

Paper Industry Economic Cluster Initiative

Part I

The State of Wisconsin's Paper Industry

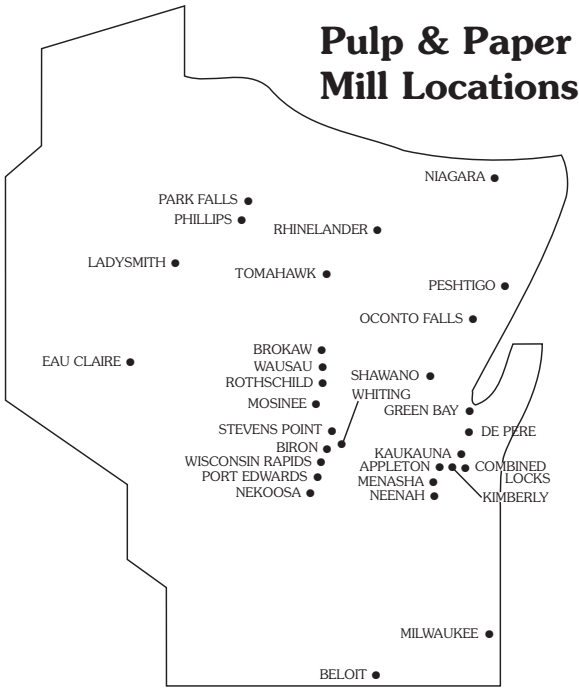
**February 2003
Prepared by the Wisconsin Paper Council**

The State of Wisconsin's Paper Industry

Introduction

The Wisconsin Department of Commerce is coordinating the implementation of a “cluster-based” approach to economic development. This strategy targets and supports industries that create quality, high paying jobs in Wisconsin. This nationally recognized development strategy will help drive Wisconsin’s economy and will help to create better jobs and a stronger economy.

Industry clusters are geographic concentrations of interconnected companies, specialized suppliers, service providers, and associated institutions in a particular field. Eleven industrial and regional clusters have been identified in Wisconsin, including a paper industry cluster.



The Wisconsin Paper Council is working with the Department of Commerce and other interested stakeholders, including other state agencies, the University of Wisconsin, suppliers and customers, to develop a set of recommendations aimed at protecting and enhancing the pulp and paper industry in Wisconsin.

The State of the Paper Industry in Wisconsin is the first document prepared as part of the paper industry economic cluster initiative. It is not intended to be an exhaustive treatise on the economics of the pulp and paper industry. It is intended to provide a general overview of the pulp and paper industry nationally and in Wisconsin and to highlight some of the key factors affecting the economic health of the industry at this time.

The State of the Paper Industry in Wisconsin is intended to set the stage for the development of recommendations for action by industry and/or government. Development of these recommendations has begun and will continue to be developed cooperatively with other stakeholders. An initial stakeholders meeting held October 23 in Green Bay identified seven general categories for recommendations: government, public relations, partnerships, infrastructure, research and development, economics, and education. These general areas will be refined first by paper industry representatives, then by the broader group of stakeholders. Final recommendations will be presented later in 2003.

Executive Summary

Paper is one of the essential building blocks of society. Wisconsin has a 155 year history of providing this essential building block. Beginning with the first mill in Milwaukee, Wisconsin's pulp and paper industry evolved into the #1 papermaking state in the nation, a title held for 50 years.

Wisconsin papermakers produce more than 5.3 million tons of paper and over 1.1 million tons of paperboard annually. Pulp, paper and allied firms employ approximately 50,000 men and women. Labor statistics show papermakers to be the highest paid manufacturing workers in the state. The average paper mill worker earns \$49,000 annually, compared to an average state wage of about \$30,000 annually. In addition, the paper industry indirectly supports tens of thousands of jobs in other, related industries.

In recent years the paper industry has faced a number of economic challenges. The U.S. and other world economies slumped beginning in 2000. This reduced demand for paper products. Although U.S. production dropped between 1997-2000, Wisconsin production continued to increase.

Even before this slump the paper industry was confronting a significant supply-demand imbalance. Mills and machines were being shut down to reduce over-capacity. Wisconsin suffered employment losses and mill/machine shutdowns, but it appears that the state fared better than the rest of the nation.

Mergers and acquisitions were taking place as companies sought to gain market share and rationalize assets. In general, foreign competitors take advantage of newer, larger, faster machines to keep production costs lower than in North America.

A strong dollar allowed foreign imports to make significant in-roads into the North American market. It is estimated that imports captured 90% of increased U.S. demand between 1997-2000.

Industry capital spending on new equipment dropped. In Wisconsin, this drop in spending was more significant than the nation as a whole.

The results were declining prices for finished products and a renewed focus on reducing costs. In fact, controlling production costs has been identified as the key to profitability and long-term success in the paper industry.

The bottom line is that the paper industry and its cluster partners, including the state, must work together to maintain the positive aspects of Wisconsin's overall business environment and improve those aspects that hamper the ability of companies to be the low cost producer and attract new investment. This means focusing on key cost drivers – fiber, labor, energy, environmental regulation – and identifying ways to reduce costs and increase investment.

In addition to providing an overview of the issues facing the paper industry in Wisconsin, this report highlights significant cost drivers for paper companies in Appendix 1 and priorities for action in Appendix 2.

The long-term success of Wisconsin's pulp and paper industry has resulted from technological advances, an ability to adapt, innovative management, and a quality workforce. These strengths have carried the industry through periods of economic challenges and business transitions in the past. In cooperation with other stakeholders and the state, these strengths will continue to carry the industry in the future.

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Background

Paper's Role In Society

Paper is one of the essential building blocks of society. Paper products – such as printing and writing papers, tissue, packaging, specialty papers, and paperboard – permeate the social fabric of modern civilization. Paper is in many of the items we come in contact with every day – books, magazines, newspapers, mail, catalogs, computer paper, notepads, food packaging, labels, gift wrap, product boxes, business cards. This list is nearly endless. Paper, made from renewable and sustainable resources, is clearly a mainstay of our societal needs today, as it has been in the past, and as it will be into the future.

