State of the North American Pulp & Paper Industry
– An Update & Outlook –

Unstable Times – Problems or Opportunities?
-- October 2005 --

Value Resolution Group – Dan Cenatempo AVA, CMC
Center for Paper Business and Industry Studies (CPBIS) – Jim McNutt
Overview

North America Pulp & Paper Industry -- Update & Outlook

- Where are We?
- Industry Performance
- Economy
- Grade-By-Grade Discussion
- Industry Spending
- Investment Decisions’ Drivers
- Wrap-up and Q&A
Outlook – Where Are We?

- A combination of increased foreign competition, rise of substitutes and economic recession drove down pulp and paper demand between 2000 and 2002.

- However, the North American pulp and paper industry is currently enjoying a modest cyclical rebound – helped greatly by:
  - Recent years capital constraints & capacity rationalizations through in part significant industry capacity closures
  - Improving domestic economic conditions
  - A weakened US dollar

- As a result -- supply is relatively in balance with demand and pricing power shifted back towards paper producers.
Outlook – Where Are We?

- But, this modest rebound is losing momentum and risk remains from:
  - Slowing *domestic demand growth*
  - Rising *international competition – but some changes evolving*
  - Substitution *pressure from alternative substrates & medias*
  - Aging *domestic asset base – requiring investment attention*
  - Nagging poor -- but improving -- *financial performance*
  - Lure of pent up expansion plans *in an improving market – risks of past behavior still overhanging*
  - One time events -- *such as hurricanes Katrina, Rita & Wilma*
Outlook – Industry Performance

- Creating shareholder value is the goal of the firm
- Successful companies continuously identify and successfully execute investments with returns greater than cost of capital
- The industry has not made target returns and, therefore not attracted necessary capital investment – but this could be turning . . .
- Performance has traditionally followed excess capacity and pricing – yet – as noted – we may be entering a new era here
- And note that – total shareholder returns have held up better than some standard industry benchmarks

Industry performance and shareholder returns are improving but still below the level required by investors to make a fair return at this time . . .
Outlook – Industry Performance

2005 Returns Are Improving – But Still 4 Points Below Target – Rational Investors Will Not Allocate Capital To A Poorly Performing Industry – Key Question = Is The Industry Situation Changing?

ROTC averages 6.7% vs. 11.0% cost of capital
Outlook – Industry Performance

Total Shareholders’ Returns Still Trail S&P 500

The S&P 500 Rebound Still Leaves Pulp & Paper Industry Shareholders Wanting – Underperforming The Index By 2-3 Points Per Year Since 1992
Outlook – Industry Performance

Financial Performance

- US industry financial performance has been poor on an absolute basis and persistently weak from the late 90’s through today – But as noted -- we are seeing improvements.

- These short-term performance improvements are a welcome relief for the industry but could be transient if industry management is again tempted to significantly increase major capacity oriented [instead of performance enhancing] capital investments.

