



The Canadian forestry sector has reduced GHG emissions by 65 per cent, way beyond the Kyoto target of 6 per cent reduction below 1990 levels by 2012.

From Laggard to Leader

THE CANADIAN FORESTRY SECTOR'S VIRTUOUS CYCLE ON CLIMATE CHANGE

David Lindsay

As the world's attention turns to the United Nations Climate Change Conference in Paris in December, it is worth knowing which industries are doing the most to reduce their carbon footprints. The Canadian forest products industry has made significant GHG emissions reductions and has aimed to be carbon neutral along its supply chain. At the same time, with 10 per cent of the world's forests, Canadian trees absorb tremendous amounts of carbon dioxide to the tremendous benefit of our entire planet.

Droughts from California to British Columbia. Record-breaking temperatures in Central Canada. Fires in Saskatchewan—all blamed on climate change. Yet as angst grows about the impact of climate change, so do fears that curbing greenhouse gases (GHGs) could curtail economic activity. So wouldn't it be wonderful if there were something that pulled greenhouse gasses out of the air while fostering jobs and growth?

Instead of being part of the problem, the forest products industry can be seen as part of the solution to climate change—which scientists agree stems from the increasing emissions of greenhouse gases, especially carbon dioxide

(CO₂), from burning fossil fuels. Canada's forest sector is helping to mitigate this global challenge by absorbing CO₂ from the atmosphere and storing it in trees and soils, as well as in traditional and innovative new forest products from car parts to new construction materials. This contribution to a low-carbon economy is recognized by the Intergovernmental Panel on Climate Change (IPCC), but is probably less understood by many Canadians.

Forests themselves are not immune from the stress of climate change. With global warming, large and extreme forest fires, such as the ones in Western Canada this summer, are on the upswing. So are infestations. From 1998-2012, the mountain pine beetle killed about 18.3 million hectares of pine forests in British Columbia, mainly because winters were not cold enough to kill off the forest pest. However, at the same time, the forest sector is well positioned to influence and perhaps even lead the way on how we collectively address climate change and transition to a low-carbon economy. It's all part of a virtuous cycle.

A growing forest is a carbon "sink" that sequesters carbon dioxide from the atmosphere and stores it in trees and soil. Accounting for 10 per cent of the world's forests, Canadian trees absorb tremendous amounts of carbon dioxide to the benefit of the entire planet. The Canadian Forest Service estimates that the areas of Canada's managed forest store about 50 billion tonnes of carbon.

And as a renewable resource, our trees will continue to play this role. The deforestation rate in Canada is virtually zero, just 0.02 per cent a year. Any trees that are harvested are regrown, ensuring the maintenance of our forest carbon stocks. A study by Werner Kurz of the Canadian Forest Service confirmed that Canada's managed forests have been a carbon sink from 1990-2008.

Canadians, especially the majority who live in urban areas, may not re-

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alize that Canada is a global leader in sustainable forest management. Our country has 161 million hectares of forests certified by independent third parties to follow progressive social and environmental practices. That's 43 per cent of the total certified forests in the world, or more than four times more than any other country. Part of this leadership is developing active forest management practices to help forests adapt to climate change—for example, salvage harvesting to reduce fire risk, jump-starting growth in forests ravaged by the mountain pine beetle, or planting resilient species. By following best practices, properly managed forests can be a positive contributor to a Canadian carbon management system.

The next step in the cycle is at the mill. The story here is impressive: across the board, companies are aggressively reducing their environmental footprint and running more efficient facilities. Canada's pulp and paper mills rank in the top quartile in the world in GHG intensity emissions compared to their peers. Annual GHG emissions have been cut by about 65 per cent since 1990. At the same time, Environment Canada reported that Canada's total GHG emissions in 2013 were 18 per cent above 1990 levels.

The pulp and paper sector has also eliminated the use of coal and reduced the use of oil by more than 90 per cent. Instead, forest facilities are approaching energy self-sufficiency with about 30 facilities generating green electricity on site using residual materials from their operations—enough to power all the houses in Calgary. Burning wood for energy

does emit carbon but the next generation of trees stores it again—similar to a round-trip ticket—while burning fossil fuels for energy gives carbon a one-way ticket to the atmosphere.