Papermaking in Wisconsin: A Proud Tradition

The paper industry in Wisconsin began in 1848 with the opening of a mill to make newsprint for the Milwaukee Sentinel & Gazette. In the 1870s, the center of the state's paper industry moved to the Fox River Valley. There, with access to water and timber resources, the industry prospered.

The success of Wisconsin's paper industry has resulted from technological advances, an ability to adapt, innovative management, and a quality workforce. These strengths have carried the industry through periods of economic challenges and business transitions over the past 155 years.

For example, Wisconsin was once the nation's leading newsprint producer. However, the removal of tariffs on Canadian mills in 1911 required the industry to make

the necessary transitions to produce other paper grades and develop new customers.

Similarly, in the late 1920s the growth of the paper industry in southern states threatened Wisconsin's industry. Again, technical innovation and aggressive management came to the rescue. Most of the state's mills turned to higher quality products, shifting manufacturing to printing and writing papers, tissue, specialty papers, and paperboard. The strategy of upgrading and diversifying was sound. Today, Wisconsin is not only the nation's leading papermaking state, but is also first in product diversity.

Papermaking is the Backbone of Wisconsin's Economy

Wisconsin is the #1 papermaking state in the nation and has been the leader for 50 years. More than 5.3 million tons of paper and over 1.1 million tons of paperboard are produced here annually. In addition, approximately 2.7 million tons of pulp is produced to supply papermaking operations.

The value of shipments from Wisconsin's paper companies tops \$12.4 billion annually, while combined shipments of paper, lumber and wood products are valued at nearly \$16.8 billion.

There are approximately 28 companies operating about 45 mills in Wisconsin. (Some variation in count can exist because of the different types of facilities that fall into standard classifications.) About half of all production in Wisconsin is related to printing and writing grades, with tissue,

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paperboard and specialty grades accounting for the rest. The size of mills ranges from some of the smallest to some of the largest in the world. Each has found a way to compete effectively.

Pulp, paper and allied firms employ approximately 50,000 men and women, representing one in every 11 to 12 manufacturing jobs in Wisconsin. Pulp and paper manufacturing account for about 60 percent of the jobs; 40 percent are in converting operations that

In addition to direct employment, papermaking indirectly supports jobs for 125,350 more people, according to the Department of Urban and Regional Planning at the University of Wisconsin – Madison. Several thousand people work for companies that design and manufacture papermaking machines and related equipment. Installation of new paper machines, plant expansions and facility upgrades provide employment for several thousand construction and trades workers annually.

Labor statistics show papermakers to be the highest paid manufacturing workers in the state. The average paper mill worker earns \$49,000 annually. Over \$2.55 billion in wages are earned annually by the industry's workforce.

transform jumbo paper rolls into the widest variety of paper products made in any state.

Labor statistics show papermakers to be the highest paid manufacturing workers in the state. The average paper mill worker earns \$49,000 annually, according to the U.S. Department of Commerce. Over \$2.55 billion in wages are earned annually by the industry's workforce.

These wages turn into a \$4.38 billion benefit that surges through Wisconsin's economy as the industry's workforce spends some of its earnings on goods and services such as food, clothing, personal items, medical care and recreation. Some of the monies return to communities and neighborhoods in the form of charitable and other public services supported by corporate and personal donations, as well as by taxes paid by paper companies and their employees.

Convenient access to quality Wisconsin-made paper is a big reason why there's a vigorous, growing printing industry here. More than 54,700 printers earn \$1.8 billion in annual wages. Those economic benefits are shared across the state as about half of all printing and publishing jobs are in Milwaukee and southeast Wisconsin.

In 28 Wisconsin counties, the paper and forest products industry is the largest employer; in 14 more counties it is among the top three. Rural Wisconsin is home to many of these firms, helping to assure viable communities statewide.

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Wisconsin's Challenges

The following discusses fundamental economic challenges facing Wisconsin's paper industry at this time. The issues raised in this general discussion may or may not apply to individual companies and mills. For example, foreign competition and the value of the U.S. dollar may affect some mills and paper grades more directly than others.

Fundamental Economic Changes

Ten-to-fifteen years ago, the paper industry in Wisconsin and the U.S. had the following general characteristics:

- The U.S. economy was healthy.
- Demand for paper products was increasing. While some paper grades were facing competition from competing materials and other media, the "paperless society" had failed to materialize.
- Capital spending was strong and increasing; capacity was being added.
- Production and market share was fragmented among many companies.
- Exports of paper and paperboard (not including newsprint) exceeded imports.

This picture has changed:

- The U.S. and other world economies slumped, beginning in 2000.
- A global supply-demand imbalance became apparent in the mid-1990s. Demand was waning and competition from competing materials and media was increasing. Electronic media began to affect demand. Over-capacity was being addressed through plant and machine shutdowns.

- Consolidation – mergers and acquisitions – became a driving factor as companies sought to gain market share and rationalize assets.
- Foreign competition – globalization – became a major factor, with imports of paper and paperboard exceeding exports.
- Capital spending was significantly reduced.

Supply and Demand

The North American market accounts for about one-third of the worldwide purchases of paper and paperboard products. Per capita use of paper products far exceeds that in other parts of the world. However, the North American market is also a mature market. Overall demand for paper products in North America has been described as stagnant.

Other major markets include Western Europe and Asia. Demand increased in both areas, particularly in Asia, between 1999-2001 according to information from *Pulp & Paper International*. In general, demand can be expected to increase most rapidly in developing countries and economies.

Pulp and paper manufacturing is a cyclical industry. New capacity is very expensive to add, takes years to bring on-line, and has tended to come on-line in large blocks as several competitors attempt to be the first to meet growing demand. The result has been periods of good times, when demand caught up to supply, and periods of bad times, when capacity exceeded demand because of new mill/machine additions.

