Opportunity BC 2020
BC’s Forest Industry

Moving from a Volume Focus
to a Value Perspective

Prepared for The Business Council of BC
October 2009
Executive Summary

It has been decades since the economic engine of BC’s forest industry has been ‘firing on all cylinders’. This report offers three key messages for British Columbians about the industry’s prospects to the year 2020.

Message #1

✓ Forest Products is a Growth Industry

BC’s forest products manufacturing sector is a vital player within a global industry that, over the past fifty years, has grown at a faster rate (on average 8.5% per year, every year) than most other manufacturing sectors worldwide. BC has not always fully participated in this global growth. Nevertheless, through investments in new products and serving existing and new markets, BC can expand its world role and help bring increased prosperity to all British Columbians.

The industry is based on natural, renewable resources. BC and Canada are world leaders in sustainable forest management. This leadership has been achieved through substantial investments by the sector — and should be leveraged to BC’s competitive advantage.

In the 21st Century global context of climate changes, and rapidly rising global energy prices, the forest industry is assuming two very important additional roles. It already produces green energy. Much more can be produced — and sustainably, at an attractive price compared with other forms of alternative energy. Secondly, there is perhaps no better industrial player within the BC economy that can do a better job of carbon management — sequestering huge levels of greenhouse gases (GHGs) generated elsewhere around the world.

BC’s forest products manufacturing industry already is doing many of “the right things” in terms of new, higher value forest products and market development. Globally, the competition for market share is intense. As one of “the Traditional 2” global exporting regions of forest products (along with Sweden and Finland), BC has moved from being one of few producers fifty years ago, to one of many today.

Increased supply and, most probably, gains in global market share are likely to achieved by “the Emerging 3” new global exporting regions. These regions comprise the southern hemisphere, western Europe and Russia (which has the world’s largest reserves of untapped timber).

Globally, there are increasing indications that economically accessible global timber supplies are becoming much tighter. Some industry projections indicate that real prices for timber (especially sawlogs and other high quality timber) already have started to shift from decline to a longer term trend of increases. Among other things, this trend will make BC’s timber resources — and the health of its forest products manufacturing sector — even more vital than they have been in the past.

In the short term, BC (along with all other forest products producing regions) faces some of the worst operating conditions experienced since the 1930s. Markets are expected to recover, but this will take time. Ironically, as North American and global markets start to improve, parts of the BC forest industry will be facing unprecedented challenges that will delay their recovery. Specifically, as a result of the massive Mountain Pine Beetle (‘pine beetle’) epidemic in the BC Interior, the region’s sustainable supplies of softwood timber (especially the higher quality grades) will decline. Fortunately, the BC Coast forest region can expect improved competitive conditions.

It is vital that productive timberlands in the Interior region are re-forested — and healthy young forests are re-established quickly. A silver-lining could emerge from these dark storm clouds. For many years, fundamental tenure reforms and timber pricing reforms have been needed within BC.

BC’s Crown (i.e. publicly owned) timber resources are managed by the government on behalf of all British Columbians. Tenure reforms would not alter the ownership of Crown timber. Public timberlands would continue to be owned by British Columbians. As land claims are settled, some of this ownership would transfer to the province’s First Nations.

With bold changes in thinking, new tenancy rules for private sector investors could help attract significant new capital funds into the province’s forest products manufacturing sector. Timber values would rise, but the manufacturing industry could at last achieve return on capital employed (‘ROCE’) that could justify investors’ risk-taking — and help boost BC’s forest products exports.
Message #2

✓ BC’s Forest Industry is at the Threshold of a Profitable and Prosperous Future

‘Partnerships’ between (1) capital + timber & timberlands and (2) capital + human resources could help the province’s forest industry penetrate new markets and significantly expand its sales revenues and ROCE — on a sustainable (but probably still cyclical) basis. The right conditions for this to occur will have to be created. The task will not be easy. But the potential exists.

Capital + Timber

Forest products manufacturing in British Columbia is capital-intensive. The capital ‘footprint’ of a single lumber supermill today is several hundred million dollars. The most recently constructed pulp and paper facility in BC (nearly 20 years ago) involved capital investment of over $1 Billion.

In the past, extensive utilization (i.e. harvesting) of the province’s Crown timber resources has generated considerable wealth (i.e. economic rent). Much of this initially accrued to the manufacturing sector. The bulk of this wealth has, in turn, been passed along to BC’s customers — mostly in the United States.

For over a hundred years, BC’s customers have benefitted from comparatively low product prices and have received increasingly higher quality products and linked services from BC manufacturers and shippers. Over this period, the BC manufacturing sector (almost single-mindedly) has been focused on being the lowest priced seller — in order to continually win and maintain market share.

This world has now changed. Simply put, if BC’s forest products manufacturing industry continues to pursue exclusively market share goals, it will remain trapped in the pursuit of cost-minimizing commodity products. Every producer will continue to strive to be ‘the last man standing’. Under this scenario, as a result of the manufacturing sector’s inability to add value and wealth within the manufacturing process, the industry will fall into sharp decline — with further loss of jobs and income.

Chart A

New Rules in BC for Capital + Timber ‘Partnerships’ can Create Substantial New Wealth in the BC Forest Products Sector

BC’s Traditional Manufacturing Model Works Well, and will Continue to Do So Long into the Future! It is the Industry’s Timber Supply Model and Chronically Low ROCE that Must Change!
‘Old Thinking’

BC’s “Old Thinking” about the appropriate relationship between capital + timber (and the respective rewards to these factors of production) is summarized in Chart A.

‘Old Thinking’ involves an extractive mentality towards BC’s Crown timber resources, and towards the logging sector. As a result, it is a low capital intensity activity compared, for example, with BC’s forest products manufacturing sector. Over several decades, the level of wealth (economic rent) re-invested in the timber and logging sector has declined on a more or less continual basis. With this focus, it is not surprising that an increasing volume of BC’s timber harvesting has become contracted out – to save costs.

It is important for British Columbians to know that, for the most part, there is absolutely nothing wrong with the manufacturing model developed by the BC industry under the ‘Old Thinking’. This is a successful, normally globally-competitive business model that comprises (for the most part) investments in state-of-the-art, large scale low unit cost manufacturing facilities. The BC Interior softwood lumber and OSB sectors, for example, normally are in the 1st Quartile of global costs, and many mills are in the 1st Decile worldwide.

The BC Interior wood industry’s product mix, however, is aging. In order to generate higher net margins, it needs to include a larger proportion of higher value and ‘skills-added’, faster growing new products. An example is building component stock, sold to channel partners (e.g. in the U.S.). The BC Coast Industry has not fared as well as the interior industry in recent decades — for a variety of reasons. It held on too long to an outdated wood product mix, and investors were severely punished by the effects of the ‘war-in-the-woods’ and a variety of other land use and related conflicts during the 1980s and beyond. The BC Coast could, however, enjoy a resurgence under the ‘New Thinking’ options that are available to the industry.

With a continuation of ‘Old Thinking’, stumpage values (i.e. the payments made to the province for the right to harvest and process timber) will remain extremely low, as they are today. In turn, without the prospects of a higher rate of return on invested capital, manufacturing investors will remain risk averse and will not invest in higher risk-reward processing activities and facilities. As they have done recently, they will continue to invest outside the province. For BC, it is a vicious downward spiral. It does not need to continue this way.

Because it is a cyclical industry, there will be times under this scenario when manufacturers will — for a limited time during peak U.S. market demand — make exceptional (i.e. ‘super-normal’) profits. On average, however, the trend in ROCE will remain inadequate, quite simply because ‘old thinking’ will not leverage capital + timber to best advantage to create wealth.

‘New Thinking’

This scenario makes various assumptions. In essence, it defines a new relationship between capital + timber that could result in the intensive use of (probably) a smaller working forest than has been available to the industry in the past. Plus, it could involve the selective utilization of the province’s marginally economic forestlands, managed under extensive management principles. These are noted in Chart A.

‘New Thinking’ combinations of capital + timber, capital intensive and intensive management practices on Crown forestlands potentially could produce significantly higher yields of merchantable timber. The economics would depend on site conditions (foresters refer to the ‘site-index’ as being an indicator of forestland productivity). Wasteful, unnecessary ministerial administrative procedures could be eliminated.

This is not a blanket prescription for success. However, removal of institutionalized obstacles to intensive forest management (e.g. operating risks, excessive regulation, and a shift away from a high harvesting cost-to-product price ratio) could go a long way to generating new wealth on BC’s better growing sites. In particular, these steps could benefit large clusters of manufacturing capacity that are close to these more productive forestlands. In this respect, clusters of BC manufacturers could enjoy the types of low fibre cost advantages achieved overseas by many close-to-the-mill intensively managed forests. An illustration of a possible model for BC mills and intensively managed forests is provided in Section D of this report.

Capital + Human Resources

This combination involves perhaps the best possible strategy for BC’s forest industry to achieve a sustained competitive advantage over the longer term. Under ‘Old Thinking, upgrading of the industry’s workforce (woodlands and processing) is likely to remain limited by the manufacturing sector’s emphasis on its traditional product mix — and its historical reluctance to invest its own money in skills upgrading.
Under ‘New Thinking’, wood operators, for the most part, would be focused on extracting value from the log — not just to maximize log volume throughput. Similarly, in the mills, part of the workforce would be focused on commodity production (as it is today). But other parts would have to be trained (and/or re-trained) on how to recover value from the log and perform subsequent value-added steps (ranging from more sophisticated kiln drying to production of large volume customized items for supply channel partners).

Fortunately, through BCIT, UBC (CAWP), UNBC and other institutions, the industry is well served with post-secondary education and skills training and skills upgrading facilities, including distance delivery services.

**Message #3**

☑ **BC Should be Fully Committed to Being in “the Tree Growing Business”**

The “vicious cycle” of mill closures, layoffs and capital withdrawals that has plagued most parts of the BC forest sector over the past several decades has obscured stakeholders’ vision of what the sector could achieve under optimum conditions. Numerous people within the industry — and most likely the vast majority of British Columbians at large — believe that forest products manufacturing is a ‘sunset-industry’.

This is far from being true.

It is much easier to observe the current situation than it is to envisage what potentially could happen under the type of ‘New Thinking’ alluded to in the previous section. Moreover, despite a plethora of ‘vision’ documents produced by the industry, government and other stakeholders (including First Nations, labour unions and others), a broadly supported sustainable vision for the sector has not yet been established.

One common element of all of these vision documents, however, involves the issue of growing trees. In BC, the era of commercial forestry still is in its infancy. Globally, even nations such as Germany, which have a long history of excellence in forest management, are relative novices in growing and managing trees. Global climate issues, and the need to sequester GHGs and manage the planet’s future carbon emissions, have contributed to a new understanding of the importance of sustainable healthy forests. Just as, only a few decades ago, strong environmental pressures forced the forest industry to re-evaluate — and change — some of its practices, today carbon issues and the need for more green energy are re-defining industry’s priorities.

**Chart B**

**Trees in British Columbia**

12,000 years Since the Last Ice Age

\[ \frac{12,000 \text{ years}}{240 \text{ Forest Cycles}} = \sim 50 \text{ ‘Commercial Rotations’} \]

.....BC’s Forest Industry has Experienced only 1 to 2 Rotations!

**Erath of Commercial Forestry**

Capt. George Vancouver

Sustainable Forestry

Hewers of Wood

Capt. George Vancouver

Sustainable Forestry

Hewers of Wood

Photos: Courtesy of Wikipedia and Canadian Museum of Nature
Chart B provides a schematic perspective. Around twelve thousand years ago, the Ice Age was putting in place the soils and topography that today form the land base for BC’s forests. Allowing for forest fires, weather and insect attacks, it can be assumed (for the purposes of illustration) that typical forest cycles across the province may have lasted for around 240 years — from re-birth of the forest to its demise from natural causes. Of course, this would have varied greatly — with significant differences occurring in coastal regions and the BC Interior. Many intact old growth forests lived for much longer.

On this very simplified conceptual basis, BC could have experienced the equivalent of around 50 ‘commercial rotations’ since the last Ice Age. BC’s First Nations were the first known peoples to use BC’s forest bounty. Commercial forestry began as European and other settlers became ‘hewers of wood’.

The pace of understanding about sound forest management practices has accelerated in recent years. As already noted, only just recently has the potential for BC’s forests and manufactured forest products to help sequestrate global GHGs been fully appreciated. There is still much to learn.

Analyses of markets and product technologies provided in this report confirm that if the BC industry continues to do “the right things”, and if operating conditions and ROCE become more conducive to significant new investment, the production of new and exciting forest products for domestic and export market can continue to expand. There are no guarantees this will occur. Moreover, many factors would have to be aligned satisfactorily for it to occur.

For the purposes of this report, several scenarios of potential sales revenues for the industry have been developed (Chart C). Data for, and prior to, 2006 are industry actuals. The scenarios show surrogate values. Sales data (as opposed to ROCE levels) are provided for the purpose of demonstrating the industry’s growth potential.

**Chart C**

*BC Forest Industry: Opportunity BC 2020 Scenarios for Industry Revenues*

As things stand at present, the most probable outcome to the year 2020 is an ‘Opportunistic Survival Scenario’ (the middle level of growth in the chart). Even this would require several positive changes (Section D provides the details). Essentially, this scenario involves the further loss of sawmilling capacity along with more pulp mill and paper machine closures. It is a “muddle-through” scenario in terms of Crown forest tenure reforms. Surviving mills and plants in the industry are likely to do better as a result of reduced competition for logs, and higher product prices. New capital investment is likely to occur in bio-fuels. But the net loss of manufacturing capacity assumed in this scenario leads to zero growth in sales and no sustained
improvement in average ROCE levels. Under this scenario, however, the BC Coast is assumed to benefit from the decline in sawmilling in the BC Interior.

The 'Decline Scenario' assumes the 'worst case' scenario for the BC Coast and BC Interior region. It assumes that the rationalization and consolidation process that, almost inevitably, will be required to balance 'ironwork with timber' in pine beetle-killed timber areas is constrained by public policy, including restrictive federal corporate concentration rulings. It assumes an ineffective tenure reform process and restrictions on log flows, including exports. This scenario also assumes the loss of cash flow benefits that could result from a policy of open log markets (available to U.S. and overseas buyers, but more likely to be processed “value-added” within BC) that could be achieved under the 'Renewed Growth' scenario.

The 'Renewed Growth' scenario builds on the products identified in this report as growth opportunities for BC's forest products manufacturers. In the wood products sector, there is huge potential for further processing adding value to commodity lumber and structural panelboards through the production of building component and component stock, engineered wood and structural systems for channel partners.

Most of the focus for these growth products is expected to be on the U.S. market — where beneficial channel partnerships and other supply chain relationships are occurring and more can be developed. There are also important opportunities in some offshore markets for these products. But the U.S. market is primarily where BC can exercise its greatest competitive leverage in this new generation of wood product exports.

Fundamental to these opportunities is a profitable and globally cost-competitive forest sector. Outside-the-box 'New Thinking' is key to attaining this goal (Chart D). It is assumed that a new set of working relationships between private sector capital and new/revised timber tenures for BC's forest industry will be able to generate substantial levels of new wealth (economic rent) within the forest economy.

Chart D

Thinking 'Outside-the-Box' is Required

<table>
<thead>
<tr>
<th>What Actions are Essential 'No-Brainers' for BC?</th>
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<tbody>
<tr>
<td>#1. Retain and reinforce BC’s successful manufacturing model.</td>
</tr>
<tr>
<td>#2. Review and change the P3 timber allocation and pricing business model. Ideally, develop a more effective new tenure and timber pricing model that will attract significant long term capital investment from the private sector ... generate new levels of wealth (economic rent) ... and reward this investment.</td>
</tr>
<tr>
<td>#3. Create a streamlined regulatory environment that could become the basis of a new ‘social contract’ equally supported by private and public sectors.</td>
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'Renewed Growth' anticipates that bold reforms will be made to the current tenure and timber pricing systems. It assumes that new capital resources are successfully attracted to the industry. It anticipates that BC's global competitiveness is significantly enhanced by wealth creating new relationships between financial capital + human resources (human capital). As already noted, these are well supported by existing post-secondary training services but, at the primary education level, linkages to the industry are very weak.

Rising real prices for some products (notably softwood lumber) are expected to help the industry boost its revenue earnings under all scenarios, although with varying impacts.

Previous sections have indicated that parts of BC’s NBSK market pulp industry could achieve a significant level of earnings and export volume growth through their investment in bio-fuels. The market outlook for the pulp sector fundamentally is good, provided that a cost-competitive position can be achieved. In this context, an extension of the sector’s product mix into green electricity, bio-fuels (and possibly bio-refinery products) will help extend the life cycle of this sector for many years to come.
The growth scenarios presented in this report are real, but the sales values assumed are hypothetical. It is possible to construct a series of projections that could provide better indications of potential financial outcomes (e.g. sales revenues, operating income) for the industry and for regions of BC. Surprisingly, this has never been done. It should be a high priority for the industry – as a focus-point for proposing Crown timber and tenure changes.

**Recommendation for Action**

This report contains a single recommendation.

It is addressed to government — notably BC’s provincial government. But the recommendation also contains significant implications for the federal government and more junior levels of government including regional districts and municipalities. The time schedule envisaged for implementation is immediate. The benefits to BC would flow almost immediately, and extend well past the year 2020. The recommendation is this:

“The BC government should initiate an economic and financial analysis of the BC forest products manufacturing sector, with short, medium and longer term perspectives that place financial returns (ROCE) to industry investors and investment growth as the #1 priority and goal of government policies relating to the province’s industrial timberlands and commercial forests.”

**What Does this Recommendation Imply in Practice?**

For the first time in many decades, the recommendation puts the industry’s investors first. It addresses the issue of wealth creation under optimum conditions for the industry. This is not to say that existing safeguards designed to protect the environment and other stakeholders should be discarded. Far from it! But, given the high probability that ROCE levels will continue to be inadequate under current conditions, the most likely outcome to the year 2020 for BC’s forest products manufacturing industry is otherwise one of significant under-performance. It is vital to seek better ways of achieving a satisfactory level of ROCE for investors.

Conceptually, the approach (Chart E) would put wealth creation by the forest industry back at the top of the multiple objectives currently defined for BC’s commercial Crown timberlands and timber resources (these areas exclude parks, set-asides and protected areas). A new public-private partnership (‘P3’) is proposed.

**Chart E**

*Stages of Growth in the Management of BC’s Industrial Timberlands and Commercial Forests*

*Showing Subjective Rankings of the Provincial Government’s Priorities*

<table>
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<th>Stages</th>
<th>Historically</th>
<th>Current, and Recent Past</th>
<th>Proposed</th>
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<td>#1</td>
<td>Industrial Development</td>
<td>#1</td>
<td>Industry</td>
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<tr>
<td>#2</td>
<td>Regional Expansion</td>
<td>#2</td>
<td>Land Claims</td>
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<td>#3</td>
<td>Industry ROCE</td>
<td>#3</td>
<td>Industry Survival</td>
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<tr>
<td>#4</td>
<td>Protected Areas</td>
<td>#4</td>
<td>Regional Development</td>
</tr>
<tr>
<td>#5</td>
<td>Land Claims</td>
<td>#5</td>
<td>Industry ROCE</td>
</tr>
</tbody>
</table>

**Historical Perspective**

It is probably fair to say that, historically, the provincial government’s priorities with regard to BC’s industrial timberlands and commercial forests were to use them as a vehicle primarily for economic development and regional expansion. Commercially, the main focus was on helping develop business models in manufactured forest products that would position BC as a top-quartile, cost-competitive player in global markets.
During this time, economic development policies were paramount. Industry ROCE was secondary, but investors had many opportunities to profit from mergers and acquisitions and from fluctuations in stock prices from BC’s ‘boom and bust’ forest economy. Longer term capital providers were patient. Historically, environmental issues received only cursory attention. First Nations’ land claim settlements were relegated to a distant last place.

Over a period of time, these priorities began to shift. Environmentalists’ outrage over issues such as clear-cutting spread into the public domain. Through various activist campaigns, they were used to alienate BC’s forest products customers from their suppliers. On the BC Coast especially, firms began losing their customers' support. The focus of government policies began to shift. Forest industry development, regional expansion of the sector and industry profitability quickly moved downwards on the government's agenda.

**Current and Recent Past**

During the 1990s, the provincial government’s priorities began to shift in favour of multiple use, forestland set-asides and the creation of numerous parks. The latter had the goal of meeting the Brundtland Commission’s objective of 12% of the provincial land base being allocated to these protected areas, which was quickly met. BC’s lagging economic growth and loss of capital investment in this period are a matter of public record.

Many foreign investors withdrew capital from the industry and re-invested it elsewhere. There was, however, a concerted effort by the government of the day to expand the size and profitability of BC’s wood products “value-added” industry (notably through Forest Renewal BC). This was partially successful, boosted by the rapidly evolving softwood lumber trade dispute with the U.S. (SLA 1). It was the heyday of BC’s value-added wood products industry, which has diminished in scale since then.

Restrictive policies during the 1990s, including the imposition of ‘super-stumpage’ continued to have a negative impact on capital investment. Stringent environmental requirements led directly to a decline in BC’s pulp and paper sector capacity growth. However, the BC forest industry complied with the new state-of-the-art emissions rules and, throughout Canada, the industry spent billions of dollars on independent third party certification of its forest management practices. Today, virtually all companies manage certified forests.

The province’s wood products manufacturing industry faced declining sustainable (AAC) harvest levels — but still continued on a strategy of volume expansion. This was boosted in the early 2000s by an unsustainable ‘windfall’ of timber harvesting in the BC Interior caused by the pine beetle epidemic. Volume thinking continued unabated because of rapid growth in the U.S. housing market, cheap beetle-killed timber in the Interior and Canada’s low valued dollar in U.S. funds. Ministry of Forests policy priorities shifted back in industry’s favour with the 2003 Forest Revitalization Act. But the focus was on industry rationalization, survival and efficient allocation of timber rather than on improved ROCE.

**Proposed Approach**

The current global economic downturn suggests a high probability that the availability of investment capital will be constrained for some time. This will require policies to retain existing investments in BC’s forest industry as a top priority for the BC government. In order to attract significant new capital, and successfully pursue the growth and profit opportunities identified in this report and elsewhere, a ‘paradigm shift’ is required in BC’s forest economy. This would aim to re-position industry ROCE as the #1 priority for all BC Government policies relating to the province’s *industrial* timberlands and *commercial* forests.

If the BC government cannot, or does not wish to, pursue an over-riding commercial goal for the province’s industrial forestlands (which exclude set-asides, parks and protected areas), it should withdraw from day-to-day operations of Crown timberland and timber management and administration — assigning this to the private sector, while retaining vital stewardship and environmental compliance goals. A proposed follow-up list of steps to pursue this process is provided in Section D of the report.
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Overview

British Columbia is a world scale manufacturer of forest products. The BC forest products manufacturing sector’s output value was estimated at C$15 Billion in 2006, comprising an estimated 63% of wood products and 37% of pulp and paper products (Chart 1). These estimates are focused mainly on primary forest products manufacturing activities. They do not include a wide range of further processed manufactured products, such as wood-based structural components, several engineered wood products and other manufactured items.

The data exclude some unprocessed raw material exports, such as logs and wood chips. Some of the bio-fuels produced by the sector also are not included. Thus, the size and significance of the value-added sector is under-stated. Even so, globally, it is a substantial industry — and vital to the health of BC’s economy.

Chart 1

BC has a modest-sized, but important, domestic market for forest products. Paper demand is limited by the province’s population size. Technologically, the domestic market is quite sophisticated in its use of wood products. For example, due in significant part to provincial and national promotion efforts encouraging the use of wood in residential and non-residential structures, per capita consumption of wood products in BC is rising. Recent initiatives have boosted demand for many of BC’s advanced wood products and design services in domestic markets. These are very positive developments for the industry.

Overall, however, the size of Canada’s domestic market is small compared with the industry’s global scale production capacity. Moreover, ever since mills were first established in BC, forest products manufacturing within the province has been focused on serving the needs of export markets.

World trade over the past several years has been significantly distorted by global credit market instability and recessionary economic conditions in most of the world’s major economies. Thus, recent trade data do not necessarily provide a representative picture. Chart 2 shows BC’s major export markets for 2005, when
the province’s forest products manufacturing industry was close to full capacity utilization. In 2005, the U.S. accounted for 69% of all BC’s forest products shipments. The U.S. market was the destination of 81% of BC’s wood products exports, and around 49% of its pulp and paper exports.

Asian markets, which include Japan (BC’s 2nd largest market) and China accounted for 21% of BC’s total forest products exports. BC’s market pulp exports are an important source of supply for several Asian markets, which generally are short of fibre. They buy high quality long fibred softwood pulps produced in western Canada to supplement their short fibre hardwood pulps (and recycled fibres) used in papermaking.

In recent years, Asia has been a growth region for BC’s forest products. This growth would have been much stronger except for a long term decline in demand from Japan. Formerly a strong market for BC and eastern Canada, Western Europe also has declined over the past several decades. In 2005, it accounted for 7% of BC’s total forest products exports. Other markets accounted for 3% of BC’s total forest products exports.

**Chart 2**

**BC’s Forest Products Markets in 2005**

<table>
<thead>
<tr>
<th>Market</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>69%</td>
</tr>
<tr>
<td>Asia</td>
<td>21%</td>
</tr>
<tr>
<td>Europe</td>
<td>7%</td>
</tr>
<tr>
<td>Other</td>
<td>3%</td>
</tr>
</tbody>
</table>

Notes: Includes Manufactured Exports Only (Excludes Raw Materials, such as Logs and Woodchips)

Data source: Strategis

**Drivers of BC’s Forest Products Manufacturing Industry**

As one of the largest and most important engines of economic growth in BC, the forest products manufacturing sector has a history stretching back well over 100 years. Investors initially were attracted to BC, lured by the province’s rich abundance of natural forests and — on the BC Coast — the wide variety of large diameter timber in sought-after species, including Douglas-fir and cedar. Over the years, BC’s coastal timber resources have declined, costs have risen and large parts of the region’s timber resources have been re-designated as parks and protected areas.

Development of the BC Interior industry began later and, dominated by spruce-pine-fir (‘SPF’) timber, evolved as a mainly distinct industry from the coastal sector. Even so, the two are inter-connected because significant volumes of pulp and papermaking fibre-flow from the interior region to coastal mills. The BC Interior now accounts for about two-thirds of the province’s lumber manufacturing.
Over the past 100 years, much has changed. The pace of change has accelerated in recent years. The industry has weathered a huge number of challenges, some created externally and many which have evolved within BC — and are within BC’s power to resolve and adapt. Yet, the economic fundamentals of the business remain much the same.

They can be summarized as follows:

1. Export market focus;
2. Large scale, low unit cost production facilities;
3. Dependence on timber from public forests;
4. Softwood lumber manufacturing traditionally has been the kingpin of BC’s forest economy.

The forest products manufacturing sector in BC has a global supply role, and is driven primarily by export market opportunities. In order to remain globally competitive, continual investment and re-investment in leading-edge, state-of-the-art, large scale, low unit cost manufacturing facilities, operated by skilled, knowledge-intensive and work-motivated industry employees, is essential.

Healthy forests, plentiful timber supply and a collaborative role between the BC government (which is the steward of BC’s predominantly publicly owned commercial timberlands) and private sector manufacturers are the foundations of the industry ‘P3’ business-model that generally has worked well to date.

In BC, the sawmilling industry converts 77% of the total log supply (PwC 2007). The sawmilling industry’s primary product is softwood lumber. Traditionally, softwood lumber has been the kingpin of nearly all forest industry primary manufacturing activities in the province.

