

Global Dynamics of the Pulp and Paper Industry - 2009

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Actions taken in one part of the world will impact somewhere else

Examples

1.China's manufacturing output is highly dependent on the purchase of consumer goods in the United States ... a recession in the USA has consequences in China

- Impact: less demand and production of linerboard in China**
- More Chinese linerboard shipped to West Coast USA**

2.Russia has imposed tariffs on log exports to Finland

- Impact: Finland pulp mills will become non-competitive in wood cost and some mills will have to close**
- Impact: world pulp supply will decrease; prices will rise**

3.World financial markets and currency exchange rates are fluctuating wildly on the world market

- Impact: investments likely to be curtailed**

•These changes do not occur instantaneously but have major impact in the Long Run

Main Points

- 1. Demand patterns for paper in the United States signal a permanent shift in consumption**
 - *Packaging outlook more favorable*
- 2. International competitors have their own problems**
 - *In some cases their problems will become our problems*
- 3. There are a limited number of solutions to the impending crisis for USA pulp and paper mills**
 - *And a limited number of survivors*

1. Demand patterns for paper in the United States signal a permanent shift in consumption

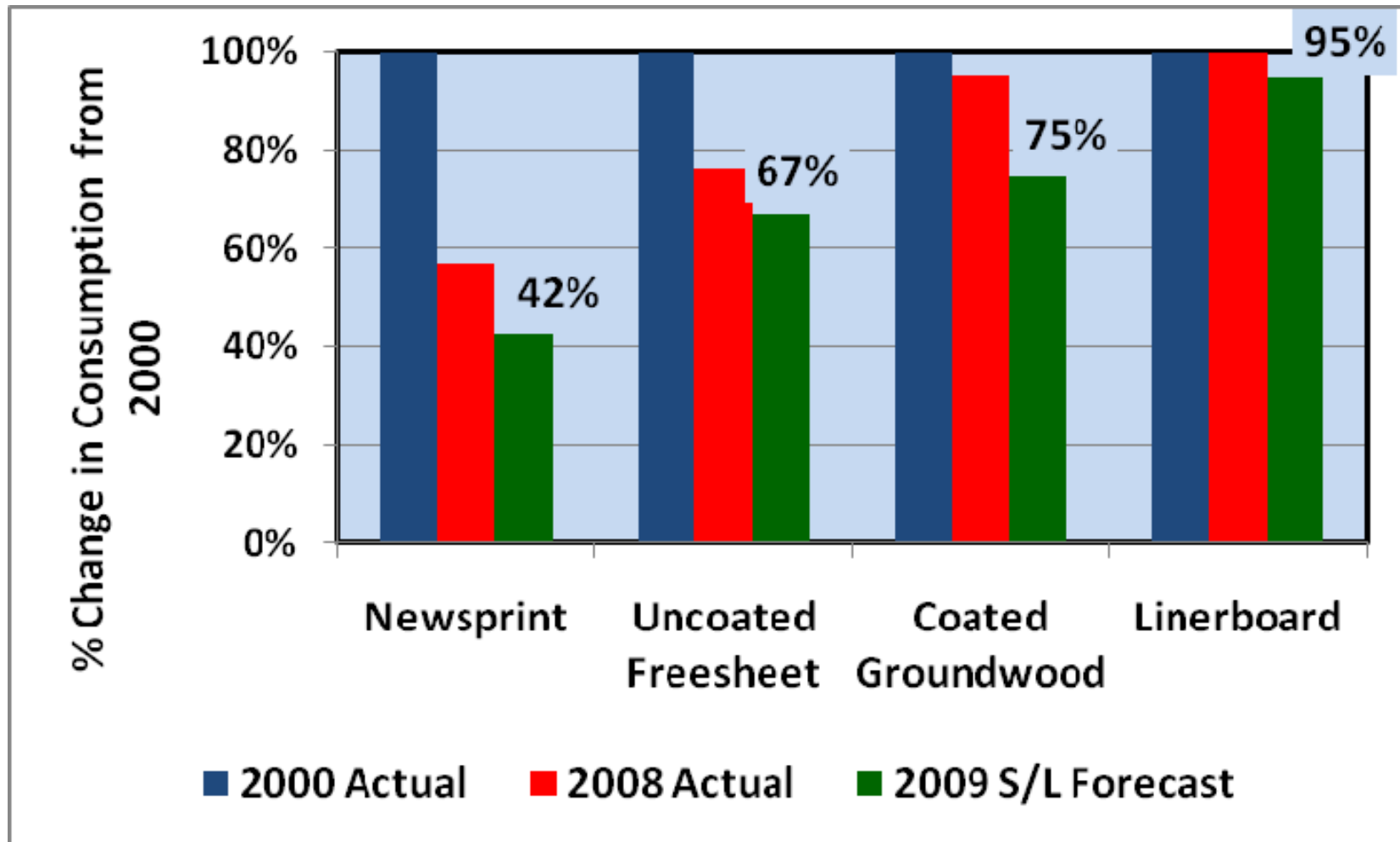
A. Review Demand trends in the United States