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The late 1980s and early 1990s were a period of strong economic growth and demand was increasing. This was a period of record capital spending in the paper industry. However, just as this wave of new capacity began full operation, demand began to slow. This resulted in a significant supply-demand imbalance. Demand did not catch up to supply.

Comparable figures for Wisconsin show a 5% decline.

Basic economics would indicate that an excess of supply over demand should depress prices. Information from the U.S. Bureau of Labor Statistics confirms this. *The Producer Price Index for paper products declined by*

In aggregate, papermakers were receiving less for their products in 2002 than in 1996.

Since then, the pulp and paper industry has been taking dramatic steps to bring capacity in line with demand. Old, inefficient operations are being shut down. This painful process resulted in 72 mill closures in the U.S. between 1997 and 2001, according to the American Forest and Paper Association. In the 2001-2002 period, a total of 40 mills and 104 paper or paperboard machines were permanently closed.

Wisconsin was not immune from this economic pain. According to Fisher International, 21 machines in Wisconsin have been shut down since 1999, both for economic reasons and because of mergers/acquisitions. Fisher International estimates that, even following these shutdowns, Wisconsin's pulp and paper industry operates more machines (137) than any other state or province in North America.

Despite these shutdowns, Wisconsin appears to have fared better than most other paper-making states from an employment standpoint. Information from the U.S. Bureau of Labor Statistics shows that total employment in the pulp and paper industry dropped almost 20% from 1997 through 2002.

3% between 1996 and 2002, while the PPI for all commodities increased by 2.7%. In aggregate, papermakers were receiving less for their products in 2002 than in 1996.

This price pressure has focused attention on cutting costs in order to remain competitive. It is not unusual to hear of individual mills reducing costs by millions, even tens of millions of dollars.

Production data for the U.S. shows a picture that is similar to the pricing data. According to figures cited in the January 2003 issue of *Pulp & Paper* magazine, total U.S. paper and paperboard production fell by about 0.4% between 1997 and 2000, from just over 95 million tons to about 94.6 million tons. Some industry sectors have seen year over year reductions in demand and output.

Once again, Wisconsin's industry appears to have fared better than the nation. Between 1997 and 2000, paper and paperboard production increased by 6.4%, from about 6.1 million tons to nearly 6.5 million tons.

Even though demand, on the broad scale, is weak, companies are working hard to develop

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new products and uses for paper that would increase demand. Some companies have tied financial performance goals to new product development.

The reasons for Wisconsin's apparent superior performance are not clear. One reason could be that the specialized and diversified structure of Wisconsin's industry, along with innovative management and a high-quality workforce has paid off again. Another reason could be that the Wisconsin industry is simply lagging the broader economic trends affecting the industry.

Overall, in the face of very difficult economic times that have seen demand weaken and paper prices decline, Wisconsin mills have responded with aggressive cost cutting and new product development. Wisconsin has

been to take over existing mills, rather than to construct new mills.

According to a study by DRI-WEFA, an economic research firm, 25% of the global industry is likely to be involved in a merger over the next five years. This movement has already had a significant impact on the paper industry in Wisconsin. Green Bay's Fort Howard Paper Company merged with James River Corporation to become Fort James Corporation, only to be subsequently acquired by Georgia-Pacific Corporation. Wisconsin Rapids' Consolidated Papers was purchased by Stora Enso North America. Wisconsin Tissue Mills in Menasha was purchased by Georgia-Pacific Corporation and became Georgia-Pacific Tissue, and was later sold to SCA Tissue.

In 1980, there were 35 paper companies in Wisconsin. Today, there are 28. In 1990, there were 13 paper companies headquartered in Wisconsin. Today, there are 11.

generally fared better than their counterparts in the rest of the country, but it is unclear if this will continue.

Consolidation

The paper industry has historically been a highly fragmented industry, with market share spread among many competitors. It was not unusual for market leaders to have less than 20% of the market.

In recent years, paper companies have consolidated in order to raise market share and replace older, less efficient capacity with newer, lower-cost operations. The trend has

Despite the changes in ownership, all of these facilities are survivors. Wisconsin's high quality, well run mills appear to be just what consolidating companies are looking for.

These changes will hopefully be a positive development in the long run, as companies improve competitive position. However, change can be stressful and can raise uncertainty in the short run.

In 1980, there were 35 paper companies in Wisconsin. Today, there are 28. In 1990, there were 13 paper companies headquartered in Wisconsin. Today, there are 11 – Appleton, Badger Paper Mills, Beloit Box Board, Fox River Fiber, Fox River Paper,

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Green Bay Packaging, Little Rapids Corporation, Oconto Falls Tissue, Riverside Paper, Wausau-Mosinee Paper Corporation and George Whiting Paper Company. Today, the majority of Wisconsin's paper mills are owned and headquartered outside of Wisconsin and six are headquartered out of the country.

Effects of these changes include the loss of Wisconsin-based corporate headquarters and the fact that these mills are operating as part of a larger corporate asset base. Historically, in-state companies have focused capital investments in local production facilities – a locally

This also places pressure on state and local governments to provide a competitive business climate – not only from a cost-to-do-business standpoint, but from an attitude/perception standpoint. Large companies with multi-state or multi-national operations can expect to have several internally-competing mills that offer very similar returns on investment. In these cases, it is not unusual for intangible factors to carry the day – What incentives are available? How quickly can regulatory permitting requirements be met? How easy or difficult are government officials to deal with?

Competition for new investment is fierce, with decisions increasingly being made on a global, rather than a local basis.

owned company with a limited number of mills has a limited number of investment options.

The current trend is toward locally owned, Wisconsin mills becoming part of large global corporations that own many mills in multiple countries. Investment decisions are often made hundreds or thousands of miles away from Wisconsin. Instead of walking across the street, many of Wisconsin's mill managers now fly across the country or across the world for the attention of corporate decision-makers.