Wood veneer (peeled logs, mainly used for plywood) and new technology wood strand products (e.g. OSB and strand-lumber) are important.

But sawmilling provides most of the by-product fibre that is vital to the province’s pulp and paper sector and several other industries (Chart 3). The health and prosperity of BC’s softwood lumber sector to a very large extent determines the overall success of the forest industry in BC.

External and Internal Forces
Not much has changed, or is likely to change, with regard to BC’s need to remain focused on export markets, or its need to continually invest in state-of-the-art, low unit cost manufacturing facilities.

Major changes have been taking place, however, in the internal relationships and conditions surrounding the forest sector’s dependence on public timber. In addition, as a result of various internal (e.g. BC’s pine beetle epidemic) and external factors (e.g. volatile global energy costs and the emergence of green energy and bio-fuel options for wood use), softwood lumber primary manufacturers in the province may not, in the future, be the kingpin of the province’s forest economy to the same extent that they have in the past.

1. Market Focus: Canada’s domestic market is growing and, in many respects, is becoming a more sophisticated market — in terms of its creative uses of wood — than many of BC’s markets in the United States and overseas. Although increasingly important, as already noted, Canada’s domestic market is comparatively small. It cannot, by itself, sustain the industry.
BC’s remote location from its large volume markets in the US and overseas necessitates a well developed transportation infrastructure and low unit costs of shipping. This forces BC forest products manufacturers to invest in large scale mills, where high levels of productivity (some of the best in the world) and low unit costs of manufacturing (also some of the best in the world) are vital to the sector’s ability to compete internationally.

This is the industry business-model that works for BC’s forest sector, and is expected to continue to do so. In future, however, manufacturers will switch away from low value commodities.

2. Large Scale Production Facilities: Under the overall industry “umbrella”, business models adopted by individual firms within BC’s forest sector vary quite widely. A majority of firms produce highly standardized, commodity products. These fit well with BC’s circumstances. An increasing number of the province’s forest products manufacturing firms, nevertheless, have differentiated their product-mix and sales support services very successfully.

Massive changes are underway, for example, in the building materials supply chain in North America. It is becoming much more efficient at distributing these products. BC firms are a significant part of the value chain. Many of them have developed ‘de facto’ forward integration links with the marketplace through innovative channel partnerships (e.g. with big box retailers in the U.S., and with homebuilders). These bode well for future strategic positioning of BC firms.

Many BC Interior wood products manufacturers are well placed as global low cost producers. But the spruce-pine-fir (‘SPF’) sawmilling model that works well for this region has not been a success on the BC Coast.

Despite an abundance of timber in coastal forests, numerous coastal sawmills, pulp mills and paper plants have closed over the past several decades. Tens of thousands of jobs have been lost. The BC Coast industry faces very high wood costs, restricted access to timber and has not been able to achieve the low unit costs of production that are vital for global competitiveness.

3. Dependence on Public Timber: Commercial timber supply in BC is clouded by a variety of issues. They include land claims, land use policies, limited open markets for log supply, U.S. trade actions aimed at BC’s forest tenure and timber pricing system, remote access to coastal timber, high costs of coastal timber harvesting, a very high level of public ownership of the province’s commercial timberlands and the administration of Crown timber licences.

Massive attacks by the Mountain Pine Beetle (‘MPB’) have devastated large parts of BC’s Interior forests. The environmental, social and economic impacts are huge.

But there are some encouraging forest management options that — under the right conditions — could turn this adversity into a longer term net gain for the environment, local communities and the forest industry.

More recently, the sustainability of the BC Interior region’s commercial timber supply has been adversely affected by the impacts of the Mountain Pine Beetle (‘pine beetle’).

This epidemic already has had massive impacts on the regional (and probably on the global) environment, local communities, people and forest economics in the BC Interior.

Some of the consequences of the massive scale of pine beetle attacks can be mitigated. Others cannot. The beetle attacks potentially could have a significant negative impact on the provincial economy. But there are some encouraging forest management options that — under the right conditions — could turn this adversity into a longer term net gain for the environment, local communities and the forest industry.

There are some huge challenges to overcome, for this to occur.

Several reports (e.g. BC Competition Council http://bccompetitioncouncil.gov.bc.ca) have concluded that the traditional ‘P3’ public-private partnership business model that once worked well for (a) rural economic development in BC and (b) attracting investment capital into the province’s timber harvesting and forest products manufacturing sectors no longer works effectively.
Calls for tenure reform have been made for some time, and were a frequently repeated theme among presenters to BC’s Working Roundtable on Forestry which presented its report in March 2009.

Key recommendations from the Roundtable are discussed elsewhere in this report.

4. Declining Role of SPF Softwood Lumber: As devastating as it is, the current very severe downturn in demand in the new residential housing market in the United States is expected to recover. This is likely to take some time. Within the homebuilding industry, recent trends to increased use of building components and engineered wood most likely will continue, even in the short term. These are favourable potential developments for BC. What has changed within Canada in recent years is SPF lumber supply and supply costs.

In several parts of Canada, public forests have reached (and probably have exceeded) their long term sustainable harvest levels under current approaches to forest management. Quebec, for example, has already enacted measures to reduce its SPF timber harvest volumes. One of the many adverse impacts of the pine beetle crisis in BC is that future SPF sawlog harvest levels are predicted to decline very sharply — by some accounts up to 40% below recent peak levels.

Moreover, the quality of SPF sawlogs has deteriorated sharply as a result of the pine beetle attacks. This signals that significant changes in woods and softwood lumber manufacturing activities are imminent, and that BC’s role as an exporter of SPF commodity lumber to U.S. and world markets is likely to decline — perhaps very sharply and, from an investment perspective, relatively soon!

Markets for lumber have changed too. BC’s competitive edge in structural wood products initially was developed because of its former vast reserves of long length, wide diameter sawlogs and peeler logs. These big logs could produce almost any wood products needed by world markets. Large diameter logs have largely disappeared from the global supply chain. Almost all producing regions, including BC, now rely on smaller diameter logs from indigenous natural forests or from fast-growth plantations. Worldwide, about 7% of commercial timber comes from plantation forests — and this share is accelerating rapidly. BC has some valuable and highly productive private sector plantations, but these are dwarfed in scale by the government administrated Crown timber supply.

Technology and BC’s Product Mix

Today, engineered wood products and a wide range of innovative technologies increasingly are eliminating the need for the natural long lengths and wide widths (e.g. 2 inch x 10 inch wide boards) of solid sawn lumber that BC could produce. These products are still in demand — but technology and markets gradually are shifting in favour of engineered products. For example, BC’s showcase Richmond Oval (a key venue for the Winter Olympics 2010 – and a showcase for BC’s wood products) features wide span, state-of-the-art, laminated beams using BC pine beetle-killed timber.

Engineering technology and modern manufacturing techniques also mean that regions, such as eastern Canada, many parts of the U.S., Europe and Asia, can compete against BC — using smaller diameter timber resources. Ontario and Quebec, for example, can now compete in 2x10 floor-joist and roofing markets through engineered trusses using 2x3s and 2x4s, and short lengths.

This means that BC has to adapt its product-mix, adding more value through services (e.g. design, engineering, logistics management) and further processing. But these are very competitive areas of endeavour. BC’s mills and production facilities are located very far from end-use markets. There are supply risks for buyers, and many still prefer to import raw materials and arrange for further processing into final products at finishing plants (e.g. building components) close to where they will be used.
In the 1980s, global leading-edge coastal BC firms such as MacMillan Bloedel were pioneers of many of the products and new processing technologies in which other supply regions excel today. BC’s coastal ‘war-in-the-woods’ was a significant factor in reversing this leadership — which BC today is still struggling to regain.

Skills Development and BC’s Labour Market

Compared with many jurisdictions around the world, BC’s forest sector workforce (woodlands and mills) has significant skills sets — and, for the most part — a strong work ethic. The latter has suffered with recent capacity downsizing, mill closures, safety issues and unwillingness, within parts of the labour force, to readjust from the high expectations and earnings of the past. This varies regionally.

Historically, globally very high rates of processing productivity in BC’s forest sector have been achieved through an optimum combination of capital and labour force skills. The industry is highly capital intensive, and the ‘capital footprint’ of a typical manufacturing facility can range from hundreds of millions of dollars to over a billion dollars. The capital risks clearly are high.

Despite unfortunate and high-profile ‘spikes’ of labour-management strife, the long term picture of labour in BC’s forest products sector is, perhaps surprisingly, quite good. On a day-to-day operating basis, a significant level of collaboration exists. Cooperation always is easier during periods of expansion, than in downsizing. Historically, for the BC coast region in particular, this has been a difficult challenge. Recent and long-lasting production curtailments throughout the Interior industry, however, also are resulting in the permanent loss of many skilled operatives and trades people, as well as salaried employees.

The forest sector workforce is aging, with an average age well in excess of 45 years — and much higher in specific regions, trades and specialized occupations (e.g. sawfilers).

Yet, there are many success stories and encouraging aspects to the situation. An increasing number of women now work in the industry — from woodlands to mills. Skills training facilities are excellent within the province — with BCIT, UBC and UNBC, along with many other local institutions, providing cutting-edge training and skills upgrading — increasingly via remote learning facilities and at the employee’s place of work. The main downside is that the supply of skills upgrading services often exceeds demand.

Investors’ Perspective

With chronically low rates of return on capital investment in BC, however, many foreign investors increasingly have chosen to withdraw from the province’s forest products manufacturing sector. Increasingly, the onus of re-investment has depended on BC-based firms and their capital providers. In recent years, however, even the most staunch major investors (and local families) in BC’s forest products manufacturing sector — including West Fraser, Canfor Corp., Tolko Industries and Ainsworth — have made substantial capacity expansions outside the province.

Importantly, none of these firms has (as yet) invested significantly in ownership of downstream processing and distribution assets. Canfor has developed significant supply channel relationships with big box distributors in the U.S., including The Home Depot and Lowes. Overall, BC’s forest products industry — while intensely horizontally integrated — has not indicated that there is any competitive advantage from
ownership of forward integration facilities. Instead, BC’s emerging distribution model is one of supply channel partnerships.

Growth opportunities clearly exist for the BC industry. From the investors’ perspective, the single most important stumbling block to capitalizing on these opportunities is the woefully inadequate rate of return on investment typically achieved to date.

**BC Forest Industry at a Crossroads**

An important theme in this report is that British Columbia’s forest products manufacturing industry is not export market-limited. Despite many challenges, including risks and uncertainties associated with, for example, widely fluctuating exchange rate relationships, it is important to bear in mind that circumstances also are changing for many of the province’s competitors in this business. Other supply areas are not doing as well as they did.

Some recent global studies point to tightening supplies of vital timber resources, notably the supply of sawlogs. Key players in global log supply, notably Russia in recent times, have taken significant steps towards restricting their exports of roundwood timber. The supply of economic accessible timber in several parts of Canada is becoming much more limited than it was just a decade ago. Importantly, too, wood costs and other factor costs are rising in many areas. Competitive positions are shifting as a result. Exchange rate fluctuations cloud the picture.

Although cyclical, consumption of many types of forest products is increasing in the world’s major markets. Rising populations, especially among newly industrialized countries, are creating new demand for a wide range of goods including forest products.

**Global Perspective**

Globally, the value of export trade in all manufactured forest products (ranging from raw logs and wood-fibre shipments to exports of higher value-added finished products) has risen each year by 8.5% on average over the past fifty years (Chart 4). This is a very brisk and impressive rate of growth — in which BC and many other parts of Canada have played, and continue to play, a key supply role.

**Chart 4**

World Forest Product Exports
Rapid Growth in Value for More than 50 Years

Data Source: FAOSTAT

Very few manufacturing industries worldwide can claim an average annual growth rate of this magnitude, over such a long period of time. There have been claims that the forest sector is in decline. This is untrue from a global perspective. Importantly, it is not true within BC.

Prepared for the Business Council of BC October 2009
Declines in demand for certain products, and in some markets, are part of the evolution of all manufacturing industries. As in most other parts of Canada, the industry in BC continually upgrades its product mix and the re-invests in new growth products. Some products become obsolete, and are replaced by others. Even though BC’s forest industry is not limited by market opportunities, it has to be globally competitive in these products in order to grow its exports value.

The performance of Canada’s forest industry in world export trade over the past fifty years is summarized in Chart 5. This also shows the performance of another key traditional competing export region in world trade — northern Europe (comprising mostly Sweden and Finland).

Forest Product Exports from Traditional Global Exporting Regions (Canada & Northern Europe) Have Increased

With vast coniferous forests and formerly untapped forest reserves, northern Europe and Canada became the dominant export suppliers to world markets more than fifty years ago. Since then, their export shipments have risen from around U.S.$2 billion each year on average in the 1960s to U.S.$26 billion (Canada) and U.S.$32 billion (northern Europe), respectively, each year during the 2000s (data are up to 2007).

Despite this impressive growth, new — mostly (but not always) lower cost — supply regions have emerged in world export markets. Some of these are based on indigenous hardwood forests, notably in the equatorial region. Some are derived — as in the case of Canada — from indigenous softwood timber (e.g. Russian log exports). Others are based on a mix of fast-growing softwood and hardwood plantation timber (notably South America).

As a result of competition from these and other areas, the dominant global market share formerly enjoyed by northern Europe and Canada has eroded. From a combined market share of 58% of global exports of forest products in 1961 (Chart 6), the share of these ‘Traditional Big 2’ suppliers declined to 30%, by 2007.
BC’s forest sector rose to prominence prior to WWII, but its growth accelerated at a rapid pace after this period. It reached its peak during the 1960s, in terms of global market share. Around this time, the ‘Big 2’ traditional export market supplying regions (northern Europe and Canada) accounted for almost $6 out of every $10 of world forest products exports.

For both regions, the product mix initially was similar. It comprised three commodity products: namely, softwood lumber, newsprint and northern bleached softwood kraft market pulp (NBSKP). The manufacturing industry business approach that worked well for both regions was the large scale, low unit cost manufacturing facility model referred to earlier.

Rising wood costs, particularly in Sweden and Finland, and the emergence of a strong European paper industry eventually forced the Nordic suppliers to invest increasingly heavily in larger scale papermaking and higher valued wood products (e.g. lamina for the Japanese structural wood products industry). During a second phase of this evolution, a flurry of takeovers and mergers led to a substantial level of industry consolidation. A small number of industry players emerged. Today, they are global suppliers.

A third phase quickly followed. Nordic firms reduced their investments in high production-cost regions (including, for example, eastern Canada) and re-invested substantially in lower cost, emerging new supply regions. These include South America, Russia, south eastern Asia and China.

Canada, which traditionally has served mainly the U.S. market, experienced higher production costs during a later phase of this period. It has since, in part, followed a similar path of industry rationalization and consolidation as the Nordic region — but much later, and with far lower levels of corporate concentration than typically are permitted in Europe. Like the Nordic countries, Canadian producing regions face significant cost competition from ‘new’ suppliers — which effectively have ‘copied from the ‘Traditional Big 2’s playbook’ and invested in large scale, low unit cost manufacturing mills and plants.

New-supply investments have been directed to regions such as Europe (softwood lumber), Indonesia and South America (pulp and paper), South Africa and China.
In addition, in its export trade in softwood lumber to the United States, Canada has faced significant market access hurdles and cost penalties over the past several decades as a result of ongoing and punitive trade actions by the U.S. These are not obstacles that have been experienced by Canada’s competitors supplying the same market.

Chart 7 shows that the ‘Emerging 3’ export supply regions, in aggregate, are rapidly gaining global market share from the ‘Traditional Big 2’ regions. In the early 1960s, these latter regions in total accounted for around 31% of global forest products exports. By 2007, they had attained a combined 58% market share. Historically, this was the global market share enjoyed during the 1960s by the ‘Traditional Big 2’ export supply regions (see Exhibit 3). Correspondingly, by 2007, the global market share of the ‘Traditional Big 2’ had reverted to the market share held in 1961 by the regions that now comprise the ‘Emerging 3’.

Effectively, the ‘Traditional Big 2’ suppliers (which include British Columbia) have ‘traded places’ with the ‘Emerging 3’, in terms of their current market share of global forest products exports. A key question, of vital importance to BC’s export market dependent forest sector, is the extent to which the ‘Emerging 3’ will be able to continue to gain market share — and meet the ongoing growth in global demand noted earlier.

It is also relevant to note that several significant forest products manufacturing areas are not represented in the above statistics. In particular, the United States and Japan are net importing regions. In the case of the U.S., which has extensive private timberlands, self-sufficiency levels in manufactured forest products have been rising. In Japan, a rapidly aging population (with very limited levels of immigration) means that demand for wood products, although large, most likely already has peaked and already may be declining.

These are BC’s traditional markets — and for some time have been forcing BC firms to review and adapt their product-market strategies, and longer term strategic positioning, very critically. Many BC forest product manufacturers are struggling to find viable product and market strategies in which the economic fundamentals of the BC forest industry’s traditional manufacturing model can continue to work in the future (the year 2020 and well beyond). The task is not easy.
Global Competitive-Positioning Issues for the BC Forest Industry

BC’s export performance relative to the rest of Canada differs, depending on the products in question. BC is better placed as a global competitor in some products, compared with other provinces. One example is BC’s lower wood costs in the Interior region. Currently, compared with most other parts of Canada, these provide a significant competitive edge to the region in, for example, market pulp and in the production and export of wood pellets. On the other hand, BC is less well placed than competing provinces in other respects. An example is the sharply lower levels of further processing into ‘value-added’ wood products that is carried out within the province, compared with Quebec and Ontario.

At the strategic level, however, there are some fundamental issues that affect all Canadian forest products manufacturing areas, including British Columbia. Moreover, understanding them and addressing how the BC industry and its various stakeholders should respond are vital to future success. These issues can be summarized in the following six questions:

#1. Why have the ‘Traditional Big 2’ export supply regions consistently lost market share over the past fifty years?

#2. How have countries within the ‘Emerging 3’ regions gained market share?

#3. Will these trends continue, and are new supply areas about to emerge?

#4. What alternative products and technologies are likely to compete with forest products in major markets and end-use applications?

#5. With existing cost structures, will forest product prices (which are low at present) recover sufficiently to provide a consistently adequate rate of return on capital employed?

#6. Given the chronically low average rate of return on capital employed (ROCE) in the industry, which, if any, of the geographical supply options will investors support with their investment funds in the future?

It is beyond the scope of this report to answer these questions definitively. The analyses provided in the remainder of the report nevertheless address many of the key issues involved, and highlight some of the options, risks and potential rewards facing BC’s forest sector as it continues to re-position itself as a globally competitive player.
Section A:

BC’s Softwood Lumber and Wood Products Sector
BC’s Softwood Lumber Sector in the Global Context

Despite the emergence of new, lower cost competitors, and a variety of structural and cyclical demand shifts, softwood lumber manufacturing in BC remains as a world scale — and, for the most part, — globally competitive industry.

Much of the province’s output of softwood lumber is structural quality, although a significant volume of high valued ‘appearance grade’ non-structural lumber (such as cedar and high grade hemlock) also is produced. It is estimated that the housing industry, directly and indirectly, uses over 75% of the softwood lumber consumed in North America — so BC’s linkages to the housing industry in the U.S. and Canada are very strong.

Normally, this is a significant benefit to BC’s sawmills. In the current sharp housing market collapse, linked to the sub-prime/Alt-A mortgage crisis in the U.S., this strong linkage is a substantial disadvantage to BC.

Globally, softwood lumber is a mature industry as far as total consumption is concerned. World demand growth over the past fifty years has risen on average by around 1.5% per year (Chart 8). Note that Russia and Eastern Europe are excluded from these statistics, for reasons explained later. Lumber demand growth rates vary by region. Growth rates for various value-added structural building components (e.g. roof and floor trusses, wall panels. I-joists and building systems) are rising much faster. That’s because there are major and highly beneficial changes underway in homebuilding techniques, notably the greater use of off-site fabrication of materials — and embedded labor — into a ready-to-assemble form.

This is an important growth area for BC’s wood products industry. These trends help extend the product life cycle of BC’s vital sawmilling industry (Chart 9, next page).

Increased use of engineered wood and off-site construction methods favour BC, and help extend the life cycle of the province’s softwood lumber industry.

A healthy and profitable softwood sawmilling industry in BC is an essential platform for subsequent processing activities — some of which already are taking place within the province. A variety of engineered wood products is produced.
BC has numerous market opportunities to process its solid sawn lumber, and a variety of other fibre forms (veneers, strands, tops, whole trees) into an array of higher valued performance structural products. It has the potential to move into a globally competitive position as a large scale, low unit cost exporter of building systems. Several BC firms already are providing linked construction services, such as design and engineering, along with materials tracking technology. They are global leaders.

In terms of aggregate value, however, these value-added activities within BC still are comparatively limited. Some of the market-driven key ‘trigger points’ (Chart 9) for a widespread shift from solid sawn lumber use in construction already have been reached. This accounts for the recent rapid growth in demand for structural engineered wood products and building components.

Other trigger points are widely predicted to be reached during the next several construction cycles in the United States and Canada. They include growing concerns about ‘planet issues’ such as the negative impacts of global warming.

Behavioral shifts, among consumers and producers, already are underway. The demand for ‘green building materials’ is growing rapidly, and this is expected to continue at a rapid pace. In aggregate, these shifts in consumption patterns and demand changes will present opportunities for manufacturers globally to invest in larger scale, low unit cost production facilities in these developing products.

It has been estimated that over 80% of building components, such as wall panels, roof and floor trusses, use softwood lumber. Emerging products in engineered lumber, including oriented strand lumber (OSL), as well as second and third generation laminated lumber products are complementary to the existing softwood lumber industry.

These new life-cycle structural products tie in to BC’s traditional competitive strengths, and will draw upon its emerging knowledge-based skills. Success in exploiting the growth opportunities will depend on a variety of factors — including maintaining a healthy and profitable solid sawn lumber industry within the province.
Outlook 2020: Softwood Lumber

Immediate Concerns
The BC wood products sector's ability to capitalize on emerging growth opportunities by 2020 will depend in part on how it is able to weather the current very severe market demand and price decline. Operating conditions for the sector are extraordinarily poor at the present time. The ‘long slide’ in U.S. housing demand that began in late 2005 (Chart 10) but seems to have leveled off in late 2009. Analysts’ projections suggest, however, that there may be no significant recovery in residential new construction activity until 2011-12.

Chart 10

US Single Family Permits: 'The Long Slide'

BC’s lumber exports are linked closely to U.S. housing markets, through either new housing or home improvement, and to non-residential and industrial demand. A substantial excess of new unsold homes, along with a very large unsold inventory of foreclosed properties, suggests that the U.S. housing recovery is more likely to mirror the experience of the 1980s (sluggish housing demand and low rates of house price appreciation) than the more recent demand cycles (i.e. the relatively quick rebound in demand experienced after the 2001 U.S. housing market slowdown).

For the immediate future, the operating risks for BC’s softwood lumber and wood products industry (including structural products, such as OSB) remain very high. Over the past several years, throughout North America, almost all softwood lumber mills have taken substantial downtime. There have been some permanent mill closures, and more are expected.

Generally, however, the sector has undertaken capacity curtailments rather than complete shutdowns. As a result, a considerable excess of manufacturing capacity exists in relation to immediate and shorter term demand needs. This is one of the contributing factors to the extremely low softwood lumber prices which continue to prevail throughout 2009.

North America still has softwood lumber manufacturing capacity capable of meeting US market peak needs of nearly 1.8 million housing starts annually. This is far too much capacity for the immediate future. It is inevitable that more sawmills will close permanently.
The fact is that, today, North America still has sufficient softwood lumber manufacturing capacity (based on maximum utilization rates, and three-shifts where appropriate) capable of meeting peak needs of 1.8 million housing starts annually in the U.S.. This is far too much capacity for the immediate future. It is inevitable that more sawmills will close permanently. Shortages of affordable sawlogs will be a primary cause.

**Longer Term Demand**

Part of the reason that North American sawmill operators are not closing more capacity on a permanent basis is their apparent belief that demand will recover in the medium to longer term. Expectations of future housing starts levels in the medium term of well over 1.5 million units annually in the U.S. market are widespread. Certainly, this view is supported by demographics. Studies by Harvard University's Joint Centre for Housing Studies (JCHS) indicate that 20 million new households will be created in the United States over the next fifteen years (Chart 11).

![Chart 11](image)

**Strong Fundamental Demand Exists for US Housing**

...and Will Get Stronger in this Decade

The key issue is affordability. With current very difficult conditions throughout global credit markets, the level of new mortgage issuing and construction loan activity in the U.S. and globally is very constrained — despite historically low borrowing rates. Levels of unemployment in almost all major economies are rising at the present time. So the short term outlook is likely to remain constrained, despite very supportive demographics. Macro-economic stimulative packages in the U.S. and elsewhere — although helpful — are unlikely, by themselves, to reverse current trends.

Longer term, however, a return to new residential housing starts levels in the range 1.8 to 2.0 million annually in the United States units is quite plausible. This outlook, comprising a combination of a very modest demand recovery in North America with strong longer term prospects, may appear — at first glance — to indicate limited potential for product price increases in softwood lumber and structural wood products. There are, however, other factors at work. In particular, even though excess sawmilling capacity in North America seems likely to continue to exist for the foreseeable future, declines in economically accessible sawlog supply — and rising sawlog costs — are likely. As a result of the pine beetle epidemic, sharply declining supplies of higher quality sawlogs are expected to intensify in the BC Interior region over the next 5-10 years. A timber-constrained market recovery is anticipated.
Global Timber Supply Constraints
It has been said, correctly, that there is no global shortage of softwood and hardwood — as such. Worldwide, based on traditional ways of thinking, forests currently classified as commercial standing timber supplies appear more than adequate to meet global demand needs for the foreseeable future.

What has been emerging in recent years, nevertheless, is the realization that, for particular forms of wood (notably sawlogs) and in specific regions (where log processing capacity currently exists) and species, there is likely to be an increasing mismatch between demand and economically accessible supply. Moreover, environmental constraints are likely to add to this situation. There are commercial areas, within the world’s overall timber supply that, for either economic and/or environmental reasons, never will be harvested.

In addition, recent changes in national and regional policies seem likely to add to this outlook of increasingly constrained commercial timber resources. For example, several years ago, Russia announced and enacted a policy aimed at reducing its log exports on a progressively rising scale — aimed eventually at eliminating log exports. Corresponding to this, Russia outlined plans to attract significant new investment in new forest products manufacturing facilities, including sawmills.

To date, these initiatives have been only partly successful — and Russia has been forced to postpone the latest tranche of log export taxes (rising to 80% of the target level scheduled for the beginning of 2009). Most observers believe this to be a midterm postponement rather than a cancellation of Russia’s plans for much higher levels of domestic processing of its log supply.

Globally, the significance of this is that Russia is the world’s largest exporter of logs. About 60% of its log exports go to timber-deficient (but important forest product manufacturing) Asian countries, comprising China, Japan and South Korea. These countries have been forced to seek alternative supply sources. With reduced log import needs in the short term, and Russia’s postponement of the latest tranche of export tax increases, the immediate pressure to find alternative sources has been lessened — but it still exists. In Europe, where a significant part of the forest industry depends on log imports from Russia, a similar situation, and transition to alternative sources or mill closures, is underway.

