A Look at Wisconsin's Forest Industry: Structure, Impacts, and Trends

Critical Issues in Forest Management and Utilization Conference – Managing for Multiple Demands on Our Forests

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Overview

- State of the Industry; Resources
- Current Market Conditions
- Threats and Opportunities
- Questions

State of the Industry; Resources

Of Wisconsin's land base, 16 million acres (46%) are productive forest land

State of the Industry; Resources

- While significant forest lands are being lost in other states, Wisconsin’s forest lands have increased by 640,000 acres since 1985.

- Wisconsin grows more wood than it removes- about 490 million cubic feet is grown each year, while only 332 million cubic feet is removed.

State of the Industry; Resources

- Wisconsin now manages over 7 million acres of third party certified (SFI, FSC, ATFS) forest land.

- Wisconsin is the #1 paper making state in the nation and has been for 50 years- Maine is a close second.

State of the Industry; Resources

Wisconsin has over 1,324 forest products companies

- 149 Sawmills
- 53 Veneer, Plywood, Eng.
- 433 Other Wood Products
- 282 Pulp & Paper
- 407 Wood furniture

Wisconsin Forest Product Industries

- **Number Companies 2008: 1,536**
  Number Companies 2009: 1,324

- **Number of Employees 2008: 65,694**
  Number of Employees 2009: 60,899

- **Total Payroll 2008: $3,059,383,000**
  Total Payroll 2009: $2,742,114,000

Source: Nacker

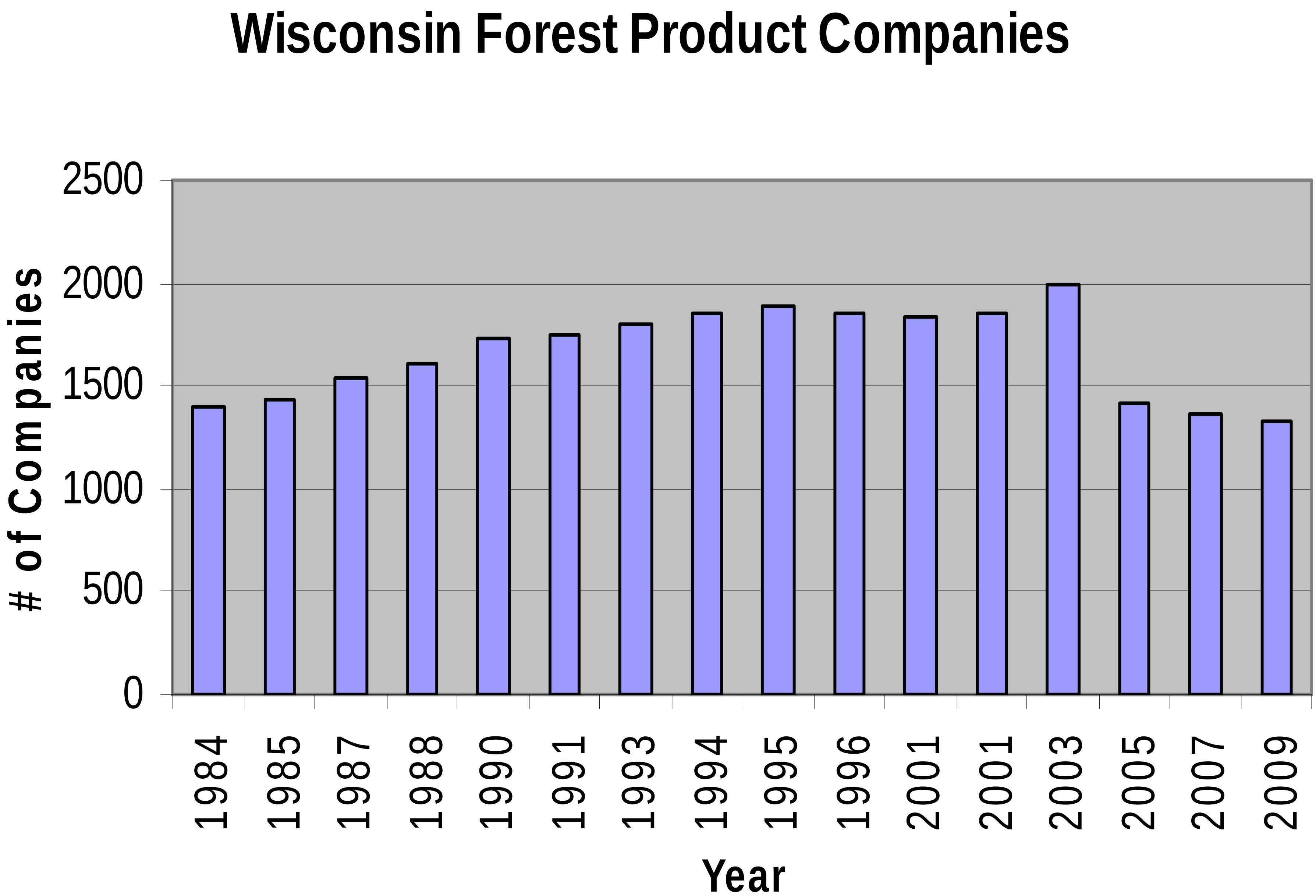
Wisconsin Forest Product Industries

- **Value of Shipments 2008: $20,467,801,000**

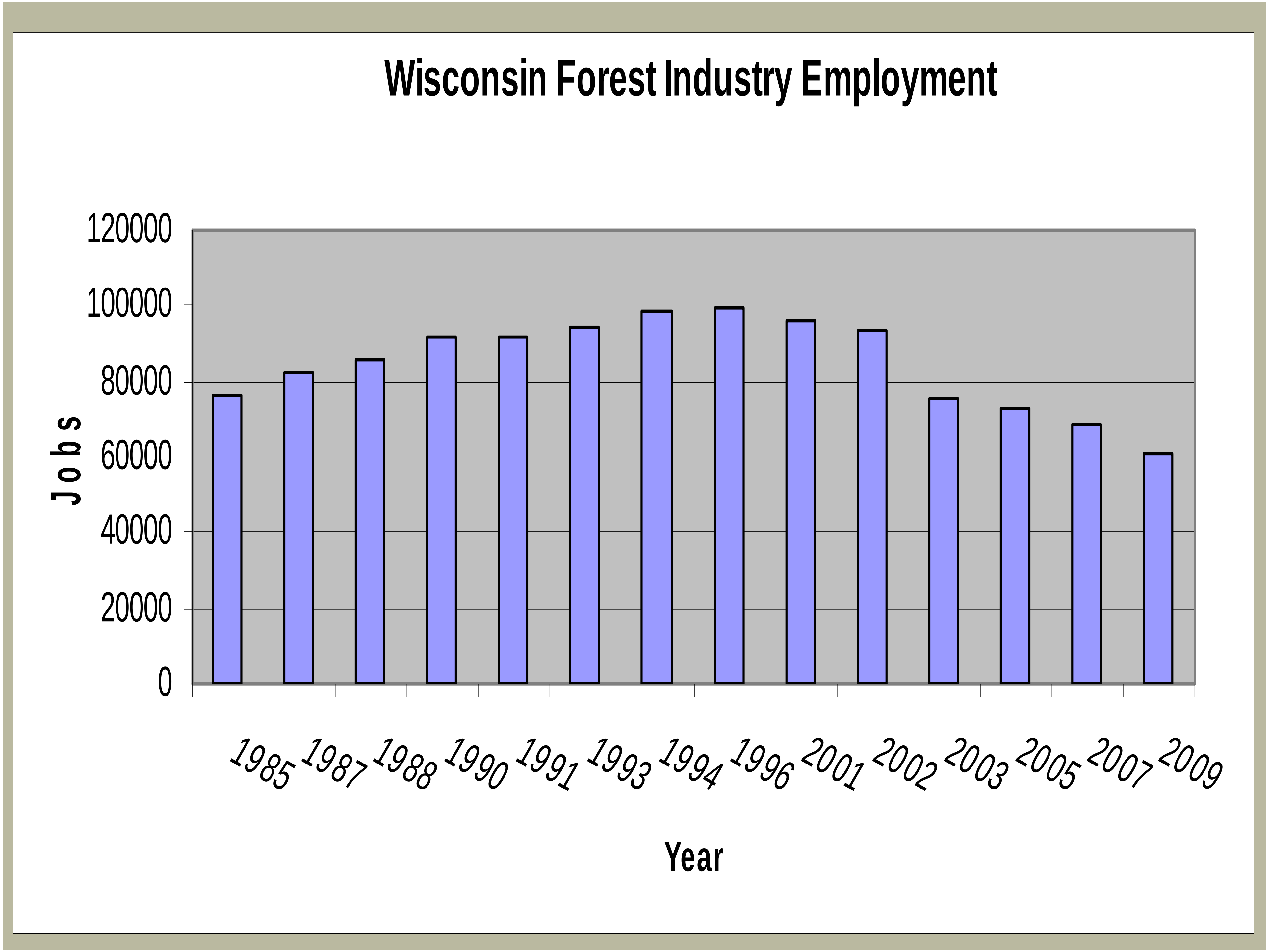
  Value of Shipments 2009: $17,907,522,000

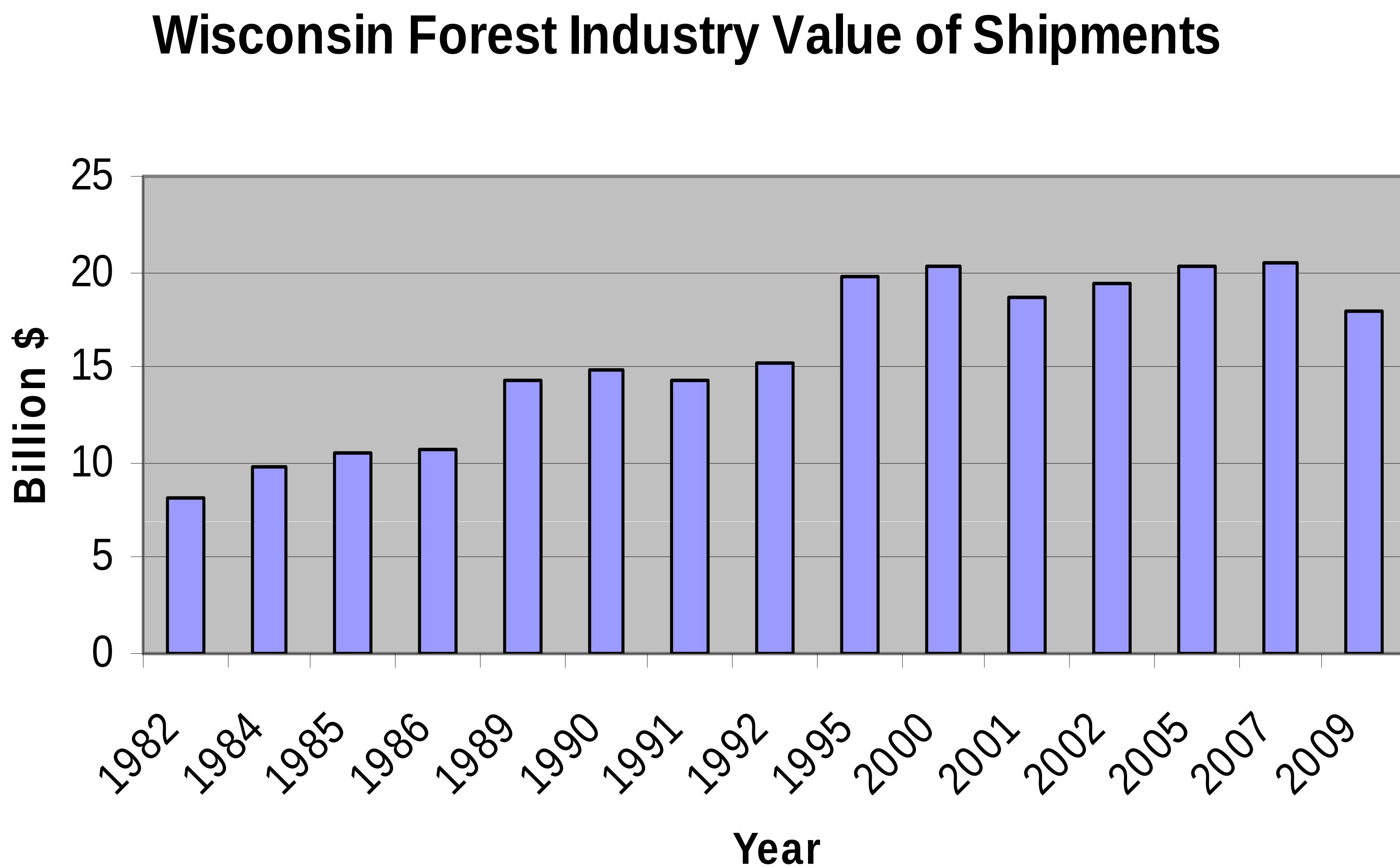
- **Capital Expenditures 2008: $711,208,000**