These large global companies operate much like holding companies. Capital available for new investments is subject to intense internal competition. Individual mills are often viewed as profit centers, requiring new investments to be justified on an asset performance basis that places tremendous pressure on these mills to control costs.

A significant portion of the paper industry is changing in a fundamental way. Consolidation is underway and is expected to continue. Competition for new investment is fierce, with decisions increasingly being made on a global, rather than a local basis.

Globalization

International trade has always played a role in the North American paper industry. However, papermaking was generally considered to be a regional industry. Within the past ten years a new globalization has manifested itself in important ways. One is the increasing role played by imports. Outside of the past several months, the U.S. dollar has been very strong compared to the currencies of our major competitor countries. This creates a significant price advantage for imported products. In some cases, foreign mills can produce

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paper, ship it to the U.S., and sell it for less than a local mill can produce it.

The following example of how this affects local companies appeared in the December 11, 2002, edition of the Appleton Post-Crescent's Fox Valley Inc. In an article entitled "More jobs not making it", the president of a Fox Valley printing company indicated

an estimated 6.9 million tons in 2002, an increase of 20%.

To a large extent, the paper industry has shifted from a regionally-based industry to a globally-based industry. Low-cost imports, taking advantage of a strong U.S. dollar, are placing increased pressure on Wisconsin mills to reduce costs in order to compete.

"The buyers today aren't asking where the paper's made. They're asking, 'What's the price?' I can buy paper made in the Far East at half the price I can get it for down the street. I'm forced to use it."

that "he would gladly accommodate customers' requests for printing paper made locally or stateside, but clients don't care where the raw materials come from." He stated, "The buyers today aren't asking where the paper's made. They're asking, 'What's the price?' I can buy paper made in the Far East at half the price I can get it for down the street. I'm forced to use it."

The net effect, according to the American Paper and Forest Association, is that imports captured 90% of increased U.S. demand between 1997 and 2000. Over this time period, imports of paper and paperboard (other than newsprint) increased by almost 36%. The flip side of the foreign exchange coin is that U.S. exports have become relatively more expensive. U.S. exports of paper and paperboard (other than newsprint) increased only about 6.6% between 1997-2000, after rising over 25% between 1994-1997. The result is that the U.S. trade deficit with respect to paper, paperboard and converted products has consistently expanded during recent years, climbing from 5.7 million tons in 1999 to

Capital Spending and Reinvestment

Investment in new assets and reinvestment in existing assets is critical to any industry. It is particularly important in the paper industry. The paper industry is highly capital intensive and is characterized by large fixed costs. According to the U.S. Department of Agriculture, it is the most capital-intensive manufacturing sector in the U.S. economy. The installed cost of a large, state-of-the-art paper machine is between \$300 million and \$500 million, and a large, new integrated pulp and paper facility can cost more than \$1 billion. Upgrades to existing machines can cost tens of millions of dollars.

This high fixed cost base creates pressure to operate facilities at high levels to reduce the cost per ton and generate cash. This creates pricing and earnings pressures when the industry has excess capacity.

Unfortunately, but predictably, capital spending has fallen dramatically in these difficult economic times. According to an article in the January 2003 issue of *Pulp & Paper* magazine spending for capital projects in the

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North American pulp and paper industry is expected to continue a declining trend, at least in the short-term, as companies seek to control capacity and offset the impacts of a weakened economy and foreign imports.

Because of the size of paper industry investments and the long time period required to complete large projects, capital spending is reported in terms of a three-year rolling average. The most recent *Pulp & Paper* data shows total known U.S. spending to be \$4.3 billion for the 2002-2004 period. This is the

there was installed after 1975. In South America and the Asia-Pacific region, significant new capacity installed in the 1980s and 1990s now serves the global market place. However, the U.S. paper industry still has active paper machines that were originally brought into service in the late 1800s. Some of these machines are operating in Wisconsin. Fisher International estimates that 51% of North American capacity is produced on machines built prior to 1970.

Unfortunately, but predictably, capital spending has fallen dramatically in these difficult economic times.

lowest level of capital spending in recent years. U.S. spending peaked at \$18 billion in 1989-1991 and, with the exception of 1994-1996 and 1995-1997, has been steadily declining.

The picture in Wisconsin is much the same. Using the same *Pulp & Paper* database, capital spending peaked in the 1992-1994 period at \$1.68 billion. Using the *Pulp & Paper* database and information from Wisconsin Paper Council members, capital spending in Wisconsin will be significantly lower for the 2001-03 period; the lowest level in almost 30 years.

This dramatic drop in capital spending is all the more troubling because Wisconsin's asset base is aging. According to Dr. James McNutt at the Center for Paper Business and Industry, the oldest significant paper machine in Finland, a major competitor of the U.S. paper industry, was first put in service in the mid-1950s and nearly all of the major capacity

Aging assets are a significant concern within the context of global competition. While the North American industry was spending considerable amounts of capital in the late 1980s and early 1990s, this spending was, to a large extent, in the form of upgrades to the old, existing asset base. This made sense within the context of what was then a predominantly regional industry. At about the same time, however, spending was occurring in foreign competitor nations that was, to a large degree, on new assets to serve fast growing markets. The result is a foreign asset base that is generally comprised of newer, larger, faster machines than in the North American market. This has the effect of lowering production costs. For example, fixed costs are spread over more tons, lowering per ton costs, and some variable costs, such as labor, are lower because it takes fewer workers to operated new, technologically advanced machines.

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Exacerbating this situation is the fact that foreign competitors, taking advantage of a more productive asset base and a strong U.S. dollar, can afford to make additional investments that could widen their competitive advantage. New investment in North America is needed to combat this situation.

