BC Forest Sector Feedback on the Climate Leadership Team's Recommendations to the BC Government

March 2016

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Executive Summary

The policy actions recommended by the Climate Leadership Team (CLT) are extensive and significant. The comments herein represent the consensus view—concerns and opportunities—of a broad range of Forest Sector interests. Government affirmation of the principles and assumptions that guided the sector's deliberations is considered critical.

The Forest Sector is One of BC's Largest Economic Drivers

The BC Forest Sector has long been the cornerstone of the provincial economy with more than 7,300 businesses accounting for $12 billion in annual GDP, 31% of all BC manufacturing sales and nearly a quarter of all direct manufacturing jobs.[1] Province-wide, 40% of BC's regional economies are dependent on forestry and one in 16 jobs or 145,000 FTEs are tied to the forest industry.

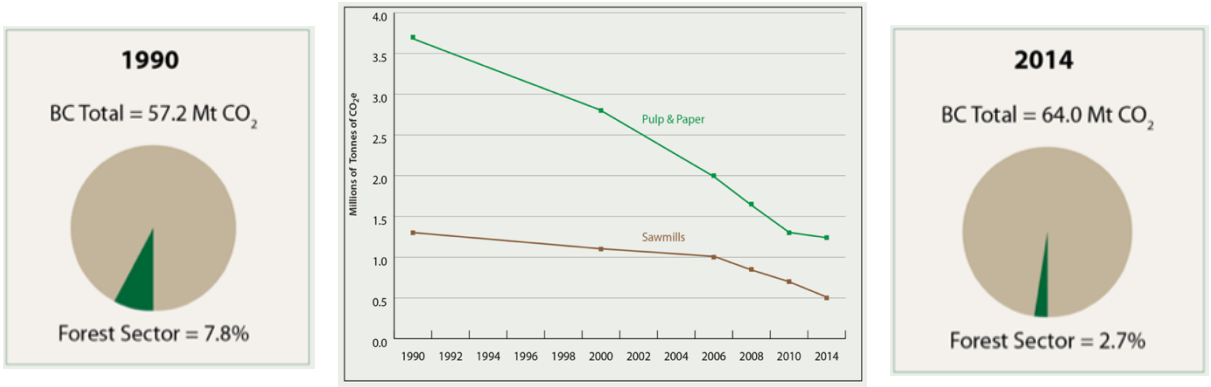
The Forest Sector's economic influence spans virtually every sector in the province. In addition to the core products of lumber, panels, value-added components and pulp & paper, BC is the largest producer of bioenergy in North America, 23% of all rail traffic in BC is forest products, 32% of Port Metro's container traffic is forest products and 60% of all BC Hydro's industrial revenues come from the forest industry.

Forest Sector revenue created for federal, provincial and municipal governments in 2013 (the latest available) was $2.5 billion. Of this, the federal government received $934 million, the provincial government received $1.4 billion and municipal governments received $150 million.

Since 1990 The Forest Sector Has Reduced its Greenhouse Gases 62%

Over the past two and a half decades, the sawmilling and pulp & paper sub-sectors have each reduced their greenhouse gas (GHG) emissions by 62%, largely by converting to biomass fuel. The GHG reductions per unit of product produced are also significant at 57%. This compares to the province as a whole which has experienced an increase in emissions of 12% over the same period.[2]

Chart 1. Total GHG Emissions for the Province and the BC Forest Sector 1990-2014[3]



[1] BC Forest Industry, Economic Impact Study, January 2015, Meyers Norris Penny
[2] BC total GHGs for 2014 is assumed to be unchanged from 2013.
[3] Forest Sector data compiled by the BC Pulp & Paper Task Force and industry estimates. BC government data from BC Greenhouse Gas Inventory, Summary of GHG Emissions, 1990-2013.

The Forest Sector is Highly Exposed to Carbon Taxes

As producers of commodity products, Forest Sector firms are price takers and cannot pass on incremental costs in the form of carbon taxes. Combined with the fact that industry competitors across Canada and internationally pay little or no carbon tax, the BC Forest Sector is significantly disadvantaged.

Accordingly, the establishment of GHG targets and carbon taxes to achieve them, should wait until other jurisdictions have "caught up" and then be considered in light of the Emissions-Intensive, Trade-Exposed (EITE) status of the BC pulp & paper industry and the cost and trade exposed nature of the entire sector.

The Forest Sector's carbon tax burden in 2015 is estimated at $108 million and the incremental tax exposure for every $10 increase in carbon tax is approximately $36 million.[4] This includes direct carbon taxes paid from owned or managed operations and indirect carbon taxes paid to service providers who pass these costs on to Forest Sector mills. For every $1.00 of direct tax payments, the Forest Sector pays an additional dollar of carbon tax within the supply chain. The breakdown is as follows:

	Solid Wood Carbon Taxes		Pulp & Paper Carbon Taxes		Total for Sector
	Direct	Indirect[5]	Direct	Indirect[6]	
Carbon Tax Paid (2015)	$15 million	$39 million	$37 million	$16 million	$108 million
Carbon Tax Exposure (for every $10 Increase)	$5 million	$13 million	$13 million	$5 million	$36 million

GHG Opportunities Exist in Transportation, Forest Management and Products

Although the significant emission reductions implemented since 1990 represent the vast majority of those that are economically and technically feasible, well designed climate policies with investment incentives can still result in further GHG reductions. For the most part, these opportunities lie in transportation, forest management, long-lived wood products, biomass energy and new bio-products. Opportunities supported by the Forest Sector include:

- Strategies for lower carbon transportation fuels (provided they are cost neutral to the sector)
- Approving high-capacity trucks to lower net GHG emissions per tonne of product moved
- Forests and forest products inclusion in BC's GHG accounting process and the establishment of long term sequestration and product substitution goals and strategies that optimize GHG benefits
- A "carbon first" buildings policy that incents the use of low carbon footprint materials
- Elimination of PST on all electricity rates to incent substitution and improve sector competitiveness
- Clean energy policies that incent the continued and increased use of biomass
- Renewal of existing biomass energy Electricity Purchase Agreements (EPAs) and new EPAs

The Forest Sector Seeks Cost Neutrality in Carbon Taxes

To the extent that new carbon taxes are considered, the Forest Sector seeks cost neutrality in their impact. This could be achieved through the creation of a green fund financed using proceeds of the carbon tax to facilitate the development of new technology and other GHG reduction projects (or like-minded mechanisms such as a fully refundable low-carbon tax credit). These mechanisms must be designed such that companies can recover an equitable share of their carbon taxes paid.

[4] Industry estimates.
[5] Primarily incurred via forestry, logging and transportation of logs and outbound shipping of finished goods.
[6] Primarily via electricity and chemical purchases, inbound transport of fibre and outbound shipping of finished goods.

BC Forest Sector Feedback on the Climate Leadership Team's Recommendations to the BC Government

Principles and Assumptions

The Forest Sector appreciates the opportunity to provide feedback on the Climate Leadership Team's (CLT) Recommendations to Government. The following principles and assumptions guided the sector in its deliberations and government affirmation of them is considered critical in the context of updating BC's Climate Action Plan:

i. **Safeguard Competitiveness and Community Stability**

BC's climate policies are designed to reduce emissions while at the same time safeguard Forest Sector competitiveness and the stability of communities that rely on the sector. Critical in this regard is avoiding an outcome where the carbon tax burden (from industry owned sources and through the supply chain), is unduly borne by industry.

ii. **Affirm Emissions-Intensive, Trade-Exposed Status**

BC's climate policies affirm and reflect the Emissions-Intensive, Trade-Exposed (EITE) status of the BC pulp & paper industry[7] and the cost and trade exposed nature of the entire sector. The latter reflects the fact that the Forest Sector is a "price taker" and when direct and indirect carbon taxes are considered, both the solid wood and pulp & paper sectors are highly tax exposed.

iii. **Affirm Carbon Benefit of Biomass**

BC's climate policies reflect the IPCC Guidelines that CO_2 emissions from the combustion of biomass are reported as zero in the Energy Sector. This reflects the positive potential of biomass in sustainably managed forests and avoids double counting with accounting protocols used for Agriculture, Forestry and Other Land-Use (AFOLU).

iv. **Mitigate Emissions Leakage**

BC's climate policies are designed to avoid an outcome where the increased financial burden on BC companies simply shifts economic activity to other jurisdictions with the corresponding GHG emissions.

v. **Incent Transformation and Value Added**

BC's climate policies are designed to attract investments in applications of both traditional and new materials derived from the forest. This includes efforts to maximize the value and use of forest fibre for advanced multi-story building systems, increased bio-energy use, and biomass-derived replacements or enhancements to fuels, chemicals, plastics and other materials.

vi. **Recognize the Integrated Nature of the Sector**

BC's climate policies recognize the integrated nature of the forest products sector, the vital role this integration plays in the economic health of the sector and the potential benefits it offers in the emerging bio-economy.[8]

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[7] The Effects of H.R. 2454 on International Competitiveness and Emission Leakage in Energy-Intensive Trade-Exposed Industries. An Interagency Report, December 2, 2009

[8] The New Face of the Canadian Forest Industry – The Emerging Bio-revolution, The Bio-pathways Project, Forest Products Association of Canada, FPInnovations, 2011

Background

The extent of forested land in BC makes the province a global player in providing forest products and services. BC's forest land base covers 55 million hectares or nearly 60% of the total landmass of the province. The forest land available for harvesting is 22 million hectares (23% of the landmass), approximately 200,000 hectares is harvested annually (0.2% of the landmass), and other than road access for fire management and other values, 100% of the harvested land is reforested.

The BC Forest Sector and its more than 7,300 businesses account for $12 billion in annual GDP, 31% of all BC manufacturing sales and nearly a quarter of all direct manufacturing jobs. Province-wide, 40% of BC's regional economies are dependent on forestry and one in 16 jobs or 145,000 FTEs are tied to the forest industry. In addition to the economic benefits, BC's forests also provide many environmental and social values such as biodiversity, wildlife, clean water sources and recreational opportunities.

The integrated nature of the Forest Sector from the harvesting of timber through milling into various products and distribution remains a vital element in the economic health of the industry. Forest activities centre on wood product production which ranges from high value cedar products, veneer and engineered beams to dimensional lumber and panels for construction. Wood residuals and smaller logs are converted into pulp and paper and energy products. Residual wood chips, sawdust and bark from sawmilling operations feeds pulp and paper mills. Chips provide fibre for pulp and paper products while bark is used for steam and green power production. Sawdust, shavings and to some extent harvesting residues are used to produce wood pellets, a clean burning renewable fuel.