  Capital Expenditures 2009: $509,941,000

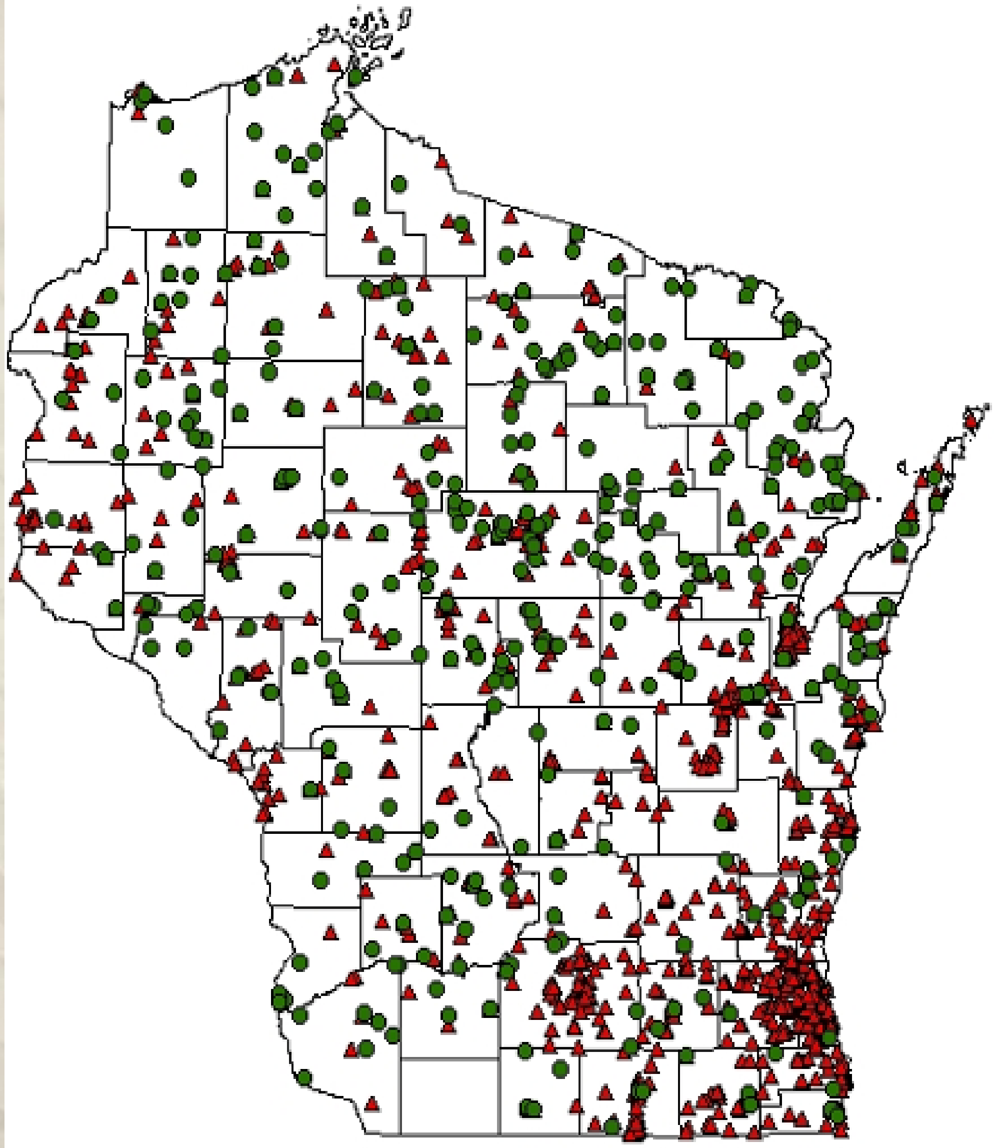


Wisconsin Forest Product Companies
# of Companies
2500
2000
1500
1000
500
0
1984
1985
1987
1988
1990
1991
1993
1994
1995
1996
2001
2001
2003
2005
2007
2009
Year


Wisconsin Forest Industry Employment
120000
100000
80000
60000
40000
20000
0
Jobs
1985
1987
1988
1990
1991
1993
1994
1996
2001
2002
2003
2005
2007
2009
Year


Wisconsin Forest Industry Value of Shipments
Billion $
25
20
15
10
5
0
1982
1984
1985
1986
1989
1990
1991
1992
1995
2000
2001
2002
2005
2007
2009
Year