Economy and Profits

The paper industry was already facing difficult supply-demand conditions when the overall U.S. manufacturing sector slowed in late 2000. Things got worse in 2001 when the U.S. economy slipped into recession, a situation exacerbated by the events of September 11.

A recent Pulp & Paper Week survey of 2002 year-end earnings results showed operating profits for a group of 23 U.S. paper companies fell 5.5%...it marked the second consecutive year of decline in industry earnings.

Aging assets are not always a problem. As long as innovative management is able to match these resources to market niches, small and slow machines can mean quick response and custom service. This has been the case for some companies in Wisconsin.

However, in general, aging assets in combination with limited capital spending is cause for concern.

A recent *Pulp & Paper Week* survey of 2002 year-end earnings results showed operating profits for a group of 23 U.S. paper companies fell 5.5%, to \$3.2 billion from \$3.4 billion in 2001. Although this decline was relatively small, it marked the second consecutive year of decline in industry earnings. As recently as 2000, U.S. paper manufacturers earned \$6.5 billion, and industry earnings topped \$11 billion in 1995.

These results are not surprising given the previous discussions regarding demand, capacity reductions, and foreign competition.

Conclusion

Wisconsin's pulp and paper industry has a long and proud tradition in Wisconsin. The state remains the #1 paper producer in the nation. Wages are high. The industry serves as one of the foundations of Wisconsin's economy. It is the base for a cluster of suppliers, service providers and related businesses.

Within the current environment, the ability to control costs is critical. As stated in a recent Paperloop.com article on the key to long-term profitability – *The answer, quite simply, is production costs.*

International and inter-state cost comparisons are difficult to come by, since this is highly valued

The bottom line is that the paper industry and its cluster partners, including the state, must work together to maintain the positive aspects of Wisconsin's overall business environment and improve those aspects that hamper the ability of companies to be the low cost producer and attract new investment.

However, a number of challenges face the industry:

- Demand in traditional markets has been stagnant.
- Supply – capacity – exceeds demand.
- Overall prices for paper products have declined.
- Consolidation has resulted in many Wisconsin mills becoming part of global companies, fighting internally for investments on an asset performance basis.
- Imports, taking advantage of a strong U.S. dollar, have taken market share.
- Foreign competitors have utilized newer, larger, faster machines to reduce production costs and gain competitive advantage.
- Profits have tumbled.
- Capital spending, following suit, has also tumbled.

Wisconsin mills are responding by:

- Developing new products and new markets.
- Reducing capacity.
- Aggressively cutting costs.
- Consolidating, where appropriate, to gain market share and rationalize assets.

and closely held information. The general consensus appears to be that North American mills generally are not the low cost producers compared to the rest of the world. Within the U.S., Wisconsin appears to be competitive in some areas, but higher cost in other areas. Appendix 1 provides some background on key cost factors for Wisconsin's pulp and paper industry.

The bottom line is that the paper industry and its cluster partners, including the state, must work together to maintain the positive aspects of Wisconsin's overall business environment and improve those aspects that hamper the ability of companies to be the low cost producer and attract new investment.

The second phase of the paper industry economic cluster initiative will focus on developing a set of recommendations intended to help meet this bottom line goal. The industry will work cooperatively with other stakeholders to develop these recommendations. However, some issues were previously identified by the industry as being priorities. These issues are included in Appendix 2 as a starting point for future discussions.

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Appendix 1: Key Cost Factors

Fiber

Almost all paper and paperboard products come from wood fiber, whether they are manufactured using pulpwood or recycled wastepaper. According to the American Forest and Paper Association, wood fiber costs are one of the most important factors in determining the competitiveness of the paper industry. Depending on what type of paper is being produced, fiber ranges from 20% to 60% of product cost.

Paper mills obtain fiber from three major sources – pulpwood (logs used by a pulp mill to make pulp), market pulp (pulp purchased for use in a paper mill), and wastepaper. Wisconsin mills rely on a mix of these sources.

The importance of fiber costs in determining competitiveness poses challenges for Wisconsin's paper industry. In a broad sense, Wisconsin is in the northern reaches of the hemisphere – where, due to colder temperatures, trees do not grow as rapidly (thus economically) as in warmer climates.

Within the state, the forest products industry, including papermakers, owns only about 7% of the state's total forest land. About 57% of state forest land is under the control of private, non-industrial landowners – typically individuals, like farmers, with 40-80 acres. The remaining state forest land is owned by government.

While there is little that the industry can do about climatic factors, the industry and the

state have taken steps to assist private landowners to manage their lands for long-term sustainability and productivity. Papermakers are active in the Wisconsin Paper Council's *Green Guarantee* and the American Forest and Paper Association's *Sustainable Forestry Initiative*[®] programs. Both promote environmentally sound forest management aimed at providing an ample, sustainable supply of fiber within the state. In fact, statewide forest inventories indicate that forest growth far exceeds timber harvesting. The State of Wisconsin has an effective Managed Forest Law that provides tax incentives to landowners who agree to manage their forests responsibly.

The U.S. Bureau of Labor Statistics' Producer Price Index for pulpwood on a national level shows that the index dropped by 27% between 1996 and 2002. This reflects pricing pressures from mills that have seen prices erode and must cut costs. In 2001, Wisconsin mills used approximately 2.6 million cords of wood.

We are not aware of regional pulpwood indices that would offer a direct comparison of cost variations within the U.S. and internationally. However, industry sources have indicated that pulpwood costs in the Great Lakes region are comparatively high. As a result, mills in Wisconsin can, in some cases, purchase fiber overseas cheaper than from local sources.

The Bureau of Labor Statistics Producer Price Index for woodpulp on a national level shows

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that the index dropped 13% between 1996 and 2002. Again, this reflects broader economic conditions.

Wisconsin mills recycle about 2.6 million tons of wastepaper annually. The Producer Price Index for wastepaper shows this to be a very volatile commodity. Between 1992 and 2002 the index ranged from a low of 117.4 to a high of 371.1. Between 1996 and 2002 the index increased by 22%, with yearly index values following a saw tooth pattern. Short-term fluctuations can have a significant impact on the profitability of individual mills.