Forests and forest products can help address climate change by reducing the amount of greenhouse gases in the atmosphere. This is because forests reduce GHGs by absorbing CO_2 while they grow, forest products continue to store the carbon indefinitely, manufacturing processes for forest products require less fossil fuels than their alternatives, and forest and mill residues and other woody biomass can be used as fuel to produce clean bioenergy, further reducing GHGs. Finally, because forests are renewable and sustainable, they can contribute to GHG reduction in perpetuity.

When it comes to forests and the need to reduce GHGs, it is increasingly clear that forests and forest products are an important part of the climate change solution. Per the IPCC:

> "*In the long term, a sustainable forest management strategy aimed at maintaining or increasing forest carbon stocks, while producing an annual sustained yield of timber, fibre or energy from the forest, will generate the largest sustained mitigation benefit*".[9]

[9] International Panel on Climate Change 2007 Fourth Assessment Report, Mitigation.

Provincial GHG Targets and Carbon Taxes

The Forest Sector believes the establishment of provincial greenhouse gas targets and carbon taxes must be considered in the context of the decisions taken in other jurisdictions and with the benefit of a full understanding of past GHG reductions achieved and potential future impacts on global competitiveness.

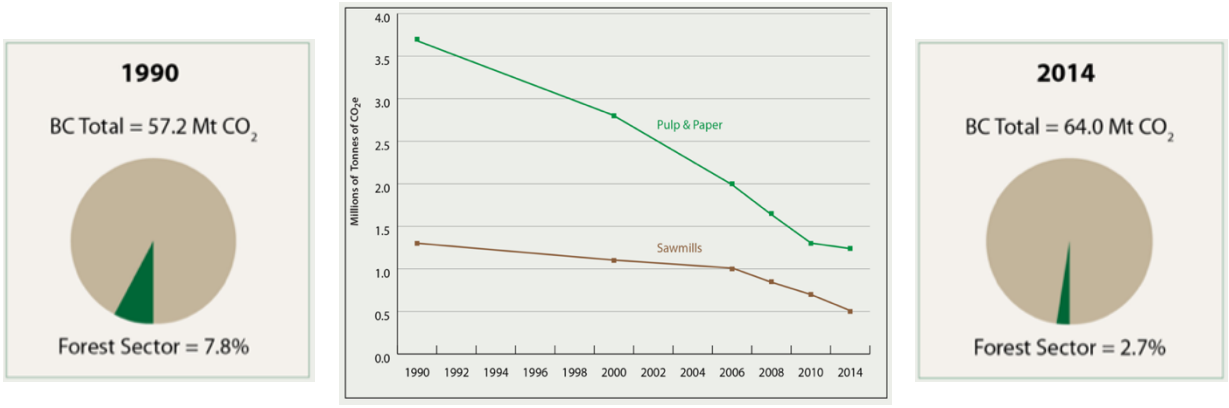
As producers of commodity products, the Forest Sector is a price taker and cannot pass on incremental costs in the form of carbon taxes, and BC's carbon price is already "among the highest in the world".[10] Combined with the fact that our competitors across Canada and internationally pay little or no carbon tax, the BC Forest Sector is at a distinct disadvantage.

Accordingly, the Forest Sector believes that further increases in the carbon tax should wait until other jurisdictions have "caught up" and then be considered in the context of the Emissions-Intensive, Trade-Exposed (EITE) status of the BC pulp & paper industry and the cost and trade exposed nature of the entire sector.

The Forest Sector's Past and On-going GHG Reductions

As BC's largest manufacturing sector, the Forest Sector has played a significant role in reducing GHGs over the past two and and half decades (see Chart 1), both in absolute terms (62% reduction since 1990) and per unit of product produced (57% reduction since 1990). This compares to the province as a whole which has experienced an increase in emissions of 12% over the same period.[11]

Chart 1. Total GHG Emissions for the Province and the BC Forest Sector 1990-2014[12]



The Forest Sector's Carbon Tax Burden and Exposure

The Forest Sector's carbon tax burden in 2015 is estimated at $108 million and the incremental tax exposure for every $10 increase in carbon tax is approximately $36 million (see table on next page).[13] This includes direct carbon taxes paid from owned or managed operations and indirect carbon taxes paid to service providers who pass those costs on to Forest Sector mills. For every $1.00 of direct tax payments, the Forest Sector pays an additional dollar of carbon tax within the supply chain.

[10] BCBC Report "*Is the Price Right? A Comparison of Carbon Pricing*", October 2015.

[11] BC total GHGs for 2014 is assumed to be unchanged from 2013.

[12] Forest Sector data compiled by the BC Pulp & Paper Task Force and industry estimates. BC government data from BC Greenhouse Gas Inventory, Summary of GHG Emissions, 1990-2013.

[13] Industry estimates.

	Solid Wood Carbon Taxes		Pulp & Paper Carbon Taxes		Total for Sector
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Carbon Tax Exposure (for every $10 Increase)	$5 million	$13 million	$13 million	$5 million	$36 million

Comments on Specific CLT Recommendations

Recommendation 3 - The Forest Sector is not in a position to support a sectoral goal of 30% for its sub-sectors. As noted above, BC's solid wood and pulp & paper operations have reduced their respective emissions by 62% since 1990 and as such, the vast majority of the economically and technically feasible emission reduction opportunities have already been implemented.