Chart 12

Globally, Massive and Unprecedented Changes in Timber Supply are Impacting North America

- BC & Alberta Pine Beetle Epidemic
- Quebec Crown Timber Harvest Reductions
- Russia Log Export Regulations
- BC Log Export Changes
- Western Europe
- China, Japan & Other Asia
- US West Timber Constraints
- USA
- US South Private Timberlands
- Southern Hemisphere Plantations & Land Claims!!
Events elsewhere in the global supply chain for softwood and hardwood timber indicate a broad trend to very tight supplies, especially as world economic growth recovers. For North America, beyond the short term, the ‘external’ factors impacting global timber supplies (Chart 12) will have increasing impacts domestically. Well before the year 2020, these developments will substantially affect the rankings of regional competitiveness of existing softwood lumber and wood products producing regions.

In the United States, private timberlands account for the majority of log supply to the domestic manufacturing industry. Under conditions of full utilization of the softwood sawmilling capacity in the U.S. Pacific Northwest, log supply is extremely tight. Twenty years ago, the region was a significant exporter of logs to Pacific Rim markets. With the virtual elimination of supplies of large sized logs from federal timberlands, the region’s lumber manufacturing industry has re-tooled and, under buoyant domestic demand conditions for softwood lumber, the Pacific Northwest region now depends partly on supplies of logs exported from the BC Coast.

Unfortunately for the BC Coast industry, the U.S. West sawmilling industry (notably Washington State) can now boast some of the most modern state-of-the-art softwood lumber mills in the world.

The supply of sawlogs from private timberlands in the Pacific Northwest and the U.S. South is responsive to price changes. Projections suggest, however, that private timberland owners (in the U.S., as well as Canada) will make available significantly increased sawlog supplies only if market prices are substantially above historical levels.

Canada’s ability to respond to higher timber prices with increased supplies is much more constrained than the ability of the United States. Harvest volumes on public timberlands in Canada are driven by regulation – based historically on calculations of the sustainable allowable annual cut (AAC). Except for special circumstances, such as BC’s pine beetle timber crisis, normally there is only limited flexibility for public timber licensees to increase their timber harvesting volumes in response to rising market demand and higher prices for wood products.

Moreover, most areas of Canada have reached the maximum of their softwood timber harvest potential. Quebec has substantially reduced its public timber SPF forest harvest levels, because of previous overcutting. Ontario currently is reviewing its situation. SPF timber harvest levels and lumber manufacturing in the BC Interior are likely to decline very sharply over the next decade. A 2007 report, prepared for the Business Council of BC indicates that, as a result of the pine beetle, the BC forest industry could contract by 30% to 40% — with much of this taking place within the next decade (Chart 13).

Chart 13

BC Interior Pine Beetle Impacts

“The pine beetle will result in the contraction of the BC Interior forest industry by 30% to 40% - with much of the damage done within the next decade

Don Wright: Former Deputy Minister of Forests Report for the Business Council of BC (Dec 2007)
**BC Coast Recovery Potential**

Adversities in western Canada’s SPF lumber industry, attributable to impacts of the pine beetle, could provide a growth opportunity for the substantially under-utilized hemlock forests of the BC Coast. Investors are fully aware, however, that the BC Coast is not cost-competitive and, in lumber production, faces stiff competition from the U.S. West.

Industry research reports indicate that investments in kiln-drying facilities, higher levels of log merchandising and the possible development of 3rd generation veneer-based engineered lumber manufacturing facilities, along with production of other wood products, could result in a renewal of investment for this region. Among the many latent strengths of the B.C Coast industry is its excellent geographical position close to tidewater. Waterborne shipping to coastal distribution points along the North American continent, as well as offshore, most likely will become an important strategic advantage for the BC Coast during future market cycles. Rail and truck distribution for BC Interior firms have become increasingly problematic — not just for forest product manufacturers.

Major North American distribution nodes in the U.S. Midwest (Chicago) and U.S. West Coast (notably Portland), during the later stages of the next economic recovery, are likely to experience similar high levels of congestion that existed during the past peak market cycle. In addition, concentrated ownership among the major railroads (including the former BC Rail lines serving otherwise rail-isolated sawmills in the BC Interior) again could lead to very high shipping costs — as the industry experienced in the recent past.

The BC Coast region also has unexploited competitive strengths in the quality of a large part of its timber resources (fine, tight grain structure versus wide-grain second and third growth timbers) which could help attract new manufacturing investment. By the year 2020, a recovery in the BC Coast wood products manufacturing industry could help offset some of the province’s potential global market share loss likely to be caused by a decline in the BC Interior SPF lumber industry.

By grade, the decline will vary. Extensive utilization of lodgepole pine (the dominant mature species in the BC Interior region) over the past decade had produced a surge in machine stress-rated (MSR) lumber. Typically, this grade receives a price premium over standard SPF grades. Reduced availability of live lodgepole pine trees (standing dead timber does not produce good quality MSR), but continuing strong demand over the medium to longer term is likely to generate growth opportunities for regions, such as the BC Coast, and products (such as engineered lumber), that can meet these performance requirements.

**BC’s Future Competition in Softwood Lumber and Wood Products**

North America essentially is self-sufficient in softwood lumber. At peak market periods (e.g. 2005) up to 5% of U.S. total requirements for softwood lumber are imported — mainly from Europe (Chart 14).

![Chart 14: Softwood Lumber Supply Sources for the US in 2005](image-url)

Data Source: WWPA

Net Domestic Supply

Imports from Canada

Imports from offshore

Total

**BC Lumber Exports**

* Before Total US Exports of 9.9 BBF

**US West 19.4**

**Other Canada 9.3**

**US Other 2.1**

**US South 19.0**

**Europe 2.0**

**L. America 0.8**

Chart 14

Net Domestic Supply 39.6
Imports from Canada 21.5
Imports from offshore 2.5
Total 63.9

All Data in Billion Board Feet (BBF)
North American Suppliers
At the most recent peak market level of demand in 2005, the supply shares of softwood lumber producing regions to the US market were as follows. Regional data are shown net of aggregate U.S. exports. Market shares are approximate, and rounded.

<table>
<thead>
<tr>
<th>Region</th>
<th>Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1. U.S. West</td>
<td>30%</td>
</tr>
<tr>
<td>#2. U.S. South</td>
<td>30%</td>
</tr>
<tr>
<td>#3. BC</td>
<td>19%</td>
</tr>
<tr>
<td>#4. Other Canada</td>
<td>14%</td>
</tr>
<tr>
<td>#5. U.S. Other</td>
<td>3%</td>
</tr>
<tr>
<td>#6. Europe</td>
<td>3%</td>
</tr>
<tr>
<td>#7. Other Offshore</td>
<td>1%</td>
</tr>
<tr>
<td>Total (approx.)</td>
<td>100%</td>
</tr>
</tbody>
</table>

The data show that the United States was 60% self-sufficient in softwood lumber supply at its most recent peak level of demand, in 2005. Two key supply regions in the U.S. (U.S. West and U.S. South) were almost equal in the volumes of lumber shipped to domestic markets, and in their domestic market shares.

It should be noted that, because of species and other differences, the types of softwood lumber produced by these regions is not the same — and, for many applications, they do not compete with each other. This is important because not all lumber is equal. For example, in some applications (e.g. 2x10 floor joists) Douglas-fir lumber from the West competes directly with Southern Pine. But, in most cases, lumber from these two regions typically is not substituted.

This important point carries over to Canadian softwood lumber supply. In 2005, Canada had a 33% share of the U.S. market. Most (but not all) of this volume was SPF lumber. Canadian SPF, along with western cedar and some other appearance grade species, have some unique characteristics. These are reflected in the different levels of pricing for these species. In many applications, buyers typically prefer particular species (and even specific brands) provided that the price relationships between species (grade for grade) do not significantly move out of line with each other.

In a wide range of end-uses in the U.S., Canadian SPF lumber is by far the preferred species. But, ultimately, price counts. Almost all softwood lumber has a substitute — whether that is another species, grade or non-wood product.

U.S. self-sufficiency levels have varied each year but, over the long term, have been declining. In 1965, U.S. self-sufficiency was 85% (Chart 15). By 2005, this had declined to 60%. Through a combination of U.S trade barriers and a strengthening Canadian dollar, imports of Canadian softwood lumber declined sharply in 2006 and 2007. Consequently, the U.S. regained approximately 4% to 5% of market share by 2007 (data are rounded).
Effectiveness of U.S. Trade Actions
Two factors have been effective recently in restricting the volume of Canadian softwood lumber being shipped to the United States. U.S. trade actions, notably export tariffs agreed under the U.S.-Canada 2006 Softwood Lumber Agreement (SLA 2006), appear to have helped U.S. producers increase their market share. Secondly, the rising strength of the Canadian dollar in U.S. funds eliminated a significant part of the currency-induced competitiveness enjoyed by Canadian shippers of softwood lumber to the U.S. market.

Will the U.S. be able to continue to improve its self-sufficiency? Part of the answer depends on the level of protectionism adopted by the United States. Within the current 7-year agreement (SLA 2006 is renewable for a further two years prior to its expiry in 2013) there are few additional steps that the U.S. is able to take to improve its relative market share position. Canadian provinces (the Maritimes are exempt) have chosen either Option A or Option B status, which refer to differences in export tax rates and quota caps on shipments. As an Option A province, softwood lumber exporters to the U.S. from British Columbia have faced a 15% export tax barrier since the agreement was signed in October 2006. This has been a strong deterrent, particularly since lumber prices are so low and profit margins have been negative in most cases.

As noted earlier, under more buoyant U.S. market conditions, and full utilization of existing U.S. softwood lumber manufacturing capacity, the U.S. West is in a very tight timber supply position — given past and recent lumber price levels. Incremental timber supply from private timberlands is likely to be forthcoming at much higher market prices than exist today. But the U.S. West supply is incremental, and limited.

The U.S. South appears to be in a better position in this regard. But, as noted earlier, not all lumber species and types can be substituted easily. Moreover, supplies of SPF lumber from Canada are likely to decline over the next several U.S. market cycles.

This situation would be in sharp contrast to the increases in supply that Canada has been able to provide throughout its history. This indicates the prospect of a new supply-demand dynamic for softwood lumber in North America.

North American Supply, Demand and Prices
It should be remembered too that, like many forest regions of Canada, forestlands in the U.S. also are experiencing strong fibre demand for bio-fuels. This demand is likely to continue. It involves co-generation projects along with extensive new capacity in wood pellets.

Overall, many industry analysts looking beyond the very short term foresee strong prospects for much better operating conditions in softwood sawmilling than exist today. With higher real prices, and a corresponding improvement in profit margins, the rate of return on capital for sawmills could improve — perhaps significantly. The short term reality, however, is that conditions are likely to remain very negative for the industry. Moreover, realization of longer term margin improvements will depend directly on the permanent closure of a significant volume of existing softwood lumber manufacturing.

Given this scenario, the respective shares of various supplying regions to the U.S. market will depend on (a) levels of U.S. protectionism, (b) delivered cost-competitive positions, and (c) exchange rate differentials. Tightening supplies of economically accessible saw logs within Canada suggest that its volume role in U.S. markets by the year 2020 will be significantly lower than it is today.

Moreover, shifts in consumption suggest that solid sawn lumber will continue to lose market share to engineered lumber and engineered wood products. Many of these products, along with enhanced supply-chain and channel partnerships with U.S. and overseas firms, are ‘natural fits’ for BC firms to progress up the value chain and, potentially, achieve higher rates of return on capital employed (ROCE).

BC’s Offshore Markets
Canada and BC’s high level of dependence on the U.S. softwood lumber market has been a concern to Canadian manufacturing firms and policymakers for many years — particularly because of U.S. protectionism and trade actions against Canada.

For some regions of Canada, offshore countries are natural markets (e.g. BC Coast lumber shipments to Asia). For others (e.g. Alberta and parts of the BC Interior), offshore markets are more difficult to gain physical access to than rail and truck markets in the United States. Even so, over the past fifteen years, offshore markets have accounted for, on average, nearly 15% of Canada’s total exports of softwood lumber.
B.C accounts for a major part of these offshore exports. On average, 85% of Canada’s annual exports have been shipped to the US.

The recent very sharp downturn in the U.S. market for softwood lumber has demonstrated the importance of offshore markets for Canada (Chart 16).

The illustration shows that there was a downward trend in Canada’s offshore shipments during the 1990s. This was associated with two principal events. During this period, much of the BC Coastal forest industry was caught in the ‘war in the woods’ land-use conflicts and a sizeable number of mills were closed as access to old growth timber was curtailed.

Secondly, after the ‘Asian Crisis’ of 1997, many of BC’s traditional Asian markets did not recover to former levels (notably Japan). BC coastal sawmills (still selling a largely obsolete product; namely green hemlock baby squares) lost market share to other suppliers. Among these were Nordic and other European manufacturers who provided lamina and kiln-dried products. These provided Japanese builders with the dimensional stability they sought in structural wood products.

Significant marketing and sales support efforts by BC firms, along with support by Canada Wood group and several affiliated organizations, helped Canadian firms diversify their markets. Recent successes have included a significant increase in sales to China (a priority developing market for Canada) as well as South Korea. In addition, markets in the Middle East and elsewhere have expanded. Many of these offshore sales successes are reinforced by technical sales support and promotion of wood frame construction (WFC). These are long term commitments towards Canada’s softwood lumber and other wood products diversification, including structural panels — such as OSB and value-added products.

**Overseas Suppliers to the United States**

Over the period to 2020, this offshore import requirement is likely to increase. An expected shortfall in the volume of SPF lumber exported to the U.S. market from Canada (Quebec, BC Interior and Ontario) and a lumber quality decline in the BC Interior (an effect of the pine-beetle) is expected to attract an increased volume of shipments from Europe and, possibly much later, from Russia.
For British Columbia, two strategic questions can be asked. Do other supply areas, such as Europe and Russia, have the potential to supply the predicted growing ‘gap’ in U.S. softwood lumber and engineered wood product needs? Secondly, will they have the capability to expand their exports to fill this market need? The answer to both questions is that, at significantly higher prices than prevail today, Western Europe most likely will expand its shipments (mainly in high grade lumber aimed at retail markets) and partly fill this gap.

By the year 2020, it is likely that Russian softwood lumber production capacity will have increased substantially — and that Russia will be starting to displace at least part of Western Europe’s more expensive shipments to the U.S.. This assumes that Russia is successful, as we believe eventually it will be, in attracting significant new investment in integrated forest products manufacturing (using an approach similar to the Canadian traditional integrated model of regional development).

Europe’s export potential depends in part on purchased logs (several rapidly growing areas of softwood lumber output depend on Russian logs) and, based on existing and future cost structures, is likely to result in comparatively expensive lumber. At times, over the past several years, softwood lumber has sold in Europe at roughly double the selling prices typical in North America. Despite its higher cost structure, European production is rising (Chart 17).

Chart 17

**Softwood Lumber: European Production**

(Excluding Russia and Eastern Europe)

Data source: FAOSTAT

The data illustrated above do not include softwood lumber production from Russia and Eastern Europe (see below for analysis of this region).

For the 30-year period from 1961 to 1991, European production of softwood lumber increased from 44 million m³ to 58 million m³ — an increase of less than 1% per year (CAGR). Over the subsequent 16-year period to 2007, European output exceeded 3.1% per year. Moreover, during this time, there was a capacity switch from traditional Nordic suppliers to fast-growing lumber manufacturers in Germany and Austria.

Russia has the largest undeveloped reserves of timber worldwide — almost one-quarter of the world’s total indigenous forest. Although nearly 75% of these areas are in Siberia, and mostly lacking road and rail access, there has been considerable investment interest (although limited actual commitments to date) by outside investors — especially when global markets were buoyant and supply became an issue. Russia has ambitious plans for its forestry sector and, through the Forestry Code, has established the groundwork for
secure timber tenures in order to attract and retain investors. Many forest reserves are in sensitive ecological areas. Even so, on a net of protected areas basis, Russia’s supply potential is substantial.

Data for Russia and Eastern Europe were excluded in the global data discussed earlier because they would have skewed the global picture. A single, although huge, event — the collapse of the Soviet Union in 1991 — resulted in a sharp drop in economic activity, including a substantial decline in softwood lumber production (Chart 18).

The most significant change in forest products manufacturing capacity in Russia is increased output in wood-based panels. Expansion of the country’s pulp and paper sector, despite ambitious plans, has proceeded slowly. Nevertheless, some important and significant-sized outside investments have been made (e.g., International Paper with Russia’s Ilim Pulp). Softwood lumber capacity growth to date has been slow, exceeded marginally by hardwood lumber capacity growth. Log production and exports, on the other hand, have experienced substantial growth until recently.

Several eastern European countries (Czech Republic and Slovakia), formerly part of the Soviet bloc, have experienced some growth in capacity. But the major growth in former Soviet satellite countries has occurred in the Baltic states of Latvia, Lithuania and Estonia (production data for the latter are included in the European data discussed earlier). The outlook for production in the Baltic region is clouded because the region is facing severe macro-economic difficulties as a result of the global economic downturn.

The most likely scenario for Russia’s output of softwood lumber and other products is for slow development of its timber reserves over the next five to ten years. Beyond 2020, an accelerated level of development and export growth seems likely. Regarding the production of softwood lumber in Europe, and the U.S. market potential of these supply regions, a key consideration will be the pace of growth in domestic demand. Trade volumes also are likely to be influenced by exchange rates and the costs of overland and ocean freight.
Other Supply Regions
Several countries in the southern hemisphere have considerable reserves of (mainly hardwood) indigenous forests and many of them have attracted significant investments in fast-growing hardwood and softwood plantation timber. The production of forest products of all types has accelerated rapidly. The area boasts some of the world’s largest manufacturing facilities, some of the lowest wood costs worldwide and several of the most competitive producers of commodity forest products and higher valued items.

Longer term, the forestry potential of this sizeable area is very high. Its potential should not be underestimated. As a significant export market supply area, the southern hemisphere will continue to grow, especially in market pulp and paper/paperboard products, along with structural panelboards (hardwood and some softwood plywood) and composite panels.

Chart 7 (shown earlier) indicated that the aggregate market share of global exports derived from the southern hemisphere countries rose from 9% of the world’s total in 1961 to around 15% by 2007. Most of the aggregate export market share growth, however, occurred prior to the year 2000. As the illustration showed, the global market share of world forest products exports accounted for by the southern hemisphere experienced no overall growth in market share after the late 1990s, and in fact has declined slightly.

A fuller analysis would show that the prospects for further export market share gains in the area depends on which of the specific countries are in question. The outlook for Indonesia, for example, differs from those applicable to New Zealand or Western Australia and from those of West Africa and Uruguay. As far as softwood lumber and its close competitors (i.e. including competing products) are concerned there are few indications at present that any major growth in export volume would be expected prior to the year 2020.

Sustainable Forest Management in BC
Canada is a world leader in sustainable forest management (‘SFM’). Independent third-party certification of companies’ forest management practices has resulted in Canada accounting for nearly 40% of the world’s certified forests. This is a significant achievement – potentially of tremendous commercial importance for BC and Canada.

In British Columbia, as throughout Canada, all harvested areas must be regenerated by law. Canada plants more than 500 million seedlings each year — and has a deforestation rate of virtually zero (source: FPAC). BC is a sustainability leader within Canada. For Canada as a whole, independently certified audits confirm that nearly 97% of its forests are managed under sustainable forest management practices (Chart 19).

Chart 19
Sustainable Forest Management (‘SFM’) Independent Third-Party Certification of Forests

<table>
<thead>
<tr>
<th>Country</th>
<th>Million Hectares</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chile</td>
<td>1.9</td>
</tr>
<tr>
<td>France</td>
<td>4.4</td>
</tr>
<tr>
<td>Malaysia</td>
<td>4.8</td>
</tr>
<tr>
<td>Brazil</td>
<td>5.6</td>
</tr>
<tr>
<td>Germany</td>
<td>7.8</td>
</tr>
<tr>
<td>Australia</td>
<td>9.1</td>
</tr>
<tr>
<td>Russia</td>
<td>15.7</td>
</tr>
<tr>
<td>Sweden</td>
<td>18.2</td>
</tr>
<tr>
<td>Finland</td>
<td>22.5</td>
</tr>
<tr>
<td>USA</td>
<td>42.3</td>
</tr>
<tr>
<td>Canada</td>
<td>138.4</td>
</tr>
</tbody>
</table>

Countries vary in the size of their forested land areas. Moreover, some countries (such as Chile) rely almost exclusively on intensively managed plantation forest land areas. Canada is outstanding in its certified forest management – almost 97% of its forests are independently audited and certified as being managed under sustainable forest management practices.
What Do the Global Analyses of Softwood Lumber and Wood Products Mean for BC?

One of the most important points made in this report is that BC’s forest products industry is not market limited (Chart 20). In recent decades, BC’s performance in global trade has not matched its potential — but the industry has been doing many of the ‘right things’ that eventually can help it realize this potential. Importantly, significant steps can be made towards this goal by the year 2020.

In many respects, the theme of Opportunity BC 2020 provides a timely reminder that the province’s forest industry is being sustainably managed, its timber resources are constantly being renewed and it has huge potential — not just to produce a wide range of manufactured products but, in the process, also to help significantly in carbon sequestration and green energy production.

Few British Columbians, especially those living in urban areas, appear to be aware of this strategic significance. Too often the province’s forest sector is discussed in the context of the industry’s problems — rather than its benefits and potential.

This point is noted by the Roundtable report. Its first recommendation addresses this issue.

As a significant global player in wood products manufacturing, BC has the potential to be a major provider of wood products and linked services (e.g. engineering, design) to North American and offshore markets. The analysis presented in this section shows that the life-cycle of BC’s currently dominant solid sawn lumber industry can achieve many future iterations of renewal. Other structural products produced in BC, such as OSB (and potentially OSL) along with building systems and components, also can benefit from these life-cycle renewal opportunities. All of these are, and will continue to be, produced under sustainable forest management practices.

None of these market and product opportunities are a ‘surprise’ to the managements of BC wood product firms. They know the potential well. Moreover, a few BC firms are global industry leaders in pursuing them. Even so, there are significant obstacles within BC, as well as in export market access and the province’s cost-competitive position that — at least to date — have precluded the widespread pursuit of these opportunities. These obstacles are discussed in greater detail in the sections which follow.

If the obstacles could be reduced or eliminated, and if investors could be assured of a risk-adjusted long run rate of return on capital employed (ROCE) that exceeds the cost of capital, it would take very little time for the province’s existing wood products manufacturing industry to adopt its business model and pursue these opportunities aggressively. By re-defining its product-market vision as being, for example, a global provider of green-built, energy-efficient, carbon neutral structures, producers on the BC coast and interior could quickly move away from their historical “hewers of wood” and commodity 2x4 image.

Successful re-branding of BC’s wood products industry (some of which, through its production of advanced wood products, already is underway) would have a wide range of benefits. Not the least of these would be opportunities with respect to two vital issues, explored later in Section D:

- Winning widespread active support from all British Columbians for BC’s forest sector.
- Attracting (recruiting and retaining) skilled younger people into the industry’s workforce.
Section B

BC’s Pulp and Paper and Emerging Green Energy Industries
Pulp and Paper Manufacturing in the BC Forest Economy

In the ‘Overview’ section of this report, the importance of BC’s sawmilling sector to the province’s economy was noted. PricewaterhouseCoopers has estimated that, in 2007, 77% of the log volume entering the BC forest products manufacturing stream was directed initially through the province’s softwood lumber manufacturing sector. Only 6% went directly to pulp mills.

A profitable and globally competitive softwood lumber industry in the province will continue to be essential in BC, for the reasons explained in the previous section. Historically, it has been vital because this sector has yielded the highest rates of return on the available timber — in three ways:

1. Softwood lumber is produced;
2. A reliable supply of ‘residual’ fibres is generated for other manufacturing sectors — notably, the province’s pulp and paper sector (‘residual’ fibre accounts for about half the volume of each sawlog processed);
3. An important source of by-product income from the sale of sawmill residuals is generated for the province’s sawmills.

It is worth noting that this ‘integrated model’ of forest products manufacturing interdependence has been a keystone of provincial forest policies and private sector investment for more than the past fifty years. A 2005 report prepared by the BC wood products industry for the BC Competition Council concluded that the integrated manufacturing model was a key aspect of the ‘P3’ public-private partnership that, until relatively recently, was the structural framework for most of the Crown forest utilization, rural economic development and private sector manufacturing investment attracted to British Columbia.

One of the issues that currently challenges BC’s forest sector — and investors — is the question ‘will the integrated model continue to be the keystone of the province’s forest economy for the next several decades?’

A major reason for asking this question, and determining the best strategic route forwards for the industry, is that (as noted in the previous section) dramatic changes are happening in many parts of BC’s SPF forests. More specifically, the aftermath of the massive pine beetle attacks is changing the economics of timber harvesting in many parts of the BC Interior region.

Chart 21

Pulp & Paper:
40% of BC’s Forest Products Exports 1992-2008

Data source: Strategis
* NAICS 321
** NAICS 322
Historically, BC’s Forest Economy has been Driven by Wood Products

In 2008, BC’s forest product manufactured exports by value comprised, almost equally, wood products (52%) and pulp and paper products (48%). This was an unusual year. Capacity utilization rates in the province’s wood products mills and plants declined to 64% (from a high of 96% in late 2004) while its pulp and paper sector (coming off a cycle-high) enjoyed utilization rates of 88% (compared with 93%). Moreover, for almost the past two decades, pulp and paper has accounted for about 40%, on average, of BC’s forest products export earnings (Chart 21, previous page).

BC’s forest products export earnings — and by implication its forest economy — historically has been driven by different factors than most regions of the rest of Canada. Chart 22 below shows that, in the ‘Rest of Canada’, pulp and paper manufacturing typically dominates the provincial forest economy. For most of the past two decades, pulp and paper has accounted for 67% of the Rest of Canada’s export earnings.

Pine Beetle Impacts on BC’s Pulp and Bio-fuels Industry

The severe loss of merchantable timber from BC’s near-term Interior forests that normally is directed into sawmilling, and a sharp deterioration in sawlog quality, are bringing about a fundamental re-thinking about the likely future drivers of some parts of the province’s forest economy. In some affected areas, the existing approach to harvesting will continue to work best. Crown license holders with sawmilling capacity will continue to be able to extract sufficient economically accessible sawlog volume to feed their softwood lumber mills. As they have in the past, sawmills will generate wood fibre residuals required by others.

In other areas, however, the opportunity to extract an adequate volume of sawlogs of sufficiently high quality has been severely compromised by the pine beetle attacks. It’s simply no longer economic for sawmillers to operate in some areas that historically have yielded significant quantities of economically viable sawlogs. Now they are unproductive in this respect.

This is well recognized. Correspondingly, BC’s Ministry of Forests and Range, along with the forest products manufacturing firms and others (e.g. BC Hydro), has been developing solutions to this problem, with bio-energy being part of the answer. Ultimately, the only sustainable solution may require a shift in the harvesting approach in some areas of the province to a forest economy within which manufacturing and processing sectors other than sawmilling will direct the logging activities. Specifically, BC’s existing pulp mills — and the province’s emerging bio-fuel producers — could, in future, merchandise logs in the woods and either (a) send recoverable sawlogs (all grades) to sawmills and/or (b) process low grade timber into
pulp fibre and/or bio-fuels. Importantly, for the BC Interior region, and province as a whole, a mix of these approaches to logging appears to be developing.

Historically, a mix of pulp mill wood rooms and chipping plants (chipping their own fibre from roundwood) and sawmills (producing residual chips for pulp mills and other manufacturers) existed in BC. Pine beetle impacts are unprecedented in BC’s recent commercial history. Correspondingly, the changes in forest utilization required may not be gradual and incremental. Most likely they will require bold initiatives to restore economic drivers that can sustain a globally competitive forest industry in the province. A return to a mix of wood rooms, chipping facilities and wood product mill residuals seems likely.