B. What's behind the change

C. What the consequences of the change will be

Change in Demand of key paper grades

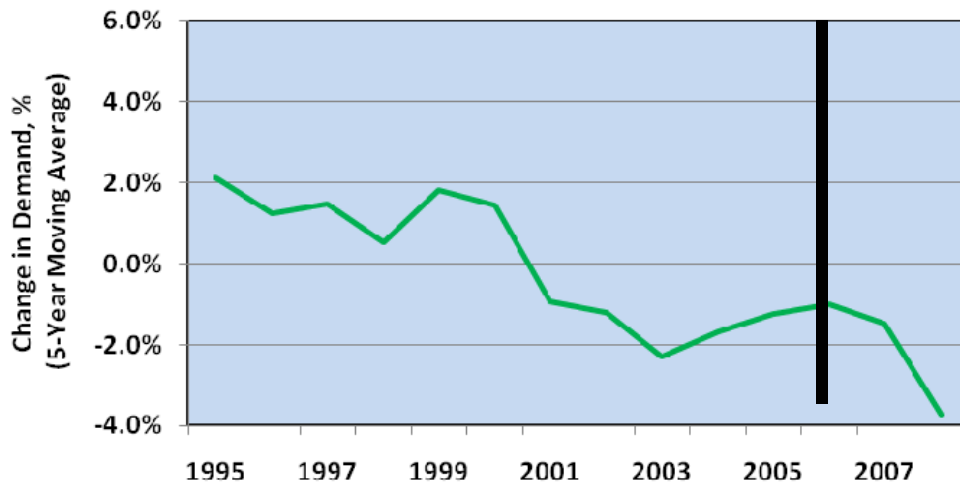
2009 may be down 15 Million tons from 2000



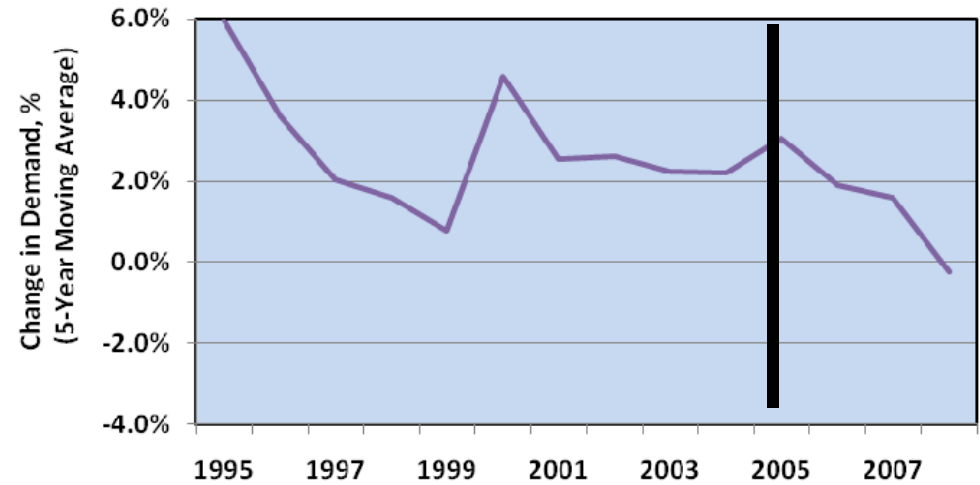
Linerboard down – but holding its own for the moment

