumption	2,773	2,668	2,761	2,792
Imports	1,492	1,343	1,371	1,381
Exports (Total)	647	626	627	618

Particleboard (000 Cubic Metres)

	2015	2016	2017*	2018*
Production	8,796	9,674	9,954	10,730
Apparent consumption	4,034	4,484	4,391	4,358
Imports	945	1,192	1,141	1,116
Exports (Total)	5,707	6,382	6,704	7,488

Medium density/high density (MDF/HDF) (000 Cubic Metres)

	2015	2016	2017*	2018*
Production	970	954	1,035	1,167
Apparent consumption	796	749	819	840
Imports	530	471	449	447
Exports (Total)	704	676	664	775

Fibreboard (000 Cubic Metres)

	2015	2016	2017*	2018*
Production	1,484	1,044	1,125	1,257
Apparent consumption	1,423	871	934	922
Imports	738	697	664	662
Exports (Total)	799	870	855	997

Wood Pulp (000 tonnes)

	2015	2016	2017*	2018*
Production	17,180	16,550	16,951	16,542
Apparent consumption	7,599	7,190	7,693	7,142
Imports	331	544	605	412
Exports (Total)	9,912	9,904	9,862	9,813

Paper and Paperboard (000 tonnes)

	2015	2016	2017*	2018*
Production	10,300	10,100	10,652	10,137
Apparent consumption	5,353	5,465	5,617	5,551
Imports	2,670	2,635	2,631	2,673
Exports (Total)	7,618	7,270	7,666	7,259

n/a – Data are unavailable

Figures in grey shading and blue font indicate revised 2016 data

Note 1: Figures above have been adjusted to reflect actual volumes as opposed to nominal. Figures are consistent with those provided for the *2017 UNECE Timber Committee Forecasts (Forest Products)*.