

**MAINE FOREST INDUSTRY – AN OVERVIEW**  
**MAINE FUTURE FOREST ECONOMY PROJECT**



**CURRENT CONDITIONS AND FACTORS INFLUENCING THE  
FUTURE OF MAINE'S FOREST PRODUCTS INDUSTRY**

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**INNOVATIVE NATURAL RESOURCE SOLUTIONS LLC  
107 ELM STREET, SUITE 100-E  
PORTLAND, ME 04101  
[www.INRSLLC.COM](http://www.INRSLLC.COM)**

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## **Maine's Forest Industry – An Overview**

Throughout its history, Maine has enjoyed a strong and diverse forest industry. The industry has grown and changed over time, but a strong wood products manufacturing base has been a constant in Maine's economy. The forest products industry is recognized as a diverse and interdependent industry, and, as a mature industry, has historically provided a level of stability to Maine's economy<sup>5</sup>.

Today, Maine forest industries face unprecedented challenges. The rapid growth of a global marketplace has provided increased trade opportunities for Maine forest products, while at the same time allowing new competitors into markets that Maine companies have long enjoyed.

## **Changes in Maine's Forest Industry**

Maine's forest economy is in the midst of significant changes, and some of these changes are painful to both the state and the industry. Many opinion leaders in the state, both within and outside the forest industry, believe incorrectly that the forest industry is dying. While Maine's forest industry does clearly face a series of challenges – and is in the midst of what will be continued and rapid evolution, the industry remains a pillar of Maine's rural economy, and is taking steps to retain or improve its competitive position. Paper and lumber production remain at or near record levels when measured by volume, though employment in both of these sectors has decreased.

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<sup>5</sup> Maine Science & Technology Foundation. *Assessing Maine's Technology Clusters*. June 2002.



Between 1997 and 2002, Maine's forest industry employment declined, from 23,430 employees to 18,130<sup>6</sup>. This loss of over 5,000 jobs in the forest products industry represented a 23% reduction in the labor force. While not as dramatic as employment reductions, industry payroll, the amount of value added activity, and total value of shipments all declined during this time period.

	1997	2002	% Change
<b>Employees</b>	23,430	18,130	-23%
<b>Payroll (\$1,000)</b>	\$ 900,957	\$ 838,552	-7%
<b>Value Added (\$1,000)</b>	\$ 2,563,869	\$ 2,526,752	-1%
<b>Value of Shipments (\$1,000)</b>	\$ 5,552,376	\$ 5,263,591	-5%
<b>Capital Expenditures (\$1,000)</b>	\$ 296,965	\$ 368,454	24%
<b>Productivity (\$ shipments / employee)</b>	\$ 236,977	\$ 290,325	23%
<b>Average wage</b>	\$ 38,453	\$ 46,252	20%

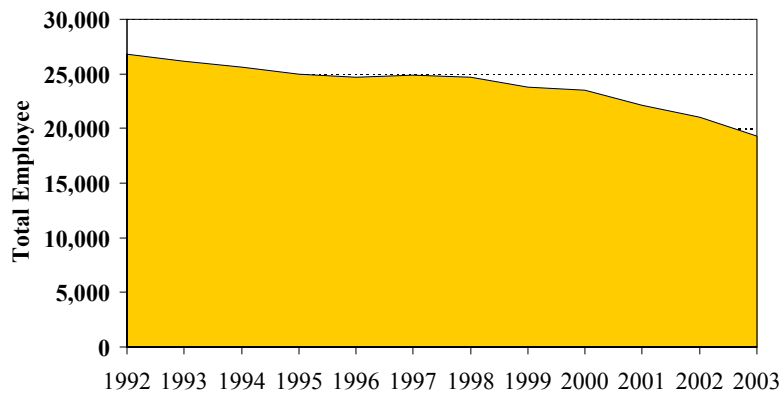
While employment has decreased, it is critical to note that productivity (as measured in value of shipment per employee), capital expenditures and average wage each grew significantly during the 1997 – 2002 time period. This trend is likely to continue; in fact many Maine forest products manufacturers will need to continue improvements in productivity to remain competitive in the global marketplace. This is the natural evolution of a mature industry going through transition, and is a sign of an industry taking steps to remain competitive.