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Then there are the various products made from wood that continue to capture and store carbon. This includes traditional wood products such as timber framing, furniture or books as well as new innovative bio-products. Take for example car parts, the console of a Ford Lincoln is made with a wood fibre composite. This helps the low-carbon economy in two ways—by replacing plastics made from non-renewable fossil fuels and by being lighter in weight, reducing the car's fuel consumption. Wood fibre is now found in everything from clothing to cosmetics to green chemicals as well as 3D-printing, pharmaceuticals and electronics.

These new products do not just have an environmental advantage but they also represent an important business opportunity. The shift in consumer preference for green products can help

open new markets and opportunities for the Canadian forest products industry.

This may be especially true when it comes to the potential of environmentally-friendly wood-frame buildings, which are heading higher because demonstrated improvements in fire safety and new construction techniques and materials have led to building code changes that permit mid-rise (up to six-storey) wood frame buildings. Even taller wood buildings are envisaged using ultra-strong laminated timber beams that are glued together under pressure—for example there are plans for a 16 to 18-storey residence at the University of British Columbia and a 13-storey timber tower in Quebec City. By storing carbon in the wood and requiring less energy to produce, these structures will have a lower carbon footprint than similar construction materials made of energy-consuming concrete and steel.

This isn't just a green dream. A study by the ATHENA Sustainable Materials Institute used a life-cycle analysis to look at the environmental impact of constructing three different houses in Toronto—framed with either wood, sheet metal or concrete. The study concluded that from the perspective of “embodied energy” the wood house did 53 per cent better than sheet metal and 120 per cent better than concrete. From a global warming perspective, wood came out 23 per cent better than sheet metal and 50 per cent better than concrete. A typical 2500 square-foot wood frame home is estimated to have 30 metric tonnes of carbon stored in it, the equivalent of driving your car for seven years.

Finally, as part of the forest industry's virtuous cycle, climate change is being addressed through the recovery and recycling of paper and cardboard. The recycling rate in Canada is around 70 per cent—higher than the US rate and among the highest rates in the world.

And whether it is in the forest, in the

mill, in products or recycling, the forest products industry is continuing its journey of environmental improvement. Under Vision2020, our ten-year sustainability plan, forest companies are pledging to reduce their environmental footprint by another 35 per cent based on a dozen parameters including greenhouse gas emissions, energy use, waste to landfill and recycling. The Canadian forest products industry has also pledged to be carbon neutral by 2015 and will find out whether it has reached this ambitious target when final metrics come in next year.

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Doesn't the forest industry emit a lot of carbon as well? After all, it's a manufacturing sector. Carbon is released when harvesting trees, using power at mills, transporting products or during the decomposition of forest products in landfills. However, a 2007 special report completed for NCASI, an environmental research body, concluded that GHG emissions along the forest product industry value chain are largely offset by the sequestration in forest products. The latest figures show that Canada's pulp and paper sector represents less than one per cent of all Canadian GHG emissions. This is in stark contrast to the transportation sector, which is responsible for 28 per cent of the greenhouse gas emissions in Canada.

Specifically:

- There has been a 65 per cent reduction in the Canadian forestry

industry in GHG emissions below 1990 levels, which has far surpassed the 6 per cent Kyoto target by 2012.

- To date, there has been an 11 per cent reduction in GHG emissions below 2005 levels, and the industry is well on its way to meeting the Copenhagen target of 17 per cent by 2020.
- As for the Paris target of 30 per cent below 2005 levels by 2030, the forestry sector is on its way to meeting that goal, as well. Interestingly, so much progress has been made in emissions reduction by the industry, that there may not be a great deal of room for further improvement.

Climate change is a challenge that needs to be embraced by everyone interested in both the environment and our economic future.

There is also the issue of putting a price on carbon. The forest industry generally agrees with the principle that there should be higher costs on the pollution we want to reduce and lower costs on what we want to increase such as income and investment. Regarding the carbon pricing scheme, the sector also feels that any revenue generated should be allocated to a carbon reduction fund, should be national in scope to avoid duplications, and that early adopters such as the forest products industry should be recognized.

Canadians will be hearing a lot more about climate change as we head toward the United Nations Climate Conference taking place in Paris in late November and December to set new international carbon emission targets beyond 2020. There is increasing global understanding that a low-carbon economy is the way to avoid damaging impacts on ecosystems, societies and economies while securing sustainable economic growth. **P**

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