With the opportunity to expand the forest industry’s involvement in bio-fuels production, a new set of forest economics may be available in some areas of the province. Despite recent euphoria over the potential to process low grade beetle wood into bio-fuels, it is unlikely that this will be a solution for all regions devastated by the pine beetle. Nevertheless, because it already is a major producer of bio-fuels (and has been for decades), the province’s pulp industry is well-positioned to help attract new capital investment in green electricity and power generation — and help sustain rural communities and forest enterprises that otherwise might be unable to continue operating.

It should be stressed that, despite the important cost and revenue implications from growth in bio-fuel production, this should not regarded as the only ‘lifeline’ that exists for BC’s pulp and paper sector. There are some parts of the sector that face an uncertain future. There are others, however, that are, or can be, supported by sound fundamentals of market demand. Achieving sustained prosperity in these activities can be enhanced by bio-fuel revenues, and will help attract much needed capital investment (e.g. replacing very expensive recovery boilers). In addition, new management models are being introduced within the sector (e.g. Harmac pulp mill, operated by Nanaimo Forest Products).

BC’s Pulp and Paper Sector in the Global Context

Two definitions are important in this section. The industry distinguishes between market pulp (which is an intermediate product, used mainly for papermaking) and paper and paperboard. The latter are final products, as far as the forest industry is defined, but frequently are further processed by converting sectors — into packaging products, a wide variety of printed items, newsprint, communication papers, coated publication papers and a vast array of other applications. Globally, it is a very large industry. Over the past almost fifty years, global demand growth for paper and paperboards has averaged 3.6% per year.

Globally, it is a healthy growth industry (Chart 23) that constantly is adapting to new technologies and needs by creating innovative, high performance grades of papers and paperboards.

Chart 23

Global Demand for Paper and Paperboard

<table>
<thead>
<tr>
<th>Year</th>
<th>Million Tonnes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1961</td>
<td>74</td>
</tr>
<tr>
<td>1967</td>
<td>150</td>
</tr>
<tr>
<td>1973</td>
<td>127</td>
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<tr>
<td>1979</td>
<td></td>
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<tr>
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<td></td>
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<tr>
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<td></td>
</tr>
<tr>
<td>1997</td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>384</td>
</tr>
</tbody>
</table>

Global Demand is Growing by Over 3.6% per Year, on Average**

** CAGR

Data source: FAOSTAT
Papermaking Goes Large Scale, and Global

Even as recently as the 1970s, global supply of paper and paperboard was characterized by a few grades produced on large scale, highly efficient ‘commodity grade’ paper machines (notably newsprint, linerboard and corrugating medium) plus a large number of grades (including printing papers) produced by thousands of papermakers worldwide, often using small scale, low productivity paper machines operating locally. Except in large volume commodity paper and paperboard grades, regional supply often was sufficient to meet regional needs. Firms such as Champion and International Paper helped consolidate the highly fragmented fine paper industry – but ultimately lost market share to larger scale overseas producers.

By the 1990s, the industry had become concentrated into the hands of fewer (and more global) large companies, mostly operating large scale, low unit cost paper machines — where the new capacity often was located offshore in the ‘Emerging 3’ new supply areas comprising the southern hemisphere and many developed market areas (e.g. Europe) where domestic new supply displaced imported papers. More recently, domestic paper and paperboard manufacturing capacity has increased in major markets with low per capita demand — but significant prospects for growth.

In the process of the global supply shift in papermaking away from developed countries to emerging markets, hundreds of smaller scale (comparatively inefficient) papermaking operations in the ‘Traditional Big 2’ supply areas (northern Europe and Canada), along with the U.S., were closed permanently (e.g. Hammermill Paper). Part of this evolution was the rapid growth in plantation-grown short-fibre pulps. In papermaking operations, these provide superior printability to papers made from long fibres that are produced mostly in the ‘Traditional 2’ supply areas.

In the 1960s, with its large, highly efficient newsprint machines (and advanced technology) Canada held a 37% share of global paper and paperboard exports (Chart 24). By 2007, this had declined to 9%.

Chart 24

Canada’s Paper & Paperboard Exports have Stalled .... and Continue to Lose Global Market Share

Newsprint produced in BC was a significant part of Canada’s total supply, serving international markets on the U.S. West Coast, Japan and (much earlier) western Europe. Newsprint and other uncoated publication papers are power-intensive. Part of BC’s global competitiveness in newsprint at that time was derived from its very competitive purchased electricity costs.
Newsprint and Other Uncoated Publication Papers

Consumption of newsprint by North America’s newspapers has declined every month, without interruption, for the past five years or more. A sharp decline in newspaper advertising, much smaller news sections and an overall switch to electronic media have devastated the newspaper publishing industry. This has been the largest single cause of Canada’s and BC’s loss of export earnings from this product. Other causes include the switch of capacity to offshore locations, as noted earlier.

Three distinct phases of the North American newsprint manufacturing industry can be identified over the past fifty years (Chart 25).

![Chart 25: North American Newsprint Production](chart)

The first phase, which began well before 1961, was the ‘growth era’ for the industry. From 1961 to the late-1980s, production rose at an average rate (CAGR) of 2.5% per year, every year, over this period. By 1998, production reached 15.4 million tonnes — of which Canada was a major supplier. A ‘maturity phase’ followed, with demand growing at only 0.3% per year on average. A structural decline phase began in 2001 and production declined to 10.3 million tonnes by the end of 2008. Over this period, demand decreased on average by 5.3% per year.

Mills in BC, and throughout Canada, foresaw many of these developments. They invested heavily in switching older papermachines to specialty grades (such as lightweights and lower grammage papers as well as specialty grades). But a combination of global demand shifts, high production costs at home and new capacity built offshore (where newsprint demand, in countries such as India and China, is growing rapidly) forced the closure of a large volume of capacity.

BC’s modest success in ‘higher value-added’ papers has enabled several mills to remain open. High production costs have been a problem. Moreover, in regions such as the BC Coast, where high wood and other costs along with vigorous environmental actions forced the closure of a large number of sawmills, the formerly successful ‘integrated business model’ fell apart. Pulp mills and papermakers were unable to obtain supplies of residual fibre from sawmills — and were forced to rely on much higher cost whole log chipping.
Over most of the past decade, BC papermakers have worked hard to maintain their export markets. The reality, however, has been a slow trend of declining export earnings — most notably in newsprint (Chart 26.) From a position of being a global leader and cost competitive twenty years ago, much of BC’s newsprint and value-added publication papers industry today is ‘hanging on by its fingernails’.

**Chart 26**

**Newsprint and Value-Added Papers: Value of BC’s Exports is Gradually Declining**

With New Capacity Growth Offshore, BC’s Global Position is Weakening Too

**Market Pulp**

Global demand for market pulp arises because many regions have papermaking capacity, but lack their own sources of fibre, or particular types of fibre. Correspondingly, typically, they may import recycled fibre (i.e. previously used paper and/or paperboards) or any of several dozens of grades of virgin fibres in the form of market pulps.

**Chart 27**

Canada’s Pulp Exports Have Weathered a Recent Onslaught of New, Low Cost Global Competition ...and are Stabilizing as a Vital Niche Product

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Data sources: FAOSTAT, Strategis
A vast array of market pulps is available. Canada makes pulps mostly from softwood fibres, but also some hardwood species. With its comparatively small population, Canada is not a major source of recycled papers (the U.S. is much larger — and supplies large volumes to regions with a papermaking fibre deficit, such as China). With its extensive coniferous forests, Canada is focused mainly on the production of virgin pulps which yields generally strong, long fibred pulps. One major grouping — NBSK pulp — is one of the most important market pulps sold in world markets.

With substantial expansion in recent decades in pulps made from fast grown plantation hardwoods (and some plantation softwoods), Canada has lost its formerly dominant share of the global market pulp business. But many of the short-fibred pulps produced elsewhere require NBSK and similar long fibred pulps in order to provide strength and runnability (e.g. in high speed printing presses).

Chart 27 (previous page) shows that Canada had a 40% share of global pulp exports in the mid-1970s. Canada’s pulp exports, although cyclical, have continued to expand and rose from U.S.$1.8 Billion in value in 1974 to a peak of $7.7 Billion in 1995. This was an unusual year. A strong demand recovery in paper and paperboard (after years of decline) encountered low inventories and a significant lack of supply of market pulp in the distribution channels. Prices for paperboard rose sharply and market pulp prices (and short term demand) spiked to record levels. Global demand showed no sustained growth in the late 1990s, and Canada’s share of global exports in pulps declined to 24% by the year 2007.

During the early 2000s, demand for paper and paperboard once again generated growth in demand for long fibred pulps, including NBSK. Since 2001 (and until recent global recessionary conditions) NBSK pulp from Canada and other regions has stabilized and, on a trendline basis, is projected to enjoy a global and growing role as a vital niche intermediate product in demand among many of the world’s large papermaking regions — but much will depend on its ability to remain cost-competitive.

**Cost-Competitiveness is Vital**
The forest products manufacturing sector in Canada has remained chronically unprofitable for many generations. Compared with a cost of capital that, under normal times, averages 10% to 11%, the industry as a whole has achieved only a 4% to 5% long term average annual rate of return on capital employed (ROCE).

Many of BC’s pulp mills and paper machines are aging (as is the sector’s workforce). The capital demands for replacing equipment — and the operating costs of worker retention, training and skills upgrading — are immense. In Canada, it has been 20 years since a new greenfield market pulp was built. It seems probable that, unless ROCE levels can be improved significantly (in all manufacturing sectors) ongoing attrition of the province’s pulp and paper sector will continue. The trend of attrition is illustrated in Chart 28.
BC’s Green Energy Advantage

BC’s Pulp and Paper Taskforce has developed a potential future business model that would incorporate green energy and bio-fuels as a key part of helping to restore the profitability of at least some of the province’s pulp mills. The concept is illustrated in Chart 29, which is an extract from the 2008 International Bio-Energy Conference held in Prince George, BC (source: BC Pulp and Paper Taskforce).

Chart 29

The concept is a good one. As a result of the pine beetle infestations, large volumes of ‘waste’ wood exist in BC Interior forests, with no economic incentive currently available to bring this material out of the forest. The use of these forest residues for energy generation offers a valuable ‘win-win’ solution. Importantly, as noted in the next section, an important policy issue is how to get productive forestlands back into healthy forests, regardless of whether these forests are harvested commercially in the future, or not.

With over 8% of the world’s forest land area (see next section), Canada, and BC as a sizeable part of it, play a critical global role in many respects. Among them, the ability to provide commercial sources of timber (which can sequestrate carbon in manufactured forest products such as softwood lumber), and the ability of Canada’s forests to trap CO₂ emissions and generate oxygen, provide a strong incentive to rapidly re-forest beetle-killed (and other forestland areas) with vigorous new tree growth.

This concept underlies the Province of BC’s ‘Bio-Energy Strategy’ (Charts 30 and 31).

Chart 30

BC Bioenergy Strategy: Concept

- Help British Columbia reduce greenhouse gas emissions
- Strengthen BC’s long-term competitiveness and electricity self-sufficiency.

Source: http://www.energyplan.gov.bc.ca/bioenergy/#bcep_plan
Accordingly, Bill 31 (which received Royal Assent in May 2008) allows the Ministry of Forests and Range to grant a forest licence to successful bidders in a BC Hydro independent power producer (IPP) proposal call process. This legislation provides a forestry licence to provide a means of access to roadside accumulations that result from harvesting operations (source: BC Hydro presentation).

There are several bio-fuel (and some bio-refinery) options including wood pellet plants. The value of the large power contracts negotiable with BC Hydro is that they provide a framework for re-investment in BC’s pulp and paper sector.

The pulp and paper industry is a global leader in the use of combined heat and power (CHP) systems. These cogeneration systems produce electrical power and thermal energy from the same fuel. PwC estimates that an average pulp mill in BC consumes 300,000 MWH of power per year. However, the industry generates over 70% of its energy requirements from within the pulping process. It has the potential to generate significantly more — and become a sizeable net contributor into the provincial grid.

PwC notes that BC Hydro has the capacity to generate 11,000 MW — but currently imports 12% of its energy requirements annually. With growth in energy demand expected to increase by 25% to 45% over the next 20 years (PwC), the future role of the province’s pulp and paper sector in the generation of large scale biomass is evident.

There are several obstacles. BC Hydro’s mandate is to produce power at the lowest possible cost. As things stand at present, there is a limit to the extent to which it can provide incentive rates for green electricity and bio-fuel generation. In addition, there are issues about competition for scarce fibre resources. Existing forest industry players and others are concerned about the impacts that a price-advantaged bio-fuel sector could enter existing supply chains for residual fibre, and bid these away. These and several other issues are under active discussion at the present time.

**Policy Choices**

Bio-fuels and green energy are rapidly evolving fields. Decision-makers, regulators and policy formulators have to take account of, and anticipate, incredibly volatile global developments. Substantial pressures are placed on the public sector by private industry to create a favourable business climate and an advantageous pricing environment.

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**Chart 32**

Global Wood Pellet Trade (Tonnes)

Wood pellets are the fastest growing source of bio-energy in the world, and the market is being driven by European regulations.

Europe sources the bulk of its wood pellets from Canada, but Australia and the U.S. will soon become important sources as well.

Three potential sources which may be underestimated are Brazil, Russia and West Africa.
Moreover, competing jurisdictions constantly are changing the level of the global playing field. The policy task is not easy.

**U.S. Black Liquor Subsidy**

Black liquor is produced at an intermediate processing stage in the manufacturing of pulps at chemical (kraft) pulp mills. Normally, it is not a product. It contains a large proportion of dissolved wood fibres (comprising the lignins and hemi-cellulose portions of the cell wall) along with the chemicals used to separate the desired fibre (almost pure cellulose) from the rest. For decades, black liquor has been burned in recovery boilers to recover the processing chemicals. Combusted wood generates various forms of energy.

In 2005, the U.S. Senate approved a tax rebate of 50 cents a gallon for converting from fossil fuel to a mixture of fossil fuel and biofuel. The objective was to increase the use of biofuel in highway vehicles. But in 2008, kraft pulp mills in the U.S. realized they could qualify for this subsidy if they added some diesel fuel. The resulting fuel meets the tax guidelines but burns more fossil fuel rather than less, turning the intent the legislation upside down. The potential size of the rebate has been pegged at $6 billion. It is expected to reduce costs in the U.S. by 60 per cent, enough to force Canada out of global markets. The collapse of the pulp sector in Canada would also hit the market in Canada for wood chips, a by-product of making lumber that represents 30 per cent of the revenue stream for B.C.’s struggling sawmill industry (source Gordon Hamilton, Vancouver Sun April 21, 2009).

This subsidy was so substantial that Canada’s federal government, responding to strong lobbying efforts by the Forest Products Association of Canada (FPAC) on behalf of the entire Canadian industry, eventually was forced to ‘match’ the subsidy, to prevent further massive closures in Canada. Accordingly, the ‘Pulp and Paper Green Transformation Program’ has been introduced recently to redress this imbalance.

**Wood Pellets**

Commercial decisions are being made constantly as firms struggle to survive — and as new players with new capital and entrepreneurial management find niches in which they can prosper. BC’s wood pellet sub-sector is a stunning success in this respect. Even so, it should be recognized that the financial viability of some of these new industries depends on substantial subsidies being made available outside of Canada (e.g. northern Europe).

This is skewing trade patterns in a way that may not have occurred had these external energy pricing subsidies not been made available. Domestic markets for these fuels may evolve. Even so, there are some warning signs in this regard. Chart 32, for example, shows the very extensive flows of wood pellets from BC to northern Europe (graphic courtesy of Don Roberts, CIBC World Markets). BC enjoys very low wood costs in its wood pellets production — in part because of beetle-killed wood availability. With growing supply competition elsewhere, will this cost advantage continue over the longer term? Some analysts argue that rapid growth in the domestic market for wood pellets will more than offset any loss in export demand.

But this also raises some key policy issues.

Roberts notes, for example, that in terms strictly of energy efficiency, it is better to use biomass in heat and green electricity production than in solid bio-fuels. The math is as follows:

- Conversion losses of 10 -20% for heating and green electricity
- Conversion losses of 30 - 65% for bio-fuels.

When allocating public timber, there are significant differences in economic multipliers. Roberts notes (based on European data) that for one cubic metre of wood, relative to bio-energy, the pulp and paper sector generates 8 times more GDP and 13 times more employment. Clearly, there are many issues involved, and these will have to be resolved at the policy and energy pricing level.

**Transmission**

A strong case can be made for substantial capacity increases in green energy production — within BC’s pulp and paper sector. One of the issues is transmission facilities. Today, shipping costs (as measured, for example, by Baltic Index rates) are very low and ocean freight capacity is readily available. Projections indicate that this may not continue to be the case as the global recovery takes hold. An alternative, which may require significant new investment in transmission infrastructure within BC and elsewhere, is to deliver a substantial increase in green electricity to North American markets via the grid (Chart 33).
Chart 33

Green-Power Transmission


British Columbia’s pulp and paper manufacturing sector is highly capital intensive. Despite massive global changes in global supply patterns over the past several decades — and the emergence of new, often very low cost producers (notably of market pulps in the southern hemisphere), the BC industry has adapted and most of its has survived.

Future survival for the remaining pulp and paper mills in the province cannot be guaranteed. Yet, their survival and future prosperity is vital to the integrated forest products manufacturing model that is fundamental to commercial forest economics throughout the province. In some of its basic products, notably NBSK market pulps, the BC industry has fought for, and achieved, a global market niche. This is sustainable well into the future, but the financial viability of these mills — and the province’s value-added papermaking industry — remain at risk.

Global climate changes, along with the need to reduce GHG’s and the planet’s carbon footprint, recently have brought about global macro-environmental policy changes in which the province’s pulp and paper sector can play an expanded, very positive role. Specifically, as a producer of green energy, BC’s pulp and paper sector can help meet the future energy needs — not just of BC — but of many other regions of North America and abroad. Green energy produced by the province’s pulp and paper sector (as a net energy producer, and potentially with a zero carbon footprint) can be fed into the provincial grid. It can be transmitted by the North American grid to regions with an energy deficit — helping, in turn, to reduce the carbon footprint of these regions.

One competitive advantage within BC that often is overlooked is the province’s potential to export energy in the form of ‘embedded energy’ within its forest products exports. For years, BC’s paper industry used low cost hydro-electricity from the grid to produce newsprint much more competitively than it could be produced elsewhere. In effect, BC was exporting wood fibre + embedded energy.

By exporting a greater proportion of “value-added” in wood products, pulp and paper, BC could use its green energy advantage to capture markets where these products use traditional fossil fuels as a power source.

In the potentially ‘net carbon-neutral world of tomorrow’, this is a strong argument for shifting BC’s product mix away from raw materials exports (logs, wood chips and even market pulp) to further processed value-added, and skills-added, new products. The key to achieving this continues to depend on achieving adequate rates of return on the required investment.
Section C

Strategic Issues Facing
BC’s Forest Industry Today
Section C: Strategic Issues Facing BC’s Forest Industry Today

In 2009, with companies anticipating a variety of courses of recovery from the steepest global economic recession for many decades (Chart 34), what are the key strategic issues and opportunities that face BC’s forest industry, its capital providers and stakeholders? Are the challenges the industry faces likely to be resolved, and how? Can, and will, the industry seize the market and new product opportunities that await it? Ultimately, will the industry be able to retain existing capital and the new capital that it needs?

Chart 34

World Economic Growth:
Annual Percent Change, Constant Prices
(IMF Spring 2009)

![Graph showing world economic growth]

From an economic growth perspective, there are numerous questions of this type — and significant levels of risk. Moreover, the major levels of government stimulus currently in the world economy are unusual — and, in many senses, they distort short term market actions. For example, the substantial ‘black liquor’ subsidy (see previous section) recently developed within the U.S. to aid its pulp and paper industry is distorting the global supply pattern in market pulps. This type of subsidy is unlikely to be a feature of the longer term economic landscape, but it obscures the short term picture.

The purpose of this section is to provide the reader with a structure that may help answer questions about the key issues facing the province’s forest industry.

The chart above provides a summary of global economic growth projections by the International Monetary Fund (IMF) as of Spring 2009. Clearly, with very mixed signals emerging from day to day, the world economic growth situation and outlook is highly uncertain. Possibly representing the inverse of normal experience, the short term outlook appears to even more uncertain than the longer term.

BC is a market-based economy. Conceptually, most types of issues facing the forest industry — and their resolution — can be considered in two broad categories:

1. Issues that the marketplace will resolve, mostly by itself.

2. Those which won’t be resolved by the marketplace or which, if certain actions are not taken, may be resolved detrimentally to the BC forest sector’s global competitive position.
The first group suggests that currently there are critical and sub-critical issues which seem likely to be resolved without any significant structural intervention by government. This is important because, as a market-based economy, prudent private sector decision-making is crucial to the optimum allocation — and, where appropriate, re-allocation — of scarce resources and capital. Ultimately, companies must be allowed to succeed or fail based on their financial performance — not on a tilted playing field.

The second group comprises strategic issues that most likely will require structural changes, involving government policy initiatives — if desirable outcomes for BC’s forest industry are to be achieved. Market forces will always produce an outcome of some kind. But market forces that are significantly encumbered by distorting paraphernalia (e.g. subsidies in competing jurisdictions, trade protectionism, conflicting goals within government relating to land-use and forest management goals) can, and do, drive investors and capital providers away from the sector and/or force them to impose very steep risk premiums on the funds they provide.

For the sake of clarity, Chart 35 portrays these groups as distinct categories. In fact, they are intertwined and influence each other. Separating the two groups nevertheless helps identify where changes are required — and generally who has primary responsibility to make them.

**Chart 35**

**BC Forest Industry: Critical Issues in 2009 and their Resolution**

1. **Issues that the Marketplace will Resolve, Mostly by Itself**

   Viewed in retrospect through a ‘Year 2020’ lens, many of the current issues of crucial immediate importance — such as the major economies successfully emerging from the current global recession — most likely will have been resolved, despite probable transitional difficulties over the near term.

   Other ‘critical issues’ of today, also likely to be resolved, or where the pre-conditions exist for them to be resolved, include four major groups, shown in the Chart and discussed below. Importantly, they are mostly market-based issues already being executed by, or within the domain of, the private sector. In other words, the pre-conditions already exist for a potentially successful resolution.

   Even though public-sector actions may be required from time to time (possibly intensively at times), these issues generally do not require major policy shifts, or changes in strategic direction, by government. This is
not to say that existing governance systems relating to them cannot be improved — of course they can, and must.

But it should be recognized that BC has been in the forestry business for a long time. A great deal of success has been achieved, and progress made. Management is skilled. Parts of BC’s forest industry are among the best in the world — commercially, and in terms of issues such as environmental sustainability.

There is a complex supporting apparatus in place, part of which is the root of some structural problems that must be resolved (see 2. below) if BC is to reach its forest industry manufacturing full potential. But a large part of what already exists generally works well, and may require only fine-tuning and, for some sub-sectors perhaps, more significant over-hauling from time-to-time. The basic structure remains solid and, in the view of many people close to the industry, should continue to form the super-structure for the industry’s ongoing evolution for the foreseeable future — certainly beyond the year 2020.

Aside from international, national and provincial macro-economic issues, there are four groups of critical and sub-critical issues, pertaining specifically to the BC forest industry, which fall into the ‘structural non-intervention’ category:

1.1 Product Demand Improvements
1.2 Market Price Improvements
1.3 Technological Solutions
1.4 Business Acumen

1.1 Product Demand Improvements
North American per capita consumption of wood and forest products, which has declined very sharply recently, is predicted to recover and will be maintained at globally high levels on a long term trend basis.

North American residential housing starts, using wood as their main structural raw material — and using wood and wood-composite materials extensively as a non-structural appearance product — are expected to have recovered long before the year 2020 attaining long term trend levels defined by demographics. They will be assisted by more sustainable affordability levels than have been typical in recent years.

This means that annual housing starts in the range 1.8 to 2.1 million units in the United States, and around a trend level of 225,000 units annually in Canada will once again become the affordable norm.

Non-residential markets for wood in North America are likely to continue to grow strongly — as a result of two factors. Firstly, strong promotional efforts by the industry (notably the ‘Wood is Good’ program in the United States and Canada) and, secondly, because of the cost-competitiveness of wood — particularly high-performance engineered wood products.

Offshore demand for North America’s wood and forest products is expected to continue to grow at a brisk overall rate (from a low current base) as emerging markets in China, South Korea, India and the Middle East offset declining per capita consumption offshore export markets in Japan and elsewhere.

1.2 Market Price Improvements
At the present time, market prices for many forest products — notably wood products — are at a very low cycle point. As a result of the global economic recession and the lowest levels of U.S. housing starts witnessed in many decades, prices for softwood lumber and oriented strandboard, and several other products, are extremely low at present. Supply is well out of balance with market demand, largely because producers have not taken enough supply off the market.

Underlying this situation is a strong belief among suppliers that much higher prices will return once demand starts to recover. In addition, despite the pace of the demand recovery being expected to be modest compared with previous upturns, many producers are convinced that fundamental shifts in supply are taking place. Moreover, if correct, the magnitude and form of these supply reductions would be unprecedented.

Correspondingly, this is one of the main reasons why sawmills have curtailed their operations rather than shutting down marginal capacity permanently. As a result, only a comparatively small percentage of the total softwood lumber capacity that existed at the height of the 2003-2005 U.S. housing ‘bull market’ has been taken out of the supply chain.
Prices for softwood market pulp (NBSK), although softening recently, have benefitted from permanent reductions in capacity in other supply regions of North America. Some senior executives in the market pulp sector strongly believe that long-fibred NBSK finally has found a long term supply-demand equilibrium. They point to recent price rallies as indicators that a new floor in long term trend prices may have been reached.

Newsprint and publication paper demand is soft at the present time. Demand for newsprint is very weak – and will become even weaker. Mills in BC have been shifting away from commodity newsprint production for many years. Despite massive North American capacity closures, and somewhat firmer market prices, few forecasters are predicting any strong upward price surge in the paper grades currently produced in BC.

1.3 Technological Solutions
The adoption of leading-edge, state-of-the-art processing technologies has long been acknowledged as a major source of the competitive edge that BC’s manufactured forest products traditionally have enjoyed in world markets.

Supply-side support technologies are constantly being developed, and adopted by the BC forest industry, contributing towards forest and eco-system sustainability, enhance industry productivity, achieve quality improvements and/or unit cost reductions which position the BC forest industry more competitively in global markets.

Technological advances in forest management — such as GIS mapping — contribute to ongoing improvements in the sector’s ability to ascertain facts, monitor forest inventory levels, aid forest management, control the spread of wildfires and help provide data relating to, for example, the planning of greenhouse gas (GHG) sequestration.

The industry is well known for its rapid adoption of state-of-the-art processing technologies. In this respect, some of BC’s mills are world leaders — notably in the BC Interior sawmilling industry, OSB plants and bio-fuel facilities (pellet plants). However, the province’s pulp and paper mills generally are aging, and are not cutting-edge. On the BC Coast, the sawmilling sector generally is characterized by old-vintage mills upgraded over time. Competitively, they do not compare well against new ‘supermills’ built in the U.S. West –notably Washington State.

Overall, the capital requirements (CAPEX) of the BC forest industry are significant. But, with improved demand and market prices in prospect, some of this capital requirement may be affordable (shareholders willing) from rising cash flows — as it has in the past. In other cases (e.g. Coast sawmilling) either the product mix has to be upgraded to reflect much higher unit revenues and/or costs will have to be reduced substantially for the desired CAPEX to earn a satisfactory rate of return.