<sup>6</sup> All data in the discussion of 1997 and 2002 statistics are from the U.S. Census Bureau, totals of NAICS Code 321 (wood product manufacturing), NAICS Code 322 (paper manufacturing), and NAICS Code 337 (household furniture, institutional furniture and kitchen cabinet manufacturing).



According to figures from the Maine Department of Labor<sup>7</sup>, Maine's forest industry employment – including pulp & paper mills, sawmills & wood products manufacturing, and forestry & logging – has dropped from 26,785 jobs in 1992 to 19,333 in 2003. Much of this decline in employment parallels a drop in manufacturing employment statewide and nationwide.

**Figure 1. Maine Forest Industry Employment – Paper, Solid Wood and Forestry & Logging, 1992 - 2003<sup>8</sup>**



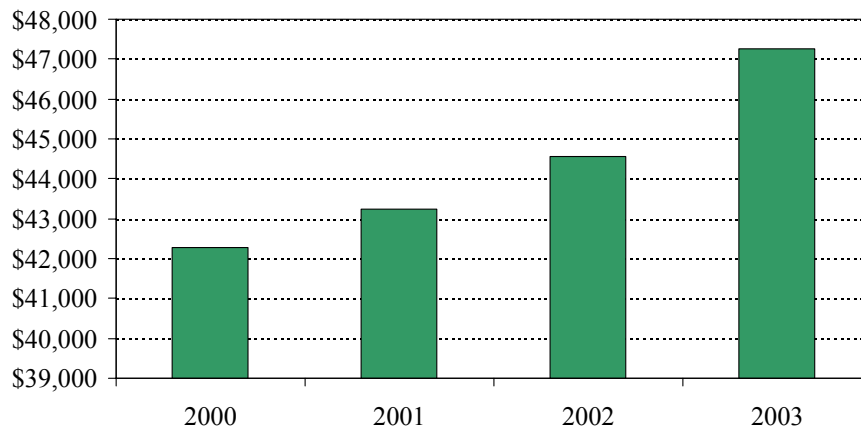
<sup>7</sup> Personal communication with Glenn Mills, Maine Department of Labor, August 2004.

<sup>8</sup> Maine Department of Labor Data: NAICS Code 321 (wood product manufacturing), NAICS Code 322 (paper manufacturing), and NAICS Code 113 (forestry and logging).



However, during the most noticeable period of decline in employment – from 2000 to 2003 – the average wage of forest industry employees rose. For employees in Maine forest product manufacturing, average annual wages grew from over \$42,000 a year in 2000 to over \$47,000 in 2003.

**Figure 2. Average Wages, Maine Paper Mill and Sawmill Employees, 2000 - 2003<sup>9</sup>**



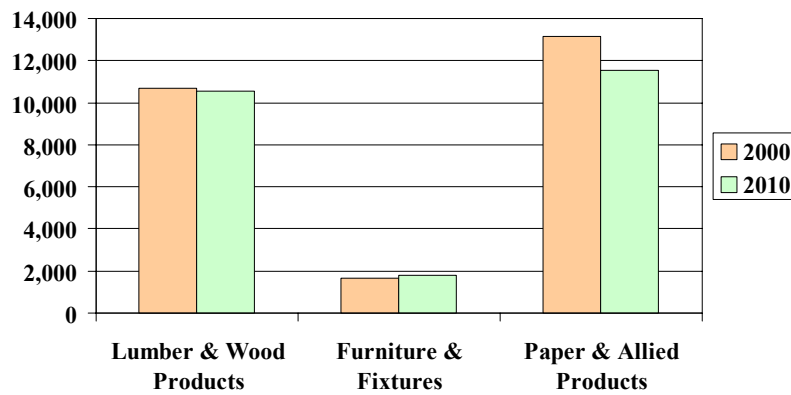
This dynamic – decreasing total employment coupled with rising industry wages – may well continue in Maine’s forest products industry, and in many cases may be a necessary component of long-term health of the industry. As in all manufacturing, forest products manufacturers must control input costs in order to remain competitive. Part of this is through finding efficiencies in current operations or bringing in new equipment that can operate more economically. Often these lead to fewer total jobs, with remaining retained positions being more stable, higher skilled and higher paid. This is particularly true in Maine because some fixed employee costs, such as high health care costs, drive employers to reduce employment numbers while maintaining production. While often painful, this is a natural and on-going evolution in forest products manufacturing, and recognition of this by leaders inside and outside the forest industry will help Maine move forward in addressing the future of its forest industry.