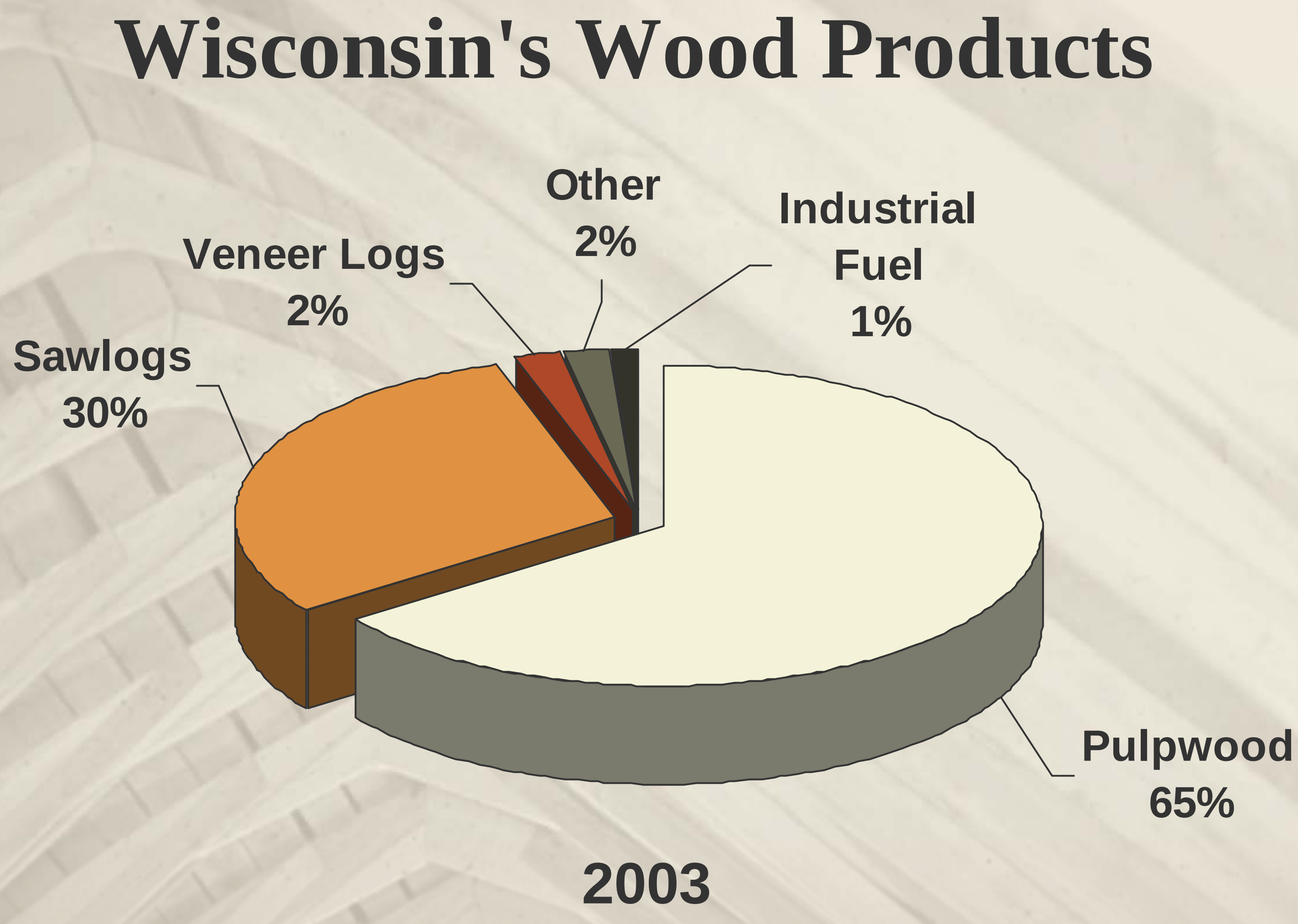
Forest Product Industry Locations



Legend

- ▲ Secondary Wood Industry
- ● Primary Wood Industry

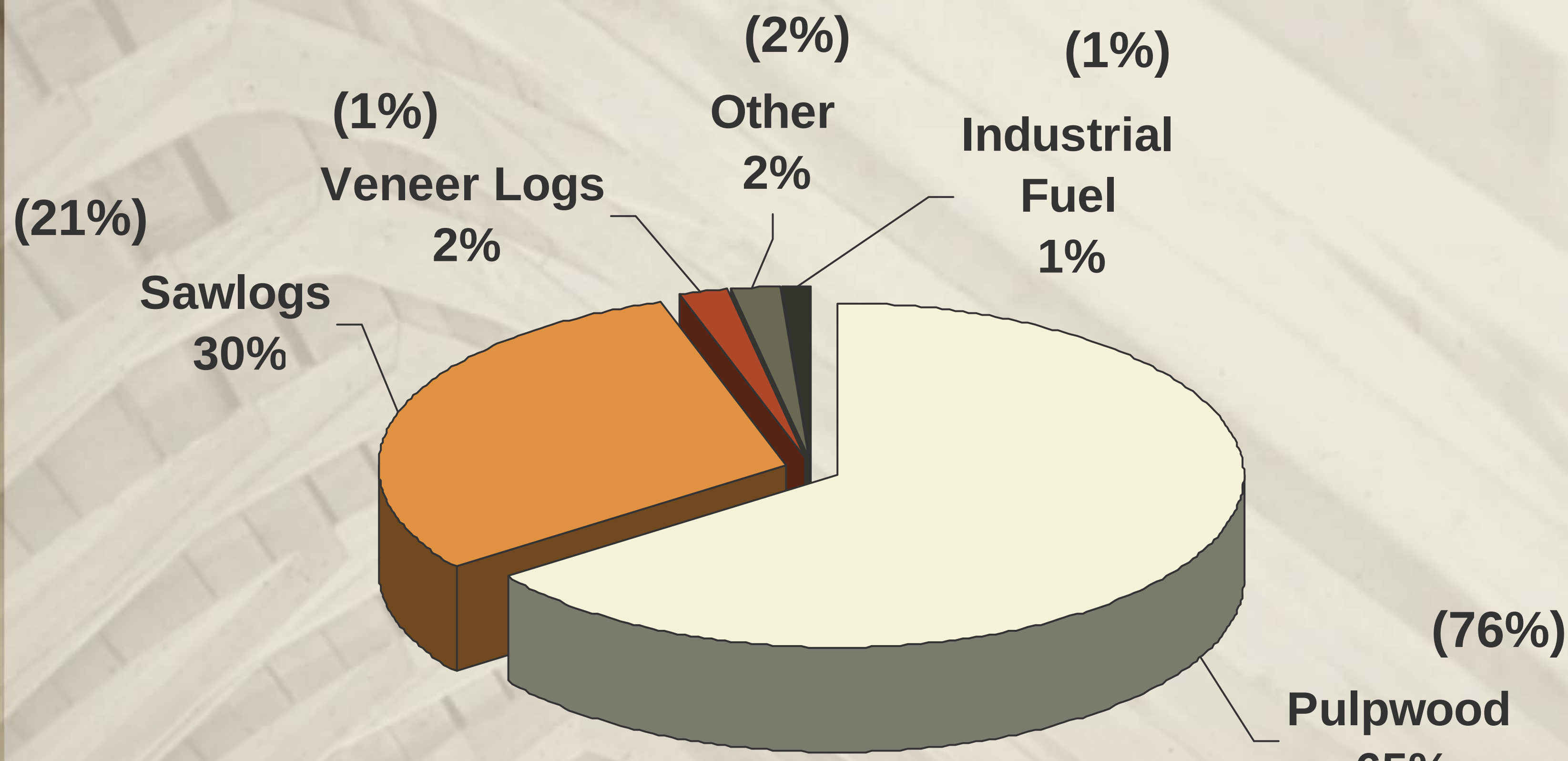
Traditional Products



(Source: Reading & Whipple 2003)

Traditional Products

Wisconsin's Wood Products



(2011 estimates)

Traditional Products

Subtle shift in consumption trend is deceiving:

Bottom line is a 36% decline in wood consumption from 2003!

Wisconsin Lumber Markets

Hardwood Lumber Production:

- Nationally
  - 12.8 billion board feet in 1999
  - 9.3 billion board feet in 2008
  - 6.5 billion board feet in 2009 estimated
  - 7.0 billion board feet in 2010 estimated
- Wisconsin
  - 448 million board feet in 1999
  - 328 million board feet in 2008
  - 164 million board feet in 2009 estimated
  - 200 million board feet in 2010 estimated

Growth in 2010 driven by an increase in export markets

Threats?

Why the reduction in Wisconsin wood consumption?

