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CANADA'S FOREST PRODUCTS INDUSTRY IS PART OF THE SOLUTION TO THE CLIMATE CHANGE CHALLENGE

HIGHLIGHTS FROM THE FOREST PRODUCTS INDUSTRY SUBMISSION TO THE GOVERNMENT OF CANADA'S CONSULTATION ON THE PAN-CANADIAN FRAMEWORK ON CLEAN GROWTH AND CLIMATE CHANGE

Inside:

THE PAN-CANADIAN FRAMEWORK ON CLEAN GROWTH AND CLIMATE CHANGE

"Building on commitments and actions already taken by provinces and territories and the momentum from COP21 in Paris, we are moving toward a pan-Canadian framework for clean growth and climate change that will meet or exceed Canada's international emissions targets, and will transition our country to a stronger, more resilient, low-carbon economy — while also improving our quality of life."

—Communiqué of Canada's First Ministers, March 3, 2016

"I truly appreciate how the forest products industry has become the first sector to unveil how it can help Canada reach its emissions reduction target. This is the kind of contribution that we need from industry and I would encourage other sectors to show similar initiative"

—The Honourable Catherine McKenna, Minister of Environment and Climate Change

ABOUT CANADA'S FOREST PRODUCTS INDUSTRY

Canada's forest products industry is a $65-billion a year industry that represents 2% of Canada's GDP. The industry is one of Canada's largest employers, operating in 200 forest-dependent communities from coast to coast, and directly employing 230,000 Canadians across the country. The sector produces a diverse group of products ranging from traditional wood products to innovative bio-based materials that can substitute for plastics. The sector also serves a diverse global market that reaches around the world.

The majority of Canada's forest land, about 94%, is publicly owned and managed by provincial, territorial and federal governments. Only 6% of Canada's forest lands is privately owned.

CANADA'S FOREST PRODUCTS INDUSTRY BY THE NUMBERS

- Employs more than 230,000 people; is the lifeblood of much of rural Canada
- Generates $65 billion per year in economic activity
- Exports to more than 180 countries; is Canada's number-one exporter to Asia, including China
- Has invested $1.5 billion in clean-tech innovation over the past five years
- Is one of the largest employers of Aboriginal people

All FPAC members are signatories of the historic Canadian Boreal Forest Agreement (CBFA). Our members are responsible for 66% of certified forest lands in Canada. Third-party certification of member companies' forest practices is a condition of membership in the Association — a world first. The CBFA allows the forest sector to work collaboratively with environmental groups on forest management focused on climate change mitigation and adaptation in the boreal forest.

OVERVIEW: THE FOREST PRODUCTS INDUSTRY IS COMMITTED TO PLAYING A BIG ROLE IN CANADA'S FIGHT AGAINST CLIMATE CHANGE

Canada's forest products sector is making a substantial contribution to mitigating climate change. The sector is also helping our priceless natural forests adapt to a changing climate, for the benefit of all Canadians.

"30 by 30" Climate Change Challenge

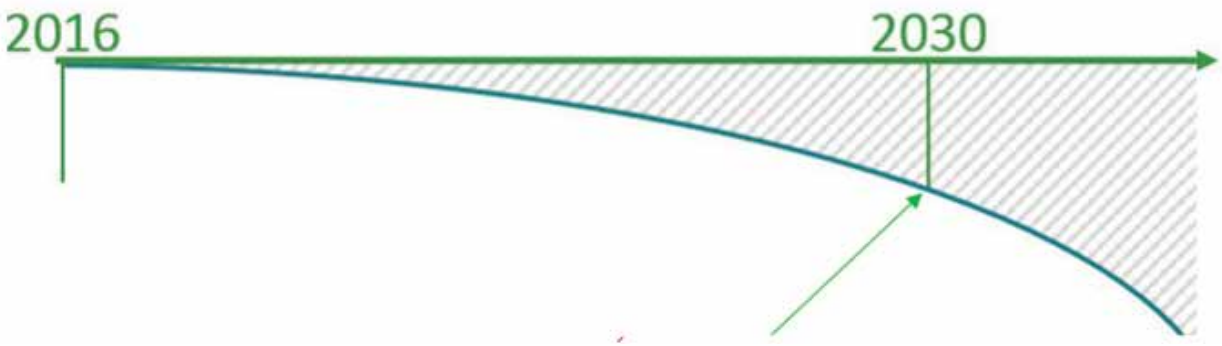
The forest products sector is committed to removing 30 megatonnes (MT) of CO_2 a year by 2030. This represents more than 13% of the federal government's 2030 climate change mitigation goal. The Forest Products Association of Canada (FPAC) has formalized this pledge in the "30 by 30" Climate Change Challenge report: **fpac.ca/30by30.**