<sup>9</sup> Maine Department of Labor Data: NAICS Code 321 (wood product manufacturing) and NAICS Code 322 (paper manufacturing)



The Maine Department of Labor periodically provides outlooks on employment levels in Maine industries. In 2003, they released an analysis that showed 2000 employment levels by industry, as well as predictions of employment levels in 2010. It should be noted that such predictions are difficult, and rely upon a number of variables, but this provides an opportunity to look at possible future employment levels in the industry. According to Maine Department of Labor projections<sup>10</sup>, total employment in forest manufacturing will fall between 2000 and 2010, with losses in lumber & wood products and paper & allied products; some secondary forest products manufacturing – labeled here as “furniture and fixtures” – is expected to see modest increases in total employment.

**Figure 3. Maine Forest Industry Employment Outlook, 2000 and 2010.**



Data Source: Maine Department of Labor

<sup>10</sup> Evans, Dana. *Maine Employment Outlook, 2000 to 2010*. Maine Department of Labor. June 2003.

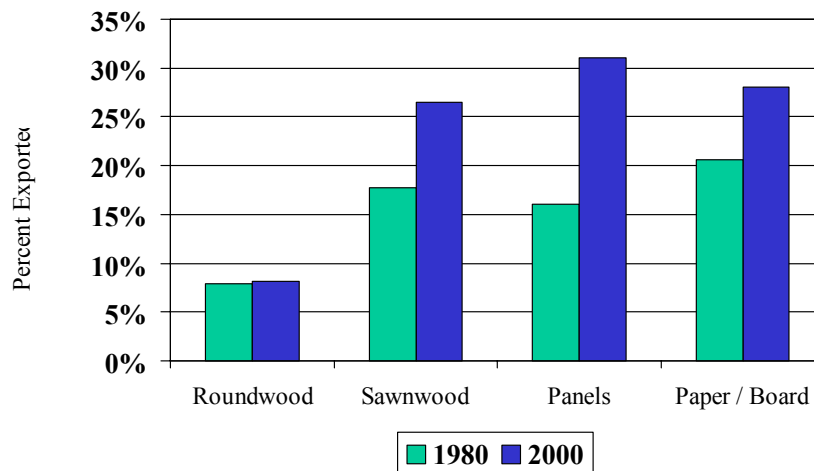


## Rise of the Global Economy

For many Maine forest products manufacturers, the largest change in the last decade has been the rapid rise in the global economy. For larger producers of forest products, this has meant a shift from a regional market to a global market. While a decade ago a mill may have considered its competitors to be other mills in Maine, New England and the Maritimes, today mills face competition from every corner of the globe. As global shipping infrastructure improves and more nations move to turn their forest resources into economic engines, this situation is only expected to continue.

While globalization has created challenges and new competitors for Maine's and the U.S. forest industry, it has also brought opportunity. Nationally, forest products exports have seen significant percentage increases in lumber, panels and paper.