One of the structural weaknesses of BC’s forest products manufacturing sector for many years has been its very low levels of spending on R&D in new product development. R&D support for the industry (in processing technologies and new products) continues to be provided by national organizations such as FP Innovations (formerly Forintek, FERIC and Paprican).

Perhaps reflecting the industry’s traditional emphasis on volume productivity vs. value maximization, most of FP Innovation’s focus has been on processing technologies. It carries out some market studies, but has limited capability in the innovative types of new product technologies that would help the BC industry achieve a ‘paradigm shift’ from a volume focus to value.

Utilization of “wood wastes” continues to improve throughout BC, with wood bio-fuels emerging as a very welcome growth product for the industry. Significant new investments in a range of activities from electricity co-generation to wood pellet manufacturing are being driven by globally high energy prices — which (although cyclical) appear likely to be sustained over the longer term at much higher than historical levels.

The creation of potentially commercial bio-fuel investment opportunities (and creating the appropriate pre-conditions to attract and reward these investments) remains a challenge for BC. Other jurisdictions, notably Sweden and Ontario, appear to be global leaders in this respect. However, a positive and collaborative working relationship between BC Hydro, the forest industry and independent power producers (IPPs) has been established — and seems to have the potential for the province of BC to take a global leadership role in this regard.

This is particularly critical in the mountain pine beetle devastated forests of the BC Interior region, where early replanting with healthy young vigorous forests is vital (absorbing CO2 and sequestrating large volumes of globally generated greenhouse gases [GHGs]). These are ‘qualified’ opportunities, in the sense that they
may not be environmentally and economically sustainable in all cases – and are not a “cure-all” for every forest region.

1.4 Business Acumen

Historically, BC had a reputation for its high level of entrepreneurship and innovation. Up to the 1990s, for example, MacMillan Bloedel was a global leader in the development of new technologies in strand-based structural panels (e.g. ‘waferboard’ a precursor to OSB) and in engineered wood. The firm took a strategic stake in TrusJoist which was a pioneer in structural engineered wood products and systems. Canfor was an innovator in several wood products and, recently, Ainsworth pioneered potentially innovative approaches to manufacturing new products, notably oriented starnd lumber, using lower cost sawmill residues.

Canfor has pioneered supply chain partnerships with lumber and building product distributors, successfully positioning itself as a ‘Tier 1’ supplier (based on the Toyota supply chain model) to key customers in North America and overseas. With assistance from FII and FP Innovations, new grades of existing products have been developed by the BC industry (e.g. Canada Tsuga).

There are few objective gauges of business acumen in BC’s forest industry. Generally, it can be noted that the industry has not moved much beyond primary production activities. Statistics indicate, for example, that the proportion of primary output that is further processed within the province is around 16% of the total value of its output (see Chart 1, presented earlier) and is less than 10% in wood products — which is the sector that holds the most potential for new product growth and new market development. This contrasts with Ontario and Quebec — where, even during peak years of primary wood products demand, secondary processing has exceeded 50% of the total value of forest products manufacturing output in those provinces.

BC has a very large and, in the BC Interior, very efficient primary wood products manufacturing industry, so proportional comparisons of this type can be misleading. Moreover, Quebec and Ontario are located close to the huge 85 million person U.S. Midwest market — while BC’s major natural markets often involve distances up to 1000km and more. Overall, however, it is valid to conclude that so-called “value-added” manufacturing activities in BC’s forest industry have been quite limited to date. As noted already, this is not through any lack of market opportunities.

Part of the reason may be that U.S. softwood lumber trade dispute issues and ‘stakeholder dispute’ issues within BC (e.g. war in the woods and land claims) have forced a culture of risk aversion upon senior management and boards of directors of the BC forest products manufacturing industry.

Many observers feel that the real causes of the industry’s lack of entrepreneurship and innovation are deeply rooted and entrenched.

The twin issues of the lack of competition for Crown timber and Crown-administered timber pricing, for instance, are discussed further later in this report.

To many observers, however, the real causes of the industry’s lack of entrepreneurship and innovation are much more deeply rooted and entrenched. The twin issues of the lack of competition for Crown timber and Crown-administered timber pricing, for instance, are discussed further later in this report.

2 Strategic Issues that May Require Structural Changes, and/or Government Major Policy Initiatives

It may seem strange to non-industry readers of this report that government intervention of any kind is not just tolerated, but expected by the BC forest industry.

As noted later, this situation (and the attitudes that go along with it) stem largely from the long term P3 public-private sector partnership which has dominated Crown timber supply — and has shaped private sector business models — within the province almost since the beginnings of the industry.

The future of the existing P3 model of timber supply and forest tenure (and timber pricing) governance is discussed in greater detail in the next section.
The remainder of this section seeks to identify and address ‘core’ strategic issues and the challenges facing the industry that may involve the need for government action. They include the following:

2.1 Inadequate Rate of Return on Capital Employed (ROCE)

2.2 High Risks

2.3 Uncertainty in Crown Timber Supply

2.4 Obstructed Access to Key Export Markets

2.5 Management’s Low Level of Adoption of Alternative Product-Markets

2.6 Low Levels of Workforce Skills Training and Upgrading

2.1 Inadequate Rate of Return on Capital Employed (ROCE)

The most serious weakness underlying the BC forest industry’s long term global competitiveness is its chronically low rate of return achieved on capital invested. Over many decades, this deficiency has been well documented. Remarkably, capital still continues to be attracted to some parts of the industry. Some ‘spikes’ in capital spending (CAPEX) typically occur as markets and prices rise — but the overall trend in capital investment is downwards.

Historical Rates of ROCE

This situation is not confined to BC and other parts of Canada. Globally, the long term average rate of ROCE consistently falls well below the average cost of capital. Chart 36 illustrates the average rates of ROCE achieved by the global forest products ‘Top 100’ largest firms, as measured by PricewaterhouseCoopers (PwC). The chart shows that, over the four most recent years (2004-2007) for which data currently are available, industry level ROCE ranged from 4.5% to 5.3%.

Chart 36

Geographically, there were significant variations. Also, within regions, some firms out-performed or under-performed the average by a significant margin. Generally, the ‘Traditional 2’ supply regions of
Finland/Sweden and Canada under-performed the average, while several regions within the ‘Emerging 3’ – notably non-Japan Asia and Latin America out-performed the global average.

The chart above shows that the Canadian firms which comprised the PwC ‘Top 100’ achieved an average ROCE high point of 4.6% and a low of minus 0.1% over the 2004 to 2007 period. Almost certainly, results for 2008 and 2009 when available will show an even sharper deterioration and negative value.

U.S. firms within the PwC ‘Top 100’ for the 2004-07 period achieved an average ROCE ranging from a high of 6.3% to a low of 5.2%.

One of the main differences between the Canadian and U.S. firms, in this respect, is the greater focus within Canada on primary products manufacturing. As the chart shows, Western Europe (including Sweden/Finland) also experienced wider fluctuations in its rates of ROCE, even though firms in this region typically are more forward integrated than forest products firms in Canada.

**Cost of Capital**

The cost of capital for firms varies. As a very broad estimate, the long term average cost of capital for many typical firms historically has been around 9% to 11%. Chart 37 superimposes this estimate over the previous data, and illustrates the conclusion that the forest products manufacturing industry consistently meets its cost of capital in very few parts of the world.

![Chart 37](image)

ROCE: Top 100 Forest Product Companies
(PricewaterhouseCoopers [PwC] Annual Survey)

This is not only a recent phenomenon. A different data series prepared by CIBC World Markets (source: Don Roberts) examines estimated rates of ROCE for all publicly traded, and some privately owned, forest products manufacturing companies in the U.S. and Canada over the period 1990 to 2003 (Chart 38).

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Prepared for the Business Council of BC  October 2009
It seems trite to say that the BC forest industry began with an opportunity, and the willingness of investors to invest capital. But it is true.

The chart again confirms the less volatile rates of ROCE typical of the more forward-integrated forest products manufacturing industry in the U.S. compared with Canada. CIBC World Markets also estimates that that the 14-Year average rate of ROCE was 5.6% in the United States and 4.3% in Canada. Clearly, neither manufacturing region provides a satisfactory rate of return to investors and capital providers.

There are comparatively few publicly traded forest products companies within BC. Of the four (Table 1) typically tracked by financial analysts, none have been able to meet their average cost of capital consistently.

<table>
<thead>
<tr>
<th>Table 1</th>
<th>ROCE 2004-2007: Selected Firms in BC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2004</td>
</tr>
<tr>
<td>West Fraser</td>
<td>8.1%</td>
</tr>
<tr>
<td>Canfor</td>
<td>16.2%</td>
</tr>
<tr>
<td>Catalyst</td>
<td>0.9%</td>
</tr>
<tr>
<td>Ainsworth</td>
<td>28.2%</td>
</tr>
</tbody>
</table>

Data source: PwC (note: financial years may differ from calendar years)

**Why Does ROCE Matter?**

ROCE measures the extent to which a firm, or industry, is utilizing capital to generate revenues. It is only one measure of financial performance — but is considered as one of the most critical financial measures by long term investors. For this reason, we emphasize it in this report.

It seems trite to say that the BC forest industry began with an opportunity, and the willingness of investors to invest capital. But it is true.

The situation is no different today. Without inflows of new capital, the growth opportunities (which generally are well known to industry management) simply will not be achieved.
In the earliest days, the capital involved was human capital. Individuals and groups of people were willing to expend hard physical labour (human capital) in order to extract wealth from the province’s abundant natural forest resources.

It is a matter of history that these early development stages eventually evolved to the need for financial capital — in terms, initially, of tools to do the job and, later, in a much more complex world of harvesting and manufacturing, substantial amounts of capital spending to build and operate world-scale commercial operations and state-of-the-art mills and conversion facilities using increasingly sophisticated technologies.

The latter is the business model of the modern world. In order to become established, and remain among, the world’s most globally competitive export market suppliers of forest products, the fundamental value-equation for commercial forest products manufacturing in the province of BC remains, as it has been since the outset of the industry, namely:

\[
\text{Export Market Opportunities + Financial Capital} \equiv \text{Fundamental Building Blocks of a Globally Competitive Industry in BC}
\]

This is not to say that other factors (such as human capital, manufacturing costs and transportation infrastructure) are not vital considerations. They are. The absence of these ‘other factors’, or their ineffective operation, can pose severe obstacles to global competitiveness. At an extreme, they can wipe out the opportunity.

Nevertheless, without the fundamental willingness of investors to invest financial capital — and industry management’s ability to reward capital providers and sustain inflows of long term capital investment — all the rest is for naught.

The opportunity simply goes elsewhere.

**Recent Capital Spending Trends in BC**

In the past decade, there have been two notable ‘spikes’ in manufacturing capital spending (CAPEX) within BC’s forest industry.

The first, which occurred roughly between the years 2002-2005, involved the construction of softwood lumber supermills in the BC Interior region. This was in response to the surge in beetle-killed timber available for processing. It is estimated that over C$1 Billion in CAPEX was invested by the industry in new manufacturing capacity — and related advanced technologies — over this period.

The second is more recent – and is ongoing at the present time. It relates to bio-energy CAPEX in electricity and power generation and wood pellet production focused on export markets. Apart from these two ‘spikes’ in the province’s forest industry CAPEX, the overall recent record of the BC industry is quite poor.

In BC’s pulp and paper sector (bio-fuels expenditures excluded) there has been a long term downward trend in elective capital spending. Moreover, many observers consider the level of maintenance and repairs expenditures being made by pulp and paper mills to be unsustainably low. For example, many of the province’s pulp mills require replacement of aging and deteriorating recovery boilers. These are ‘large ticket’ capital items, involving one-time spending of $100-130 million each — but with little or no benefit to the firm’s profit margin.

The problem this creates is that, without the benefit of the highly productive state-of-the-art capital equipment in harvesting and manufacturing, it will be difficult for these sub-sectors of the industry to regain, and maintain, their global competitiveness.

**How Can the BC Forest Industry’s Average ROCE Levels be Improved?**

There are only two possible solutions. The net revenues flowing into manufacturing firms in the sector can be increased, and/or the level of capital employed can be reduced. Chart 39 summarizes these two options.
Option #1 Improving Profit Levels
Industry CEOs, CFO’s and many others are constantly concerned — and often speak volubly — about the various elements of cost that potentially could enable them to provide a sufficient stream of distributable net revenues to reward investors adequately. This should be no surprise since their hands ultimately are tied by the math involved. Specifically, the rate of return on capital employed (ROCE) is defined by the net returns (profit) on the one hand, and the level of capital employed on the other.

This is exactly the same as it is for all other industries and commercial operations. Without the ability to (a) repay the cost of long term capital and (b) compete successfully against other potential seekers of this capital, the ability of any industry, firm or individual to obtain the desired capital typically is severely constrained. Obtaining the desired levels of long term capital may require a premium — or sometimes can involve a discount — to what others in a different operating and risk environment may have to pay.

A: Revenues: Commodity Products
One of the frequently voiced criticisms levied at the BC forest products manufacturing industry is that its mills and plants — and management strategies — are far too concentrated on the production of low value (“low value-added”) commodity products. Commodity product producers are ‘price-takers’. Globally speaking, there are far too many suppliers for any one of them to be able to influence the market price.

In BC, a few forest product “commodity” producers have been able to achieve marginally higher prices per unit by providing additional value (i.e. services, such as design, engineering, IT and order-tracking) and differentiating their products. Others differentiate their mills on the basis of higher quality (which typically doesn’t attract higher revenue, but ‘gets the purchase order’). Even with marginally higher additional revenues, most BC forest products manufacturers remain “trapped” at a certain price point for their product.

Thus, over many decades, forest product commodity producers in BC have focused aggressively on reducing their costs — as a means of improving net returns.

Can BC “Give Up” Commodity Products Manufacturing, and Simply Focus on “Value-Added” Products?
Financially, it is virtually impossible at the present time, and probably well into the foreseeable future, for the BC forest products manufacturing industry to “give up” the production of commodity products such as softwood dimension lumber, OSB and market pulp — even if (as desired) “value-added” elements are added to this product mix. These reasons for this include the following (see Chart 40).

---

**Chart 39**

<table>
<thead>
<tr>
<th>Only 2 Ways Exist to Improve ROCE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition: ROCE</strong></td>
</tr>
<tr>
<td>Measures the efficiency with which the firm, or industry, is utilizing capital to generate revenues.</td>
</tr>
<tr>
<td>= Profit before Interest and Taxes (EBIT) divided by Total Assets Employed (excluding Current Liabilities)</td>
</tr>
<tr>
<td><strong>Base Case</strong></td>
</tr>
<tr>
<td>EBIT $10 Million; Capital Employed $100 Million = 10% ROCE</td>
</tr>
<tr>
<td><strong>Enhanced ROCE Case</strong></td>
</tr>
<tr>
<td>EBIT $20 Million; Capital Employed $100 Million = 20% ROCE</td>
</tr>
<tr>
<td>or</td>
</tr>
<tr>
<td>EBIT $10 Million; Capital Employed $70 Million = 14% ROCE</td>
</tr>
</tbody>
</table>
For a successful shift to occur to further processed, higher value products — generating more advanced manufacturing activities within BC and creating more advanced processing jobs — it is essential for BC’s commodity products business to be very low cost and highly price competitive in global markets.

This is a vital conclusion at the industry level. Individual firms within the industry are pursuing further processing and added value activities — and many more of these opportunities exist. For example, BC has a prosperous and expanding housing component and modular housing industry that uses extensive volumes of competitively priced structural wood products. These are beneficial trends.

As noted, the ability of many (but not all) of these advanced manufacturing activities to be successful depends on the availability of the types of low cost, high quality commodity forest products from local sources in BC.

In BC’s pulp and paper sector, chemical market pulp price trends are comparatively favourable. An important potential “new” source of revenue involves the conversion of wood fibre into bio-fuels. These are rapidly becoming a key third major revenue stream for the BC forest industry — and are discussed in greater detail later in this section. Importantly, both factors can enhance ROCE levels for the sector.

It is a reasonable overall conclusion that the BC forest industry’s ROCE can be improved over time by shifting to a greater proportion of higher value, further processed products.

For a successful shift to occur to further processed, higher value products — generating more advanced manufacturing activities within BC and creating more advanced processing jobs — it is essential for BC’s commodity products business to be very low cost and highly price competitive in global markets.
manufactured products. But this most likely offers one part of the solution because very large improvements in ROCE are required if the BC forest industry is to achieve long term investment sustainability and ongoing net inflows.

More likely, a combination of higher product price trends beyond 2009, plus an upgrading of the province’s forest products mix over time, indicates some possibly very significant improvements in industry level revenues by the year 2020 and beyond. However, wood costs are critical.

B. Manufacturing Costs
These comprise two groups of costs, and reductions in them (if they can be achieved) have the potential to contribute very significantly — and rapidly — to improved profit levels, and higher rates of ROCE for the industry. The two groups are:

1. Wood and Fibre Costs
2. Conversion Costs

1. Wood and Fibre Costs
These represent a significant part of total manufacturing costs, varying from around 40% to nearly 75% (depending on the product and other factors). Chart 41 shows representative data for market pulp and softwood lumber total manufacturing costs (delivery costs to market are excluded). Note also that BC’s wood costs for softwood lumber are net of residual chip income — and would be much higher if these sources of income from pulp mills were not available.

<table>
<thead>
<tr>
<th>Market Pulp (NBSK)</th>
<th>BC Coast</th>
<th>BC Interior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood</td>
<td>41%</td>
<td>73%</td>
</tr>
<tr>
<td>Wood (NBSK)</td>
<td>59%</td>
<td>27%</td>
</tr>
</tbody>
</table>

Companies constantly are trying to find ways to reduce their wood costs, with approaches varying from productivity gains aimed at obtaining higher yields of usable fibre to full utilization of every stem and major capital expenditures in manufacturing technologies to reduce unit costs of production.

BC’s lumber industry — and the BC Interior sawmilling industry in particular — has been very successful in achieving some of the lowest conversion costs through massive investments in very efficient dimension lumber supermills and specialized board and timber mills.

A combination of higher product price trends beyond 2009, plus an upgrading of the province’s forest products mix over time, indicates some (possibly very significant) improvements in industry level revenues by the year 2020 and beyond.
The province’s pulp and paper manufacturing sector has been successful in the past in the construction of large scale, low unit cost mills that use sawmill by-product residual fibres very efficiently to minimize their unit manufacturing costs.

**Wood Costs in BC vs. Global Competitors**

Chart 42 shows a ranking of delivered log costs to softwood lumber mills globally (data source: Russ Taylor/Beck/PwC 2006 survey data released for the BC Competition Council report). Two groups have been separated:

- BC’s Competitors in the ‘Emerging 3’ Regions
- Competitors in the ‘Traditional 2’ & Developed Market Regions

The highest log costs in softwood lumber production globally are in Finland and Sweden. Other high delivered log cost regions include the BC Coast and U.S. West. With a high proportion of private timberland log costs, delivered log costs in the U.S. South also fell into this group in 2006.

Within the ‘Emerging 3’ regions, there are also high log cost countries. The Baltics, Austria and Germany fell into this group in 2006.

The ‘best-of-class’ softwood lumber producing regions in 2006 included Russia, South Africa and Chile within the ‘Emerging 3’ region and most of Canada — including the BC Interior — within the ‘Traditional 2’ supplying regions. The BC Coast fell at a mid-point, with some of the highest log costs in North America, but below the highest worldwide (and lower than those in the U.S. West).

**BC’s Wood Cost Trends**

In 2009, log cost rankings have shifted — notably because of (a) major changes in global supply and demand and (b) because all costs are expressed on a common U.S. dollar basis — and have been substantially altered recently by changes in exchange rates.
From a year 2020 perspective, at what level will BC’s wood costs be? Will the province still enjoy the ‘best in class’ status enjoyed recently (and, in our estimates still prevailing in 2009)? Will the cost still remain as one of North America’s highest cost areas for delivered log costs to sawmills?

The answer to this will depend largely on three factors:

- The prevailing supply and demand for softwood sawlogs in BC.
- The ownership, Crown tenure and forest management regimes that exist at the time.
- Trends in wood costs elsewhere in the world (notably among BC’s key competitors).

**Supply & Demand in BC: The Province’s Commercial Timberlands**

BC has reached the peak of sustainable utilization of its forests under current levels of forest management. In fact, because of the massive pine-beetle impacts, the sustainability of past harvest levels is in jeopardy. Fortunately, there are solutions.

BC’s total timber harvest history is illustrated in Chart 43 (source: State of BC’s Forests 2006). The sustainable level of harvesting, under prevailing levels of forest management, was trending downwards for most of the province in the 1990s. The Chief Forester’s determinations of the sustainable allowable annual cut (AAC), during the 1990s and early 2000s, continually indicated a downward trend in allowable harvest levels on public lands. The trend was interrupted by the need to salvage (as rapidly as possible) merchantable timber from the pine beetle killed SPF forests of the BC Interior.

It is expected that this will be a relatively short spike in accelerated harvest levels. The merchantable volume will be defined by several factors including economically accessible sawlog volumes—and the extent to which other sector, such as BC’s pulp, paper and bio-fuels industry (including wood pellets), can contribute ‘new economics’ to harvest low-grade timber and ‘waste wood’.

**Chart 43**

The bio-climatic and commercial values of BC’s forests appear likely to increase – perhaps substantially in the foreseeable future, because of the loss of productive

*Wood costs in BC will rise — perhaps sharply for certain higher grades of logs — as the reduced timber supply outlook in the BC Interior starts to have an impact.*
forestlands elsewhere in the world and major shifts in timber supply and trade patterns. It is expected that, without significant changes in forest management focused on productivity gains, wood costs in BC will rise, perhaps sharply for higher grades of logs, as reduced timber supply in the BC Interior starts to have an impact.

Global Wood Cost Trends
An increasing number of industry analysts, looking beyond the current low demand and recessionary macro-economic conditions worldwide, predict that global wood costs are likely to rise — perhaps sharply — as a result of a worldwide tightening of raw log and overall timber supply. Don Roberts of CIBC World Markets predicts a tightening of softwood timber in particular (but also in hardwood species) due to the following factors.

1. Recent changes in Russian log export policies
2. Ongoing fibre deficits in Asia
3. Western Canada's pine beetle impacts
4. Cutbacks in AAC in Quebec, and potentially in Ontario
5. Loss of commercial forestlands to set-asides and other land use decisions

He foresees increasing potential commercial for more intensively managed timberlands, and notes that several softwood timber supply areas (previously a key part of the global supply chain, Chart 44) are unlikely to be able to produce the increments of timber that they have in the past. Several other leading-edge proprietary studies predict a similar future.

Chart 44
Location of Global Softwood Fiber

Source: CIBC World Markets

BC’s Competitive Position by 2020: Can Wood and Fibre Costs be Reduced Substantially?
There are several components of the cost of wood and fibre delivered to the mill. For the purposes of this report, they can be categorized into two groups:

A: The cost of logging and hauling logs to the mill (sawmill)
B: Stumpage (i.e. the cost of the log itself) and harvesting overhead costs
In the first group of costs, BC is uncompetitive on a global basis. Chart 45 shows the situation. It expresses competitors’ logging and hauling costs as a percentage of BC Interior costs for a typical dimension lumber sawmill. In the Chart, values are indexed — with the BC Interior as 100%.

Chart 45

ROCE Improvement: Global Log Cost Analysis
A: Cost of Logging & Hauling to Mill

Logging and hauling costs (reflecting difficult terrain and long haul distances to processing mills) are highest on the BC Coast — and are among the highest in the world. They are 50% higher than for mills in the BC Interior.

Even though the BC Interior (which is one of the most efficient and productive softwood lumber producing regions in the world) does not have the highest logging and in-bound (i.e. to the sawmill) hauling costs, its costs are substantially higher than the world’s ‘best-in-class’ and significantly higher than most competitors in the ‘Emerging 3’ regions. Chile, for example, enjoys logging and in-bound haulage costs that are half those of the BC Interior.

As an indicator of possible strategies to reduce costs and improve ROCE levels in BC, it is worthwhile considering why this category of costs is substantially and consistently lower among the province’s ‘Emerging 3’ competitors. There are several reasons:

1. Many emerging competitors produce timber on a plantation basis — close to the mill.

2. Crop rotation among many of BC’s emerging and existing competitors is ‘short rotation’ — often between 12 years and 35 years before harvesting and replanting. Of course, the quality of the faster growing fibre differs from the slow growth timber typical in BC and is not always as well suited for the structural markets in which BC specializes. With increased ‘engineering’ of lumber, however, BC’s traditional quality and log diameter advantages matter less and less.
3. Private timberlands are a significant feature among many of BC’s competitors — which provides manufacturers with lower haulage costs when plantation timber is located close to the mill.

4. There are fewer ‘timber allocation’ and pricing issues among most of BC’s emerging competitors (although, as shown below) the costs of purchasing wood can be significantly higher than it is in areas, such as BC, that rely on Crown timber.

Would a different Crown timberland model from the current one work better for BC, in terms of its potential to achieve lower logging and hauling costs? This question is explored later.

In the second group of costs, namely stumpage and harvesting overhead costs, BC is among the most competitive regions of the world. Chart 46 provides a summary.

![Chart 46: ROCE Improvement: Global Log Cost Analysis](image)

The data in the chart have been expressed as an index, with the BC Interior’s current stumpage costs based on the urgent need to salvage beetle killed Lodgepole Pine timber. As noted elsewhere, the shelf-life of standing dead timber is limited and the product and grade recovery levels are low. Crown stumpage charges for these grades of timber is set at a minimum level at the present time. Other species carry full stumpage — so the average costs shown (in index format) represent a blend of various stumpage levels.

On a ‘normalized basis’ we estimate that BC Interior and BC Coast logging and harvesting overhead costs would be about equal. They are higher in BC than a few other regions, but substantially lower than in most areas of the world. Plantation timber is not inexpensive. In part, this is because the costs of establishing the growing sites and managing the growing timber can be quite high (e.g. note Scandinavia).

But there are many other competitive (and U.S. market access) advantages to forest enterprises that are dependent on private plantation-grown timber.

When both categories of costs are taken into account, the net result is that BC’s wood costs historically have been quite competitive — on a global comparative basis. With the prospect of higher wood costs, notably in the BC Interior SPF forests, we conclude that – with the prospect of perhaps sharp increases in BC’s wood costs – there is scope for reducing non-stumpage costs. In concept, and assuming certain changes, they
could perhaps be reduced to levels comparable with the U.S West, Germany and Austria (i.e. about 80% of their current levels).

It is difficult to see, with its current product-market mix and prevailing market prices, how BC could move to the levels of stumpage payments that are typical among many of its existing and emerging competitors — at least across the whole Crown forest estate in BC.

Fibre Costs in BC’s Pulp & Paper Sector
Most of the focus in the previous section has been on the province’s solid wood manufacturing sector. This is because, in BC at least, sawmills are the primary processors of logs harvested. This situation is evolving to some extent, and changes in wood supply types (and costs) are taking place because of the emergence of the important bio-fuels industry — which competes directly with pulp and paper manufacturing for fibre.

Overall, the province’s papermaking sector uses only a limited proportion of re-cycled paper fibre in its product-mix (regional supplies are limited). BC market pulp mills depend largely on residual fibre (wood chips) produced as a by-product of sawmilling and wood products manufacturing. The demand and price of wood chips varies regionally within the province and, historically, BC has had a surplus of softwood wood chips for export (mainly to Asia and U.S. West).