Energy

Papermaking is a very energy intensive industry. The paper industry is the largest energy consumer in the manufacturing sector.

The industry depends on a mix of renewable and fossil fuel-based energy resources. In Wisconsin, of industry's purchased power needs, coal provides 33%, with natural gas supplying 22%, electricity accounting for 15%, and recycled pulp liquors contributing another 15% to the mix. Bark and other unpulpable wood fiber, recovered waste (e.g., wastewater treatment sludge), fuel oil, and propane account for most of the remainder. Despite purchasing large amounts of energy, the industry is also a leader in self-generated energy.

According to the American Forest and Paper Association, energy costs traditionally have been one of the top cost items for the industry. It is not unusual for a typical paper plant to have separate electric and natural gas bills of \$750,000 to \$1 million monthly.

Information from the U.S. Department of Energy indicates that, when measured on a cost-per-kilowatt hour basis, U.S. energy costs for electricity, natural gas and coal are competitive with other countries. This may present an incomplete picture and additional research is needed. Within the U.S., Wisconsin has traditionally had lower cost energy.

However, the paper industry in Wisconsin is confronting steadily climbing prices for natural gas and electricity, compounded by grave concerns over the reliability of electric generation and transmission.

One of the ways the paper industry deals with energy cost issues is through conservation measures. From 1972 until 2000, paper production in Wisconsin rose 80%, but total energy use rose only 25%. The bottom line: a 30% decrease in the amount of energy used per ton of production.

Labor

Wisconsin's pulp and paper industry benefits from a highly qualified, dedicated work force. And while that work force is a highly valuable asset, it is also a cost of doing business. Labor is a significant cost for paper companies and, for some companies, can be the largest single cost component.

It has already been noted that Wisconsin papermakers are the highest paid manufacturing workers in the state. International comparisons by Jaakko Poyry presented to the North Carolina State University Pulp and Paper Foundation show North American personnel costs per ton of production for some paper grades to be the highest in the world.

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One expert estimates U.S. labor costs to be at least 50% higher than competitor nations.

To a large extent, labor costs are a function of the standard of living in a country and the standard of living in the U.S. is high. It is not surprising that workers operating complex, multi-million dollar machines in an affluent country command some of the highest wages in the world.

Another aspect of labor costs is the age and technological advancement of the machines that are being operated. Newer, more advanced machines take fewer people to operate. It was noted in the report that U.S. machines are, generally speaking, older than the machines in key competitor areas. This could result in increased labor costs being associated with more workers.

Environmental Regulation

The pulp and paper industry is highly regulated. Because it is a natural resource-based industry, environmental regulations can have a significant effect on costs. The paper industry in Wisconsin spends millions of dollars annually to comply with an array of federal and state environmental regulatory initiatives. However, the paper industry within the U.S. is generally subject to similar standards and our foreign competitors are also regulated. The cost of different regulatory frameworks throughout the world has been studied and the results are less than clear.

One of the difficulties in comparing environmental regulatory costs is the lack of standard measures. As a result, one industry may find regulatory costs in Europe to be

higher than in the U.S., while another industry may find that costs are higher in the U.S. than in Europe. Assessments of regulatory costs end up being based, to at least some extent, on personal experience and perceptions. However, some companies have done confidential, internal "benchmarking" studies that appear to confirm personal experience and perception.

The general industry view of the U.S. environmental regulatory system could be described as providing about the same level of overall environmental protection as many of our competitor nations, but at a higher cost to industry. The higher cost may be attributed to the highly legalistic and adversarial nature of the U.S. system compared to other countries. As a result, there are high "transaction" costs – steps in the regulatory process designed to provide legal certainty and satisfy skeptics, but that provide little, if anything, in terms of environmental protection. This can be costly in terms of additional staff time and effort, the need for external technical and legal consultants, and time delays associated with regulatory reviews.

The general industry view of the Wisconsin regulatory system is that we have higher transaction costs than in other states – and more costs for internal and external resources, as well as longer time delays. The unfortunate reality is that this view is held by a significant portion of the business community.

Two examples can provide insight into the concerns and frustration of the paper industry and others in the business community. At the national level, the Environmental Protection Agency operates the New Source Review program. In principle, this program

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requires that a company changing operations in a way that results in a significant increase in air emissions must evaluate the need to install the best available technology. However, in practice, the rule forces industrial facilities to vastly overstate estimated air emission increases. This can turn real emission decreases into phantom emission increases. The practical effect is that many small projects that would be environmentally beneficial are not undertaken because the added cost of the technology review and potential controls makes the project uneconomical. U.S. assets, already older than many of our competitors, are not upgraded or are upgraded at a higher cost. EPA has finalized rules to change this situation, but the changes have been highly politicized and will be subject to legal challenge.

example, it could be possible that an air emission source could be subject to the federal rule for emissions of some substances, but subject to the state rule for emissions of other substances. This increases compliance costs.

It is important to remember that these concerns are not directly related to the standards themselves. The paper industry in Wisconsin has a long record of commitment to environmental protection.

The *Pollution Prevention Partnership* between the Wisconsin Paper Council and the Department of Natural Resources has resulted in dramatic reductions in releases to the air and water, as well as the need to land-fill solid waste. These reductions are voluntary and beyond compliance. The Paper Council issues an annual *Pollution Prevention*

One thing is clear: the traditional “command-and-control” system for protecting and improving the environment is outdated and not cost effective.

At the state level, the Department of Natural Resources operates a regulatory program for hazardous air emissions that is unique to Wisconsin. Demonstrating compliance with the standards often requires the need for external consultants that can model emissions from the facility. This can add thousands of dollars to a project that would not be incurred in other states.