FPAC is participating in the **pan-Canadian framework on clean growth and climate change**. This document summarizes FPAC's submission to framework working groups. For the full submission visit: fpac.ca/pancanadian

Big cuts in emissions

Since 1990, the forest products sector has cut emissions from pulp and paper mills by an impressive 66%, equivalent to 9 MT of CO_2 per year. About 30 mills now generate green electricity from residuals at the mill site.

PROPOSED TARGET

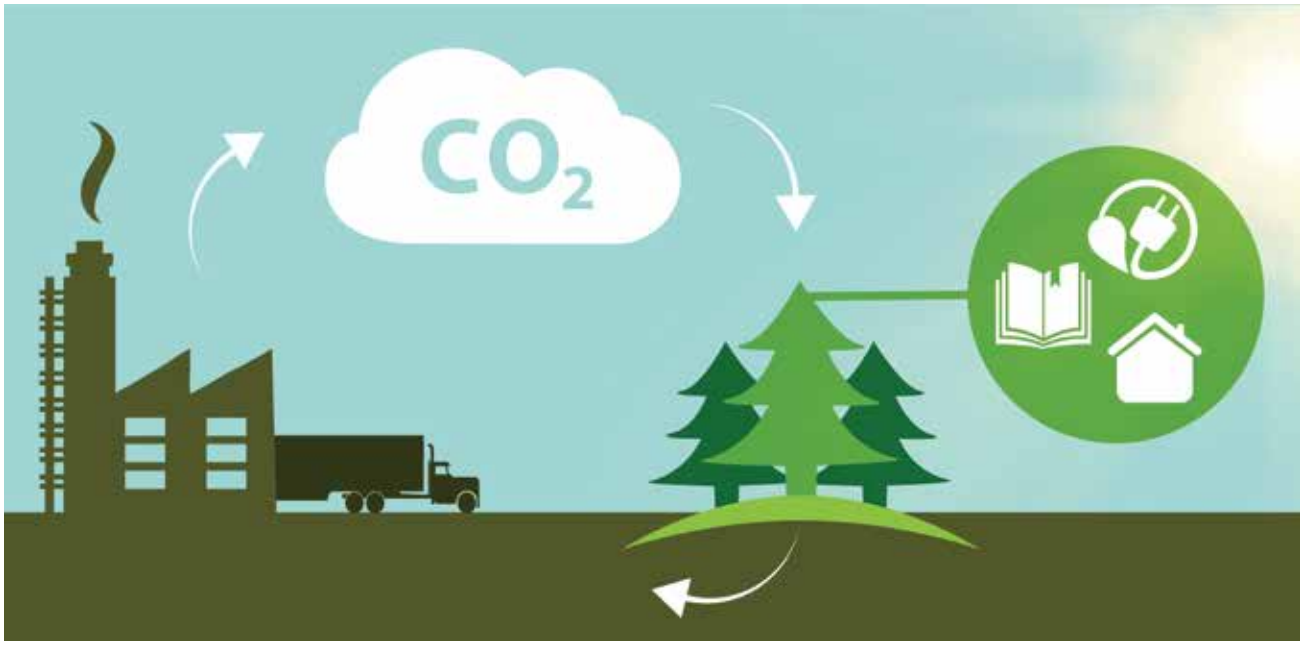


"The Canadian forest products industry will strive to help Canada mitigate climate change by contributing 30 MT of CO_2 equivalent a year by 2030"

Healthy forests store more greenhouse gases

The UN New York Declaration of Forests says that "forests represent one of the largest most cost-effective climate solutions available today." As custodians of 10% of the world's forests, Canada's forest sector takes its responsibility seriously. FPAC's stewardship focus works to mitigate climate change, because keeping forests healthy means more greenhouse gases (GHGs) are stored in trees and soils — not the atmosphere.

This critical role of storing carbon doesn't end with the forest. An increasing array of products made from wood, including green buildings, packaging and paper, also store carbon. Carbon storage is extended even more when forest products, like paper, are recycled.