Recommendation 4 – The Forest Sector supports PST reductions as this form of taxation is a barrier to reinvestment and competitiveness. However, the proposed reduction of 1% will offset only a small portion of the proposed carbon tax increase. Based on a limited but representative sample for the Forest Sector, a 1% reduction in the PST rate equates to $1-$3 per tonne of carbon tax (not counting PST on electricity).

Recommendation 5 – To the extent that new carbon taxes are considered, the Forest Sector seeks an impact that is cost neutral. This could be achieved through the creation of a green fund financed using proceeds of the carbon tax (or like-minded mechanisms such as a fully refundable low-carbon tax credit), to facilitate the development of new technology and other GHG reduction projects. The mechanisms employed employed must be aligned with the purpose and principle of the carbon tax, include related research and development activities, and designed so that companies receive an equitable share of their direct and indirect carbon taxes paid.

Recommendation 6 – The Forest Sector has concerns about how the CLT recommendation to expand the current carbon tax to all GHG sources will impact its operations. Specifically, how methane releases from landfills would be estimated with sufficient accuracy,[16] and how GHG emissions from sources emitting both biogenic and non-biogenic CO_2 (such as lime kiln burners) would be separated, given the carbon neutrality of biomass.[17]

Recommendation 11 – The Forest Sector has concerns about how the CLT recommendation to include the social cost of carbon in the Environmental Assessment process will be measured and applied. The carbon tax is already considered to be a measure of the social cost of carbon.

[14] Primarily incurred via forestry, logging and log transportation and outbound shipping of finished goods.

[15] Primarily incurred via electricity and chemical purchases, inbound transport of fibre and outbound shipping of finished goods.

[16] It has already been proven that waste treatment facilities do not materially produce any greenhouse gases. The Forest sector does own and operate landfills containing wood wastes and other organics which can decay creating methane emissions. However, the approaches for estimating methane releases from landfills are highly speculative in nature and do not provide enough accuracy to form the basis for taxation.

[17] Pulp mills emit both biogenic and non-biogenic CO_2 from their lime kilns. The biogenic CO_2 originates from biomass combustion in the recovery boiler, and as such is organic and biogenic carbon neutral. The non-biogenic CO_2 emissions come from fossil fuel use in the kiln and processing of minor quantities of make-up calcium carbonate. Therefore, only kiln fossil fuel emissions should be included included and pulp mills already pay carbon tax on all fossil fuel purchases.

Supporting Evidence

1. Key Forest Sector markets and competitor regions:

Products	Markets	Competitors
Logs	China, Japan, Korea	Russia, US, Australia, New Zealand
Wood Products	US, China, Japan, Korea, EU/UK	Rest of Canada, US, New Zealand, Australia, Russia, Scandinavia, Germany
Market Pulp	US, China, Japan, Korea, Europe	Rest of Canada, US, Chile, New Zealand, Russia, Scandinavia, Germany
Mechanical Paper	US, Japan, South America	Rest of Canada, US, Scandinavia
Wood Pellets	Europe, Asia	US

What's Missing/Alternative Suggestions:

- An assessment of best available technologies, associated costs of greenhouse gas emission reductions and impact of implementation on forest sector competitiveness – to determine the practicality/achievability of provincial targets
- An assessment of the cost neutrality of potential offsets compared to the proposed carbon tax increase. This includes an assessment of the contribution of the PST reduction and the establishment of a green technology fund (or like-minded mechanisms such as a fully refundable low-carbon tax credit).
- A joint industry/government sector working group to address the key concerns and challenges.

Forest Sector Competitiveness and Investment Opportunities

The BC solid wood and pulp & paper sectors have lost ground competitively in recent years vis-à-vis their principal competitor regions and as such, maintaining and improving industry competitiveness is key to the sector's future. The BC Government is developing a Forest Sector Competitiveness Strategy that is particularly important in this regard because climate policies are more likely to be feasible in terms of GHG reductions if implemented in concert with efforts that support industry competitiveness.

Comments on Specific CLT Recommendations

Recommendation 7b – To the extent that new carbon taxes are considered, the Forest Sector supports the establishment of a green fund or tax credit mechanism where the proceeds of the carbon tax are used to support development and establishment of new technology, innovation and other projects. To maximize the potential for success, the focus should be on energy conservation and best-bet growth/GHG reduction opportunities. Examples include:

- High Value Wood Product Systems - Using engineered wood products to increase the height and scale of buildings provides a low carbon alternative to concrete, brick and steel based building systems. In addition to the displaced emissions, the use of wood in construction is an efficient means of sequestering carbon.

- Increased Utilization and Long Lived Wood Products – Strategies in support of increased fibre extraction per hectare harvested in concert with gains in the proportion of fibre converted into Long Lived Wood Products will maximize the net carbon benefit of forests.

- Advanced Applications for Fiber and Bio-materials - This highly technical development area essentially retains carbon in its elemental form by refining or re-configuring it into higher value products for new applications. This displaces products manufactured using carbon from a fossil fuel platform with a resultant GHG benefit due to displacement of fossil fuel consumption.

- Kraft Lignin Products - These products are produced from lignin extracted from a stream in the Kraft chemical recovery process. Traditionally the lignin in this stream was incinerated to generate energy however this process extracts the lignin to utilize its properties to produce resins and other materials for higher value new products, sequestering the carbon and displacing products produced using fossil fuels.