- Further, ongoing pulp and paper facility closures will likely required to achieve improved financial performance.
<table>
<thead>
<tr>
<th>Real GDP Growth By Region</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advanced Economies</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US</td>
<td>1.9%</td>
<td>3.0%</td>
<td>4.4%</td>
<td>3.4%</td>
</tr>
<tr>
<td>Euro Area</td>
<td>0.8%</td>
<td>0.5%</td>
<td>2.2%</td>
<td>2.2%</td>
</tr>
<tr>
<td>Japan</td>
<td>-0.3%</td>
<td>2.5%</td>
<td>4.4%</td>
<td>2.3%</td>
</tr>
<tr>
<td>UK</td>
<td>1.8%</td>
<td>2.2%</td>
<td>3.4%</td>
<td>2.5%</td>
</tr>
<tr>
<td>Canada</td>
<td>3.4%</td>
<td>2.0%</td>
<td>2.9%</td>
<td>3.1%</td>
</tr>
<tr>
<td>Other Advanced Economies</td>
<td>3.6%</td>
<td>2.4%</td>
<td>4.3%</td>
<td>3.5%</td>
</tr>
<tr>
<td>Newly Industrialized Asian Economies</td>
<td>5.0%</td>
<td>3.0%</td>
<td>5.5%</td>
<td>4.0%</td>
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<tr>
<td><strong>Other Emerging Markets</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Africa</td>
<td>4.8%</td>
<td>6.1%</td>
<td>6.6%</td>
<td>5.9%</td>
</tr>
<tr>
<td>Central and Eastern Europe</td>
<td>4.4%</td>
<td>4.5%</td>
<td>5.5%</td>
<td>4.8%</td>
</tr>
<tr>
<td>Commonwealth of Independent States</td>
<td>5.4%</td>
<td>7.8%</td>
<td>8.0%</td>
<td>6.6%</td>
</tr>
<tr>
<td>Developing Asia</td>
<td>6.6%</td>
<td>7.7%</td>
<td>7.6%</td>
<td>6.9%</td>
</tr>
<tr>
<td>Middle East</td>
<td>4.3%</td>
<td>6.0%</td>
<td>5.1%</td>
<td>4.8%</td>
</tr>
<tr>
<td>Latin America</td>
<td>-0.1%</td>
<td>1.8%</td>
<td>4.6%</td>
<td>3.6%</td>
</tr>
</tbody>
</table>
# Outlook -- The Economy

NA Sectors That Directly Drive Pulp & Paper Demand Are Projected To Be Weaker Than Overall GDP – But Remain Positive

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Real GDP</td>
<td>All</td>
<td>2.5%</td>
<td>4.1%</td>
<td>2.5%</td>
<td>3.4%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Implicit Price Deflator</td>
<td>All</td>
<td>2.4%</td>
<td>1.6%</td>
<td>1.9%</td>
<td>3.6%</td>
<td>2.2%</td>
</tr>
<tr>
<td>Personal Consumption Expenditures</td>
<td>All</td>
<td>2.6%</td>
<td>4.4%</td>
<td>3.2%</td>
<td>3.1%</td>
<td>2.8%</td>
</tr>
<tr>
<td>Industrial Production</td>
<td>All</td>
<td>3.5%</td>
<td>6.0%</td>
<td>0.1%</td>
<td>3.7%</td>
<td>2.5%</td>
</tr>
<tr>
<td>Indust. Prod. - Non-Durables</td>
<td>Containerboard</td>
<td>1.8%</td>
<td>1.3%</td>
<td>-0.6%</td>
<td>2.2%</td>
<td>0.9%</td>
</tr>
<tr>
<td>Indust. Prod. - Durables</td>
<td>Packaging</td>
<td>4.9%</td>
<td>9.5%</td>
<td>0.7%</td>
<td>5.7%</td>
<td>5.3%</td>
</tr>
<tr>
<td>Food &amp; Beverage Sales</td>
<td>Boxboard</td>
<td>1.9%</td>
<td>3.2%</td>
<td>3.6%</td>
<td>5.0%</td>
<td>3.1%</td>
</tr>
<tr>
<td>Food services and drinking places</td>
<td>Tissue</td>
<td>4.8%</td>
<td>5.5%</td>
<td>6.3%</td>
<td>7.4%</td>
<td>2.9%</td>
</tr>
<tr>
<td>Computer &amp; Peripheral Sales</td>
<td>P&amp;W Papers</td>
<td>21.6%</td>
<td>5.2%</td>
<td>2.0%</td>
<td>15.0%</td>
<td>4.6%</td>
</tr>
<tr>
<td>Professional Employment &amp; Business Services</td>
<td>P&amp;W Papers, Tissue</td>
<td>3.4%</td>
<td>5.3%</td>
<td>-0.4%</td>
<td>3.4%</td>
<td>2.7%</td>
</tr>
<tr>
<td>US Households</td>
<td>Tissue, Building Products</td>
<td>1.2%</td>
<td>1.1%</td>
<td>0.2%</td>
<td>1.0%</td>
<td>1.0%</td>
</tr>
<tr>
<td>Housing Starts</td>
<td>Tissue, Building Products</td>
<td>2.5%</td>
<td>2.9%</td>
<td>5.5%</td>
<td>1.0%</td>
<td>-2.0%</td>
</tr>
</tbody>
</table>
Outlook -- The Economy

