



Opportunities for forest industry

There are significant opportunities for “bio-age” products for the Canadian forest industry, but tapping into these new markets is going to be dependent on integrating this new industry with a healthy conventional forest products industry.

By Tony Kryzanowski

The unfolding “bio-age” seems ironically synonymous with that old adage that you can hardly see the forest for the trees. The opportunity is there but it’s difficult to see more than a few pieces of the puzzle at a time.

The Future Bio-pathways Project study says that integration of new bio-based profit centres within existing forest industry facilities—such as sawmills—offers a much better bang for the buck on both the economic and employment front than standalone or greenfield investments.

But researchers and organizations involved in drafting the forest industry’s Future Bio-pathways Project are hoping to provide industry with a better view of the overall picture.

Led by the Forest Products Association of Canada (FPAC), with FPInnovations, Natural Resources Canada, and scores of economic and scientific experts, the findings of the second and final phase of the project were recently released. The first phase of the study, released in early 2010, examined the economic, social, and environmental benefits of integrating new bio-technologies within the traditional forest industry. It considered how this approach will boost employment and strengthen Canada’s economy and rural communities. The second phase specifically examines the market potential of emerging bio-energy, bio-chemicals and bio-products. It also explores new approaches to managing value and building partnerships.

A couple of important conclusions can be gleaned from both reports. First, the size of the opportunity of the bio-age as it slowly unfolds is a lot larger than most people, including the forest industry, realize; and secondly, the key to the forest industry’s successful participation in the bio-age in the short term depends on a solid traditional forest products foundation.

In other words, integration of new bio-based profit centres within existing and even mothballed facilities offers a much better bang for the buck on both the economic and employment front than stand-alone or greenfield investments at this early stage of industry participation in the bio-age.

When it comes to demonstrating the size and scope of the opportunity for the forest sector, the report makes some interesting comparisons between current and projected growth rates for conventional Canadian forest products versus several bio-products sectors. The most damning statistic is the annual growth rate projected for the \$50 billion (all figures \$U.S.) Canadian forest products industry that Natural Resources Canada and Industry Canada have predicted for between 2009 and 2015. It is pegged at anywhere from negative growth to only as high as two percent.

However, the green chemicals market is expected to grow 5.3 per cent annually during that same period with global market potential of \$62.3 billion, and the alcohols market is also expected to grow 5.3 per cent annually to \$62 billion.



Furthermore, the bio-plastic and plastic resins market is expected to grow 23.7 per cent annually to \$3.5 billion by 2015, the platform chemicals market should grow 12.6 per cent annually to \$4 billion, the wood fibre composite fibre market is expected to grow by 10 per cent annually to \$35 billion, the glass fibre market is expected to grow by 6.3 per cent annually to \$8.4 billion, and the carbon fibre market is expected to grow by 9.5 per cent annually to 2015 to \$18.6 billion.

So there's no denying the opportunity, as products can be developed from wood fibre to serve all these fast-growing markets.

What's important to note is that several heavy hitters among industrialized nations are racing to the finish line to maximize their potential involvement in the bio-age, according to Future Biopathways Project findings.

"Already, Canada's competitors are moving quickly to establish themselves as leaders and are heavily investing in their forest sectors in a quest to combat climate change, deliver energy security, and provide greener products to the marketplace," the report says. More to the point, between 2005 and 2009, the European Union, the United States, and China accounted for over three-quarters of all investment in biomass-derived energy. Canada was responsible for only two per cent, "a sign of the huge untapped potential of the Canadian market in the developing bio-age."

Industry can be excused for feeling a bit gun-shy about leaping into bio-product investments because of the lessons learned in the pulp and paper industry. Established as one of Canada's oldest and most lucrative industries for decades, the industry now finds itself a mere shadow of its former glory because of competition from areas that can grow genetically modified trees as agricultural crops in a fraction of the time that it takes to grow a tree in Canada's natural forest.

The question is what's to stop those competitors from allowing countries like Canada to develop the technology and build the markets for bio-materials, only to see them stolen away by lower cost producers.

"Is this sort of like a unique niche that no one can touch? No it's not," says FPAC President and CEO, Avrim Lazar. "We still have to be competitive, but it makes us more competitive. It's not something that we own but it's something that we have to do if we want to stay competitive, but everybody is headed there." He adds that the key is to have a solid conventional forest product foundation, with the potential to generate bio-energy or bio-materials as part of the mix.

"The economics of this really only work if the economics of the basic industry work," he says. "This will not replace the lumber and pulp and paper industry. It will just create a value stream that will make the industry more economically stable and sustainable."

Lazar adds that there is no doubt that countries like Brazil are headed in the same direction as Canada regarding developing a bio-industry wrapped into the forest sector, with government sponsored research related to investigating the genetics of eucalyptus to see if its productivity can be enhanced. However, he points out two limiting factors that may hinder the extent that they can become involved. One is land use competition.

"Almost all of the competitors who could come in and do the same thing are using agricultural land," says Lazar. On the other hand, Canada is deriving its potential feedstock from the natural forest.



“Almost any economic or social analysis will tell you that the higher and best use of agricultural land is either food or bio-fuel,” he says. “So there’s not that much chance that they are going to keep expanding and eat this part of our lunch.”

The second constraint for competitors is the economic model that shows that profiting from bio-materials only really works in combination with economic production of conventional forest products.

“If your pulp and paper assets aren’t competitive or your lumber mill is the wrong type and the wrong size, this isn’t going to save you,” says Lazar. “The first priority has to be to continue to improve the competitiveness of our assets.” Going hand in hand with that is developing new markets for conventional forest products and being less dependent on the U.S. market, while manufacturing products that are in consumer demand.

The final priority is to try to extract more value from every tree harvested, which is where greater participation in the expanding bio-age enters into the equation.

There shouldn’t be an expectation that the forest industry will suddenly pony up with bags of cash to bankroll bio-age type investments. Despite the rosy projections for conventional forest products going forward, the industry has just come through a period of preserving cash to survive, largely by delaying capital investments in the basic industry. So it’s likely that companies will first focus on funding those delayed capital upgrades, and a good example of that is the massive capital investment recently announced by industry leader, West Fraser Timber.

“A large part of what we are hoping will happen with this is that cash will come from outside—from the energy industry, the chemical industry, biotech companies—who are looking for partners in bio-age stuff,” says Lazar.

These companies need to partner with companies that have the infrastructure in place to provide them with their required raw material, and Lazar adds that a forest company’s openness to partnership may well turn out to be a competitive advantage. FPAC is facilitating networking meetings to help forest industry representatives connect with potential partners from outside their usual circle of dance partners.

That is essentially what the Future Biopathways Project report suggests as a recommended way forward when it says: “The new technologies will have smaller niche markets, but generate a much higher price. Integrated plants could produce up to five times as many jobs as a stand-alone bio-energy plant. Combining the old and the new is the way forward for the next-generation forest industry.”

Lazar concludes that governments also must be prepared to match what other countries are doing to help the forest industries profit from the bio-age, through research and development spending and assist with taking technologies from the pre-commercial to the commercial stage.