- Bio-fuel Products – biomass generated diesel, gasoline, jet fuel and other derivatives to blend with or replace fossil fuel products. Commercialization of technologies to economically produce bio-fuels is dependent in part on carbon pricing.

- Bio-energy and Biomass Energy Systems – Bio-energy from available forest residues can generate incremental firm, clean power, which would be particularly helpful in reducing GHGs in rural areas still using diesel or areas in need of additional power for current systems.

- Residue Based Products - These products tend to be incinerated to generate energy once value has been extracted in an upstream process. Examples include fuel for firm electricity generation or pellets for residential use or to displace coal in utility scale boilers. There are also applications that do not involve combustion such as insulation and soil remediation. This technology is still maturing but it represents an initial step towards the advanced refining processes noted above as well as a requirement to handle any by-products from those processes.

- Extractive Based Products - These are natural products extracted from wood, keeping the carbon locked in highly specialized functional molecules to produce additives for aromatics, biocides, pharmaceuticals and cosmetics. These are high value, small volume stream so the by-products can be further processed in traditional pulp and paper or bioenergy processes.

- Forest Management Opportunities - Enhanced silviculture aimed at increasing volume production, avoided emissions activities (e.g., reduced burning), Mountain Pine Beetle rehabilitation projects and reduced stand mortality through fire and pest management.

Recommendation 7c - The Forest Sector supports the establishment of incentives to encourage municipalities to use more wood in community building construction and bioenergy instead of fossil fuels for heating.

Recommendation 8 - Follow-up reviews should be undertaken every two or three years (rather than four or five), in consultation with stakeholders and an assessment of the effectiveness of the policy instruments employed (including their cost neutrality).

Recommendation 10 - The Forest Sector supports establishment of a task force with sector and topic-specific subgroups (e.g., competitiveness, innovation, etc.). The task force should be maintained over the long term and undertaken in partnership with stakeholders.

Supporting Evidence and Examples:

1. The BC Government is developing a Forest Sector Competitiveness Strategy to put the sector in a strong and sustainable, globally competitive positon. Competitiveness factors of import include:
   - Reliable, affordable and sustainable timber supply
   - Competitive tax regime / hosting conditions
   - Certainty around the forest land base
   - Market access and growth of forest products
   - Support for Innovation and diversification
   - Rural community transition and stability
2. With respect to the cost competitiveness in general, the following comment is provided:

   For BC Pulp & Paper Firms:

   - BC pulp companies face significant challenges as global capacity for all types of pulp expands, and competition intensifies from recent re-investment of pulp mills in Europe and Asia, expansion of low cost, fast growing hardwood pulps and increased pulp exports from around the globe into China. Paper producers are experiencing dramatic changes in market preferences as advancements in electronic media and technology in all end-use segments are eroding the demand for printing and writing papers.

   - The economic impact of green biomass power generation is at risk given the uncertainty over the EPA renewals for some producers. Most BC pulp mills are selling clean energy to BC Hydro under EPAs that are nearing the end of their terms without a clear framework for renewal. This uncertainty threatens the future operation of the mills themselves and the associated sawmills that rely on those facilities to purchase their manufacturing residuals.

For BC Solid Wood Firms:

- BC's sawmill sector competitiveness has fallen in relation to its key competitors and the BC Coast remains North America's highest cost producer. Most notable over the past half-decade is the significant increase in delivered log cost for interior mills in comparison to the US South and Eastern Canada.
- In the Interior of the province, companies continue to adjust to the impacts of the Mountain Pine Beetle infestation and the associated reduction in the AAC (which is forecast to decline through 2026). As the AAC decreases and the distance timber has to be transported increases, delivered log costs will rise further.
- Both Coast and Interior mills are at considerable risk due to the uncertainty surrounding softwood lumber and whether a negotiated agreement with the US is possible.

What's Missing/Alternative Suggestions:

- A common framework for evaluating sector competitiveness for testing these and other climate policy alternatives with a focus on the key opportunities in transportation, forest management, long-lived wood products, biomass energy and new bio-products.

Electricity Rates

The Forest Sector supports the elimination of PST on all electricity rates and clean energy policies that incent the continued and increased use of biomass in existing facilities. With respect to the latter, clarification on the renewal of existing biomass energy EPAs is essential to maintaining and expanding clean biomass energy production. In addition, reinstatement of the BC Hydro load displacement program will incent the production of low cost electricity improving the solid wood sector's electricity self-sufficiency and reducing the sub-sector's exposure to electricity rate increases.

Comments on Specific CLT Recommendations

Recommendation 7a - BC is unique in its application of PST on pulp & paper electricity used in manufacturing and eliminating it will remove a cost not faced by competitors. Mechanical pulp mills are the most disadvantaged in this regard given their electrical intensity.

Recommendation 12 - The Forest Sector supports policies for clean energy, particularly given the opportunity that exists to generate more clean energy from biomass.[18] Care must be taken in increasing the present 93% target for clean energy on the integrated grid (as it is already one of the highest in the world), but done gradually it can result in an increase in clean energy from biomass with the associated benefits from increased fibre utilization. This will however, require accommodation in BC Hydro's programs which currently assume half of current biomass contracts will not be renewed.

Recommendation 14 - More information is required on the potential impacts of Hydro's move to provide "clean electricity" to all rate payers.

Supporting Evidence and Examples:

- The elimination of the application of PST on electricity will increase demand for "clean" BC Hydro electricity which will incent its use in substitution for other forms of energy (e.g., fossil fuels). The PST elimination will further encourage both load retention and capital investment in the Forest Sector.