A leader in forest management

Canada's virtually zero rate of deforestation underpins our global leadership position in forest management. By law, any harvested tree is regenerated.

House of Commons Standing Committee on Natural Resources: five recommendations relating to climate change

FPAC would like to recognize the work of the House of Commons Standing Committee on Natural Resources. FPAC fully supports the standing committee's June 2015 recommendations, which related to the pan-Canadian framework on clean growth and climate change.

Summary of the recommendations relating to climate change

1. Invest in and promote research and development focused on innovative technologies, product commercialization and market and export diversification in the forest sector.
2. Update and renew national building codes to help increase the use of wood in construction.
3. Diversify forest sector markets by promoting trade through free trade agreements.
4. Promote business development, skills training and capacity building that meet the needs of Canada's forest sector.
5. Work with industry to support and promote the sector's environmental record and the fact that Canada is a world leader in forest sustainability.

Contributions to four Government of Canada working groups

FPAC contributed submissions to each of the four working groups that are part of the Government of Canada's consultation on the pan-Canadian framework on clean growth and climate change:

1. Clean technology, innovation and jobs
2. Carbon pricing mechanisms
3. Specific mitigation opportunities
4. Adaptation and climate resilience

WORKING GROUP: CLEAN TECHNOLOGY, INNOVATION AND JOBS

The federal government has announced a broader innovation agenda initiative, which can play a role in supporting the forest sector's future prosperity. Canada's forest sector has a long history of innovation as it continually adapts its operations and practices to meet the demands of changing global markets and consumer preferences.

The sector is transforming with cutting-edge science and game-changing clean technology to make exciting new renewable, bio-based products and materials from wood fibre. A big part of the sector's transformation agenda is adopting new technology to extract maximum value from every tree harvested.

Innovation in the forest products sector also takes other forms, including:

- Geographical market diversification (e.g., China, India)
- Expanding uses (e.g., taller wood buildings)
- Production efficiency and productivity improvements in mills
- Evolving forest management practices

Highlights of key recommendations for government

- Make policies that are aligned, transparent and predictable.
- De-risk the commercialization of new, clean technology.
- Support pre-competitive R&D conducted by **FPInnovations**.
- Facilitate academic engagement.
- Support the bio-economy with coordinated policies across government.
- Make codes, standards, permits and product approvals more consistent to help substitute bio-products for more carbon-intensive materials.

Innovation is in our nature: from green chemicals to wood in cars

An increasing number of non-traditional bio-products based on wood fibre are displacing fossil fuel based products. Wood fibre is now found in everything from chemicals to cosmetics to car parts. For example, the console of a Ford Lincoln made from a wood fibre composite helps the low-carbon economy in two ways — by replacing plastics made from non-renewable fossils fuels and by reducing the car's weight, thereby reducing fuel consumption.

WORKING GROUP: CARBON PRICING

The forest sector contends with high energy intensity. But this challenge is partially offset by the fact that more than 65% of the sector's energy comes from renewable fuels.

Canada's carbon pricing landscape

Pulp and paper facilities are covered by carbon pricing schemes (carbon tax or cap and trade) in British Columbia, Alberta, Ontario and Quebec. Manitoba is expected to launch its own plan in the near future.

The sector also operates in a highly competitive trade environment. The forest products sector is a significant exporter of goods, with 70% of its products exported, at a value of $33 billion.

Canada's main competition for wood products are the United States and Russia. For pulp and paper, the United States, Asia and South America are the primary competitors. This competitive landscape makes it imperative that a carbon pricing scheme addresses competitiveness and carbon leakage concerns across all sectors to prevent declines in investment, employment, tax revenues and trade.

The current cost per tonne of CO_2 varies from $18 to $30 a tonne across Canada.

Highlights of key recommendations for government

- Continue to support carbon neutrality of biomass at the facility, since carbon is accounted from a full lifecycle because Canada's forests are sustainable.
- Carbon pricing revenue generated by government should be revenue neutral. As most provinces have a carbon pricing scheme, the Low Carbon Economy Fund should be managed by the Federal Government.
- The price on carbon should be comparable across Canada.
- The scheme should be simple, complementary and consistent across provinces.
- Compliance mechanisms such as offsets should be consistent and available across Canada. The offsets mechanism should include forest sinks as well as carbon displacement projects like bio-fuel.
- Offset mechanisms should be available to all stakeholders, even if they are not covered directly by the carbon pricing scheme.
- The scheme should recognize early action, acknowledging that some companies have been proactive in reducing their climate footprints.
- Co-generation (combined heat and power) should be recognized as more efficient than heat or power alone.
- The ability of currently available technology to reduce emissions should be considered.
- The scheme needs to ensure correct behaviour and encourage continuous improvement.