The Katrina – Rita – Wilma Economy Effect

- Reduce 2006 GDP from 0.6 to 2.0 pts
- Sustain high or increase energy prices
- Increase risk of recession
- Likely to drive down volume and prices in paper, packaging and market pulp grades in 2005 / 2006
- Will offset falling pulpwood demand with enhanced demand for structural timber and engineered wood products.
Outlook -- Grade-by-Grade Discussion

- North American Market
- NA Boxboard
- NA Containerboard
- NA Newsprint
- NA Printing & Writing Papers
- NA Market Pulp
- NA Tissue
- NA Recovered Fiber & Energy
The North American Pulp and Paper industry is a mature web of businesses generally characterized by:

- Highest per capita consumption in world across all grades
- Slower growth than real GDP
- High capital intensity
- Cost and price based competition
- Below cost of capital returns
- An aging asset base
- Cyclical pricing and profitability.

Historically, the North American industry expanded after each cyclical peak. Excess capacity was then been pushed onto international markets – This pattern has finally changed.
Outlook -- NA Market Overview

- Today the NA Industry business environment has stabilized due to a combination of factors:
  - A weakening US dollar
  - Rebounding domestic demand
  - Improving returns
  - Weakening competitiveness of European producers
  - Moderating industry growth in developing regions
  - Better understanding by industry leaders of the role of capacity and spending management

- This represents a substantive change from the recent years of persistent weakening overall market place conditions and demand as well as industry performance
Consequently –

As noted the demand weakness and oversupply of the past years have begun to reverse, and

Producers have been generally successful implementing price increases -- so far -- in this environment

The net result is a cyclical upturn in the US pulp and paper industry that could reverse circa 2006 / 2007
Outlook -- NA Market Overview

Total NA Paper & Board Consumption Has Resumed Growth – While Overall Capacity Is Now Relatively Flat
Outlook -- NA Market Overview

This has generated a much needed breath of fresh air for the NA Industry to take stock, and determine its path forward under more stable and positive circumstances . . .

Accordingly -- the North American industry does have a window of opportunity to further restructure and innovate to better compete in the changing global market looking out – but the business environment for such enhancement moves is transient – and time is likely essential.
Outlook – NA Market Overview

Both Industry Surveys And Projections Indicate That Capacity Could Begin To Grow Again Between 2005 And 2010 – But At A Much Lower Than Historic Rate And From A Reduced Base

<table>
<thead>
<tr>
<th>Grade Segment</th>
<th>Change in Capacity (Tons/Tonnes)</th>
<th>Compound Annual Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>NA Boxboard</td>
<td>-74</td>
<td>609</td>
</tr>
<tr>
<td>U.S. Containerboard</td>
<td>-1,292</td>
<td>1,516</td>
</tr>
<tr>
<td>NA Newsprint</td>
<td>-2,057</td>
<td>-2,328</td>
</tr>
<tr>
<td>NA Printing &amp; Writing</td>
<td>-1,221</td>
<td>-51</td>
</tr>
<tr>
<td>NA Tissue</td>
<td>800</td>
<td>131</td>
</tr>
<tr>
<td>NA Market Pulp</td>
<td>-352</td>
<td>532</td>
</tr>
</tbody>
</table>
Outlook – NA Boxboard

Boxboard is a weak but stabilizing NA segment --

- Slow growth in industries that consume boxboard, increased competition from overseas producers and widespread substitution by plastics and alternative packaging materials have hurt producers

- Profitability/returns are better than industry average despite these poor fundamentals due to a relatively concentrated supply base

- Facility closures have brought supply and demand in line

**Implications:** Slow capacity growth projected but relatively high risk of falling demand and additional facility closures.
Outlook – NA Boxboard

NA Boxboard Demand Growth Now Significantly Lags GDP – Bleached Board Growth Slightly Outpaces Recycled
Both Demand And Supply Have Resumed Growth But Will Take Several Years To Reach Historic Levels.
Outlook – NA Boxboard

NA Boxboard has consolidated & reduced excess capacity – but will be tempted to add capacity in the out-years if demand continues to grow.