1. Globalized Marketplace
   - Labor
   - Environmental regulations
   - Careful here because some exports beneficial

2. Downturn in our domestic economy
   - Housing/Construction
   - Consumers extremely price conscious

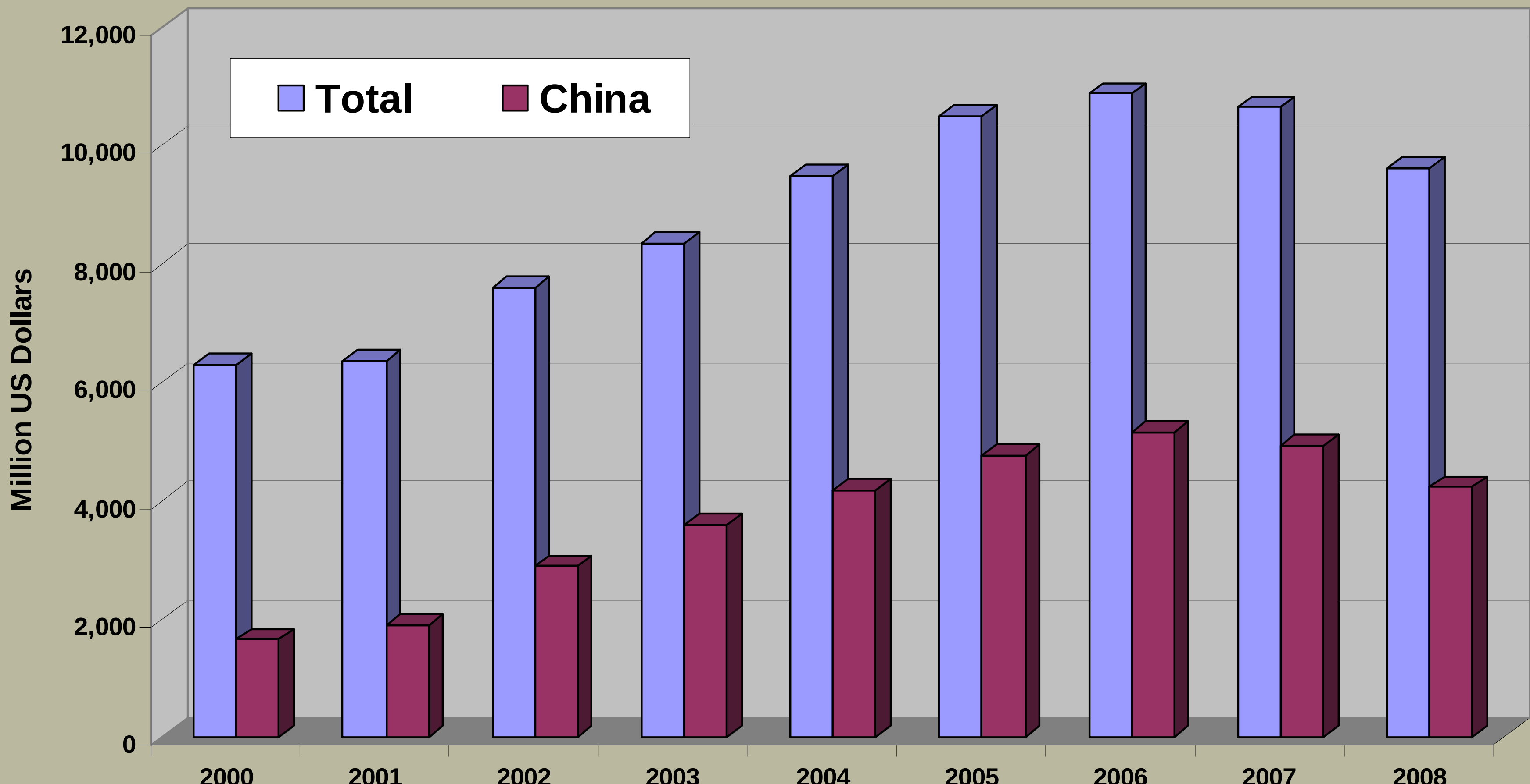
Global Impact

The secondary forest products market has been hit hardest by globalization.