WORKING GROUP: MITIGATION OPPORTUNITIES

Large industrial emitters

The pulp and paper sector has already reduced its greenhouse gas emissions by 66% since 1990. The sector has very little room left to reduce emissions because it has already invested billions of dollars in low-carbon energy generation, fuel substitution and energy conservation measures.

The sector has eliminated the use of coal and reduced the use of oil by 90%. Currently, pulp and paper energy generation is 80% biomass, 18% natural gas and 2% other (oil, hydro). The chart shows how early actions from the sector have put Canada way ahead of competitors such as the United States and Asia.

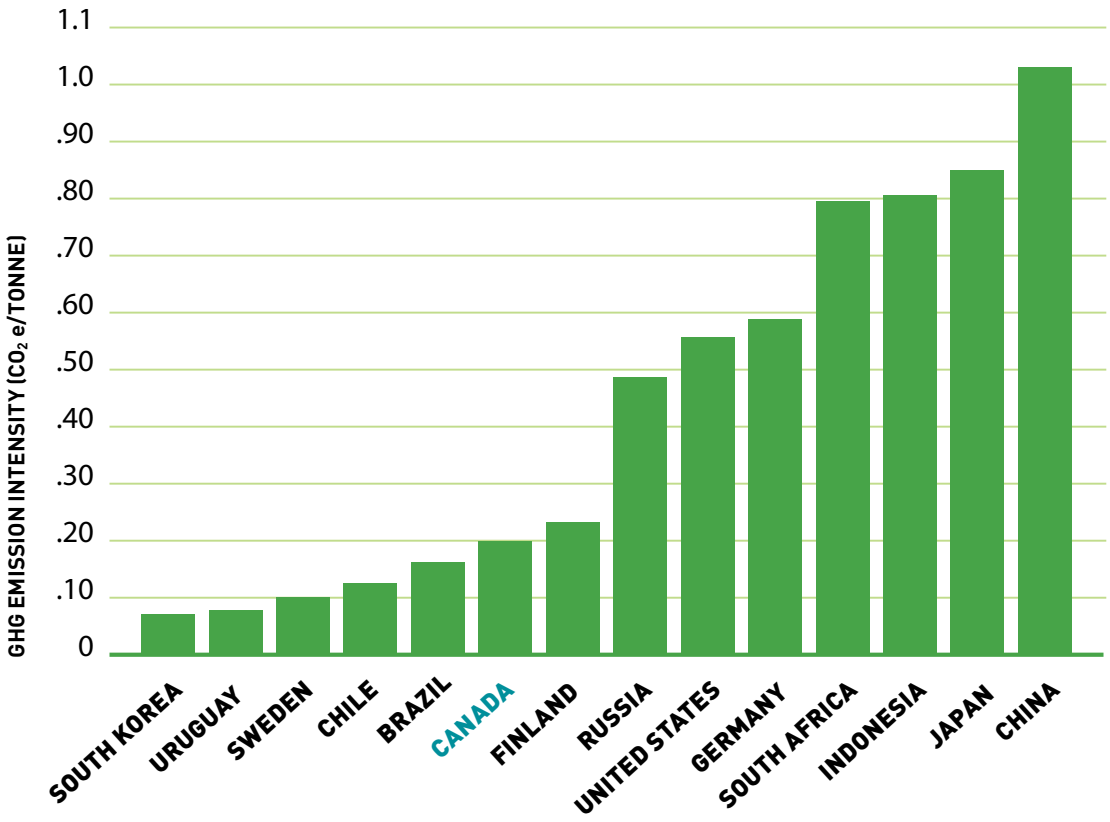
Mitigation focus

The forest industry is focusing on mitigation efforts on four main areas:

- **Large industrial emitters**
- **Transportation**
- **Built environment**
- **Agriculture and forestry**

The pulp and paper sector has seen a slight increase in greenhouse gas emissions in recent years due to co-generation units using natural gas to displace electricity from the grid produced by coal. It should also be recognized that co-generation (combined heat and power) is more efficient than heat or power alone. Governments should encourage more installation of combined heat and power technologies.