This program pre-dates the federal hazardous air emissions rules and takes a fundamentally different approach to regulation than the federal rules. Wisconsin intends to leave this program in place, creating potential conflicts and confusion between the two programs. For

Partnership report that details the environmental performance of participating mills. We are aware of no other industry that make this type of public commitment.

Further, the paper industry in Wisconsin became one of the first industry sectors in the nation to commit to implementing formal environmental management systems as part of the Wisconsin Paper Council *Environmental Management System*. Again, this is a voluntary initiative.

One thing is clear: the traditional “command-and-control” system for protecting and improving the environment is outdated and not cost effective. Allowing for a systems

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approach with regulatory flexibility will achieve greater environmental results at a lower cost to industry.

Taxation

Wisconsin appears to have a corporate taxation climate that is competitive with other states. Various measures show the state to be in the middle of the pack on overall corporate taxes. The state has several programs that are particularly important for the paper industry, such as the property tax exemptions for machinery and equipment used in manufacturing, and for pollution abatement equipment. Also important are sales tax exemptions for manufacturing machinery and equipment, manufacturers' raw materials, and pollution abatement, waste treatment, and recycling equipment. Regarding the corporate income tax, the sales tax credit for fuel and electricity used in manufacturing is extremely important for an

energy intensive industry like papermaking. However, this credit is not working as originally intended and should be changed.

The taxation picture appears to be different at the national level. A 2001 study prepared by price Waterhouse Coopers for the American Forest and Paper Association compared the U.S. tax system to six competitor countries. The study concludes, among other things, that the U.S. tax system is very close to being the most unfavorable among competing nations, with an effective tax rate that is higher than five of the six countries. For four of the countries, the U.S. rate was significantly higher.

The report includes recommendations aimed at bringing the U.S. rate down to the average of our main competitors. These recommendations cover income tax rates, investment tax credits, and depreciation. These issues will be reviewed further in the next phase of the economic cluster process.

Appendix 2: Recommendations for Action

The following recommendations were identified by Wisconsin Paper Council members prior to involvement in the Economic Cluster Initiative and are offered as a starting point for future discussions.

Taxation

Wisconsin should replace the current income tax credit for sales taxes paid on fuel and electricity used in manufacturing with a sales tax exemption.

While Wisconsin has a competitive corporate taxation climate, not all current policies are working as intended. One policy that isn't working as intended and that needs change is the income tax credit for sales taxes paid on fuel and electricity used in manufacturing.

Most states exempt inputs to the manufacturing process from the sales tax. These inputs include raw materials, machinery and equipment, and fuel and electricity. In Wisconsin, raw materials and machinery and equipment are exempt, but fuel and electricity is taxable.

Instead of a sales tax exemption, the state provides a credit against income for sales taxes paid on fuel and electricity. This was intended to be equivalent to an exemption.

However, it is not working that way.

Wisconsin manufacturers are unable to fully offset sales taxes paid because income is not sufficient. As a result, the state currently owes manufacturers approximately \$125 million in income tax credits for sales taxes paid. The

paper industry, which accounts for approximately 30% of Wisconsin's industrial energy use and is facing difficult economic times, is owed more than any other industry.

The solution is to change the current income tax credit to a sales tax exemption. This would allow state policy to function as intended and would help paper companies and other manufacturers reduce costs and improve competitiveness.

The change from a credit to an exemption is not cheap. The Department of Revenue estimates a \$9 million annual cost to the state from such a change, plus up to \$29 million per year until accrued credits have been recovered. However, the paper industry has been working with DOR staff to explore options, such as amortizing accrued credits over a fixed number of years, that would reduce the annual cost to a more manageable level.

The paper industry is sensitive to the fiscal problems facing the state and understands that this change may not be feasible in the near future. We are committed to working with the administration and state legislature to find a way to deliver this needed change when the state is in a financial position to do so.

Environmental Regulation

The State of Wisconsin should support the New Source Review (NSR) rules that were finalized by the U.S. Environmental

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Protection Agency on December 31, 2002, and should move to quickly implement these rules in Wisconsin. The result of these rules should be a more clearly defined, flexible, and fairly enforced NSR program that will remove the current disincentives for paper companies and other businesses to improve process efficiency and become more competitive, while reducing emissions.

The NSR program, first established under the 1977 Clean Air Act Amendments, is a pre-construction permitting program for large industrial sources intended to prevent significant air emission increases that could result from major expansions or modifications at a facility. Instead of having clear regulations to implement the program, EPA has amassed more than 4,000 pages of confusing and often conflicting guidance. Over the years, particularly in the last few years, the program has evolved to cover nearly anything industry does to expand or improve operations – even when these changes reduce air emissions and improve efficiency.

Perhaps the most fundamental flaw in the current program is the way EPA measures an emission increase for the purpose of determining if stringent controls are needed at industrial facilities. The NSR program requires these stringent controls if emission increases exceed specified thresholds for certain substances. Instead of using a straightforward measure of actual emissions before and after a project, EPA compares actual emissions before a project to the maximum potential emissions after a project.

This “actual-to-potential” test can have the effect of triggering stringent controls on insignificant emission increases – even emission decreases. How? If a facility is operating

at less than maximum conditions (the normal situation) and the difference between actual emissions and maximum potential emissions of a covered substance is greater than the NSR threshold (very common), *any change in emissions will automatically exceed the NSR threshold and will trigger an expensive review of control options and the potential installation of these controls – even if actual emissions resulting from the project would decrease.*

Another major flaw in the program relates to activities at facilities that are considered routine maintenance, repair, and replacement. EPA proposed changes to address this issue at the same time it finalized rules relating to the “actual-to-actual” test. The NSR program includes an exemption for routine maintenance and similar activities, intended to avoid regulatory review of minor changes at a facility. This is consistent with the intent of the program to focus on significant changes. However, in recent years EPA has revised its interpretation of this exemption to the point that it is available in only extremely limited circumstances (e.g. – replacement of a worn out 30 year old part with an identical part – not a similar or functionally equivalent part, the exact same part that was in use 30 years ago). This results in virtually any maintenance activity becoming subject to NSR review and substantial additional cost.