### 2. Conversion Costs
Due in large part to very sizeable investments in large scale, highly productive, state-of-the-art, mills and equipment (supported by some of the most productive operating labour, in this activity, globally) the BC Interior sawmilling and OSB manufacturing sectors are among the most competitive in the world.

This is not true of the BC Coast industry. The sawmilling industry on the coast has declined sharply and its global competitiveness is low. Numerous reports have been produced on this topic (see, for example, BC Competition Council reports available on-line at [http://bccompetitioncouncil.gov.bc.ca](http://bccompetitioncouncil.gov.bc.ca)).

**Chart 47**


In BC’s pulp and paper sector, conversion costs vary by sector and by firm. In chemical market pulp production, the BC Interior has a stronger competitive position than the BC Coast — and both regions are
better positioned than many of their competitors in ‘Traditional 2’ supply regions — notably other parts of Canada, Sweden and Finland along with the United States and the rest of western Europe. Chart 47 has been adapted from the BC Competition Council report, and shows competitive positions as of 2005. The size of the circles denotes volume produced. It should be noted that fibre costs, wood chip availability and some conversion costs have changed significantly since this chart was produced.

In particular, fibre costs in BC have been rising (and supply has diminished because of sawmill closures). Countries such as Finland also have lost competitive position because of sharply reduced supplies of softwood pulp logs imported from Russia, and rising wood costs. Even so, the chart provides a useful approximation of BC’s current competitive position worldwide.

Importantly, even though the province encounters strong competition from some ‘Emerging 3’ countries, notably South America, and many low cost hardwood producing regions in Asia, the global situation in softwood market pulp (NBSKP) is that substantial capacity closures have occurred over the past decade or so. As noted earlier, this has helped re-balance supply and demand — with consequent price surges during buoyant pulp demand conditions (e.g. 2005-mid 2008).

Another positive factor for BC’s chemical market pulp industry is that northern softwood pulps (NBSKP grades) have shifted into a global ‘market niche’ position — and industry analysts believe that longer term trend prices for the grades will remain favourable. The potential for supplementary income in this sector from bio-fuels production already has been noted — and this assists BC’s competitiveness in its overall costs.

Not all is favourable in the cost structure of the province’s market pulp sector, nor in its papermaking. Much of the new capacity (mainly in hardwood market pulps) constructed in some ‘Emerging 3’ regions is heavily subsidized. BC has aging mills and faces large CAPEX commitments — that are unaffordable for some mills, and are likely to result in the permanent closure of a further volume of BC’s pulp and paper capacity by the year 2020. In papermaking, high purchased electricity costs and low demand for grades, such as newsprint, are an impediment to recovery.

Overall, from the perspective of potential ROCE improvements within the BC forest industry, three important observations should be made:

1. Globally very competitive conversion costs for softwood lumber and OSB in the BC Interior region can only be achieved and maintained through high and ongoing levels of CAPEX.

2. A substantial and consistent recovery in new long term capital in-flows will be required if the forest products manufacturing industry (pulp, paper, wood products and bio-fuels) is to achieve a sustained world competitive position.

3. Part of the potential ROCE improvements that have been identified as being possible will emerge from global shifts — and rising product prices — but it is vital that BC explores (and acts upon) all ways possible to reduce its overall manufacturing cost structure in forest products.

As overused as the expression may be, the latter point suggests that ‘outside-the-box’ thinking is required. Moreover, this analysis concludes that strategic initiatives are essential that may challenge the status quo — and increasingly inevitable. We believe that regarding the non-stumpage aspects of its wood costs, in particular, BC has to find ways to become much more competitive — and do so well prior to the year 2020.

From the above review of all the options, this appears to be an essential pre-condition if significant improvements in average ROCE levels are to be achieved — and investors are to continue supporting the industry with long term capital funds.

With some of the lowest stumpage costs globally, the province of BC already has ‘played its best hand’ and — apart from bold tenure reform proposed in this report – has exhausted any further options for significant wood cost reductions.
2.2 High Risks

There are many forms of risks. Most are normal business risks typically associated with the pursuit of profit-making opportunities through private sector investment. Some analysts refer to these as ‘internal risks’ in the sense that they comprise a group of risks over which companies have some control, and options to act.

Everyday, company managements take risk-related decisions. Financial risks relate to volatile issues such as currency fluctuations. In addition, there are market risks relating to changes in consumer demand and pricing. There are operating risks relating, for example, to timber quality and logging conditions and weather. Although they may not occur in the same way, at the same time, they are common to most firms. Management’s ability to assess and offset these normal types of business risks — and make a profit — is a key measure of the firm’s business acumen and financial performance.

In resource industries in particular, however, there are many ‘external risks’ which are part of the business climate in which all firms in the industry have to operate. BC’s forest industry faces many additional risks of this type — and, at times, has had to contend with a hostile, anti-forest industry, business climate. Ensuing regulatory costs and sector-specific taxes (e.g. 1990s ‘super-stumpage’ in BC) have imposed a significant financial burden on the industry. Business climate risks can add significantly to manufacturing costs and to the total cost of doing business. Apart from moving their investments elsewhere, providers of capital have few options for action — and rarely can pass these costs along the supply chain.

The BC forest industry, notably on the Coast, has been the target of many environmentalist campaigns over the past several decades. Motivations of protestors vary. Some want to shut down the forest industry altogether, while others seek improvements in forest management practices and changes in land use. At times, the adverse profile developed by the industry worldwide has caused customers to withdraw their business and cancel confirmed orders.

Historically, BC also has developed a reputation for strikes and other labour conflicts which have had adverse impacts on its ability to retain existing investors and attract new ones. High levels of uncertainty have been created within BC because of unsettled land claims involving First Nations.

Governments, at times, have contributed to the level of investment risk within the province’s resource industries. During the 1990s for example, the provincial government imposed very stringent regulations on forest industry land use, timber harvesting and forest management practices — which resulted in very rapidly rising costs including super-stumpage and restrictions on market forces (e.g. appurtenancy regulations). More generally, in the 1990s, the Major Projects Review Process imposed throughout the resource industries enforced a 48-month review timetable on many newly proposed capital investments (e.g. MDF plants) — mostly focused on very stringent environmental assessments.

Overall, these types of factors contributed to a much higher level of risk for investors and the emergence of what, a decade ago, was termed by investment analysts as “the BC Discount”. This unwelcome ‘tag’ on the industry largely has now disappeared.

It is beyond the scope of this report to delve deeply into all elements of risk involving BC’s forest industry today. Within this decade, substantial improvements have been made in the regulatory environment affecting the industry. For its part, the BC forest industry has adopted a wide range of significantly improved land use and managerial practices — including globally recognized leading edge forest management certification. Moderate environmentalist groups now work closely with the forest industry and other sectors of the resource economy across a wide spectrum of land use and forest stewardship issues.

The BC Competition Council report referred to earlier identifies many of these changes in detail, and made recommendations for further improvements in BC’s business climate as it relates to the province’s forest industry. Several of the key recommendations of the BC Competition Council have been acted upon.

From the global viewpoint of capital funds flowing into (and out of) risk-exposed resource sectors, such as forest products manufacturing, investors recognize that risks are comparative. Some formerly ‘risky’ areas may become ‘less risky’ for new investment. The business climate (‘external risks’) and normal operating
climate (comprising risks such as markets, product prices and timber supply) in every region are dynamic. Both sets of risk change over time, depending on a variety of drivers including trade policy, climate change (e.g. pine beetle devastation of pine forest in the BC Interior) and costs of manufacturing.

As an illustration, from an investors’ viewpoint new capital investment in the BC Interior sawmilling industry by the year 2012 is expected to become ‘more risky’ compared with the past because of factors such as:

- Declining timber volume available
- Declining quality of sawlogs
- The expectation that wood costs will rise, perhaps sharply
- Canada’s loss of its currency-induced competitiveness in U.S. markets
- U.S. trade protectionism (and SLA-2006, or its future equivalent).

Correspondingly, the BC Coast region (historically a more risky operating area than the BC Interior) most likely could improve its comparative position. Similarly, thanks to a low valued U.S. dollar and the effectiveness of SLA 2006 trade protectionism measures, U.S. sawmills are expected to fare comparatively better by 2012 and beyond (versus 2009) — especially if, as anticipated, softwood lumber prices rise sharply in value once U.S. demand recovers.

Chart 48 provides a subjective illustration of these types of changes in internal and external risks for the softwood sawnwood industry. It compares BC with selected competing areas (China is shown because it not just a market, but also a competitor to North America in the production of wood furniture, doors, millwork and possibly structural wood products in the future).

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**Chart 48**

**Global Forest Industry: Illustrative Risk-Assessment 2012 vs.2009**

(Selected Regions Only)

Significant numbers of assumptions are embedded in these predictions, and detailed discussion is not possible within this report. Moreover, there are some competing areas to BC which are not shown (e.g. eastern Canada). Overall, the chart is illustrative and serves to make the point that, for investors, risk is comparative. The chart suggests that tough macro-economic conditions within Europe, and more difficult operating conditions (e.g. reduced log supply from Russia) by 2012 and beyond will shift investments in European sawmills into ‘more risky’ areas compared with today.

Investment conditions for domestic investors within China are unlikely to be as favourable in future as they have been in the past. In addition, tougher conditions in timber supply, manufacturing and labour costs are expected to increase China’s riskiness for this type of investment — even though it will still enjoy comparatively attractive investment conditions, low risks on a global scale and a growing domestic market. Important conclusions for this report are that internal risks in the BC Interior will escalate rapidly, as already explained. This expectation, along with global positioning reasons, is part of the reason why major BC Interior sawmilling firms — such as West Fraser, Canfor, Weyerhaeuser, Tolko, Ainsworth and others —
have relocated many of their recent manufacturing capacity investments outside BC, and/or have withdrawn from some parts of the business.

The risk-related competitive position of the BC Coast forest products manufacturing industry is expected to improve, largely as a result of adverse shifts elsewhere.

Improvements in BC’s business climate are not sector-specific. They are multi-sector. Recently a harmonized sales tax (HST) has been announced in BC and will be introduced in July 2010. It is expected to relieve a cost burden of approximately $2 Billion per year from the province’s various industry sectors, including manufacturing. This tax policy shift will benefit the province’s forest industry.

Ultimately, however, there is a limit to the extent that improvements in the province’s business climate can mitigate the loss of competitiveness caused by structural cost shifts in the industry — such as the cost impacts of post pine-beetle timber supply. Today, the main competitor against which BC is losing out in its cost of doing business and risk exposure is the USA. BC is gaining position globally because of changes elsewhere. The types of factors embedded in the assumptions shown in the chart will, for example, most likely position BC’s European competitors less favourably against BC. Key factors are higher energy costs and, longer term, higher ocean-going freight costs. As always, however, exchange rates are a wild card.

Opportunities for BC emerge from these global shifts in comparative risk — and, generally, they are known to BC’s forest industry company management. Investors may not be as well informed. Nor is the public. This links back to the need for better communications at the industry level — as noted in the follow-up plan proposed later in this report.

**BC Interior ‘Extraordinary’ Costs and Risks**

The very dramatic and rapid shift in the operating conditions — and risks for investors — that are expected to occur in the BC sawmilling industry in the post pine-beetle era, could create a capital crunch for the BC Interior industry. Moreover, this is likely to occur at a critical time when the industry’s needs for investment capital (for rationalization and consolidation purposes) could be at a new peak. Creation of a well-planned ‘transition’ plan for the industry — along with risk-mitigation strategies — could help reduce the magnitude of these risks. Even so, a smaller, possibly leaner, sawmilling sector will emerge in the region (Chart 49).

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Because [BC’s] PST is not based on a value-added model, it raises the costs of purchases of capital and many other intermediate inputs that companies use to produce goods and services. Removing this cost (approximately $2 Billion per year) will enhance BC’s attractiveness as a place to invest.

Jock Finlayson, Business Council of BC

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**Chart 49**

**Post Pine-Beetle Economics & Risks: 2009 to 2030**

Assuming that market-driven rationalization and consolidation is encouraged in the BC Interior sawmilling sector, adverse impacts of the anticipated near-term ‘spike’ in operating costs and risks could be overcome relatively quickly.

... Even so, the industry is likely to emerge much smaller.
2.3 Uncertainty in Crown Timber Supply

The vital importance of low wood costs to all sectors of the BC forest industry was stressed in an earlier chart. It was noted that, depending on the sector, wood costs can account for anywhere between approximately 40% to 70% of total manufacturing costs. Moreover, it was noted that these costs are a major factor why the BC forest industry’s average ROCE is so low. The impacts are seen most clearly in the delivered price of BC’s exported forest products.

The achievement of significantly lower wood costs — notably non-stumpage wood costs — is probably the single most important factor that could help bring ROCE in the BC forest industry up to acceptable levels. Other factors, as noted earlier, include a sharp shift upwards in the value of the industry’s product mix.

Uncertainty in Crown timber supply — and the province’s timber pricing mechanisms — are the crucial policy issues to which structural changes must be addressed, if this goal is to be achieved. This means that very innovative forms of tenure reform will have to be considered. They are addressed later in the report.

2.4 Obstructed Access to Key Export Markets

Continued and improved access to key export markets is absolutely essential for BC’s export-dependent forest products industry. Obstructed market access includes a number of factors, including tariff and non-tariff barriers. It also includes perhaps less evident factors such as the near-monopoly conditions which exist within parts of the province’s vital transportation infrastructure.

U.S.-Canada Trade

In softwood lumber, free trade between Canada and the United States is restricted. The main instrument for impeded flows of softwood lumber from Canada to U.S. markets is the 2006 Softwood Lumber Agreement (SLA 2006). Previously, SLA 1 (1996 to 2001) and various combinations of countervailing and anti-dumping duties (between 2001 and 2006) also obstructed Canadian shippers of softwood lumber from gaining access to the U.S. market. The SLA 2006 agreement is in place, unless rescinded, for 7 to 9 years. The agreement ends in 2013, but can be renewed until 2015 by mutual consent.

Currently, a 15% export tax is imposed on almost all Canadian-origin softwood lumber shipments to the United States. As U.S. market prices rise, the tax level is reduced by 5 percentage point increments — to a ‘nil’ level when market prices for benchmark grades reach U.S.$355/mfbm. Details can be found at www.randomlengths.com. As noted elsewhere in the report, Canada has lost several points of market share as a result of a combination of (a) SLA 2006 and (b) the rising value of the Canadian dollar in U.S. funds.

It is worth noting that free trade in logs also is restricted, with regulations in the U.S. completely prohibiting the export of federal timber in log form and regulations in BC partially limiting the export of logs from Crown forests.

Detailed discussion of these subject is beyond the scope of this report. It is relevant to note that part of the motivation of U.S. protectionists is to correct an imbalance in what they perceive to be an un-level playing field in timber supply and timber pricing in Canada — which they claim is subsidized financially by the provinces. While this can be debated, the important point is that successive U.S. administrations have demonstrated beyond any reasonable doubt that they will legislate, and where necessary change U.S. trade laws, in order to restrict Canada’s share of the U.S. softwood lumber market.

In the past, there also have been U.S. protectionist attempts to expand the scope of U.S. legislation beyond softwood lumber into other products — including value-added wood products processed in Canada (see, for example, USITC Investigation 332-445 April 2003 www.usitc.gov).

Transportation and Distribution Infrastructure

The province’s Metro-Vancouver Vancouver Gateway $3 billion program, and related transportation initiatives, are designed to help reduce waiting times and improve overall access to the province’s major seaport for forest products exports. More generally, a large part of the sector’s exports are surface transported to various markets in the United States.
There are two areas relating to transportation in which the BC forest industry has been losing competitiveness, and appears likely to continue to do so. Firstly, the cost of shipping forest products to long haul markets has been rising on a longer term trend basis, and the services provided (e.g. flexibility of the shipper to re-direct products from one rail market to another) have declined.

Secondly, in the North American supply chain, increased concentration of buying power among distributors (e.g. pro-dealers and big-box retailers) has resulted in a decline in the leverage of forest products manufacturers. Larger and more powerful customers in the supply chain have transferred pricing power into their hands. In addition, they now demand additional services (often at no additional cost to themselves) such as vendor managed inventory (VMI) and logistical support (e.g. RFID chips in consignments and IT tracking services).

**Outbound Transportation Costs**

Outbound transportation costs represent about one-third of the delivered price of most forest products. Changes in these costs can affect a region's competitive position. In this respect, BC’s rail monopoly, through which Canadian National (CN) and Canadian Pacific (CP) both have virtual monopoly supply and pricing control over large parts of the BC (and Canadian) forest industry rail transportation system, is a long-term strategic and competitive weakness for the industry. Trucking is the only alternative for many land-locked parts of the province, but is limited in scope and is not a complete answer for all desired markets.

The BC Coast region has access to ocean-going freight and, historically, many of the industry’s sawmills, plywood mills, pulp and paper mills were located on tidewater. With the decline of BC’s coastal forest industry, lower volumes of cargo have resulted in fewer shipping lines willing to service the reduced amount of forest industry business.

For environmental and higher-and-best use (‘HBU’) reasons, locating future heavy industrial facilities on tidewater does not, in the view of many people, make a lot of sense. Locations away from sensitive ecosystems appear much more prudent, and are quite plausible technically (e.g. dry-land log sorts).

But this assumes that rail, trucking and seagoing transportation links are (a) available and (b) provided at a competitive price — which, in numerous instances today, they are not.

The rail monopoly is particularly serious and is a formidable hurdle not only for the forest industry but also mining, other extractive industries and a wide variety of manufacturing activities. Some forest industry CEOs have said that, for current investors in BC’s existing industry, and potential investors in new innovative future products which BC could manufacture, BC’s rail monopoly is even more debilitating to the industry’s global competitiveness than the province’s labour unions were historically.

**Chart 50**

Loss of Rail Competitiveness:
BC Lumber Exports by Transportation Mode
(Excludes Waterborne Exports)

<table>
<thead>
<tr>
<th>Year</th>
<th>Rail</th>
<th>Truck</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993</td>
<td>69%</td>
<td>31%</td>
</tr>
<tr>
<td>1996</td>
<td>63%</td>
<td>37%</td>
</tr>
<tr>
<td>2002</td>
<td>88%</td>
<td>12%</td>
</tr>
</tbody>
</table>

Data source: StatsCan

Rail has Lost 25 Percentage Points of Market Share since 1996
A cost competitive rail service also is critical to the future of the numerous rail-dependent communities which exist in the BC Interior.

Strategically, BC’s forest sector, along with many other of the province’s extractive and manufacturing industries, depend heavily on the existence of competitively priced rail trucking facilities for long haul markets in the U.S. But in products such as softwood lumber there has been a marked shift away from rail, and substantial loss of rail’s market share of surface transportation to trucking (Chart 50).

From the point of view of moderating the rail monopoly, re-regulation aside, a small ‘crack’ in the existing legislative situation could offer some hope of increased competition for the forest industry — along with other key sectors of the economy.

To date, the CRTC in Ottawa has not been willing to eliminate the “running rights” clause that would permit third party carriers (such as groups of sawmills) to operate, if they wished, a third party rail service over CN and/or CP lines, with payment of a fee to CN and/or CP, respectively. Although this option has not been exercised to date by any third parties, it remains a possibility. Railroads across North America have lobbied to have this third party “running rights” clause removed (www.woodbridgeassociates.com/news & press/biv/march2006).

Forest Products Supply-Chain Shifts: Size Matters!

Over the past decade, substantial changes have occurred in the various supply-chains that deliver forest products from manufacturers to end-users and customers. In place of three-step and sometimes four-step distribution, industry rationalization and consolidation in paper and paperboards, and in lumber and building materials, has led to a situation where fewer — but much larger — players exist. In many parts of the supply chain that are vital to BC’s competitive position, direct sales and one-step distribution are becoming more prevalent — even in standardized commodity products.

Mills such as Canfor, for example, dedicate specific mills to cutting programs to produce the exact products their customers want. In this regard, they have established themselves as ‘Tier 1 suppliers to these large volume customers. Value-added services, such as inventory management (vendor managed inventory) also are provided by these types of manufacturers. Two-step distribution, using stocking wholesalers, also is important. Several large firms (e.g. West Fraser in softwood lumber sales) prefer to utilize North America’s extensive network of stocking wholesalers and pro-dealers.

Regardless of any particular choice of distribution channel, one trend is common. The number of players in the distribution supply chain is shrinking and the firms involved are getting larger. In the current industry downturn, there have been numerous bankruptcies that have slowed this trend. The longer term outlook indicates a continuation of the trend of consolidation, rationalization and emergence of larger players.

Within BC, the province’s largest forest products manufacturers, West Fraser, Canfor and Tolko, may appear to be “giants”. On a global scale, they’re not. By almost any measure, BC forest product manufacturers are small scale compared with their customers and leading distributors in the supply chain. The Home Depot and Lowes (which buy 12% of all lumber consumed in North America) currently have a combined market capitalization over eighty times that of West Fraser, BC’s largest publicly traded forest products company.

The recently announced merger of U.S. homebuilders Pulte and Centex will create another giant in the building materials supply chain. Combined, they build nearly 5% of all single family homes in the U.S.. Further consolidation is expected. Based on the Walmart business model, U.S. giants use buying power leverage to obtain the lowest possible prices from BC producers. Unless BC forest products manufacturing firms are encouraged to rationalize and grow, they risk being muscled off the world stage. In order to grow, they already are being forced to invest outside BC.

This issue is linked to BC’s tenure system and its Crown timber harvest licensing policies. It also is linked to Canada’s Competition Bureau — which governs the level of corporate concentration in Canadian industries.
The forest industry is unlike other sectors of the economy. BC’s timber tenure system means that Crown licensees’ control over wood supply becomes a key part of the test of corporate concentration.

It is considered by some British Columbians (including many influential senior government officials) a bad thing for any one company in BC’s forest industry to control a large percentage of Crown tenure in any specific region. It’s a sentiment that has been rife in BC for generations. Just how much is “too much” is never defined.

Governments of various complexions have frowned upon some potential mergers, and have been outright hostile in their opposition to others. Most notable was Premier Bill Bennett’s “BC is not for sale” nixing of Canadian Pacific’s 1979 bid for MacMillan Bloedel. Corporate concentration of Crown tenure also became an issue when Canfor announced its bid for Slocan in 2003 and when West Fraser purchased Weldwood in 2004. The Bureau (again after consulting with the BC government) ordered both acquirers to divest some sawmills and associated timber cutting rights.

**Looming Structural Problem for Industry, and the BC Government**

A ‘show-stopper’ problem appears to be looming for BC’s forest industry and will require urgent prior resolution by the provincial and federal government. The issue is this. Control over tenure, rather than the prospective size of the merged companies, could restrict the brisk pace of industry rationalization and consolidation in the BC Interior region that will be needed between today and the year 2020.

By continuing to depend on publicly-owned Crown timber, the BC industry is able to avoid direct investment in private timberlands — and this asset, of course, does not appear on the companies’ balance sheet. This boosts the average rate of ROCE because it reduces the industry’s capital employed.

Perversely, this off-balance-sheet asset also could be the industry’s greatest weakness over the next decade, preventing rationalization and consolidation that would otherwise occur — because regulators will not allow Crown timber tenure concentration to take place.

This is a structural issue that needs urgent attention and — in our view — will only be properly resolved when Crown timber tenures in BC are reformed dramatically from their current arrangements.

**2.5 Management’s Low Level of Adoption of Alternative Product-Markets**

One of the great successes of the BC forest products manufacturing model is the market share that the BC Interior SPF lumber industry has been able to capture within North America. This model, comprising highly productive, large scale, low unit cost manufacturing facilities has been able to produce increasing volumes of very competitively priced, comparatively high quality products — cycle after cycle. As previously noted, the era of volume growth is now drawing to a close.

Historically, over this period, the BC Interior wood products industry (softwood lumber and OSB) has supplied a substantial share of North American market demand. In softwood lumber, BC accounts for roughly a 20% share of the U.S. market. This represents enough framing lumber to build one of every five new homes contracted in the United States.

A significant part of what BC ships to the U.S. is further processed by American remanufacturers into higher valued products. These include structural building products, such as roof and floor trusses as well as wall panels and whole building systems.

At the same time, BC supplies less than 1% of the U.S. market for value-added products with value-added products manufactured within BC.

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BC’s “Value Added” Further Processing Sector

BC’s pulp industry is well integrated forwards into papermaking. Leading firms, such as Catalyst Paper, produce a range of comparatively high valued paper and paperboard products — mainly from virgin pulps, but also using some recycled fibers.

In BC, papermakers have switched away from production of standard grade newsprint (the demand for which is declining precipitously, as advertisers turn increasingly to electronic communications vs. print). Instead, they produce specialty grades of paper including lightweight grades where the long-fibred strengths of west coast timber species provide them with a competitive edge. Market pulp makers produce a wide range of ‘commodity grade’ NBSK as well as an extensive volume of specialty softwood pulps (e.g. cedar pulps, high-brites and high absorbency grades) which are sold into many diverse specialty markets around the world. Many are niche products.

Statistics relating to so-called “value-added” products can be misleading. Moreover, new value-added products potentially are emerging from BC’s pulp manufacturing sector, such as bio-refined products, bio-fuels and green electricity. As a broad indication, however, roughly 43% of the value of output of BC’s pulp and paper sector can be regarded as being further processed into papers and paperboards within BC. The balance of roughly 57% (Table 2) represented commodity and specialty market pulps which are sold to paper and paperboard manufacturers elsewhere.

### Table 2

<table>
<thead>
<tr>
<th>Manufacturing Sector</th>
<th>‘Primary’ Products</th>
<th>“Value Added” Processed in BC</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pulp &amp; Paper</td>
<td>57%</td>
<td>43%</td>
<td>100%</td>
</tr>
<tr>
<td>Wood Products</td>
<td>86%</td>
<td>14%</td>
<td>100%</td>
</tr>
</tbody>
</table>


A large part of BC’s output of softwood lumber and structural panelboards (i.e. plywood and OSB) traditionally has been regarded as a “finished product” because it went directly into site-built construction markets where framers and others built houses and other structures. A much smaller percentage went into a variety of non-structural end-uses (e.g. wood pallets, wood furniture components and laminated products).

To regard the bulk of BC’s primary wood products as being “finished products” is ‘old thinking’. A very significant switch away from site-built housing is occurring, where a large part of these materials no longer are used as raw materials on site. Instead, in order to avoid high site-labour costs and extensive wastage of materials on site, an increasing number of North American homebuilders now buy factory-built ready-made components. The vast bulk of these factory-built activities occurs in plants located in the United States. Very little occurs in BC.

Table 2 shows that around 86% of the value of BC’s wood products output in 2006 was in primary wood product form (lumber, plywood, OSB) while only around 14% could be regarded as being further processed into intermediate and/or final products.

A recent BC government report concluded that, on a global scale, Canada does not compare well against other countries in the value created from its wood harvests (Chart 51). Over the time period show, among timber-rich countries Canada created only U.S.$123 of GDP per cubic metre of fibre. The U.S. created $290 per cubic metre while Germany and Japan created $510 and $664 per cubic metre respectively.