Lumber News Since 1922

HARDWOOD MARKET REPORT

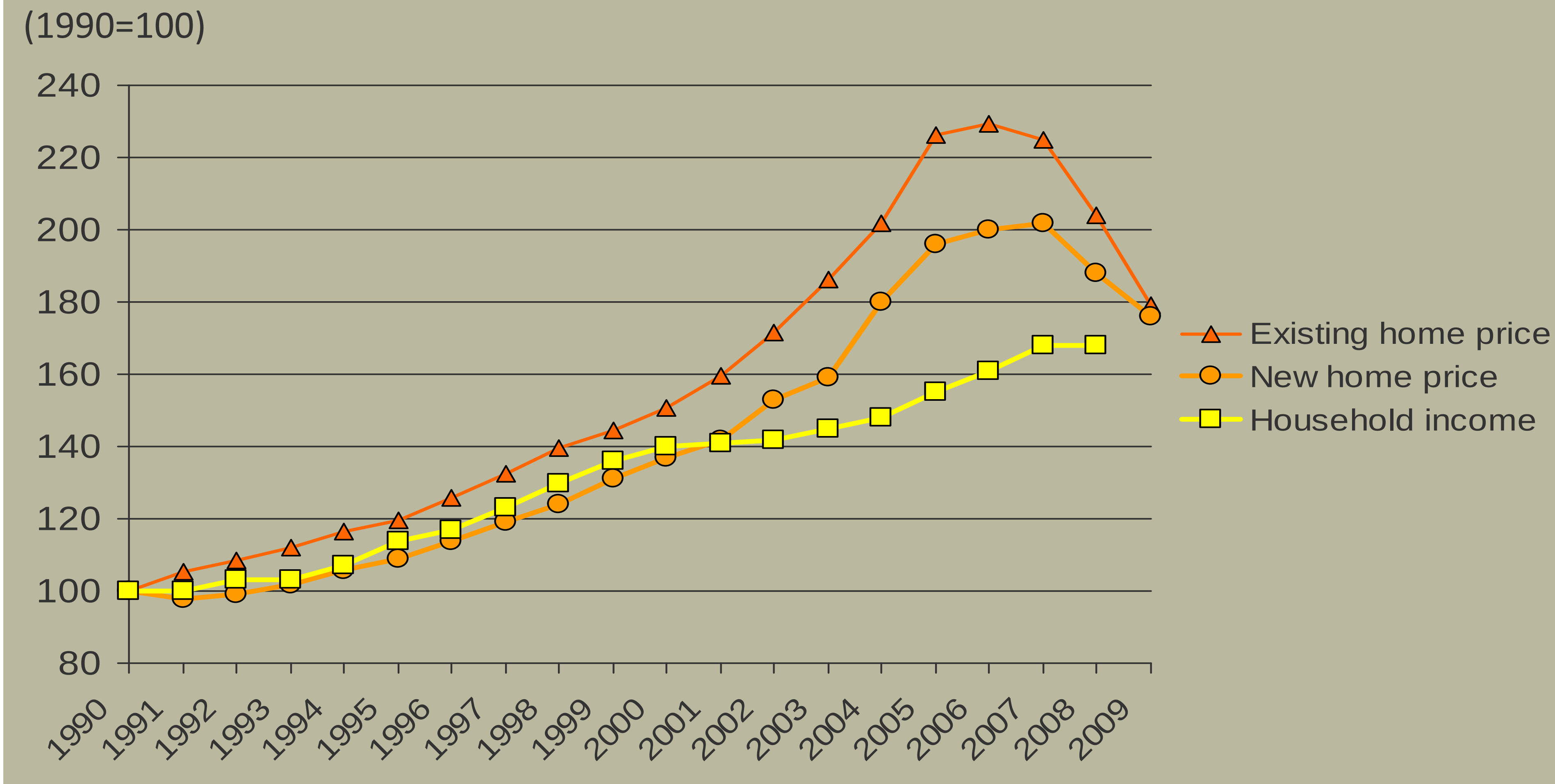
US Imports of Wood Household Furniture



Sources: US Dept. of Commerce and International Trade Commission

Graph: Hardwood Market Report

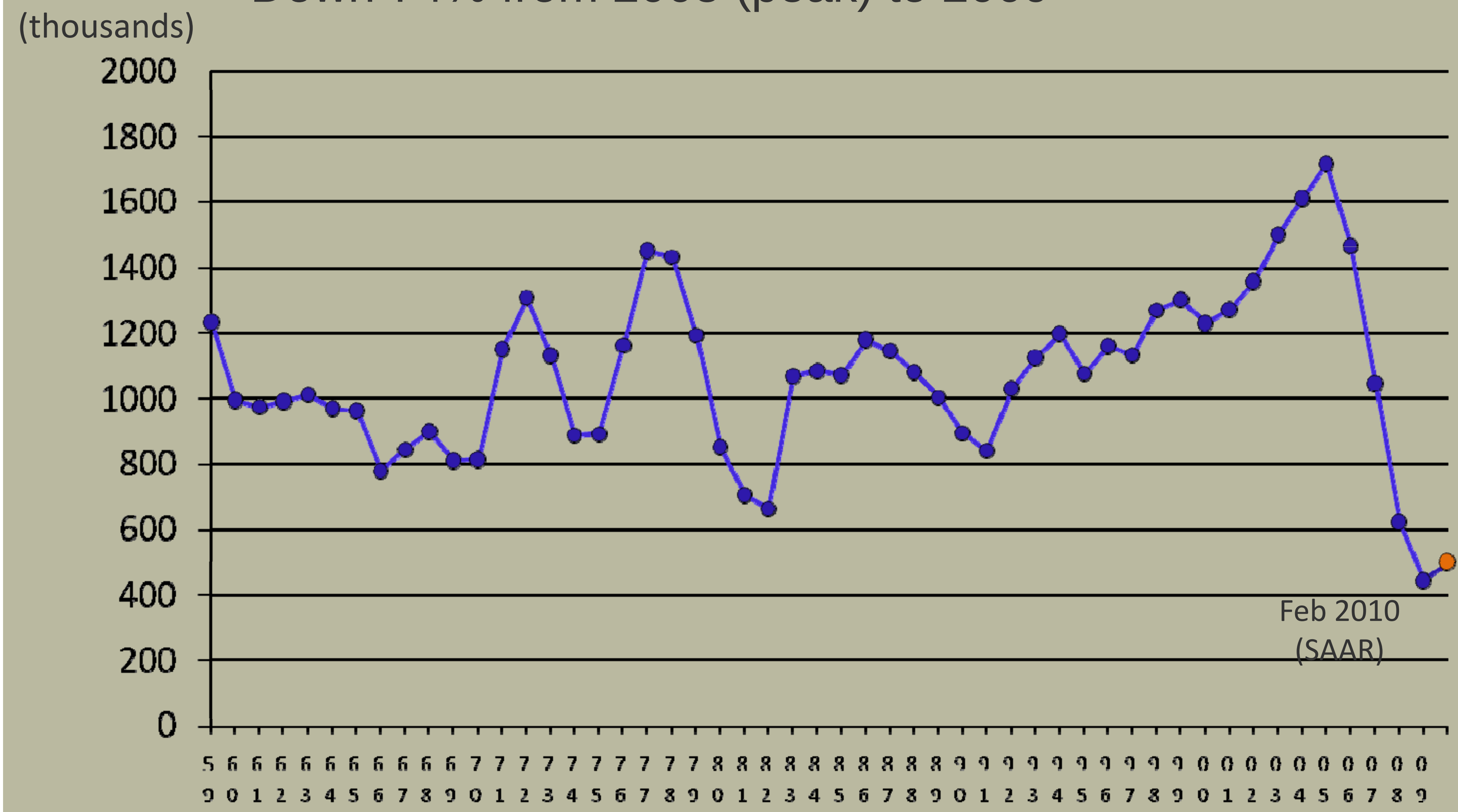
Trends in single family home prices and household income; home prices were increasing at an unsustainable rate:



Sources: Median income & median new home prices - U.S. Census Bureau; Median existing homes – Natl. Assoc. of Realtors