**Figure 4. U.S. Exports of Wood Products, 1980 and 2000**

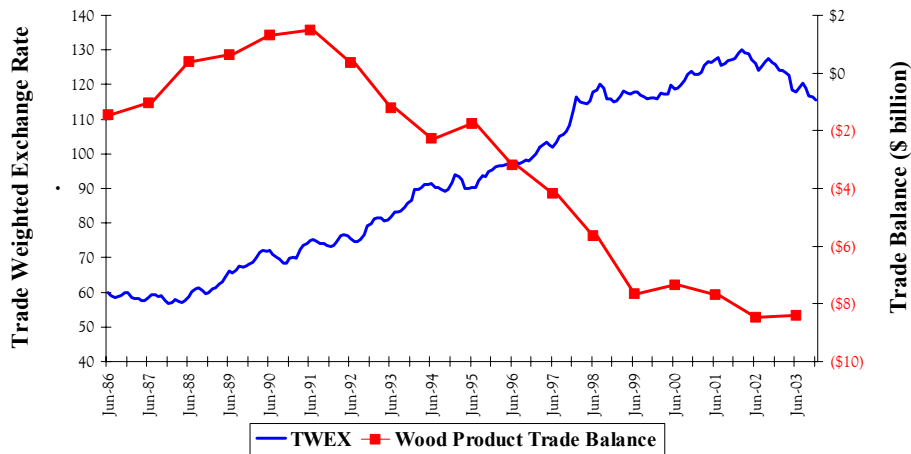


The global economy has increased the importance of currency exchange rates to U.S. forest product manufacturers. Due to its proximity to and interaction with Canada, Maine forest industries have long understood how exchange rates impact trade. However, it is increasingly important to monitor other currencies, including the Euro and Asian currencies. When the U.S. dollar is weak against foreign currencies, U.S. manufacturers enjoy an advantage in the market place – their goods are less expensive in export markets, and imports are more expensive here in the U.S. Conversely, when the U.S. dollar is strong American consumers can purchase exported goods less expensively, placing U.S. manufacturers at a disadvantage.



While there is little that individual states and companies can do to have any influence on international exchange rates, it is critically important to understand how it can influence markets for any producer that operates in a commodity market. As shown below, U.S. forestry exports are inversely related to the value of the dollar.

**Figure 5. Relationship of Currency Exchange Rate<sup>11</sup> and Forest Exports<sup>12</sup>**



Sources: Federal Reserve Bank and USDA Foreign Agricultural Service

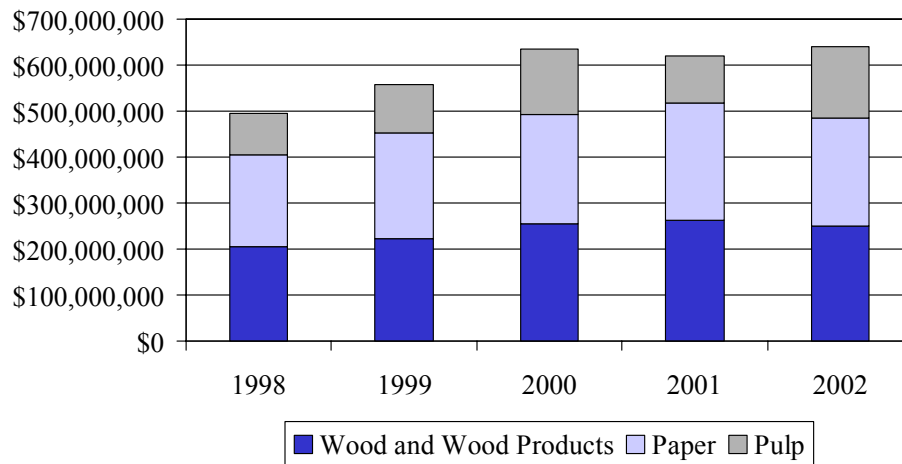
<sup>11</sup> The trade-weighted exchange rate is a composite of a number of foreign currencies that U.S. forest product consumers buy from and U.S. forest product manufacturers sell to, and does not represent one single foreign currency.

<sup>12</sup> Trade balance refers to the value of all exports less the value of all imports. A negative number indicates a period in which the United States imported more forest products than it exported (as measured by value).



Wood and wood products are a major export of Maine, and account for significant international shipments. International exports have grown in value from roughly \$500 million in 1998 to nearly \$650 million in 2002. For many Maine producers, and thus for the overall health of Maine's forest economy, exports are and will remain an important part of the overall forest economy.