Direct emissions from fossil fuels by country for the pulp and paper sector



Key recommendations to reduce emissions by 2030

- Develop technologies that will reduce greenhouse gas emissions from the full value chain of the sector (harvesting, facilities, transportation and electricity generation).
- Continued support from government on the following projects through a tech fund or other funding mechanism will lead to further reductions:
  - Sector transformation technologies such as using methane from secondary treatment as fuel for the mill
  - Energy-efficiency projects
  - Boiler upgrades
  - Co-generation and boiler optimization
- Review existing regulations and policies that prevent greenhouse gas reduction projects, and discuss solutions, while still protecting health and the environment.

Transportation

The forest products industry accounts for 12% of Canada's manufacturing GDP and exports $33 billion in manufactured goods throughout the globe to more than 180 countries. The industry moves about 58MT of forest products on the Canadian transportation system every year. About half of this is by rail, the other half by trucks. About 13MT of products are shipped via marine transportation to reach customers on other continents.

The greatest opportunity for the sector to help reduce greenhouse gas emissions lies in the transportation of the sector's goods, use of forest products and forest management.
(See pages 8-12.)

Competitive transportation services are essential to access the international marketplace and ensure the viability of the forest products industry — transportation alone represents up to a third of the production costs of any forest products firm. Trucking is not a viable alternative for many products because of their nature, volumes and distances to be shipped.

Increasing the volume of products shipped by rail would lead to a reduction in greenhouse gases

- One 350,000-tonne pulp mill would require 14,000 truckloads annually or close to 40 empty trucks each and every day.
- One 500-million-board-feet sawmill would require about 9,600 empty trucks per year or 40 trucks per day, assuming the mill operates five days per week.
- If the sector switched to shipping 80% by rail, this would translate to removing 850,000 trucks, which is equivalent to cutting approximately 400,000 tonnes of CO_2 per year.

Key recommendations

- Improve the rail system to increase modal shifts and optimize existing logistics.
- Fund modernizing infrastructure to receive rail cars.
- Approve higher-capacity trucks to lower net GHG emissions per tonne of product moved.
- Promote bio-fuels and lower-carbon emitting fossil fuels for the transportation sector.

Built environment

The built environment represents a significant source of GHG emissions in Canada according to Environment and Climate Change Canada. Globally, UN data shows that the buildings and construction sector is responsible for 30% of global CO_2 emissions. Reducing energy demand in the building sector is one of the most cost-effective strategies for achieving significant GHG reductions.

Canada's commitment to reducing its carbon footprint will not be achievable if new infrastructure, and repair to existing infrastructure, is not managed for environmental sustainability. Sustainable forest products have a key role to play.

Primary GHG sources and the built environment

Building and roadway use: Burning fossil fuels to heat, cool, ventilate and light occupied buildings, and to light and drive on roadways.

Building and roadway construction: Burning fossil fuels and creating other GHG emissions to manufacture materials and construct buildings and roadways.

Lifecycle assessment is key to unlocking the potential of green buildings

Current trends in global climate change policy are starting to address the embodied impacts and other consequences related to material consumption. However, the associated emissions are not easily influenced by Canada's current carbon pricing or cap and trade mechanisms.

We need a different set of drivers and tools if we are to reduce the embodied carbon footprint of new construction. The science of life cycle assessment (LCA) is the key. LCA measures environmental burden due to a product over its entire life span, from resource extraction to end-of-life. It is a critical tool for measuring and rationalizing green choices.

Green infrastructure is the future

Canadian governments are about to make historic investments in infrastructure that will have significant implications on our trajectory to a low-carbon economy. It is critical to consider the carbon footprint of these investment decisions. Applying a carbon-first principle to new building, infrastructure and transportation construction projects will ensure that those activities contribute to Canada's GHG reduction targets, reinforcing action towards a low-carbon economy, rather than slowing down our transition.

Affordable green housing

Affordable housing is one focus of government infrastructure spending. Canada has 700,000 units of social housing, representing 5% of the total housing stock. Low-income households consume more energy per square foot — as much as one-third more — than higher income households, primarily because they are older, less energy-efficient dwellings. Improving the energy efficiency of existing affordable housing would reduce GHG emissions and operating costs.