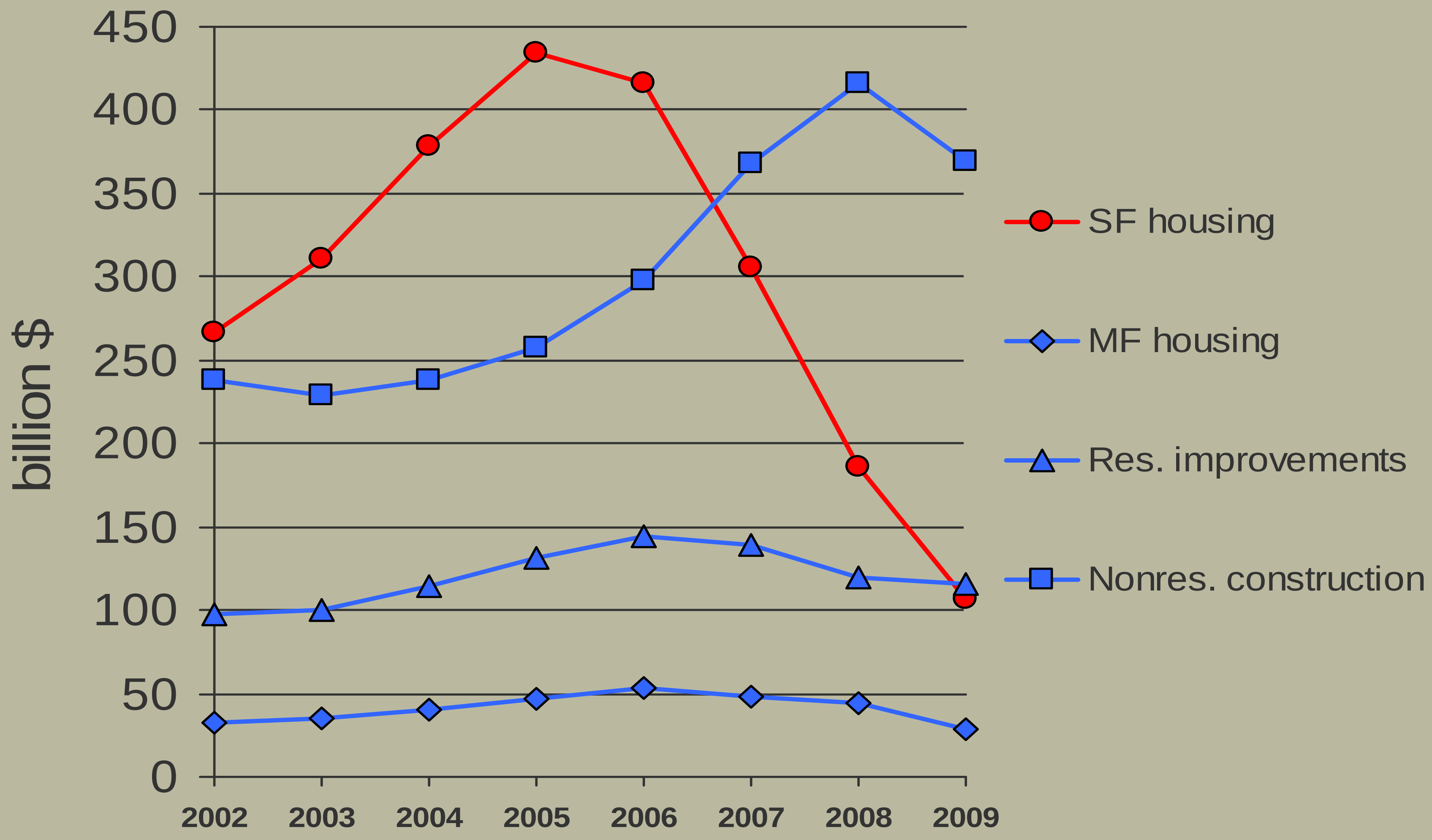
Single family housing starts

Down 74% from 2005 (peak) to 2009



Data source: U.S. Census Bureau

Value of private U.S. construction: 2002-2009



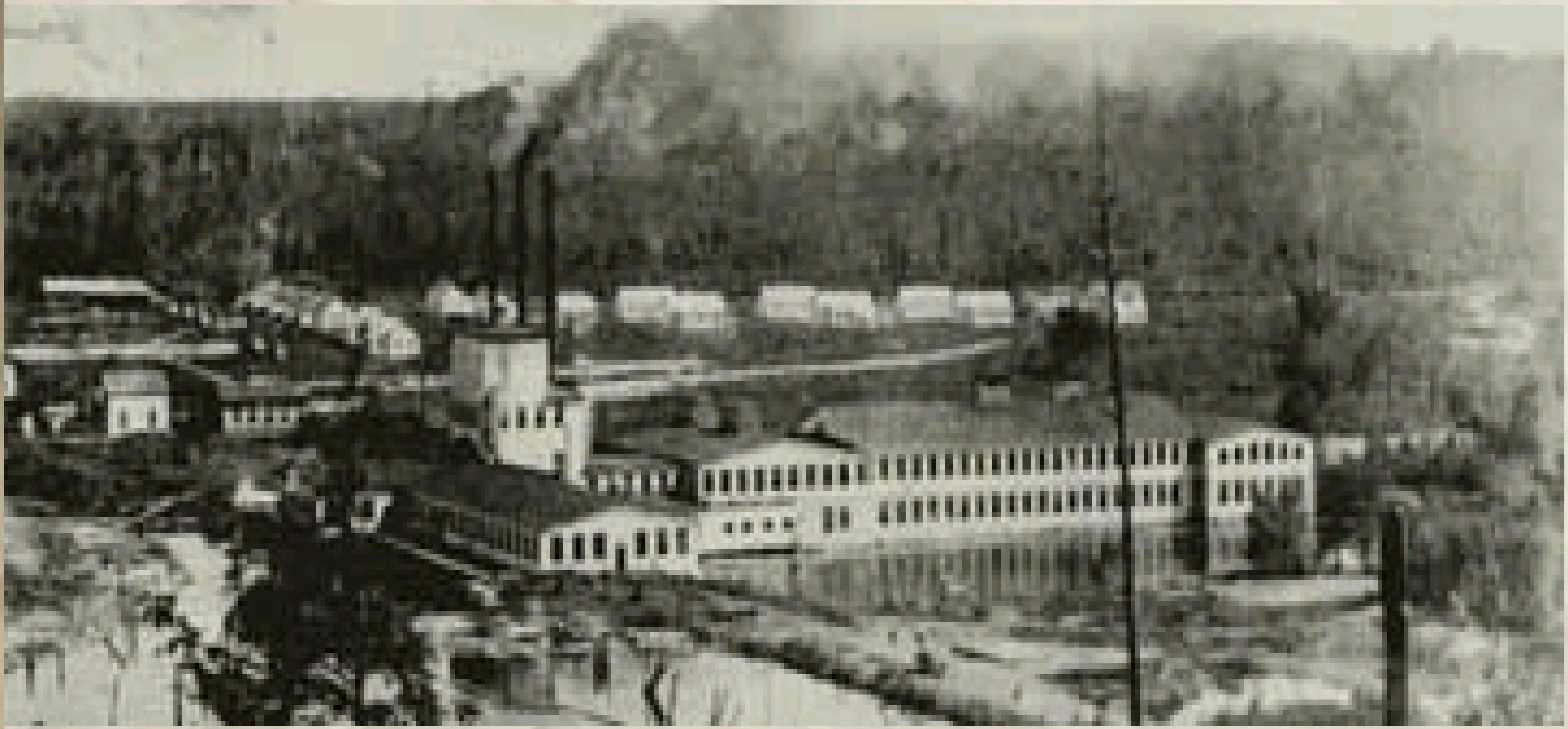
Data source: U.S. Census Bureau, *Annual Value of Private Construction Put in Place*

Opportunities

- Medium/high quality products- focus on quality resources we have and position them well
- Restore lost manufacturing? (juvenile furniture)
- New markets (wood fuel and bio-refining)
- High degree of customization
- Process improvement methods (Lean and JIT Manufacturing, etc.)
- Solid workforce and customer Service

Pulp Mill to Bio-Refinery

If our pulp mills are going to survive the current (traditional) marketplace they will need to become bio-refineries.



Pulp Mill addition of Bio-Refinery

- Flambeau paper and NewPage each received $30 million in federal grants to do bio-refining
- Flambeau paper has started entering into contracts in preparation of construction
- Flambeau still looking for investors

Woody Biomass

Potentially any portion of a woody plant in the forest can be called wood biomass:

- Residuals: tops, branches, cull logs and pulpwood, dead trees, etc.
- Dedicated crops
- Underbrush

Woody Biomass

- Biomass is and will be an increasing product from our forests
- How long development takes is the big question
- The general perception of what levels of biomass forests can provide are not the same as reality
- As this market develops additional new markets and room for innovation (i.e. Using wood pellets as animal bedding, changes in supply chain logistics, value added refining)

Woody Biomass

- Fiber may not stay cheap and prices need to increase so those supplying it can make a reasonable living.
- Automation, supply logistics, and efficiency are critical to reducing costs.
- As oil prices climb the biomass market will likely be more competitive with other methods of energy production.

Wisconsin’s Energy Needs

- If you could collect all logging residues it would amount to 2% of existing energy needs.

- If all forest growth was used toward energy it could only supply 8.7% of existing energy needs.

- This level does not allow for management, current demand or following BMP’s for biomass harvesting.

University Wisconsin System

- UW Madison plans to convert its Charter Street plant to biomass using about 200,000 dry tons per year to produce steam. SCRAPPED
- UW Stevens Point is planning a small biomass boiler 16,000 dry tons.
- UW Oshkosh is planning a small gasification system 16,000 dry tons.
- UW Superior is talking about a small biomass boiler- early in the process

Proposed Electrical Generation

- Domtar – WE Energies have proposed a 50 megawatt power plant for Rothschild.
- This would be a combined heat and power plant.
- Domtar buying about ½ the steam produced (exhaust from turbine). Procurement of the bio-mass would be done by Domtar.
- They are initially talking 500,000 green tons of fuel.
- Application has been submitted to Public Service Commission.

Proposed Electrical Generation

- Xcel energy was approved by the Wisconsin Public Service Commission to convert their Bay Front power plant in Ashland Wisconsin to use 250,000 dry tons of biomass.
- Currently operate 2 boilers

UPDATE: third boiler stopped due to unanticipated costs.

Proposed Electrical Generation

- DTE Energy Services Inc. purchased E.J. Stoneman power plant in Cassville.
- Wisconsin coal fired power plant is converting to a 40 megawatts biomass power plant.
- Using about 340,000 dry tons of biomass. Dairyland Power Cooperative has agreed to purchase all of the power. STATUS: operating

Wood Pellet Plants

Between 10-15 pellet plants in operation in Wisconsin- most are operating part time due to markets.

Another 10 are still looking into markets and manufacture.

With the prices of oil rising, we expect to see pellet markets improve.