**Figure 6. Maine Forest Product Exports, 1998 - 2002**



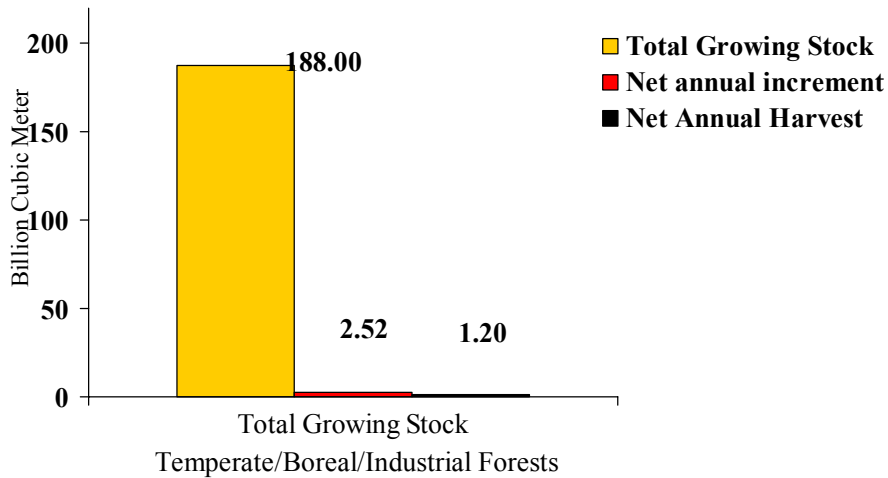
Data Source: Eastern Trade Council



## Global Wood Resources

As part of the increase in globalization, Maine producers increasingly compete against foreign sources. Globally, the U.S. Foreign Agriculture Service estimates that there are 188.00 billion cubic meters of wood, with annual growth of 2.52 billion cubic meters. Presently, annual harvests account for 1.20 billion cubic meters. It must be noted that not all of this wood is currently accessible, but more of it will become available as infrastructure reaches further and further into previously inaccessible forests.