First Nations communities face similar or even more acute housing issues. The proposed spending should address the fact that some Aboriginal housing is inappropriately designed and poorly constructed. Improving the design and construction can provide higher-quality housing, better health and climate benefits accruing from more energy-efficient and durable housing that features newer construction materials like pre-fabricated wood insulated panels or cross-laminated timber.

Key recommendations

- Update building codes and standards to facilitate a greater use of wood and wood-based building materials.
- Provide R&D funding to lower barriers to deploying wood structures with low embodied emissions.
- Adopt the carbon-first principle for infrastructure spending and procurement policies.
- Set specific emissions targets for the built environment, and identify measurement indicators.
- Support the development of more tools and guidance on lifecycle assessment. Elements that could be supported include:
  - Improving existing Canadian lifecycle assessment tools and lifecycle assessment inventory databases
  - Establishing baseline-embodied GHG emissions in Canadian construction, and determine averages
  - Developing a benchmarking system to enable performance targets
  - Tracking national progress against the baseline
  - Quantifying national construction carbon savings annually
- Review existing policies to identify opportunities to improve their effectiveness towards reducing GHG emissions from the built environment.

Mass timber has big potential to cut GHGs

A cubic metre of wood represents almost one tonne of CO_2 removed from the atmosphere. The potential for carbon storage is especially evident in taller wood frame buildings using mass timber systems.

Building code changes now permit up to six-storey buildings, but even taller wood buildings are possible, including an 18-storey residence building at the University of British Columbia and a 13-storey timber tower in Quebec City.

These buildings store carbon in the wood and require less energy to produce, giving them a lower carbon footprint than competing construction materials such as energy-consuming concrete and steel.

Vancouver architect Michael Green estimates that from a carbon perspective, a single 100,000-square-foot wood building would be the equivalent of taking 1,410 cars off the road each year.

Agriculture and forestry

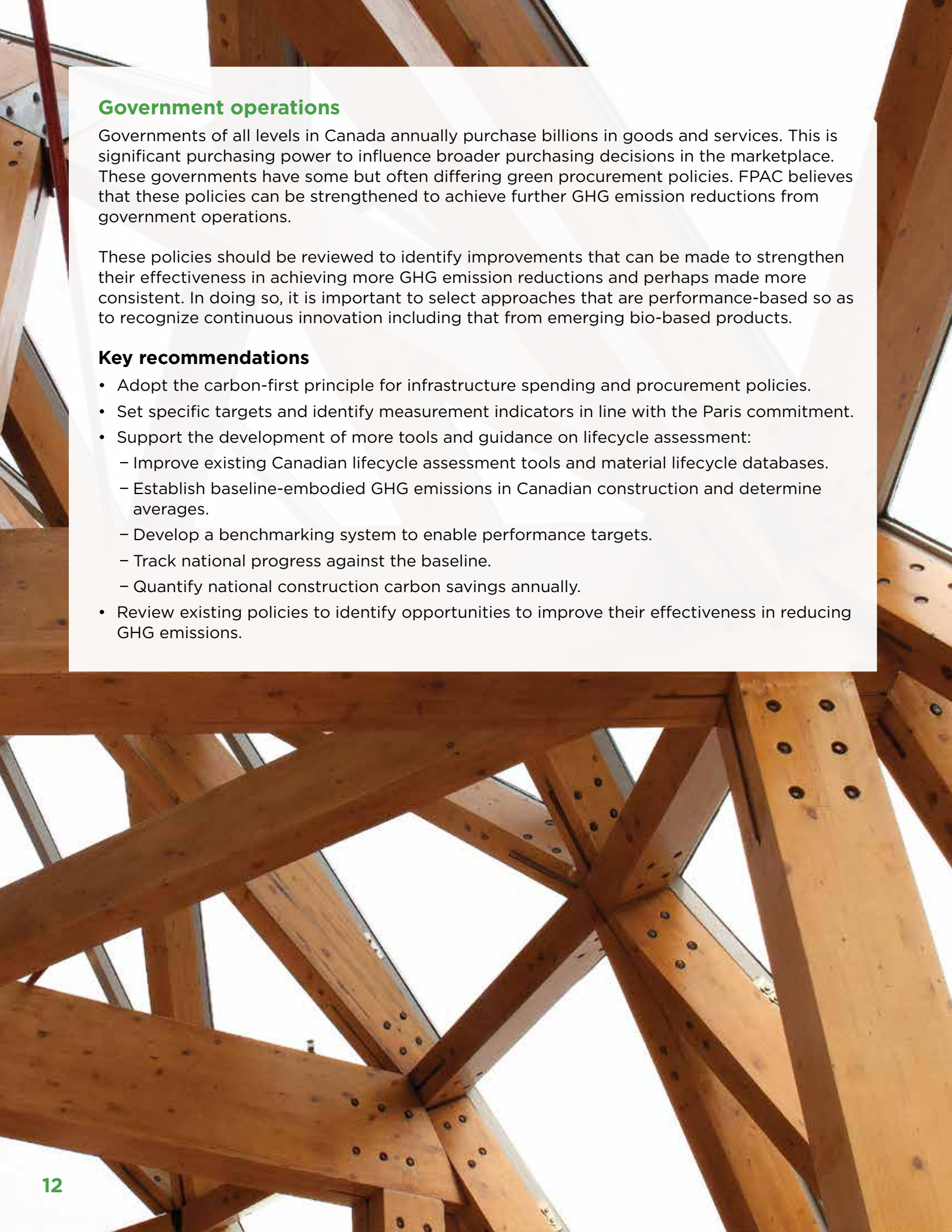
Canada's forest products industry punches above its weight when it comes to mitigating climate change. Our forests play a critical role in the global carbon cycle — absorbing tremendous amounts of carbon dioxide from the atmosphere and storing it in trees and soil. The carbon storage qualities of Canada's forests mean they have vast mitigation potential.