What's Missing/Alternative Suggestions:

- Broaden diesel conversion opportunities to include all options (e.g., electrified chippers).
- Increased firm power, biomass electricity at forest industry operations where the infrastructure is already in place in concert with appropriate BC Hydro programs (such as reinstatement of the load displacement program).

[18] Compared to other IPPs, clean biomass energy is renewable, supports cogeneration, is firm (i.e., guaranteed), dispatchable (i.e., can be turned on or off when not needed) and is typically already interconnected with the system.

Forestry and Forest Management

The Forest Sector supports updating forest policy to account for climate change impacts and to increase utilization and carbon sequestration. Properly conceived and with appropriate goals and strategies, forest management can contribute significantly to the carbon benefits achieved while at the same time protecting forest health and ecosystem resilience.

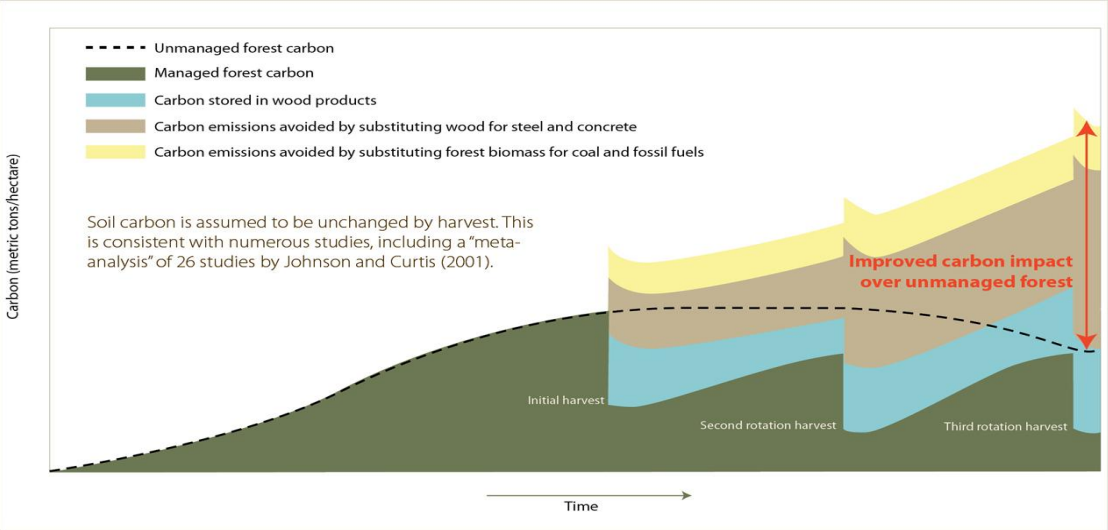
Forest Management and Product Substitution Can Increase Carbon Benefits 2 to 3 Times

The lack of forest management mitigation opportunities in the CLT document (and elsewhere in government policy) is due in large part to the absence of forests and forest products from BC's GHG inventory and accounting processes, and the short time horizons contemplated in assessing their potential contribution. The solution lies in considering all of BC's 55 million hectares of forest and looking at all forest carbon pools (e.g., forests, forest products and emissions avoided by substitution) over a full forest rotation.

The need for a systems approach, consideration for substitution benefits and a long time horizon is well recognized by IPCC climate scientists, including Canada's Dr. Werner Kurz. In this context, Dr. Kurz has suggested BC's mitigation potential could be 66 Mt of CO_2/year over 35 years. Extending this time horizon out over a full rotation—as CORRIM[19] did in their 2011 assessment of carbon potential (in representative BC Interior and Coast forests)—suggests the potential benefits are even greater. Depending on the forest and rotation age, CORRIM's research estimated net carbon benefits of two to three times the initial forest carbon.

The message from this analysis is clear—at least for a subset of the working forest—BC needs to establish integrated, long term forest sequestration and product substitution goals and strategies and start accounting for the GHG benefits achieved. This includes forest growth and utilization strategies as well as carbon storage and avoided emissions strategies. Further, BC must avoid conservation strategies that appear to increase carbon storage in the short term but are actually counterproductive long term.

Chart 2. Carbon Benefit of Wood Products and Substitution[20]



Adapted from: Perez-Garcia, J., B. Lippke, J. Comnick, and C. Manriquez (2005); J. Wilson (2006); E. Oneil and B. Lippke, (2009).

[19] Consortium for Research on Renewable Industrial Materials. *Life Cycle Carbon Tracking for the Working Forests of BC - Carbon Pool Interactions from Forests, to Building Products, and Displacement of Fossil Emissions*, CORRIM, 2011.

[20] Tackle Climate Change – Use Wood, BC Forestry Climate Change Working Group, 2009. Adapted from: Perez-Garcia, J., B. Lippke, J. Comnick, and C. Manriquez (2005); J. Wilson (2006); E. Oneil and B. Lippke, (2009).