**Figure 7. Global Forest Resources**



Source: FAO

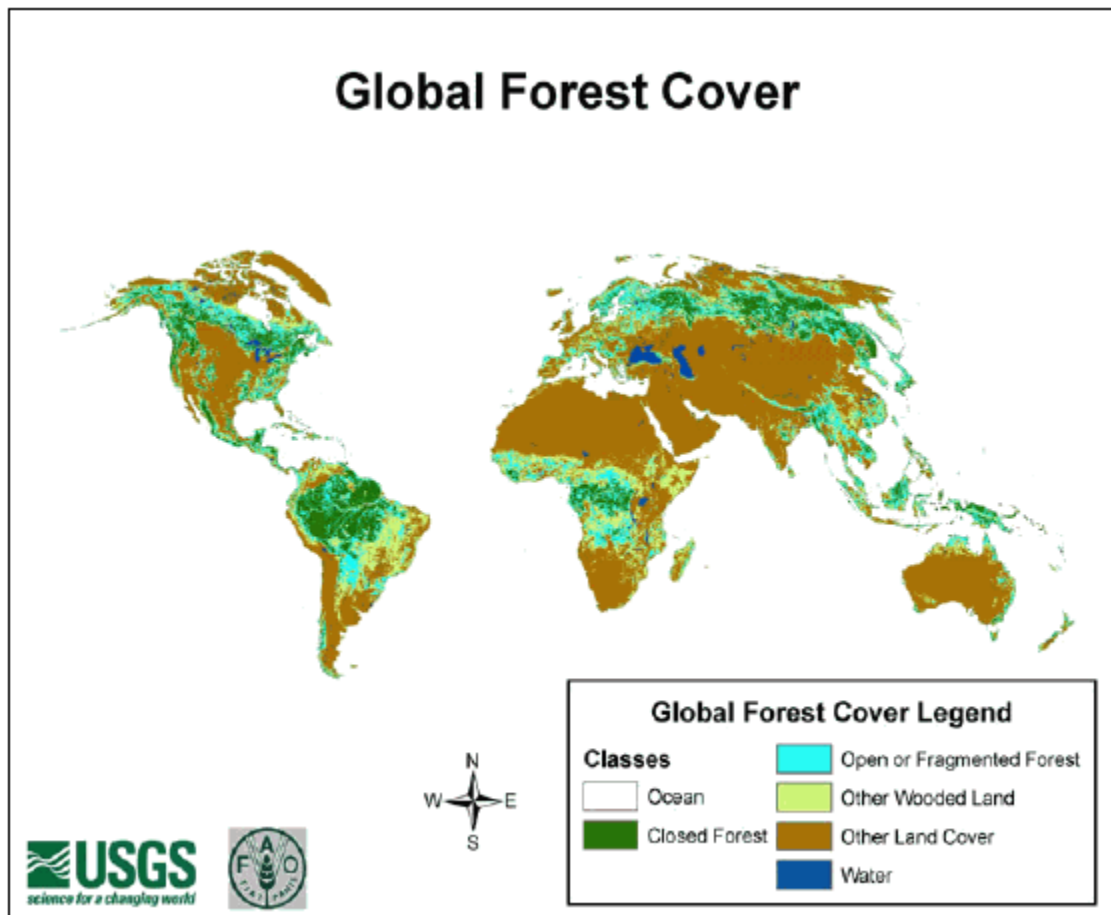


While there are forests and forestland throughout the world, there are several major regions:

- The boreal forest that runs from Alaska to the Atlantic in Canada and the Northern United States;
- The forests of the U.S. eastern seaboard, much of which runs down the Appalachian Range;
- South America;
- Central Africa;
- The boreal forests of Europe, Russia and Asia; and
- The Pacific Rim forests that run from Japan to New Zealand.

The following map shows a very high level view of global forests.

**Figure 8. Global Forest Cover**



## Need for Constant Innovation

In the face of rising challenges from a global marketplace, Maine forest industries face opportunities and challenges. The speed at which individual companies – and Maine government – respond and adapt to changes in the marketplace will be a major determinant of future success and profitability.

It is important to recognize that there are things that Maine state government can influence, there are issues that industry (alone or collectively) can address, and there are some forces in the global marketplace that cannot be changed – only anticipated and responded to. The one certainty of past success by Maine forest industries, and it is only truer today, is that constant innovation and awareness of changes and opportunities in the marketplace are the hallmarks of success.

## Key Factors Influencing Maine’s Forest Products Industry

A number of factors influence the competitiveness of Maine’s forest products industry: many of them national or global in scope, and all of them are interrelated in complex ways. The following discussion provides a high-level summary of some of the factors that influence a firm’s ability to produce a product and sell it into the marketplace at a competitive price. This discussion captures many of the major factors, but is certainly not exhaustive and does not apply universally or equally to each industry sector or firm. Further, it does not account for the ability of firms to differentiate their product in the marketplace or to position themselves in more competitive situations through marketing, investments in research and development, or application of different business strategies. The following discussion should serve as a working list for firms, industry-watchers, legislators and government agencies to monitor and be aware of in making business decisions, consulting on new business strategies or promulgating policies. It contains many of the elements of an industry health tracking system, which might be used to maintain and enhance the healthiest and most vital forest products economy possible for the benefit of the State of Maine.

**Interest Rates:** Interest rates have direct influence on the cost of capital for new investments, and influence the expectations of financial return by investors. Low interest rates allow firms to deploy capital at low cost. Capital expenditures made against lower costs of capital are exposed to lower risk and provide opportunities for companies to realize higher, more attractive “Returns on Capital Employed”, or ROCE. As interest rates increase, certain investments may become less attractive (e.g. riskier) than others and capital will flow to projects and locations where firms anticipate the greatest financial return for a given level of risk exposure. In highly integrated international corporations, the competition for capital is extreme. For example, a multinational firm will compare rates of return for capital expenditures in Maine with those in other parts of the world. This dynamic causes capital to flow where ROCE is maximized. While there is no single metric for gauging the success of capital expenditure decisions, a basic understanding of cost of capital, risk-and-return and ROCE will help to explain



why, where and when capital is deployed in the marketplace. Depending on the timing, location and internal fundamentals, companies may express capital deployment preference to projects in the following categories: “productivity enhancements,” “capacity increases,” or “efficiency enhancements”.

### **Exchange Rates**

Canadian: The U.S./ Canadian exchange rate is extremely important to Maine forest industries, which share a border, forest types and wood supply with some Canadian provinces. While the current strong Canadian dollar favors U.S. manufacturers, this has not always been the case over the past decade and is likely to shift back and forth. An understanding of this dynamic is fundamental in gauging both near-term and long-term outcomes of capital expenditures and public policy discussions.