Maximize Benefits

The impact to Wisconsin’s economy is significant

- Pulp and Paper
- Veneer
- Lumber
- Log Cabins, building material, millwork
- Value Added (Furniture)
- Biomass (fuel)

Summary

- Overall WI is doing better than many other states in retaining forest industries.
- Challenges facing the forest industry.
  - Global competition
  - Slump in the economy
  - Consolidations
- One company closing can devastate a town
- Look for new niche markets

Sources and Literature Cited

Hardwood Market Report.

Median income & median new home prices - U.S. Census Bureau; Median existing homes – Natl. Assoc. of Realtors

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Reading, William H. and James W. Whipple. 2003. Wisconsin Timber Industry: An Assessment of Timber Product Output and Use in 2003. USDA Forest Service Resource Bulletin NRS-19.

U.S. Census Bureau, Annual Value of Private Construction Put in Place.

US Dept. of Commerce and International Trade Commission.

Questions

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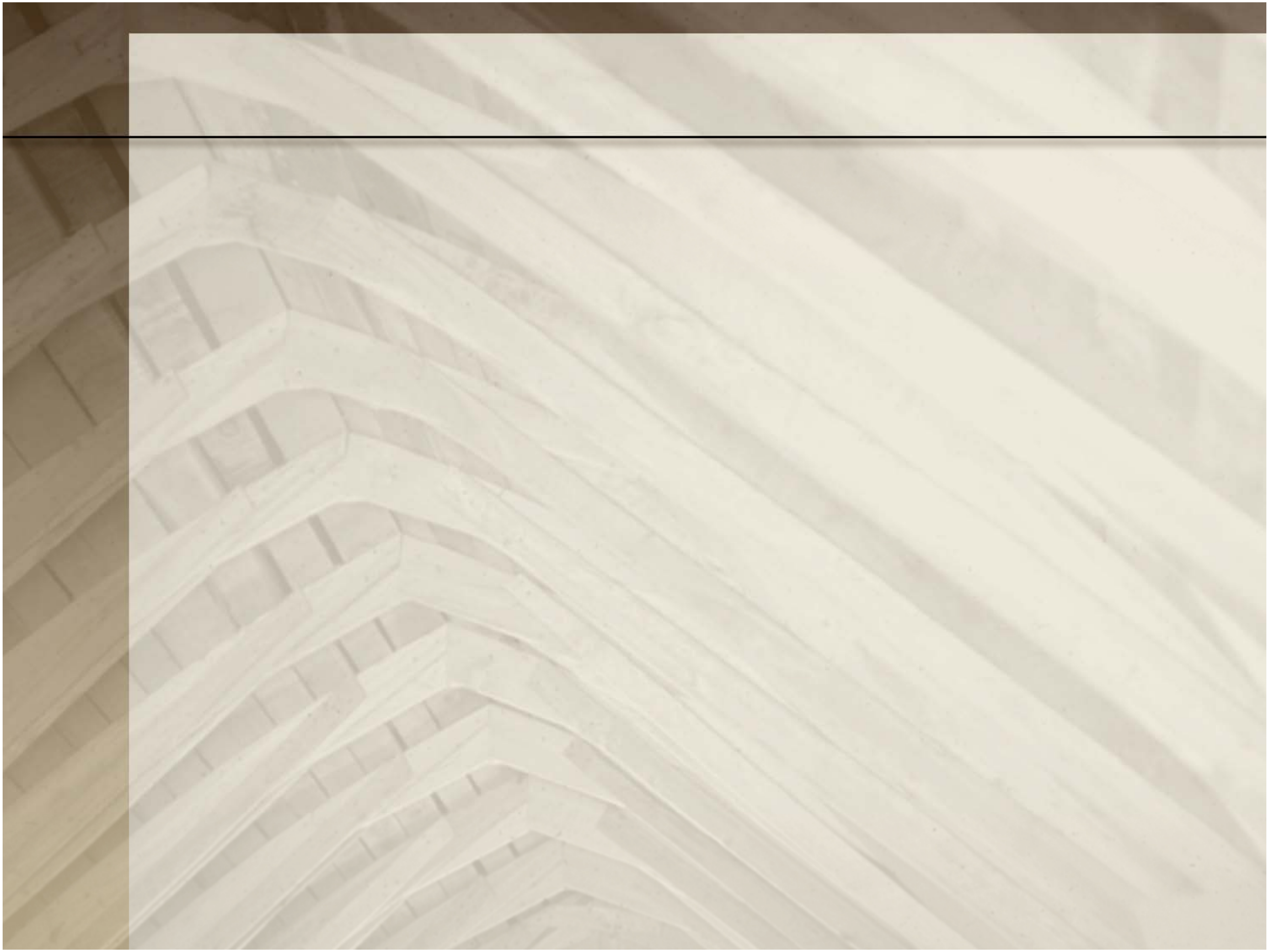
http://www.woodindustry.forest.wisc.edu

http://dnr.wi.gov/forestry/Publications/#usesof

http://dnr.wi.gov/forestry/newsletters



Wood Pellets

- Pellets need to have a feed stock MC of 10%
- Residential pellets can only contain 1% wood ash, which limits bark content in the feed stock
- Markets could become saturated as more plants go online
- Pellets sell domestically for $140 to $150 premium bagged a ton
- Pellets premium bulk $120 to $130
- Pellet industrial grade $110 to $130 (if you can sell it)
- Export markets can have prices over $220 delivered The cost to deliver is about $100 per ton
- Most successful industrial plants make pellets from mill residues which keeps raw material costs low

Wood pellets

- High energy prices have increased demand for wood pellet stoves.
- One new pellet plant was built in Peshtigo.
- Wood Pellets are in short supply globally.
- Several firms are considering putting in pellet manufacturing equipment in Wisconsin. The decrease in pulpwood demand and price has made these projects more viable.

Estimate of contribution by owner for 2008

Ownership Category	% of 2008 removals	Employees	Total value of shipments ($1000)
National Forests	5.9%	3616	$1,063,229
Tribal	4.7%	2871	$844,121
State	7.8%	4779	$1,405,337
County	25.5%	15543	$4,570,425
Industrial	11.4%	6934	$2,038,853
NIPF	44.6%	27157	$7,985,556
WI TOTALS	100.0%	60899	$17,907,522

Timber Trade Patterns

- 92% of the wood harvested in Wisconsin is used by Wisconsin manufacturers
- 6% of the wood harvested goes to Michigan
- Remainder goes to Minnesota and other states

Niche Markets

- The nature of existing forest products markets, particularly markets for specialty products, are changing.
- Competition and consumer demand have changed the manner in which firms must invest and market their products to compete within specific market segments.
- Forest product niche markets are increasing to meet that demand.

Technical Assistance

- Wisconsin has a strong technical assistance program for the forest industry.
- DNR Division of forestry, forest product specialists provide direct assistance along with two UW Extension forest products specialists.
- Help is also available from the USDA-FPL Technology Marketing Unit.

Technical Assistance (con’t.)

- Financial analysis spreadsheets have been developed for primary wood processors to help them make better decisions.
- Industry directories are maintained.
- Custom technical assistance is offered to companies.
- Resource assessment.
- Work shops, etc.