Graph showing NA Boxboard - Excess Capacity (Short Tons 000s) and Box - % Excess Capacity from 1990 to 2010.

- 8% in 1991
- 9% in 1992
- 9% in 1995
- 6% in 1994
- 7% in 1998
- 7% in 2000
- 8% in 2002
- 9% in 2004
- 4% in 2006
- 5% in 2008
- 6% in 2010

- 0% in 1992
- 5% in 1994
- 6% in 1996
- 7% in 1999
- 5% in 2001
- 6% in 2003
- 5% in 2005
- 6% in 2007
- 5% in 2009
- 5% in 2010
Outlook – NA Boxboard

The Recent Rebound In NA Prices Is Faltering – Long-term Prices Continue To Trend Downwards
Outlook – NA Containerboard

This NA Containerboard segment has undergone one of the most extensive restructurings within the industry --

- Concentration of top producers has gone from one of the lowest to highest in the industry – improved capacity utilization and expansion discipline has followed
- Further acquisitions by large players will be difficult
- However, NA producers have lost export market to new overseas capacity, especially in China and Germany
- Profitability and returns are lower than industry average
- Slack capacity absorbed quickly with improved economy

Implications: Producers are expected to grow capacity slowly with demand – risks of further closures persist from loss of volume in export markets and to substitutes.
Outlook – NA Containerboard

NA Containerboard Demand Continues To Grow At A Rate Closely Tied To Domestic Non-Durables and Durables Production
Outlook – NA Containerboard

NA Capacity Is Expected To Be Well Controlled Relative To Demand
Outlook – NA Containerboard

NA Containerboard’s Excess Capacity Is Now Relatively In Balance
Outlook – NA Containerboard

NA Capacity Reductions Helped Containerboard Producers Maintain & Prices – But Normal Profits Are Not Yet Being Generated

Kraft Linerboard 42lb. Price ($ Short Ton)

- Real Price ($2004)
- Nominal Price
- Linear (Real Price ($2004))
Outlook – NA Newsprint

Newsprint is the weakest overall industry NA segment --

- Short-term publishing and printing declines have been exacerbated by substitution to alternative media
- National and local papers continue to reduce page size
- Newsprint is in decline in the long-term
- Opportunities for further consolidation exist and significant capacity reductions and grade conversions will continue . . .

Implications: Rational players will spend a minimum of capital and seek value added grade conversions. No new NA Newsprint mills are likely to be built -- at least by rational sector players . . .
Outlook – NA Newsprint

NA Newsprint Is A Declining Segment In Long-Term – A Short- to Mid-Term Improvement May Occur But Is Not Projected
Outlook – NA Newsprint

Demand, Capacity, Exports, & Shipments Are All Sliding Downward At A Relatively Quick Rate
Outlook – NA Newsprint

The Supply And Demand Situation Has Improved But Excess Capacity Remains.
Outlook – NA Newsprint

Capacity Reductions Have Helped Boost Prices -- But A Strong Downward Trend Persists

- Capacity Reductions
- Helped Boost Prices
- But A Strong Downward Trend Persists
Outlook – NA P&W Papers

Recent economic slowdown & alternative media substitution have impacted P&W demand negatively --

- Uncompetitive capacity being closed & modest demand increases will tend to reign in excess capacity
- CF, CGW, UCF & GW Grades have seemingly collapsed into one relatively inter-changeable/somewhat flexible grade structure from consumers’ perspectives
- In this context -- CF quickly became commoditized -- displaced by improved CGW grades -- changes still expected

Outlook – NA P&W Papers (cont.)