Other Currencies: While the Canadian exchange rate is likely the most important currency to monitor for Maine’s forest products sectors, other currency exchange rates also impact the ability of U.S. firms to compete in foreign markets, and impact the ability of foreign producers to enter the U.S. market. In addition to the relationship between the U.S. and Canadian dollars, the European Union’s Euro and key Asian currencies exert strong influences on the value of Maine’s forest products in the global marketplace.

It is worth noting that a weak, or weakening, U.S. dollar can lead to higher interest rates and inflationary pressures over the long term. Neither high interest rates, nor increased inflation is desirable for long-term health of Maine’s forest products manufacturing.

**Taxes:** Federal, State and Municipal taxes influence the ability of companies to compete in local, regional and, yes, global markets. Federal taxes, the same for all forest product manufacturers in the U.S., fund a wide range of services. State taxes are used to fund both state and local services. Municipal tax rates, primarily property taxes, vary by community and are used to support a range of community services, including education. All of these tax structures play into the relative cost of competing in business for Maine’s forest products industry. The real and perceived differences between states and regions with different state / municipal tax structures strongly influence firms’ decisions regarding capital expenditure, capacity expansion and similar sector-enhancing strategies. Pine Tree Zones are an example of recent public policy that has sought to mitigate the influence of tax costs on Maine’s forestry sector.

### **Manufacturing Costs**

The following brief discussion of manufacturing costs outlines several significant cost factors that are fundamental in determining a firm’s profitability. They should be closely examined by firms, industry-watchers, legislators and



government agencies to ensure an environment for profitability, environmental health and societal well being through gainful employment.

**Wood:** Wood, the raw material of all sectors in the forest products industry, is the largest single cost for most forest products, and is directly related to the ability of a facility to compete in the marketplace. Current market prices for many species and grades of wood in Maine and the region are at or near all-time highs. Logging infrastructure, land transactions, mill demand fluctuations, foreign competition and wood-alternative technologies all play into the complex supply/demand dynamic of wood costs. Maine forest products firms should keep a close watch on these costs, especially as the supply and demand of the items manufactured in Maine shifts the profitability of final products up or down.

**Labor:** The amount and cost of labor is a factor in most forest products, and manufacturers often make investments in labor-reducing technology to help control this cost. In a mature industry, such as Maine's forest products industry, efficiency enhancements may cause the total number of employees in the sector to decrease, while productivity is enhanced. Efficiency enhancements are particularly important in the U.S. forest products economy, where labor costs are higher than in competing offshore mills.

**Workers Compensation:** Workers compensation costs, a percentage of labor costs, have been trending upward in recent years. Individual firms have no control over the administration of the program, but often take steps to limit claims through aggressive safety programs. Mechanization in many of the forest products sectors (especially timber harvesting and manufacturing) has exerted strong downward influence on workers compensation costs during the past decade. This is an important cost to keep in check for Maine's forestry sectors to remain competitive.

**Energy:** Due to a number of factors, energy costs are higher in the Northeast U.S. than many other areas of the country. Firms can seek to limit expenses through investments in energy conservation, self-generation, and energy purchasing strategies.

**Transportation:** Because Maine is a significant exporter of forest products, transportation is an important part of the consumer price of many Maine forest products. Issues such as truck weight limits and the ability of firms to access rail influence transportation costs. Proximity to markets in the population centers of southern New England, New York and the Mid-Atlantic states provides some of Maine's forestry sectors with a competitive advantage.



## Indicators of Market Health

For each sector of the forest products industry, there are primary indicators – which may be tracked on a regular basis – that provide a broad perspective on the health of the market for products in this sector. It is important to note that while these indicators provide meaningful information on the health of markets for a particular sector, they do not provide information on the ability of a particular facility or facilities to compete in the marketplace, and do not register all economic activity or variables associated with a particular sector.

Sector	Broad Indicators of Market Health
Paper	Advertising pages in major U.S. magazines
Lumber & Wood Products	Housing starts
Engineered Wood Products	Housing starts
Biomass Energy	Wholesale electricity prices (ISO-New England and NMISA), regional REC prices
Bio-Products	Price of crude oil