What are the practical impacts of these and other flaws in the NSR program? Companies avoid changes that would improve process efficiency and competitiveness, increase energy efficiency, and/or reduce emissions because the cost of the NSR review and the potential controls that could be imposed as a result of this review would be too expensive.

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Our manufacturing base slowly loses competitiveness as needed investments are not made by U.S. companies or shifted to other countries by global companies. Voluntary emission reductions – sought by both industry and the DNR – are frustrated for the same reason. NSR has turned into a program that stymies both industrial competitiveness and environmental improvement.

While these concerns are stated in terms of international investment and competitiveness, they will soon apply on a regional basis. Our neighboring states of Minnesota, Illinois, Indiana, and Michigan are all required to begin implementing the new NSR changes on March 3. While there are questions that need to be resolved that could delay implementation, these states are on track to have the NSR changes in place far in advance of Wisconsin (assuming the courts do not stay the federal changes). This provides a distinct competitive advantage for these states compared to Wisconsin.

The recent changes to the NSR program are long overdue and should be allowed to take effect as quickly as possible. The paper industry and other industries are not seeking to roll back environmental protections or end the NSR program – and the EPA rules would not do this. We simply want a clearly defined, workable, and fairly enforced NSR program that allows companies the flexibility to operate efficiently and maintain and improve mills in order to stay competitive in the global marketplace – while meeting environmental obligations. The EPA rules go a long way toward meeting this goal.

Systems Approach for Pulp and Paper Air Emissions Sources

The traditional command-and-control system for protecting and improving the environment has accomplished much over the past thirty years. The system, however, is outdated. It is not cost-effective.

The paper industry, for example, continues to spend millions of dollars annually to comply with an array of federal and state environmental regulatory initiatives. We are spending more and more to produce smaller and smaller results.

The paper industry cannot afford to continue to spend valuable and limited capital in such a haphazard manner and remain competitive in a global marketplace. Our industry is already saddled with higher fiber, fuel and labor costs than our foreign competitors, and the value of the dollar gives them a significant additional advantage.

During the next several years, the paper industry will be facing several new state and federal regulatory initiatives related to air emissions, particularly from combustion sources. These initiatives include MACT II, industrial boiler MACT, nitrogen oxide reductions, mercury reductions, NR 445 revisions, and global climate change issues.

Rather than address these issues singularly, or incrementally, the members of the Wisconsin Paper Council are recommending the development of a “systems approach” – an innovative process that will provide meaningful environmental improvement through the cost-effective use of capital and technology. The goal, in other words, is to achieve the opti-

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imum environmental improvement at the least cost to the paper industry.

The systems approach incorporates the implementation of upcoming environmental requirements in a manner consistent with the capital planning cycle of individual paper companies.

Under this approach, regulatory authorities and paper industry representatives will design and establish both short term and long term priorities for the industry's air emission sources, particularly its combustion sources

The establishment of these priorities will lead to the greatest environmental improvement with the most cost-effective use of capital and technology for the industry to remain competitive in a global marketplace.

Under this "systems approach," the Wisconsin Paper Council is proposing the following key concepts:

- Primary attention will focus on combustion sources; however, the scope of the effort would include all air emissions sources, i.e. companies could include other sources, such as paper machines, on a site-specific basis.
- Primary attention will focus on nitrogen oxides, mercury, carbon dioxide, and hazardous air pollutants; however, other emissions could be considered on a site-specific basis.
- Implementation of a clean unit technology concept that would be defined on a case-by-case basis. Firms installing the clean unit technology would not have to install additional or new technologies for an agreed

upon and specified period of time, 15-20 years, i.e. the useful life of the clean unit technology. This is similar to the clean unit provision in the recently announced new source review changes, but broader in that it would apply to all regulations.

- Use of a bubble or emissions trading concept that could be facility-wide, company-wide, industry-wide, or regional. For example, a firm with multiple operations within the state could "bubble" its entire operation thereby spending capital on those projects that would be economically feasible and environmentally beneficial. As with the clean unit concept, this is similar to, but broader than the announced plantwide applicability limits under the new source review program.
- Flexibility or deferral of compliance deadlines to accommodate capital planning cycles and the development and/or implementation of "clean unit" or emerging technologies.

In addition to these key concepts, the paper industry also recommends this systems approach include:

- Flexibility/relief from burdensome PSD new source review requirements (EPA's recently announced changes appear to make good progress on this front);
- Flexibility/relief from state and federal administrative burdens during permitting and when complying with regulations; and
- Expansion of government assistance programs, such as industrial revenue bonds, to include consideration of environmental improvement.

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Implicit in the development of this systems approach is implementation of an environmental management system on a company-by-company basis, and continued emphasis on pollution prevention.

Constructive third-party involvement is a necessary part of the process. The public needs to understand and support this type of innovation.

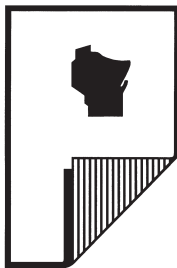
We envision that this systems approach, accomplished via "pact" or covenant, or other such mechanism, would be legally binding.

This innovative systems approach will provide enhanced, cost-effective environmental improvement and create an incentive for companies to try new technologies with limit-

ed risk. In other words, more meaningful environmental improvements and technology development will be achieved through this system than through the traditional incremental, or rule-by-rule approach.

It is also important to note that emission reductions will potentially occur not only from regulated pollutants, but also from non-regulated pollutants. This systems approach, like the *Pollution Prevention Partnership* (P3) is "beyond compliance."

The development of this systems approach should also result in a reduced DNR workload. Companies, for example, might opt to write their own Title V permit for agency consideration.



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