In addition -- high end uses -- auto brochures/annual reports -- are being replaced by website versions

- High volume UCF under pressure from overseas competitors, and Newsprint producers are converting capacity to UC and CGW grades creating serious downstream pressures for UCF across time

- Financial returns & growth prospects are similar to industry average & room exists for continued M&A activity

**Implications:** Certain segments will suffer net capacity reductions and the grade turmoil will continue to create an unstable overall grade-to-grade business environment.
Outlook – NA P&W Papers

P&W Paper

Demand Fundamentals
Began To Change In The Mid-1990s – Minimal And Risky Growth Is Expected Going Forward

Relative Growth Index (1990 = 1)

0.5
0.75
1
1.25
1.5
1.75
2

- Real GDP
- NA UCFS Demand
- Employment - WC Professionals
Outlook – NA P&W Papers

Rising Imports Have Slowed Shipments Relative To Domestic Demand And Further Capacity Rationalization Is Likely
Outlook – NA P&W Papers

Significant NA P&W Over-Capacity Persists – Sustaining A Difficult Market Condition
Outlook – NA P&W Papers

Collapsed Real Price Trends Continue Downward And Recent Pricing Improvements Have Been Disappointing
Outlook – NA Market Pulp

Market Pulp is an intermediate good in the production of the other paper and paperboard grades --

- Pulp Investment returns – *among the poorest* in the industry – *which in some circles is baffling* . . .
- Environmental restrictions – *new capacity additions difficult*
- International producers – *continue to import pulp competitively to US*
- DIP pulps presently *relatively more financially attractive* than virgin pulps

**Implications:** Some capital to be spent on integrated DIP facilities. Capacity will creep up with incremental improvement projects – *Wild card here is China’s fiber demand* . . .
Outlook – NA Pulp

Demand For Market Pulp
Follows Other Grades – But Watch China’s Needs and Demands Looking Out
Outlook – NA Pulp

Supply And Demand For Chemical Market Pulp Is Expected To Be Relatively Flat – But Again – Watch China’s Needs Evolve . . .
Outlook – NA BHKP

NA BHKP Capacity Is In Check But Is Expected To Creep Up Over Time – Increasing The Risk Of Capacity Closures
Outlook – NA BSKP

NA BSKP Is Carrying Relatively More Capacity Than BHKP – Making It More Sensitive To Swings In Demand
Outlook – NA Market Pulp

Market Pulp Prices Have Once Again Flattened & Long-term Fundamentals Still Not Strong Going Forward
Outlook – NA Tissue

Tissue is strongest overall segment in North America --

- End-product demand is mature – Americans highest per-capita consumers in world & incremental demand is slow
- Demand growth is slowing – but still expanding per capita
- However – overall company financial returns less sensitive to supply / demand dynamics at mill level than other grades
- Regulatory considerations will limit large M&A activity
- Both technology changes and new entrepreneurial entrants will drive spending
- Excess capacity is building – but likely to be absorbed

Implications: Segment may be losing some luster – is a day of reckoning coming or will historical market dynamics win out?
Outlook – NA Tissue

NA Tissue Has Innovated To Keep Demand Ahead Of Household Formation
Constraint is needed as capacity growth has recently outpacing demand – but some structural protections remain.
Outlook – NA Tissue

Excess Tissue Capacity Is Building But Will Moderate As The Rate Of Capacity Additions Slow

NA Tissue - Excess Capacity (Short Tons 000s)

NA Tissue - % Excess Capacity

Excess Capacity
% Excess Capacity


0% 5% 10% 15% 20% 25%

0 200 400 600 800 1,000 1,200 1,400

4% 6% 7% 8% 9% 10% 11% 12% 13% 14%

49
Outlook – NA Tissue

Recovered Fiber Is Creating Upward Cost Pressures Across Grades – & With China’s Needs – Pressure Expected to Sustain
Outlook – Energy – Oil and Natural Gas

$60+ Bbl Oil & $7/Mcf Natural Gas Will Create GDP & Industry Instability – But Also Raise Value Opportunity For Wood To Fuel . . .
US Industry Spending