Comments on Specific CLT Recommendations

Recommendation 16 – The Forest Sector supports policies that protect forest health from the effects of climate change regardless of their management status. This includes Protected Areas where forests are generally left unmanaged and will eventually succumb to old age (and release their carbon either slowly through decomposition or rapidly through fire). Although the Forest Sector appreciates the value of protecting viable, representative examples of the natural diversity of the province, a more proactive approach to their management can reduce future CO_2 emissions. This includes thinning, woody debris removal and fuel reduction programs to reduce the number and intensity of wildfires, protect against pest infestations and ensure prompt regeneration.[21]

Recommendation 17 (Regarding Increased Utilization) – The Forest Sector supports policies that facilitate better use of existing forest resources, per the BC Forest Fibre Working Group recommendations. The combination of huge volumes of untapped biomass potential in the woods, the forest industry's capacity to generate green energy surplus to its needs and the fact that much of the infrastructure, systems and personnel to bring these together are already in place, creates a significant opportunity. There are also ambient air quality benefits with utilization of forest harvesting debris, much of which is currently open burned.

As a result of the Working Group deliberations, new fibre recovery tenures have been developed and FLNRO is examining how it can facilitate increased utilization via its waste management and scaling policies. Capitalizing on this opportunity could also be accelerated by allowing forest products companies to participate both as purchasers of grid electricity and as potential producers and sellers of green energy. In this regard, energy pricing that provides the necessary returns to wood residuals and facilitates increased utilization of forest biomass should be considered.

Recommendation 17 (Regarding Increased Sequestration) – The Forest Sector supports policies that increase carbon sequestration via a wide range of active and intensive forest management practices. This includes:

- Prompt reforestation and intensive silviculture practices that maximize forest productivity
- Efficient extraction and use of wood fibre to maximize carbon storage in useful products
- Production of long-lasting wood products with residue fibre for energy production
- Substituting wood for materials that require large inputs of fossil fuels during their manufacture
- Continued carbon storage through recycling and substitution of wood residuals for fossil fuels in energy production

In that the vast majority of BC's forest land base is owned by the Crown, capitalizing on this opportunity requires government investment in silviculture and/or the establishment of incentives for private investment.

Recommendation 24 – The Forest Sector supports policies that improve the information available to protect forest health from the effects of climate change. This includes updated hazard maps and forest monitoring systems and better information on log type and quality in forest inventory data (e.g., LiDAR acquisition for BC).

[21] Similar to or in conjunction with the new Forest Enhancement Society of BC program activities for wildfire risk reduction and forest rehabilitation.

Supporting Evidence and Examples:

- Increased Carbon Sequestration – If BC could increase carbon sequestration by one tonne per hectare (0.1% increase over normal growth rate) to the timber harvesting land base, by 2025 it could reduce emissions by 25 million tonnes, or 2.5 million tonnes per year. This requires increasing forest carbon density in existing and new forests through actions including prompt reforestation, silviculture, reducing regeneration delays, selection of fast growing species, etc.

What's Missing/Alternative Suggestions:

- The need for incentives is paramount if enhanced forest management practices are to be implemented by forest companies in support of increased carbon storage and emissions avoidance through substitution. In this regard, a committee should be established to identify, analyze, and define the forest management practices and policies that will optimize forest growth and carbon sequestration and storage long term, and identify the incentives required to encourage their application and use. Carbon taxes could be utilized to incent best practices where there are significant cost barriers.
- Monitoring systems to quantify adaptations and ensure consistency in measurement are required. Modelling should identify forest management and utilization "best practices" including the dollar-cost of carbon sequestration over baseline levels.

Transportation

The Forest Sector is supportive of a low-carbon transportation strategy that encourages a transition to lower carbon fuels, provided it is cost neutral to the broader supply chain. Transportation costs are a significant component of industry's cost profile (estimated at 30% to 40% of delivered log cost), and cost increases imposed on transportation will impact the competitiveness of the entire sector.

As an example, the transition to lower carbon fuels like natural gas or bio-fuels could be attractive if the allocation of conversion cost risk for the shipper is addressed as well as the development of a refueling infrastructure. Industry mills are supply chain hubs for many truckers and represent an opportunity for advancing this strategy.

Approving High-Capacity Trucks Will Lower Net GHG Emissions

This refers to more efficient handling, transportation and processing of fibre without any compromise to public safety. In this regard, immediate and significant GHG progress could be achieved via approval of high-capacity trucks. Although a high-capacity truck will increase the fuel consumed per trip, it increases the payload carried to a greater degree. The net result is a reduction in energy required and thus GHG and other emissions. Example configurations include a 9-axle B-train logging configuration and a 10-axle chip van which would reduce GHG emissions as much as 8% and 18%, respectively.

Implementation of this policy is significant to industry competitiveness in that competing jurisdictions are already operating high-capacity vehicles (e.g., Alberta, Finland and Sweden).

What's Missing/Alternative Suggestions:

- The transportation strategy needs to examine the costs and benefits of different policies and give priority to those that are low cost and promote industry competitiveness, while harmonizing with those of other jurisdictions. The key to realizing GHG reductions and competitiveness benefits from these and other initiatives is for regulators to work jointly with industry and research organizations to develop and implement suitable technologies.
- Increased use of rail transportation can reduce GHG emissions; however current rail car shortages and perennial issues with carriers prevent companies from switching to rail.
- Review of current BC low carbon fuel standards and the effectiveness of an increase from the current 10% for transportation in promoting development of technologies and use of low carbon fuels.