However, this potential is severely underdeveloped. Unlocking this potential means a state-shift for the business of Canadian sustainable forest management towards new practices and climate-smart land-use planning that needs both resourcing and widespread stakeholder engagement to be successful.

The diversity of Canada's vast forest resources means developing and implementing context-appropriate mitigation actions, and this is best done from the bottom up. The forest sector is willing and able to deliver deep mitigation gains, but substantial government support for research and adoption is needed to enable provision of this public good by Canada's forest companies.

Key recommendations

- Create a Future Forests Fund to unlock the enormous mitigation potential of forest management from the bottom up. Because economic realities constrain industry's ability to act, we are calling on government to provide funding as we work towards the common good. Some of the many key areas for the Future Forests Fund:
  - Reduce the burning of harvest residue in the forest and increase recovery by transforming it into value-added products
  - Increase salvage harvesting
  - Intensify forest management within portions of a sustainable landscape-level framework
  - Support innovation in ecosystem-based sustainable forest management
  - Restore productive forest land, in areas that are under-stocked, to increase carbon sinks
  - Create more forests through afforestation
  - Enhance growth in existing forests and help trees get re-established faster
- Overhaul/review regulations in provinces and territories to ensure compatibility with the requirements of a rapidly changing climate. Critically, future species mixes must be selected not only based on historical composition but also with an eye to rapidly changing climatic conditions.
- Provide the tools to manage for mitigation and adaptation. Canada is a world leader in sustainable forest management, but a changing climate is creating new, common challenges. Federal and provincial programs are critical in helping us succeed in areas like carbon modelling tracking data.
- Research for a changing climate needs to address mitigation options along the full value chain.
- Promote using Canadian wood products abroad as a preferred environmentally friendly source.



Government operations

Governments of all levels in Canada annually purchase billions in goods and services. This is significant purchasing power to influence broader purchasing decisions in the marketplace. These governments have some but often differing green procurement policies. FPAC believes that these policies can be strengthened to achieve further GHG emission reductions from government operations.

These policies should be reviewed to identify improvements that can be made to strengthen their effectiveness in achieving more GHG emission reductions and perhaps made more consistent. In doing so, it is important to select approaches that are performance-based so as to recognize continuous innovation including that from emerging bio-based products.

Key recommendations

- Adopt the carbon-first principle for infrastructure spending and procurement policies.
- Set specific targets and identify measurement indicators in line with the Paris commitment.
- Support the development of more tools and guidance on lifecycle assessment:
  - Improve existing Canadian lifecycle assessment tools and material lifecycle databases.
  - Establish baseline-embodied GHG emissions in Canadian construction and determine averages.
  - Develop a benchmarking system to enable performance targets.
  - Track national progress against the baseline.
  - Quantify national construction carbon savings annually.
- Review existing policies to identify opportunities to improve their effectiveness in reducing GHG emissions.