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The same report noted that the province’s small to medium sized forest product manufacturing enterprises (‘SMEs’) account for a significant proportion of the industry’s output value. SMEs — comprising many hundreds of firms with fewer than 50 employees and annual revenues generally less than $3 million — in total produced $4 Billion in revenues in 2006 (Chart 52). Other estimates indicate a somewhat different revenue picture but, overall, it is reasonable to conclude from various studies and reports that:

- BC has a significant “value-added” wood products industry.
- Typical SME’s are small scale, with low annual revenues.
- Many are under-capitalized, and the owner also is the principal operator.
- Generally, there is limited direct connection — and no common ownership — between “value added” SMEs and the province’s major primary product manufacturers (some have described the situation as a culture of two solitudes).
- In contrast to the large scale, low unit cost primary mills (which focus on continuous production), most “value added” plants are comparatively high unit cost, low output, batch producers.

Perhaps the most important conclusion with regard to the typical business model pursued by most (but not all) firms in BC’s “value added” wood product industry is that it does not mirror the key factors identified earlier that are successful in the province’s primary wood products manufacturing model; namely,

- Large scale manufacturing units.
- High productivity gains achieved through focus on standardized products manufactured under continuous-flow processing methods.
- Correspondingly, high volume output at low unit costs.
- Shipping large volumes to market, in large consignments through a well-developed distribution structure.

There is one sub-sector, however, where this is not true — and where a small number of value-added wood products manufacturers meet all the criteria of BC’s successful high volume manufacturing model. These firms produce structural engineered wood products, such as glulam; finger-joint lumber; I-Joists; parallel strand lumber (e.g. Parallam) and other high volume structural products, specialty boards and building systems. They include firms such as Structurlam; Weyerhaeuser; Britco Structures and Mitsui Home.

In several of these “value added” products, BC once held world leadership and retained a technological edge through patented proprietary products. Some of this still exists under the original ownership, but it has not been a major growth area for the province’s wood products industry — despite the immense potential.
Value Added: ‘Old Thinking’ Giving Way to ‘New Thinking’

The analysis of the industry’s average rate of ROCE presented in this report shows that the profitability of most segments of the province’s forest products manufacturing industry is unacceptable to objective investors. At the same time, there is no clear evidence that advanced wood processing activities within the province — and the production of “value added” products — traditionally has yielded average rates of ROCE which measurably exceed those obtained by the primary manufacturing sector.

Most of the advanced wood processing activities currently taking place in BC lack the economies of scale that could yield significantly higher rates of ROCE.

Value-added wood products are not ‘taxable’ by the U.S. under current arrangements

Chart 53

Over the Next Decade, Panelization Plants will Evolve from a “Cottage Industry” to Large Scale, Automated Plants Working Closely with Large Homebuilders

Stage of Development

1990’s
2000’s
2010’s

Emergent Phase
(Wide-spread Adoption Phase)

Homebuilders’ Captive Plants

Widespread Adoption Phase

Maturity Phase

Outsourced to Independent Component Manufacturers and Distributors

Woodbridge Associates

One reason for the lack of scale economies has been that many parts of the “value added” sector still are at an ‘infant industry’ scale of development (Chart 53). This is changing rapidly. Large scale demand is emerging, for example, as construction methods evolve (e.g. factory built vs site built). From BC’s perspective three trends are encouraging:

1. No other supply area as yet has a commanding lead in the manufacturing of key structural “value added” wood products that are of interest to BC producers (although Quebec, Ontario and parts of the U.S. already are well ahead of BC).

2. Changes in the North American lumber and building materials supply-chain are creating opportunities for channel partnerships between BC manufacturers and distributors, homebuilders and others in the U.S and Canada. Some innovative BC manufacturers are investing in creating long term channel relationships.

3. By working with existing customers, BC manufacturers gradually can shift their product-market mixes to meet the emerging needs of these customers. This is an important development because nearly all of BC’s primary manufacturers have been careful traditionally not to produce “value added” products that would compete against those produced by their customers. Supply channel relationships can overcome this obstacle.

For BC primary wood products manufacturers to develop these opportunities into profitable enterprises, much of the ‘old thinking’ about the marketplace would have to change. These ‘new’ markets are evolving rapidly. Firms able to adopt ‘new thinking’ and adapt their ‘high volume-low unit costs’ business models potentially could look forward to significantly higher levels of ROCE by the year 2020.
2.6 Low Levels of Workforce Skills Training and Upgrading

Reflecting its emphasis on primary forest product output, and lack of growth in the industry over more than the past decade, perhaps it is not surprising that the BC forest industry invests comparatively little in workforce skills training and upgrading.

Several structural weaknesses have an impact on the industry’s workforce. They include factors such as:

- The industry is highly cyclical
- Its workforce is aging
- Attraction and retention of employees is a major problem
- Industry expects education to be free

Cyclical Industry

The current global economic downturn involves much more than the traditional ‘boom and bust’ cycles which typically characterize the forest industry. Setting aside the current downturn, the cyclical demand and price highs and lows involved in the industry’s commodity products manufacturing sector traditionally have defined a ‘hire and fire’ mentality. Demand and total revenues (product prices x volume sales) have fluctuated too much to sustain a fixed and highly-paid workforce.

Over the years, the industry has changed its HR model — including, for example, contracting out its woods and harvesting operations. This is a cost minimizing strategy. It does little to help obtain the best value from the province’s timber resources. Safety issues multiply when the only issues for independent loggers are output volumes and cost-savings.

For the past decade, BC’s forest industry has recognized that it has many structural weaknesses regarding its management of the manufacturing workforce — and, more generally, its interface with the province’s labour force. Firms today are very reluctant to lose experienced skilled workers and tradespeople. Helped by government programs, companies operate a variety of programs to retain workers during downturns. Currently, most mills operate on a curtailed basis. Even so, retention of key employees has become a key objective in spite of very adverse market and operating conditions.

The Workforce is Aging

For most firms in the industry, the aging workforce brings both negatives and positives. The positive aspects are that many older employees are more stable than a younger workforce might be in a different industry. Older employees often are willing to reduce their working hours, over the short term. During the current downturn some are working on a ‘furlough’ basis to help keep their employers afloat financially.

Generally, however, the advanced age of the industry’s workforce, the median value of which now exceeds 48 years of age, is a long term structural weakness. Many senior mill workers are protected by union tenure. Recruitment of younger people into the workforce fluctuates with market cycles. In some parts of the industry, notably the BC Coast, companies report that it has been difficult to bring in younger, skilled workers with a ‘modern’ education and computer skills. The situation is exacerbated by aging mill equipment.

Attraction and Retention of Employees is a Major Problem

This is a chronic problem in the industry. It is addressed well by the Wood Manufacturing Council in a series of reports on Canada’s human resources policies in wood products manufacturing (www.wmc-cfb.ca).

Industry Expects Education to be Free

One important aspect in which the forest industry’s traditional business approach is a substantial obstacle to BC’s progress is senior management’s attitude to spending its own money on enhancing the skills of its company workforce. The industry’s business model in this respect is a 19th century model, not one suited for the immense technological and related challenges of the 21st century.

There still is a cultural attitude among industry managers that a “pool” of skilled workers — and an educated general labour force — should be made available freely to firms from the publicly-funded secondary and post-secondary education system. This ‘historically trapped’ cultural attitude emanates from the extractive nature of the industry, and the traditional ‘hire and fire’ approach to dealing with volatile industry cycles.

Much of this historically ‘trapped’ cultural attitude emanates from the extractive nature of the industry, and the traditional ‘hire and fire’ approach to dealing with volatile industry cycles.
It should be acknowledged immediately that maintaining an expensive workforce during the often severe market cycles that plague the industry can be financial suicide. At best, a 'too-generous HR approach' along with unrealistic wages settlements can wipe out a firm's and the industry's competitive advantage for years.

National and international demographics, however, point to a permanent long term trend of cyclical and severe skilled labour shortages, globally and regionally. The BC forest industry's HR business model forces firms in good times to compete very aggressively for scarce talent and, in some cases, 'raid' each others' key people. For decades, while firms within the industry have witnessed a dwindling pool of talent, the irony is that the forest industry overall has been losing key talent to other sectors (e.g. the energy sector). This is a severe structural weakness — and could be a "show-stopper" for BC's forest products industry as a global force.

Workforce Productivity is High
Not all aspects of the industry's workforce are negative. Several of the more positive developments — and structural strengths include:

- The industry's workforce is comparatively well motivated and productive.
- In leading-edge areas of the industry, mill equipment is state-of-the-art yielding very high factor productivity. They are among the best in the world.
- Many employees are willing to upgrade their skills and education on their own time.
- Aging workers have been willing to take early retirement, or work shorter hours.
- Labour unions, although still tough to deal with, are far less prone to take strike action than they were historically. In some cases, labour-management cooperation has helped the industry survive some serious crises that have afflicted the industry.

Competitors who visit the BC forest products manufacturing sector often remark that BC enjoys a well-motivated workforce. It is true, particularly in rural areas, that employees are proud "to work at the mill". In BC communities, it is a respected job (as well as being among the highest paid). This observation is important because many of BC's competitor regions do not enjoy good workforce conditions. In parts of the U.S. South, for example, the typical sawmill experiences a much greater proportion of transitory labor than is found in BC. Moreover, education and typical skill-levels often are lower than they are in BC.

Part of BC's very successful forest sector manufacturing model, notably the high productivity of most of its mills, is directly attributable to a favourable combination of capital and skilled labor.

Decades ago, the BC forest industry was renowned for its labor-management conflicts. The industry still is highly unionized, and labour contract negotiations involve very tough bargaining. But it is important to note that the incidence of strikes is far less than it was years ago. A more collaborative approach between management and labor seems to have evolved.

This is not to say that BC's forest industry wage costs are low. Compared with many competitors, they are not. However, labour costs at around 12%, on average, of total manufacturing costs are not the critical driver of the industry's low ROCE. Other perceived entitlements often are a problem — and failure to resolve differences in bargaining positions can lead to work stoppages.

From an 'Opportunity 2020' perspective, there exists huge scope for productivity gains — and lower unit costs — in some key recovery areas of the industry, such as BC Coast sawmilling. Aging mills and obsolete capital equipment are the major restraining factor in these areas, not labour costs per hour.

From an investors' viewpoint, it also is worthwhile noting that a surge in new capital spending in areas such as wood products manufacturing on the BC Coast (which would depend on numerous other factors being favourable) would almost certainly yield a strong surge in labour productivity and significantly reduce manufacturing costs per unit of output.

Finally, it is worthwhile noting that labour unions in the recent past have (a) accommodated special low wage rates to help value-added mills to operate and (b) worked closely with industry management in the BC Interior when, in 2002, the U.S. imposed stringent cash deposit costs on Canadian softwood lumber exporters to the U.S.. This could have forced numerous mills out of business (see BC Competition Council report) – but the catastrophe was avoided. Labour unions have sided with industry in many conflicts involving extreme environmentalist lobby groups. Today, labour unions also are working with human resources departments within companies to help more closely involve First Nations people in woods and mill operations.

In the context of future growth opportunities, investors might have to search afar for a better skilled labour environment.
Section D

A Fresh Look at the Fundamental Issues – Investors’ Viewpoint
A Fresh Look at the Fundamental Issues: Investors’ Viewpoint

BC’s forest industry clearly has a vital role — both globally and as a significant contributor to the provincial economy. It is vital for forest-dependent-community stability and the overall welfare and lifestyle of British Columbians. This complex role, involving the management of substantial areas of public timber, along with ‘recently acquired’ potential global responsibilities linked, for example, to reducing global greenhouse gas emissions, make the sector a difficult one for investors to evaluate using conventional criteria.

As noted later in this section, Canada is #3 in the world in terms of distribution of global forests, by area. Within Canada, BC has the largest and potentially the most productive forests. This report points to a growing scarcity — not just of economically accessible timber at historical prices, but also of productive land that will be available for timber growing in the future.

The conclusion we make is that operating conditions for the industry will be different and — if the right steps are taken — could be much better in the future for (a) the health and sustainability of all BC’s timberlands and (b) BC’s forest industry manufacturers, specifically.

Partial Switch From ‘Mining’ of Energy Sources to ‘Growing’ Them.

As conventional ‘mined’ fossil energy sources diminish in their ability to keep up with demand, there has been a switch in emphasis from ‘mining’ to ‘growing’ feedstock sources of energy. Moreover, most of the ‘growing’ options are not GHG producing sources and many are very desirable green energy sources.

An important point is that this switch in emphasis places increased pressures on the world’s productive land base. Chart 54 provides an estimate developed by IIASA (www.iiasa.ac.at) which poses an important question in relation to the fuel, food and fibre demands on the world’s productive land base. It notes that, in contrast to the estimated demand for 515 million hectares of growing land, only 250-300 million hectares is available. Moreover, this does not include potential demand on the global land base for other uses including urban development, conservation, the needs of the chemical industry and others.

Chart 54

Globally, Where Is Productive Land Available?
Demand Far Exceeds Supply, by 2030

<table>
<thead>
<tr>
<th>Availability</th>
<th>250 - 300 million ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial Forestry</td>
<td>25 million ha</td>
</tr>
<tr>
<td>Agriculture Demand</td>
<td>200 million ha</td>
</tr>
<tr>
<td>Bio-Energy</td>
<td>290 million ha</td>
</tr>
<tr>
<td>Chemical Industry</td>
<td>?</td>
</tr>
<tr>
<td>Heat and Electricity</td>
<td>?</td>
</tr>
</tbody>
</table>

515 million hectares of demand far exceeds the available supply of 250-300 million hectares of productive land

Source: S. Nilsson, IIASA and Don Roberts CIBC World Markets

Economists are keenly aware of the fact that supply of most products and services ultimately can respond affirmatively to significantly higher prices. With land shortages, for instance, land productivity inevitably will increase. Higher prices will bring more marginal lands into production. Substitutes become available when product prices grow too rapidly. The overall point in relation to timber supplies (notably sawlogs) is clear. At
**Sierra Pacific: Timberland Carbon Credits**

The Company is a sizeable forest products producer, based in California. It is known for its innovative management, forest land stewardship and focus on value-added manufacturing (www.spi-ind.com and Chart 55). Recently, Sierra Pacific Industries has signed the largest cap-and-trade carbon offset plan in history. The deal calls for carbon credit brokerage firm Equator, LLC to buy carbon credits off 60,000 SPI acres in the Sierra, sequestering 1.5 million tons of carbon dioxide over five years, according to the company. The plan must still be certified by the state.

**Chart 55**

Sierra Pacific Industries has signed the largest cap-and-trade carbon offset plan in history. The deal calls for carbon credit brokerage firm Equator LLC to buy carbon credits off 60,000 SPI acres in the Sierra, sequestering 1.5 million tons of carbon dioxide over five years, according to the company. The plan must still be certified by the state.

Source: Random Lengths Oct 2009

**Weyerhaeuser-Chevron JV: Bio-Fuels Production**

Recently, Weyerhaeuser (www.weyerhaeuser.com and Chart 56a), one of the world’s leading-edge forest companies, signed a joint venture deal with Chevron to distribute ‘green’ liquid fuels.

Within the JV, Weyerhaeuser provides cellulose feedstock from its forestlands for the production of bio-fuels. Chevron provides production knowledge in addition to distribution facilities (Chart 56b, courtesy of Don Roberts, CIBC World Markets). In our view, Sierra Pacific and Weyerhaeuser (which are major investors in timberlands) both provide examples of ‘new thinking’ about the potential for the forest industry.

**Chart 56b**

**‘New Thinking’ in the Global Forest Industry**

**Case Study: Catchlight Energy - Weyerhaeuser & Chevron JV**

- Formed in February 2008, with a focus on liquid transport fuels.
- Chevron provides expertise in molecular conversion, product engineering and fuel distribution.
- Weyerhaeuser provides land, expertise in resource management, and ability to provide feedstock at scale.
- Feedstock strategy:
  - Inter-cropping: strips of S.Y. Pine & perennial grass
  - Grass must not hurt quantity/quality of S.Y. Pine
  - Grass harvested annually for 9 years before replanting
  - Grass production of 10-20 BDMT/acre/year

  Weyerhaeuser – “the Tree Growing Company” – is not initially thinking about trees for bioenergy!

Source: Don Roberts, CIBC World Markets

**Can BC Capture the Opportunity?**

These business models do not indicate a dramatic change in the strategies of the companies involved. Rather, they indicate managements’ receptivity to new ideas and ways of doing business. Importantly, capturing these opportunities does not require that firms depart from the factors that drive the success of their current business.
Not All Analysts Have a Bullish View of the Future

Although a strong case for rising real prices in timber values and some forest products has been made in this report, readers should be aware that not all analysts share this view. Some of the industry’s leading analysts, for example, believe that timberland assets in the United States are well over-priced. They predict a decline in the value of this asset class (Chart 57).

Future Timber Values:
Not All Analysts Believe that the Future is Rosy!

Barrons and Credit Suisse (Chip Dillon) are Bearish on Timberland Assets

In our view there are two sets of factors that separate these views from those expressed in this report. Firstly, they refer to the U.S. market for private timberland transactions. This asset class in the U.S. has been very popular with investors, partly because of the very favorable tax treatment provided by the IRS to U.S. institutional investors. U.S. timber values have only an indirect impact on private timberland values in Canada, and these linkages are confined mainly to eastern Canada — where log flows with the U.S. are commonplace.

Secondly, in our view, predictions of declining private timberland values in the U.S. do not take into account sufficiently the types of fundamental re-structuring taking place in global and North American timber supply. Although U.S.-Canada trade in logs is limited, and highly regional, substantial flows of primary and further processed products occur between the two countries. The predicted increasingly restrained supply of wood products flowing from Canada to the U.S., as outlined in this report, in our view inevitably will be reflected in higher timber prices and higher values for well-located high productivity timberlands in Canada.

Projected Levels of ROCE

Throughout this report, we have used ROCE as the critical measure of commercial interest to long term investors. Current investors, perhaps inexplicably, have been very patient in waiting for a satisfactory level of ROCE. Why should they, and new investors, have any interest in continuing to provide capital to the industry?

The principal arguments presented in this report are that:

- The forest industry globally is a healthy growth industry and BC can increase its share of the global industry’s future growth. More importantly, by adapting its very successful traditional manufacturing model to focus on value vs. volume of output, the BC forest industry has the
potential progressively to enhance its ROCE — possibly to levels that could not have been envisaged some years ago.

- With the relatively rapid emergence of climate control issues, high energy costs and the need for carbon sequestration and green energy production, BC’s Crown timberlands are emerging with a renewed global role. This is a principal reason why BC should commit to become a world leader “in the the tree growing business”.

- To be effective, this will demand a more aggressive approach to multiple-use management of the province’s mostly publicly owned timberlands. Through deeply-rooted conflicts of interest, neither BC’s Ministry of Forest and Range — nor the provincial government in general or its agencies (e.g. BC Timber Sales) — are not well suited to carry out this role.

- Some timberland management firms within the private sector (TIMOs) have both the experience and the skill sets to take on this new role. In managing private timelands, TIMOs make money for timberland owners and investors through capital gains and timber sales. In Crown timberland management, the TIMO model would adapt to ownership in perpetuity of public timberlands by British Columbians.

- A significant tranche of new wealth could be generated from BC’s Crown timelands if bold tenure reforms are undertaken. These would be designed so that manufacturing firms could pursue significant reductions in wood costs — achieving in turn higher and more sustained levels of profitability than historically have been experienced.

Should British Columbia be in ‘The Tree Growing Business’?

The global and, provincially, multiple purpose nature of BC’s forests is not in debate. But there are likely to continue to be significant differences of opinion about the appropriate uses of these lands and, within those, which values such as preservation and commercial utilization should define forest management priorities.

An important conclusion from BC’s recent experiences with land use — dating from the ‘war-in-the-woods’ of the 1980s to date — surely must be that healthy, sustainable forests are vital whatever their ultimate utilization?

A revealing lesson from recent experience (notably the pine beetle infestation) is that unmanaged forests carry with them several risks to society and to the global environment. British Columbians have become acutely aware of these recently, and many residents of rural areas have deep concerns about issues such as fire risks (e.g. a repeat of the Kelowna fires 2003) associated with over-mature sometimes standing dead, tinder-dry forests. They also are very worried about the future of many rural and forest-dependent communities, in terms of stability of rural lifestyles and communities and their economic and social sustainability.

Looking back over the past one hundred years or more of commercial utilization of BC’s forests, the development of the province’s global competitive position has been driven by a favourable juxtaposition between market opportunities and the availability, historically, of high quality, generally low cost timber resources.

As noted in Chart B (page 5 of this report), the era of commercial forestry in BC is only still in its infancy. Clearly, there are some groups of people and organizations who are adamantly opposed to business, and who feel strongly that there should be no commercial uses at all of BC’s public forests. This is a very narrow, self-centered viewpoint. The evidence is already clear that many of the global climate problems existing today can be resolved, at least in part, by continuing to manage BC’s forests for multiple purposes — including commercial timber operations.

From the recent Roundtable report, there are some clues as to what could emerge in terms of public policy initiatives over the next few years.

Also, there are some important global factors that will help define what ought to emerge as the Crown forest business model that will define BC’s forestland utilization — and the private sector investment and manufacturing model — for the 21st Century and possibly beyond.
The global factors relate to:

1. The health and sustainability of BC’s forests and forestlands, in the context of their global climate and related impacts.

2. The level of commercial utilization of BC’s forests and forestlands, in the context of what appears to be an impending era of global tightening supplies of economically accessible timber (notably sawlogs).

Both of these are so inter-connected that it is not possible to deal at the strategic level with one and not the other. Forest management is the key — regardless of what goals and values society may subsequently choose to exercise in terms of the ultimate utilization of its forest resources.

For some forested jurisdictions, other than BC, the strategic importance of these issues may not be a critical public policy issue. The fact is, however, that in BC and many other parts of Canada decisions being made today, and in the near future, will have major global as well as provincial implications.

**Chart 58**

**Distribution of the World’s Forests: ‘Top 10 Countries’**

Canada’s role in the world’s forests, in a statistical sense, can be seen in Chart 58. In terms of its forest land area, Canada has the third largest resources in the world — accounting for 8% of the world’s total.

Among other issues, BC’s and Canada’s role in helping control greenhouse gas (GHG) emissions—and sequester carbon—is immense, and not in doubt.

This raises the forest management issue “should BC be in the business of growing trees?” Most British Columbians most likely would say ‘yes’.

The response from the global population almost certainly would be an over-whelming ‘yes’. Healthy, oxygen-producing (and carbon sequestrating) forests in BC are vital to everyone!
BC’s expanding global environmental role, and its potential to make a major additional contribution to carbon sequestration — while producing new commercial products, such as green electricity and bio-fuels — should be encouraging for investors. Providing that these wider societal roles can be combined with profitable business models, investors should consider British Columbia and the BC forest products manufacturing industry as a high priority for their capital resources.

**Business Models**

Superimposed on the shifting global timber supply outlook, the business model that has worked well for BC’s forest products manufacturing industry, as noted earlier, has comprised the following:

1. Export market focus
2. Large scale, low unit cost production facilities
3. Dependence on timber from public forests
4. Softwood lumber manufacturing traditionally has been the kingpin of BC’s forest economy

It was also noted earlier that, for some time, this business model has not been working well overall. In particular, the industry’s dependence on government administrated Crown timber supply appears to be a significant obstacle to the achievement of vital aspects of global competitiveness, notably low wood costs.

In BC, and throughout Canada, there is a strong public view that Crown forest land ownership must remain in public hands. But the question “who are the best administrators and managers of the timber that grows on Canada’s forested lands?” is quite another issue altogether.

Global empirical evidence shows that private sector managers are much better at achieving productivity on commercial forest lands than public sector forest service managers — who typically do not have well-defined financial and stewardship obligations.

Moreover, in many instances, private sector managers have demonstrated that they are better stewards of non-commercial forest values than are many forest service Crown timber managers.

**BC’s ‘P3 Model’ of Forest Sector Administration and Management**

Public-private partnerships have been used very successfully for many years in BC to achieve economic development and to put in place capital intensive infrastructure projects. BC’s Pacific Gateway initiative is a good example of the success of P3 models.

In BC’s forest industry, however, the industry is governed by an outmoded sixty-years old P3 model (which in turn was upgraded from an earlier model) in the management of the province’s forests.

Today, this comprises a complex and not very effective over-burden of forest service regulation, shifting rules on the allocation of cutting rights, administration of Crown licenses and the development of surrogate market-based timber pricing mechanisms (i.e. BC Timber Sales log pricing and stumpage value benchmarking mechanism).

To these have been added a wide variety of other responsibilities that over many years have been part of, or added to, the responsibilities of the BC Forest Service and its affiliated institutions.

This P3 (summarized schematically in Chart 59) worked well when (a) BC was one of very few suppliers of forest products to global export markets and (b) prior to the addition of numerous, often conflicting, regulatory and stewardship functions to the BC forest service’s responsibilities.

In today’s highly competitive global forest industry, at best this P3 is a cumbersome and ineffective platform for management of some of the world’s most important timberlands.
Some recent changes have led to improvements in the working of the P3. For example, by means of the 2003 Forest Revitalization Plan, the provincial government made significant and beneficial changes to its operation. The Plan introduced new rules that allowed firms to streamline their operations, to shut down uneconomic manufacturing capacity and to consolidate their operations — balancing timber with mills and market.

As noted in a wood products industry submission to the BC Competition Council in March 2006, however, government administration of the Crown forest estate is not focused on ensuring the existence of a globally competitive, 1st quartile-cost, expanding and profitable forest industry in BC.

The wood product industry’s report to the Competition Council (page 24) noted that “In many government ministries, regional and district personnel do not always perceive commercial aspects of forestry as being part of their job. Many feel a stronger calling to other forest values. The pre-dominance of this type of administrative culture adds significantly to the industry’s costs and causes significant delays in obtaining approval for commercial operations”

Today, many industry executives, increasingly frustrated by the current system express their viewpoints much more strongly (see alongside).

Many important commercial decisions (that would be taken quickly and effectively by forest firms located in countries against which the province competes), in the case of BC first have to go through a government filter of ‘public policy acceptability’.

Over many years, industry analysts have observed that this type of regulatory and ‘paternalistic’ culture is one of several factors that contribute to much lower levels of entrepreneurship in BC than in many other forest intensive jurisdictions. Correspondingly, it contributes to the attrition of business acumen and willingness to take market and investment risks.

“**My personal view is that over 95% of people working in the BC Forest Service don’t give a damn about the health of BC’s forest products manufacturing industry.**

“**Sometimes, it doesn’t matter what senior ministry people instruct their regions and districts to do, the system will conspire to make sure it’s not done**”.  

**BC Forest Industry Executive (February 2009)**
**Alternatives to BC’s Traditional Forest Sector P3**

During the public consultation phase undertaken by the recent *Working Roundtable on Forestry*, a common theme of presentations made to *Roundtable* was the need for tenure reform.

Essentially, there are two approaches that could be taken to tenure reform. Several forest-intensive countries and regions have undertaken fundamental re-thinking and re-structuring (Chart 60. Also see page 99). In contrast, the approach favoured in the past by most Canadian provinces has pursued ‘incremental reforms’, which essentially are regulatory add-ons and/or involve streamlining of the existing system — but without fundamental re-thinking and re-structuring. Moreover, invariably these incremental approaches, or ‘fixes’ are initiated and determined by provincial governments.

**Chart 60**

**P3 Tenure and Timber Pricing Model that has Worked for BC in the Past**

Many calls in BC for ‘tenure reform’

2 Choices:

1. Fundamental re-thinking and re-structuring
   (e.g. NZ, Russia)

2. Incremental reforms (tenure re-allocations and pricing mechanisms) administered by the P3 landlord (Gov’t)
   .... These are on-going in BC and rest of Canada
   .... But the landlord increasingly struggles between multiple stakeholder priorities and conflicts. Carbon stewardship is now superimposed on top!