Buildings

The Forest Sector supports a buildings strategy that reduces sector emissions and supports an increased use of materials that sequester carbon. However, a "Carbon First" buildings approach is preferred because many products sequester carbon (including steel) and no metric exists to measure how much each material sequesters. A more effective and workable approach would involve a Carbon First policy that incents the use of low carbon footprint materials based on reputable life cycle assessment (LCA) tools. Supporting policy initiatives could include:

- Passive standard-levels of performance for all for new and renovated buildings[22]
- Low-carbon assessments of buildings using recognized LCA tools
- Low-carbon or a bio-preferential procurement policy
- Support for the development, implementation and commercialization of low carbon innovative building materials (e.g. wood fibre insulation)
- A construction materials switching offset protocol to incent developers (assuming carbon tax credits are available)

Supporting Evidence and Examples:

- According to the Athena Sustainable Materials Institute and the US-EPA Greenhouse Gas Equivalencies Calculator:
    - A growing tree removes more carbon from the atmosphere than the amount emitted during the entire process of making a wood product and shipping it to the construction site. As a result, wood products aren't just carbon neutral, they're carbon negative—and that represents a carbon credit, which helps offset the carbon debt imposed by other building materials.
    - For every metric tonne of wood used, 1.83 tonnes of carbon dioxide equivalent is stored indefinitely. When wood is used in place of fossil fuel-intensive materials such as steel and concrete, the carbon benefit is even greater. On average, for every metric tonne of wood used, 3.7 metric tonnes of CO_2 are avoided or displaced, resulting in a total carbon benefit of 5.5 metric tonnes of CO_2.
    - Provided enough wood products are used and they can be recovered and used for bioenergy, wood has a sufficiently negative carbon footprint to offset the footprint of all the other materials that go into a typical North American house.

[22] According to IPCC Vice Chair (Working Group III), "*The best way for the planet to reduce its energy use is to build and retrofit every building to a passive design", and "compared to all other options, doing so is the fastest, most effective and least expensive way to reduce energy".*

Governance, Oversight and Other

Comments on Specific CLT Recommendations

Recommendation 28 – Although the specifics of the Climate Leadership Plan are unknown at this time, the Forest Sector supports a review of current offset policies given the importance of assessing current and proposed policy impacts on the sector's competitiveness.

Recommendation 29 – The Forest Sector supports a review of other Canadian programs in the BC context to ensure the viability and comparability of BC's approach and ensure the sector's competitiveness. If offsets can be sold outside of BC and both the GHG reduction and the emissions are removed from the equation, there is value in pursing them.

Recommendation 30 – The Forest Sector supports working closely with the federal government and other provinces as well as with other jurisdictions internationally.

Recommendation 31 – The Forest Sector supports BC taking a leadership role in seeking alignment with Canada.

Recommendation 32 – Although the specifics of the Climate Leadership Plan are unknown at this time, the Forest Sector supports a more frequent review period (every 2-3 years rather than five).

What's Missing/Alternative Suggestions:

- Over 500,000 tonnes per year of clean construction and demolition waste materials are disposed of into landfills throughout BC while many industrial wood residue boilers struggle to find clean, dry biomass fuels for their steam and green power generation. Current Environmental Management Act (EMA) regulations require individual permit holders to apply for the approval to use these fuels incurring significant costs through applications, studies and delays.
- The province has the opportunity to create a Code of Practice to facilitate the use of non-traditional biomass fuels such as construction and demolition debris and creosoted rail ties. Use of such fuels would reduce landfill demand, reduce landfill methane emissions, and reduce fossil fuel use in our sector's industrial boilers.
- Policy changes that encourage and facilitate alternative uses for wood ash (e.g., soil amendment or construction additive) can displace higher carbon footprint materials. Current EMA processes discourage these substitution opportunities.

Appendix A - Contributors

Key forest sector contacts / consultations by theme are as follows:

- Provincial Targets and Carbon Tax
  Bob Lindstrom (P&P), Graham Kissack (Catalyst), Michael Towers (Tolko), Cindy Macdonald (West Fraser), Michael Jordan (Canfor), Kristin Dangelmaier (Domtar), Anne Mauch (COFI), Carlo Dal Monte (Catalyst), Sinclair Tedder (FLNRO)
- Competitiveness and Investment
  Robert Prins (COFI), Cindy Macdonald (West Fraser), Jim Hackett (COFI), James Sandland (FLNRO), Michael Jordan (Canfor), Rick Jeffrey (CFPA), Anne Mauch (COFI)
- Electricity Rates
  Graham Kissack (Catalyst), Michael Jordan (Canfor), Michael Towers (Tolko), Kristin Dangelmaier (Domtar), Anne Mauch (COFI), Bob Lindstrom (P&P), Carlo Dal Monte (Catalyst), Sinclair Tedder (FLNRO)
- Forestry and Forest Management
  Michael Towers (Tolko), James Sandland (FLNRO), Kelly McCloskey (COFI/CFPA), Guy Burdikin (West Fraser), Megan Hanacek (ABCFP), Less Kiss (CFPA), Kindrey Mercer (WFP) Chris Stagg (Canfor), Jeff Mycock (West Fraser), Kalin Uhrich (Conifex), Rick Jeffrey (CFPA) James Sandland (FLNRO), Doug Routledge (COFI)
- Transportation
  Doug Bennett (FPInnovations), Cameron Rittich (FPInnovations), Brian Merwin (Mercer)
- Buildings
  Peter Moonen (BC Wood WORKS!), Lynn Embury-Williams (Canadian Wood Council), Dave Patterson (BCFII), Kelly McCloskey (COFI/CFPA)