WORKING GROUP: ADAPTATION AND CLIMATE RESILIENCE

Adaptation and climate resilience in Canada's forests is an evolving, complex problem that will not be solved this year or this decade. There is no one-size-fits-all solution. The fundamental challenge today is to build human and institutional capacity.

The pan-Canadian Framework should focus on creating effective science-management partnerships that include forest managers, subject experts from the scientific community, NGO's and regulators. It should also focus on meeting the baseline need for information and tools. And it should focus on creating policy flexibility to enable context-specific solutions across Canada's vast and varied forests.

Preparing for the impact of climate change

Canada's sustainable forest management must help mitigate and adapt to climate change. Forestry has always required careful and sustainable planning that looks to the wood supply needs of future generations. Canada's foresters are no exception, drawing on a long history of world-leading research to inform their practice of sustainable forest management — a science-based approach that monitors results and adjusts management based on a system of criteria and indicators. That means today's forest managers are well placed to integrate long-range climate adaptation concerns into their day-to-day forest management planning.

Complex planning is required

There is a lot of variability in how forest ecosystems will adapt to climate change. Warmer summers, for example, could boost tree growth on boreal forest sites with plentiful available water but simultaneously have a negative impact on drier sites.

Agility and innovation in the face of unforeseen events

Industry responded to the massive mountain pine beetle infestation in British Columbia by adapting harvesting plans to help control the infestation and salvage the affected timber, modified its manufacturing processes to adjust to the drier wood, and seized tremendous export growth potential in China. In fact, Canada's forest products exports to China leapt by 1,300% between 2003 and 2011. This kind of response will need to be replicated as we face different challenges in the future.

New climates mean new challenges for species at risk and forest management

Forests can move through seed dispersal, but numerous studies have shown that optimal growing environments will move an order of magnitude faster. Consideration of these climate zone shifts and species reliance on productive and functional ecosystems is essential when determining recovery actions for species at risk. The wildlife species ranges will not remain static. Assisted migration of tree species and responsive, climate-conscious criteria and indicators for species at risk are important parts of adapting our sustainable forest management to climate change.

Key recommendations

- View adaptation and mitigation as fundamentally inter-linked in forest ecosystems.
- Overhaul regulations in provinces and territories to ensure compatibility with the requirements of a rapidly changing climate.
- Provide the tools to manage for mitigation and adaptation, including carbon modelling (for forest and wetland ecosystems).
- Conduct more research on assisted migration.
- Execute risk management using a diversity of approaches to adaptation, and a mix of both high-intensity management interventions for adaptation and benchmark areas free of management interventions.
- Use landscape-level planning initiatives, like the Canadian Boreal Forest Agreement, to create forums for stakeholders to address and resolve complex adaptation challenges.
- Provide world-class information on projected climate change.
- Provide consistent estimates and data through monitoring and forest inventories.
- Collaborate internationally to share knowledge about a changing climate.
- Support a definition of climate resilience, for the built environment, that is product neutral and performance based.

THE CANADIAN FOREST PRODUCTS INDUSTRY IS PLAYING A KEY ROLE IN CANADA'S RESPONSE TO CLIMATE CHANGE

The entire world is grappling with the urgent need to address climate change and cut carbon emissions. This will require fresh ideas, bold changes and extraordinary will. Conversations around cap and trade and pricing carbon are critical to Canada's response to the challenge of climate change. But they do not define the conversation or serve as an endpoint.

The Canadian forest products industry has the determination and drive to do its part by embracing an ambitious climate change challenge. By following climate-sensitive practices, properly managed forests can be a positive contributor to a Canadian climate management system. Active forest management practices can help forests adapt to climate change and maximize carbon sinks through such practices as salvage harvesting, jump-starting the growth of forests and planting resilient species.

Running more energy-efficient mills, practising sustainable forest management and storing carbon in harvested wood products are ways Canada's forests can help solve a global problem. Our forests play a critical role in the global carbon cycle — absorbing tremendous amounts of carbon dioxide from the atmosphere and storing it in trees and soil.

FPAC members are poised to deliver on the promise our forests hold for combatting climate change. With the right support and a shared vision, Canada's forests will play their rightful role in the transition to a greener, low-carbon economy.

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