*History – Issues – Directions*

- Capital Spending – Overview & Outlook
- Profitability & Capital Turnover
- ROTC Versus Cost of Capital
- Debt Levels
- Production Capacity Expectations
- Capital Spending/Depreciation
- Capital Spending Level
US Industry – Capital Spending

US capital expenditures will continue to be depressed by poor financial performance & slowing of capacity growth --

- M&A crowded out CAPEX on PPE last 5 years – Should ease within largest firms – antitrust constraints
- However, asset swaps & business-line spin-offs likely to accelerate + second-tier players consolidation
- There is risk that unexpected international acquisitions activity will interrupt capital spending patterns

Overall, net M&A impact should be better (less impacting) for CAPEX than the last 5 years – but not enough to offset weak investment fundamentals yet.
US Industry – Capital Spending

Combination of economic, pulp and paper market, and financial / investment realities drove US capital expenditures down from $8+ billion in 2000 to $6+ billion by 2001 --

- 2005 capital expenditures will fall again to $6 billion and then likely cycle between $6.0 billion and $8.5 billion through 2006
- The following table and graphs summarize these historical trends and projections
US Industry – *Capital Spending*

Capital Expenditures (CAPEX) On Pulp & Paper Property, Plant & Equipment (Nominal $ Millions)
US Industry – Profitability

Profitability Has Improved, But Continues To Trend Downward – And Is Expected To Weaken For the Remainder of 2005.
Capital Turnover Is Trending Downward Yet Also Has Rebounded & Trend May Be Flattening
US Industry – Debt Levels

Improved Debt Levels Are Still Constraining Needed Business Investments – Yet Debt is Now Much Lower Cost Than Equity
US Industry – *Production Capacity Expectations*

Total US Paper & Board Consumption *Is Resuming Growth* – While Overall Capacity *Is Relatively Flat*
US Industry – *Capital Spending/Depreciation*

US Capital Expenditures Remain Significantly Below Depreciation Levels – But Seem To Have Stabilized
US Industry – *Investment Decisions’ Drivers*

Attractive Opportunities = More Likely To Invest

- **Strong ROTC** = Proven capability to identify/execute value creating projects – more likely to attract & invest capital than poor performers

- **Good Outlook Product Mix** = More likely to invest (i.e. tissue, selected P&W) than poorly performing segments (i.e. boxboard, newsprint, UCF, market pulp)

- **Geographic Mix** = Firms in Higher growth geographic markets (i.e. Asia & Latin America) more likely to invest than US and Canadian (and now some European) focused players
US Industry – Investment Decisions’ Drivers

Greater Capital Availability = More Likely To Invest

- **Debt-To-Capital Ratio** = High debt % – the more likely to divert cash to lower debt instead for capital expenditures
- **Debt Capacity** = Low debt % – creates real opportunities to use *new low cost debt* for innovative investment moves
- **Cash Flow Available For Reinvestment** = More cash generated by operations, the more funds *typically invested in the business* & to stimulate investors
Recap & Final Thoughts

- U.S. Pulp and paper industry demand peaked circa 2000 – closures will continue at a slower rate but best facilities will remain strong.

- Will take years to reach 2000 levels again – if ever.

- Pulp and paper NOT likely to be a source of growth for wood demand with current products.

- However, complete replacement by offshore producers unlikely due to U.S. wood resources and large absolute market.

- Construction boom won’t last forever…

Forestry industry needs to innovate alone or in conjunction with pulp and paper to develop new products and markets (i.e. bio-refining).
Recap & Final Thoughts

The essential focus we should have at this place in our industry’s path forward is that the future is ours to create – timidity will undermine our efforts . . .

And . . . In this context – our challenge is really to seize the opportunities instead of simply enjoying our respite – to innovate and restructure in new and novel ways . . .
And Remember . . . .

Even though the Current Industry State of Affairs is Still Unstable & Many Systemic Problems Remain -- As that Famous Arm Chair Philosopher Ziggy Once Said . . . .

“You can Complain Because Roses have Thorns, or you can Rejoice Because Thorns have Roses”
Recap & Final Thoughts

Thank You! -- Copies Available At

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