**Commercial Objectives of Tenure Reform**

There are many objectives that could be achieved through fundamental reforms of BC’s Crown timberlands tenure and timber pricing system. Among these, the timely settlement of First Nation land claims is paramount. New Zealand experience has shown that the land claims process does not necessarily have to precede the settlement of land ownership. In the New Zealand case, existing tenants’ (i.e. forest industry companies’) tenure rights were protected while land ownership issues were still being resolved.

**Chart 61**

**Alternative Approaches to Management and Administration of BC Crown Commercial Timberlands**

**Examples**

- BC’s Traditional P3 Model for Area Based Tenures
- BC’s Traditional P3 Model for Volume Based Tenures
- BC Small Business Program (SMEFP)
- TIMO Model (Possible)
- Sale of Timber Crop to Private Sector ‘NZ Model’ (Possible)

**Legend**

- Models Not Yet Attempted in BC
- Models Introduced and/or in Place in BC
- Short Rotations
- Long Rotations

Schematic, for Illustration Purposes Only
Over time, various BC governments have introduced a large number of forest tenure and timber pricing changes. As noted, most of these have tended to be incremental in nature rather than fundamental reforms. Chart 61 provides a schematic illustration and examples of some of the major incremental changes made to date. The spectrum of choices is shown, with the two major choices shown as either public or private sector management and administration. So far, BC has tended to be conservative rather than bold in its thinking.

TIMOs: Timberland Investment Management Organizations

One of the possible approaches that could be considered for Crown timber would be a variation of the successful TIMO model used to manage private timberlands in several parts of the world. TIMOs (private timberland investment management organizations) are one of several classes of investors that dominate financial institution investment (e.g. pension funds) in timberlands. Others include real estate investment trusts (REITs), limited liability partnerships and master limited partnerships.

Essentially, these types of firms manage timberlands on behalf of their clients. In the case of BC’s Crown timberlands, the ‘client’ would be the Province of British Columbia. The timberland manager is given the responsibility of actively managing the timberland to achieve adequate returns for the client (investors). The form of agreement varies. Importantly, TIMOs do not own manufacturing operations.

They have a variety of stewardship responsibilities, including bio-diversity, single-use (e.g. public area set-asides) as well as multiple-use (i.e. including timber harvesting) objectives and they are subject to the prevailing regulations (environmental and, potentially, carbon sequestration) in the jurisdictions in which they operate. They are able to attract investors (such as pension funds and ‘ethical’ private equity) who tend to have a longer term view of the returns required. They are tax-advantaged.

In the United States, TIMOs were developed in the 1970s after the U.S. congress passed legislation that encouraged institutional investors to diversify their portfolios. Before the legislation, investment in timberland properties was mainly done by both large and small firms in the forestry industry. (Source: http://www.investopedia.com/terms/t/timo.asp).

TIMOs are one of several options, and it is quite plausible that a made-in-BC version of this type of model could be developed. This could be tailor-made to BC’s specific conditions, and the model could be adjusted for the different conditions that exist on the BC Coast and BC Interior — and the forest management regime (short and/or long rotation) desired.

Roundtable Recommendations

By recognizing the need in BC for shorter rotations, and the opportunity for BC to attract private capital into a more intensively managed (and perhaps overall smaller commercial forest land area) in the future, the Roundtable (Recommendation # 5) has opened the door for a more innovative approach than exists today in the management of BC’s Crown timberlands.

Several other of the Roundtable’s priorities and recommendations also support this direction of thinking. Its Recommendation #7, for example, is based on the objective of attracting private capital into BC’s forests. Future changes (tenure and timber pricing reforms) could also help achieve another of the Roundtable’s recommendations — notably offering competitive bid timber sales and ease of license transfers (Recommendations #9 and #13)

Importantly from the viewpoint of investors, and existing timber tenure holders, the Roundtable reinforced the BC Government’s established policy of compensation for any cases of withdrawal of timber rights. The Roundtable states the need to clearly define the ground rules for this compensation (Recommendation #12).

There is no ‘best time’ to introduce proposals for major policy changes of this nature, or to implement them. There are risks involved regardless. It could be argued that today is as close as it may be possible to come to the ideal timing. The need for fundamental change is widely recognized — as a vital pre-cursor to renewal of investment in both the BC Coast and BC Interior regions, and various sub-regions. As BC’s forest industry emerges from the current global recessionary and U.S. depressed market conditions, the timing of significant changes could well be seen as appropriate.

The Roundtable also identified in its report some of the product and market opportunities that could help drive greater profitability and other commercial objectives (e.g. innovation, diversification) that could proceed
Once fundamental tenure and timber pricing reform goals are achieved. A parallel, but separate report, also just released by the BC government identifies value-added product and market opportunities for the industry along with the announcement of 'Value for Wood' Secretariat.

Chart 62

**BC Forest Products Manufacturing Industry**

**Opportunity 2020 Product-Market Mix is Driven by Global Competitiveness ..... But Limited by Timberland Constraints**

**Competitively Priced Timber is Key to BC’s Market and Product Opportunities**

As this report shows, many external and domestic factors have changed over the years. New competitors within the ‘Emerging 3’ supply regions have won market share away from the ‘Traditional 2’ in several products and markets. In many respects this was an inevitable part of the evolution of the global forest industry. Competitive positions, influenced by a variety of factors, will continue to change well into the future.

The report concludes that not much has changed, or is likely to change, with regard to BC’s need to remain focused on export markets, or its need to continually invest in state-of-the-art, low unit cost manufacturing facilities. In that respect, the essentials of BC forest industry manufacturing model seem likely to remain valid well into the future.

Major changes have been taking place, however, in the internal relationships and conditions surrounding the forest sector’s dependence on public timber. Various internal (e.g. BC’s pine beetle epidemic) and external factors (e.g. skyrocketing costs of global energy and the emergence of bio-energy options for wood use), are shifting the drivers of BC’s forest economy. Substantial external changes have occurred with respect to Canada’s access to key markets in the United States, and the conditions under which this trade can take place.

Throughout this report, a market-driven analysis of BC’s forest sector potential has been presented. It is clear from the analyses that BC’s forest industry is not market-limited as such. Yet, the sector’s potential to achieve a successful and profitable upgrading in its product-market mix is constrained. Chart 62 presents a schematic of the key influences.

Timberlands are a key factor. The cost structure of most primary and intermediate forest products that are manufactured in the province –and which could be manufactured in BC based on market opportunities — depend heavily on access to timber and the unit cost of fibre. In all other respects, except human resources, the province typically adopts state-of-the-art technologies in line with its drive for lowest possible unit costs.
The illustration suggests that:

(a) access to BC's commercial timberlands (i.e. the ability to grow and harvest trees) and

(b) the productivity and cost competitiveness of the province’s timber base

are fundamental issues for investors and capital providers. Ultimately, these issues dictate the quality of capital equipment in the manufacturing sector and the return on investment (ROCE) that can be achieved from these investments.

There are vital policy and operational issues relating to the forest industry's human resources and skills (along with related issues of innovation and managerial acumen). But these follow from the key drivers noted above.

The product-mix that the province’s forest industry is likely to achieve by the year 2020 will be heavily influenced by decisions made relating to management of the Crown forest estate in BC.

Risks and uncertainties relating to these factors have contributed to the flat to downward trend that has occurred over the past decade in the sales revenues earned by BC’s forest products manufacturing industry (Chart 63). The industry’s value of shipments peaked in the year 2000 at around $19.4 Billion. With some cyclical shifts, it declined to $15 Billion in 2006. More recent data are not available. The revenue declines that will have occurred in 2007 and, even more steeply in 2008 and 2009, most likely have pushed the current level into the very ‘low teens’ and possibly below.

Since 1995, when BC’s forest industry accounted for 54% of total manufacturing sales in BC, the sector’s contribution dropped sharply to 36% by 2006.

Chart 63
What is Possible by the Year 2020?
Not everything is possible for the industry to achieve by the 2020. However, conceptually, the broad options can be illustrated by the three scenarios outlined in Chart 64. All scenario values are hypothetical.

Fundamentally, the options are as follows:

‘Renewed Growth’ Scenario
‘Opportunistic Survival Scenario’
‘Decline Scenario’

‘Renewed Growth’ Scenario (Chart 64)
For those in the province who believe that the global forest industry is a ‘sunset industry’, this scenario may be a surprise. Yet, it is fully achievable under the right conditions.
The scenario uses sales revenues as a marker of success. Many investors might prefer to see substantially higher average ROCE levels as the yardstick, but sales revenues illustrate the potential outcomes adequately.
The ‘Renewed Growth’ scenario builds on the products identified earlier as opportunities for BC’s softwood lumber sector — notably the huge potential for further processing (“value-added”) of wood products into building component stock, engineered wood and structural systems. Most of the focus for these growth products is expected to be on the U.S. market — where channel partnerships and other supply chain relationships are occurring and more can be developed. There are also important opportunities in some offshore markets for these too. But the U.S. market is where BC can obtain its greatest competitive leverage.
Fundamental to these opportunities is a profitable and globally cost-competitive softwood lumber sector. One ‘outside-the-box’ approach to assuring this pre-condition is outlined below. Very importantly, ‘Renewed Growth’ anticipates that bold reforms are made to the current tenure and timber pricing systems. Rising real prices for some products (notably softwood lumber) will help the industry boost its revenue earnings under all scenarios, although with varying impacts. Yet any sustainable and financially viable solutions must address two issues.
Firstly, Crown forest tenures of the future have to provide a platform for a low wood cost, value-added focused manufacturing sector to be achieved. Secondly, the stakeholders involved in the sector have to agree on a way in which substantial new capital funding from the private sector becomes available — not least for growing trees more productively in order to compete with global competitors in the ‘Emerging 3’ supply regions.

Chart 65

Intensive Forest Management, Self-Sustaining Community
Industrial Cluster Model
(Concept)

Chart 65, based on a tenure and forest license model discussed informally over the years within the forest industry, illustrates one possibility as an illustration. It anticipates self-sustaining approach for many of BC’s forest dependent communities.

As background to this model, it is clear from this and many other reports that in parts of the BC Interior there will be a growing imbalance between softwood lumber mill capacity and the available mature economically accessible sawlog supply. A period of sawmill rationalization in many regions is inevitable, in order to re-balance sustainable long term manufacturing capacity with cost competitive wood supplies. This already has been acknowledged by the Forests Minister.

There are solutions that could ensure a profitable future for the surviving mills and firms — based on added value manufacturing and lower non-stumpage wood costs than exist today.

If, for example, long term area-based forest tenures became available that would reward the higher levels of investment required in intensively managed forest areas in close proximity to these industrial clusters, it is probable that the basics of long term sustainable plantation forestry estates could be developed. They could be managed by timber harvest licensees (large and small in scale) and/or by independent 3rd party TIMOs.

The latter operate on private timberlands in many parts of the world, and generally have a successful track record of balancing land stewardship obligations with the need to generate income from commercial timber sales (logs merchandised and sold, much like the BC government’s BC Timber Sales (‘BCTS’) model — but far more efficient). Public land would remain in public ownership for eternity. The New Zealand tenure model
is benchmark in this regard. The timber-growing manufacturing models of the future in BC could comprise the following:

1. Private timberlands already existing (about 8% of the total area). TimberWest and First Nations forests are examples.

2. New, long term (e.g. 90-year) timberland leases, designated for intensive forest management, and operated as high yield plantation forests managed by the licensee. These long term leases would on Crown-owned land located close to clusters of mills and added value conversion facilities (including green energy and bio-fuel plants). Minimum re-stocking levels, as well as a wide range of forestland stewardship obligations, would be part of the license conditions. Private capital would receive favorable tax treatment (just as REITs and others do under U.S. tax laws).

Annual lease payments for the use of the land would be paid to the Crown. Lease payments would be set sufficiently high to ensure the land is managed to its potential and utilized to achieve growth and yield gains from the timber crops harvested. Licensees would be compensated if these lands subsequently revert to First Nations title.

3. Other Crown lands, probably more distant from existing mills and conversion facilities, would be managed more extensively by private sector TIMOs on a long term fee and profit-participating basis. Crown timber would be auctioned regularly, on a purely market basis. It is anticipated that, with this remuneration basis, TIMOs would manage and harvest the timber (sawlogs, peeler logs, flaker logs, pulpwood and bio-residuals) with significant merchandising, achieving the highest and best (HBU) returns to fibre.

4. Minimum re-stocking levels, as well as a wide range of forestland stewardship obligations, also would be part of the Crown’s management agreements with the TIMOs.

5. As is virtually the case today, all of BC’s industrial timberlands and commercial forests would be sustainably managed under 3rd party certification.

The over-riding objectives of this proposal are to (a) obtain significant productivity gains on BC’s productive forest lands (b) attract significant levels of ‘patient’ longer term private sector capital into the tree growing business in BC — with attractive tax incentives and prospective levels of ROCE and (c) attract the best timberland managers.

Chart 66

**Bold Tenure Reforms under BC Forest Industry ‘Renewed Growth’ Scenario**

*Industrial Timberlands and Commercial Forest Area Only*

<table>
<thead>
<tr>
<th>Category</th>
<th>Today</th>
<th>By 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crown Timberlands (All Existing Licensees)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>First Nations Title Timberlands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Existing Private Timberlands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Company Long Term Lease, Intensively Managed Forests</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TIMO-Managed Crown Forests &amp; Log Sales</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Existing Private Timberlands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>First Nations Title Timberlands</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crown Timberlands Would Remain Under Public Ownership in Perpetuity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>= Privately Managed Forests</td>
<td>= Government Managed Forests</td>
<td></td>
</tr>
<tr>
<td>Categories Are Not in Proportion</td>
<td>100% Private Sector Forest Management by 2020</td>
<td></td>
</tr>
</tbody>
</table>
BC Forest Service, Prior to 2020

If the proposed tenure reforms proceed expeditiously, day-to-day involvement of the BC Forest Service in forest management and timber pricing activities could be eliminated within a few years – potentially well before 2020. The Forest Service would retain (and expand) its stewardship and regulatory enforcement role — which many observers would argue is its dominant operating culture today, and has been for many years.

Chart 66 (previous page) illustrates the transition for government-managed low productivity forests to a mix of potentially more highly productive private sector managed forests on BC’s industrial timberlands and commercial forest areas. With land claim settlements, it is anticipated that a higher proportion of BC’s forestlands will be transferred to First Nations. This process will minimize investor risks because occupancy terms of tenure would be assured for the operators regardless of any subsequent transfers of ownership title.

Private Sector Capital Inflows

As noted, the bold tenure reforms proposed under the ‘Renewed Growth’ scenario anticipate significant inflows of private capital — notably into (a) intensively managed, higher productivity forests and (b) new manufacturing facilities focused on extracting value form the log, rather than the traditional ‘volume growth’ culture that has dominated the sector. Plantation forests (Chart 67), using short and longer term rotations (depending on the targeted end use) would be the focus of the new long term leases.

Government’s involvement in forest management and timber pricing activities could be eliminated within a few years — potentially well before 2020.

Chart 67

Plantation Forests in BC

Short Rotation and Long Rotation Timber
Pluants Already are an Important Part of BC’s Industrial Timberlands and Commercial Forests.

Along with Harvesting of Natural Forests, they Could Provide a Much Needed ‘Paradigm Shift’ Boost in Profitability and Competitiveness for BC’s Struggling Forest Products Industry

Harvesting would continue on extensively managed Crown timberlands for a time until the substantially increased productivity of industrial plantations allows them revert to conservations forests.

Timber would flow from two privately managed sources. Over time, private capital would be encouraged into a progressively larger area of the leased-timberlands managed by the industry (or TIMOs, on behalf of industry). In addition, harvesting would continue on extensively managed Crown timberlands for a time until the substantially increased productivity of industrial plantations allows them revert to conservations forests.

Photos: Courtesy of BC Competition Council

Prepared for the Business Council of BC October 2009
‘Opportunistic Survival Scenario’ (Chart 64)

This scenario assumes that a sales revenue level of around $17 Billion would be achieved for the year 2020. While this is substantially better than today’s level, it is below recent past levels. Again, it should be noted that these numbers are hypothetical.

Essentially, this scenario involves the further loss of sawmilling capacity along with pulp mills and paper machine closures. It is a “muddle-through” scenario in terms of Crown forest tenure reforms — with ongoing ‘piecemal reforms’. Although surviving mills and plants in the industry are likely to do better as a result of reduced competition for logs, and assuming higher product prices, the overall loss of capacity assumed in this scenario leads to a net loss of sales overall. However, under this scenario, the BC Coast is assumed to benefit partially from the decline in sawmilling in the BC Interior.

‘Decline Scenario’ (Chart 64)

The decline scenario assumes the ‘worst case’ scenario for the BC Coast and BC Interior region. In particular, this scenario assumes that the rationalization and consolidation process that, almost inevitably, will be required to balance ‘ironwork with timber’ in pine beetle killed timber areas is constrained by public policy, including restrictive federal corporate concentration rulings. It assumes an ineffective tenure reform process and restrictions on log flows, including exports. This scenario also assumes the loss of cash flow benefits that could result from a policy of open log markets (available also to U.S. and overseas buyers) that could be achieved under the Renewed Growth scenario.

Actions Needed to Achieve ‘Opportunity 2020’ Potential

Several actions would be required to achieve, by the year 2020, the opportunities presented in this report. Follow-up actions are:

#1. Tenure and Timber Pricing Reform Review: Without scope-of-work restrictions, the Province of BC should commission an independent third party review of Crown timber tenure and timber pricing reform options, and an evaluation of their likely impacts.

Key objectives of the review should include:

- Assessment of wealth creation (economic rent) potential from various capital + timberland combinations under new/ various forms of tenure.
- Determination of how new/ various forms of tenure could be acted upon, without prejudice to ongoing land claims and any potential changes in Crown forest land ownership.
- Evaluation of the operating and financial impacts on the BC forest products industry of removing commercial timber management and administration functions from the BC Ministry of Forests and Range.
- Identification of options for re-allocating these functions to alternative timberland management organizations which are not involved in timber processing.
- Calculation of the likely impacts of this reallocation on market-based timber pricing.
- Recommendations for action, and a schedule for implementation.

#2. Potential to Enhance the Manufacturing Industry’s Return on Capital Employed: The BC forest products industry should commission a review of existing and potential future conditions within the industry. This should have the goal of identifying and acting upon means of significantly improving the rates of return on capital employed (ROCE) available to investors in BC’s forest industry.

#3. Communications: In collaboration with other stakeholders in the sector, and funded in part by key beneficiaries of forest industry generated revenues, such as the province of BC and municipalities, the province’s forest industry should undertake a communications campaign among all British Columbians:
Key objectives of this initiative should include:

- Better informing British Columbians, and BC’s customers, about the carbon friendliness, economic and other benefits of BC’s forests and forest products (*Roundtable Recommendation #1*).
- Promoting a global carbon stewardship theme such as ‘Tackle Climate Change: Use Wood’
- Emphasizing the linkages between a healthy forest sector and revenues generated to fund the province’s ‘people services’ including health care, education and social services.
- Creating in the minds of all British Columbians a strong and active linkage between the health and profitability of their resource-based industries, including forestry and forest products, and the fact that they have a direct stake as owners of the vast majority of the province’s timberlands and timber resources.
- Developing a culture of ‘cost awareness’ among all British Columbians, including ministry personnel, with respect to the direct and/or indirect role they can play to ensuring the global cost competitiveness of the BC forest products manufacturing industry and other firms within the forest sector.
- Generate support for the utilization of wood products in all buildings in British Columbia (*Roundtable Recommendation #2*). The Government of BC already does an excellent job in this respect.

**Working Roundtable on Forestry (March 2009)**

There is no linkage between the Working Roundtable on Forestry (the ‘*Roundtable*’), which presented its report to the Government of BC in March 2009, and this report on the opportunities for BC’s forest industry by the year 2020. They are separate reports. However, similar themes emerge from both.

The *Roundtable* made a total of 29 recommendations consistent with a set of six priorities identified by *Roundtable* members. Although their respective emphases are different, both reports ultimately are focused on creating and maintaining a globally competitive forest products industry in British Columbia. Recommendations from the two reports are loosely linked below, in Table 3. The numbers assigned to the *Roundtable* 29 recommendations are as shown in its report.

In addition, this report also identifies some issues that are either not addressed by the *Roundtable*, or which were addressed, but not with the same level of emphasis.

<table>
<thead>
<tr>
<th>Opportunity BC 2020 Recommendations</th>
<th>Roundtable Recommendations (Potential Linkages to Opportunity BC 2020)</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1. Tenure and Timber Pricing Reform Review</td>
<td>#3; #4; #5; #6; #7; #8; #9; #12; #13; #15; #19; #20; #21; #23; #24; #25; #26; #27; #28; #29</td>
</tr>
<tr>
<td>#2. Enhance Industry ROCE</td>
<td>#3; #4; #5; #6; #7; #8; #9; #10; #11; #12; #13; #14; #15; #16; #17; #18; #19; #20; #21; #22; #23 to #29</td>
</tr>
<tr>
<td>#3. Communications</td>
<td>#1; #2; #10; #11; #14; #16; #17; #18; #21; #27; #28 and #29</td>
</tr>
</tbody>
</table>

Source: Woodbridge Associates
British Columbians’ Vision of the Forest Industry in the Year 2020

Over 90% of BC’s forests are Crown forests (i.e. publicly owned). By 2020, and forever, under each of the industry growth scenarios outlined in this report, they would still be predominantly owned by the public.

Under the proposals outlined in this report, land ownership would not change — except for land that may revert to First Nations title under ongoing land claim processes. However, the day-to-day management of the province’s Crown industrial timberlands and commercial forests would be assigned to the private sector — with the goals of attracting private sector capital to produce healthier, more productive commercial forests and investments in added value processing. Parks, set-asides and protected areas would remain separate.

The Competition Council report, discussed earlier, noted industry’s growing concern over the lack of commercial focus within the Ministry of Forests and Range. In the view of many, this is a primary cause of BC’s timber supply malaise – and (stumpage excluded) its high wood costs.

In its very complex array of conflicting and often irreconcilable roles, BC’s Ministry of Forests and Range is the steward and regulator of all of the province’s private and public lands. It helps define land use, and it re-allocates timber under land claim settlements.

It is the custodian of preservation forests and provincial parklands. It manages all commercial aspects of Crown timber harvesting licenses. It imposes rules over what manufacturers can manufacture and what they can and cannot export. It administers the timber pricing system — a very contentious role which is at the heart of U.S. trade actions against Canada’s softwood lumber industry.

This is not an appropriate business model for BC’s globally-focused forest industry in the 21st Century. Nor is it good for the BC economy, or for future generations of British Columbians. Ultimately, it has to change.

Many initiatives have been undertaken by various BC governments to reform the Crown timber tenure and forest economy. Some have debilitated the industry and driven out investors. Others have been progressive and beneficial, helping the transition to a mix of protection forests and a healthy world class manufacturing industry. Too often, however, these have been “fix-it” changes or incremental rather than bold re-structuring changes.

Globally, other countries have been much more aggressive than BC in their reforms. They include timber growing countries such as Russia, New Zealand, Ireland, Turkey, Scotland, China, Indonesia and Chile (all of which, like BC, have (or had) extensive publicly managed commercial forests). Quebec and Ontario also are moving ahead of BC in their tenure reform thinking.

It is clear that the process of administrating and managing BC’s Crown forests and forestlands is in transition. What will replace it has not yet emerged. In the context of BC’s very significant global role in maintaining the health of all its forests, ensuring that its commercial forestlands are fully productive and that BC continues as a world class exporter of forest products to world markets, an independent critical review of the Ministry’s commercial role is timely, and vital.

Very importantly, the proposed reforms would put in place a foundation that could eliminate the ability of the US Coalition to take trade actions against Canadian forest products that would be supportable by world trade agencies and NAFTA. The proposed reforms would put in place a foundation that could eliminate the ability of the US Coalition to take trade actions against Canadian forest products that would be supportable by world trade agencies and NAFTA. The ‘cost’ to British Columbians will be a smaller industry than exists today (this will happen anyway). But a smaller industry could be more profitable, entrepreneurial and focused on value.

From investors’ viewpoint, delays in decision-making in this regard add further to the high risks that exist already. The ideal business climate should attract and reward investors’ capital. It is widely known that British Columbia has immense growth potential embedded within its forests and potentially within its forest products manufacturing sector. British Columbians deserve to know what this potential is, before choosing if they want to capitalize on these opportunities — and how they wish to pursue them.
Appendix
Explanation of Key Technical Terms Used

Channel Partners. Distribution linkages among firms involved in the supply chain

Chemical Pulps. Mostly papermaking pulps, such as kraft. They use a process that dissolves part of the fibre (lignin and hemi-celluloses), and separates out the ‘pure’ cellulose required for papermaking. The lignin and hemi-celluloses typically are burned in a recovery boiler, in order to recover chemicals — which are then re-used in the pulp process. But (as black liquor) the lignin and hemi-cellulose can be combined with diesel to produce alternative fuels.

Crown Timber. Publicly owned timber owned, managed or administrated by the provincial government

Energy Production (by pulp and paper sector). The kraft pulp industry produces a lot of its own requirements of energy — and many mills produce surplus power that can be converted to electricity and sold into the grid. In contrast, mechanical pulps are high users of purchased electricity.

Extensive forest management. Forest management and harvesting regimes which reflect natural or moderately enhanced levels of productivity.

GHGs. Greenhouse gases

Intensive forest management. The application of management and capital to achieve the optimum productivity of forestland for any given set of commercial circumstances.

LSL. Laminated strand lumber

MPB. Mountain Pine Beetle (‘pine beetle’)

NBSK. Northern bleached softwood kraft pulp. The main grade of market pulp produced in Canada

OSB. Oriented strandboard. A structural wood panel (usually 4ft x 8ft, but also made in larger sizes for homebuilders and modular panel manufacturers). OSB is made from strands of lumber flaked from logs. OSB has replaced plywood in a large number (but not all) applications.

OSL Oriented strand lumber (a form of engineered lumber that has attributes, such as dimensional stability, and is available in long lengths not obtainable in solid sawn lumber)

P2E. Post secondary education and skills training

P3. Public-Private Partnership. An arrangement between the public sector and private sector firms to combine various types of resources, and coordinate their respective actions, in carrying out major projects.

Primary Industry. In forest products, the mills manufacture the initial products from roundwood timber (i.e. logs). They carry out the initial breakdown of the logs into, for example, lumber and various by-products.

Private Timber. Timber owned by private sector firms, investor groups or individuals.

Pulp-Making. There are two major types of pulps. Chemical pulps and mechanical pulps. With chemical pulps around 50% of the fibre is recovered in a usable form, but the fibre quality is very high. Canada’s softwood pulps have long fibre length, and are widely sought after by papermakers around the world. In mechanical pulping (i.e. breaking up of wood fibres mostly by mechanical means) over 95% of the fibre is recovered. It produces only for a limited range of papers (e.g. newsprint and publication papers).

ROCE See Chart 39, page 59.

Roundwood. Refers to logs in their unprocessed state


SLA 2006 U.S.-Canada Softwood Lumber Agreement signed in 2006 (a 7-year renewable agreement)

Secondary Processing Industry. Mills and plants that further process primary wood products (sometimes referred to as ‘the value-added’ industry)

Solid Sawn Lumber. Lumber produced by sawing roundwood logs

Structural Wood Products. Solid sawn lumber, engineered wood products and structural panels used in structural applications (e.g. homebuilding and non-residential structures). They must meet building code and other performance and structural integrity and safety requirements.

SFM Sustainable forest management

TIMOs Timberland investment management organizations