Consumptions trends turned south well before the current recession

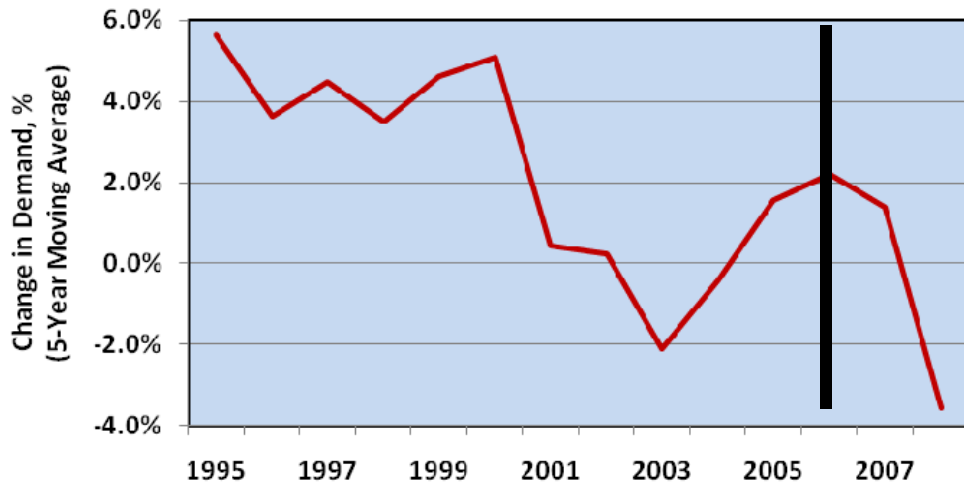
Uncoated Freesheet



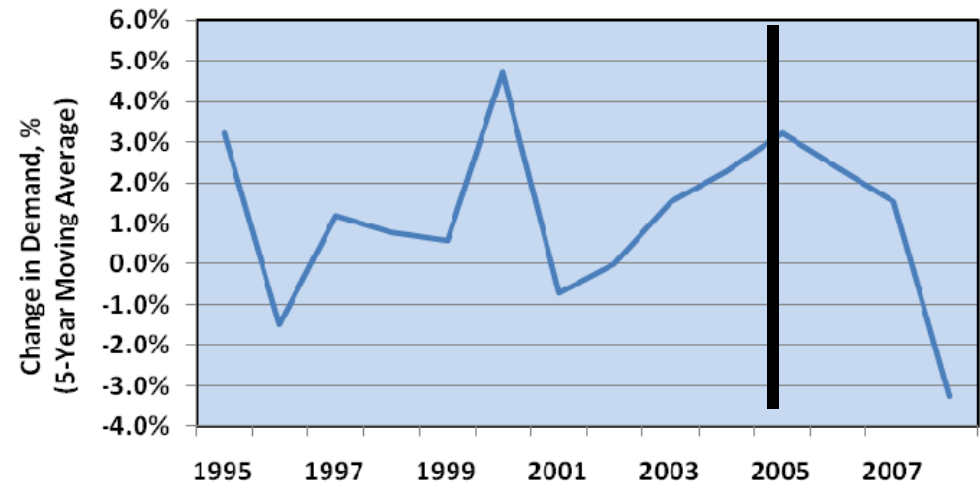
Uncoated Mechanical



Coated Freesheet



Coated Mechanical



How Green i\$ Green?

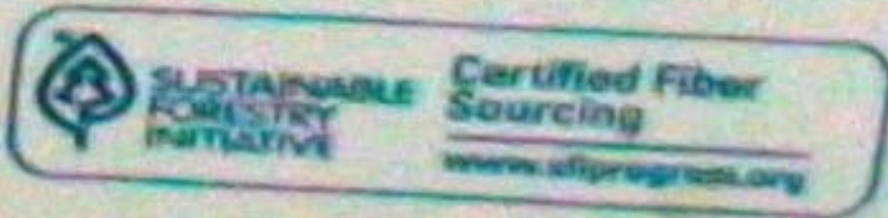
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Postal Patterns



- **Mail received during August, 2009**
 - ***~50 pounds or 600 pounds per year for family of 2***

Catalogs



- **Approximately 1/3 of total**
 - ***Seldom looked at, never used***

Advertisements



- **Approximately 1/5 of total**
 - ***Irony is less than 10% is ever opened (only those who are cleverly disguised as a check)***

Bills



- **15% of Total**
 - ***Always looked at***
 - ***All paid electronically***

Legal



- **~15% of total**
 - ***Seldom looked at***
 - ***Biggest item is 200 pages of life insurance policy boilerplate***

Personal Letters



- One “thank you” note

Fair or not, what I heard is that newspapers are shooting themselves in the foot

90% of newspaper journalists consider themselves "Liberal"

OP-ED COLUMNIST

Boy, Oh, Boy

By MAUREEN DOWD

Published: September 12, 2009

WASHINGTON



Fred R. Conrad/The New York Times

Maureen Dowd

[Go to Columnist Page »](#)


The normally nonchalant Barack Obama looked nonplussed, as Nancy Pelosi glowered behind.

Surrounded by middle-aged white guys — a sepia snapshot of the days when such pols ran Washington like their own men's club — Joe Wilson

But "X" did not mean "Y" and "Z" did not mean "A."


But, fair or not, what I heard was an unspoken word in the air: You lie, boy!

Republican backbencher from South Carolina who had

 COMMENTS
(844)

 SIGN IN TO E-MAIL

 PRINT

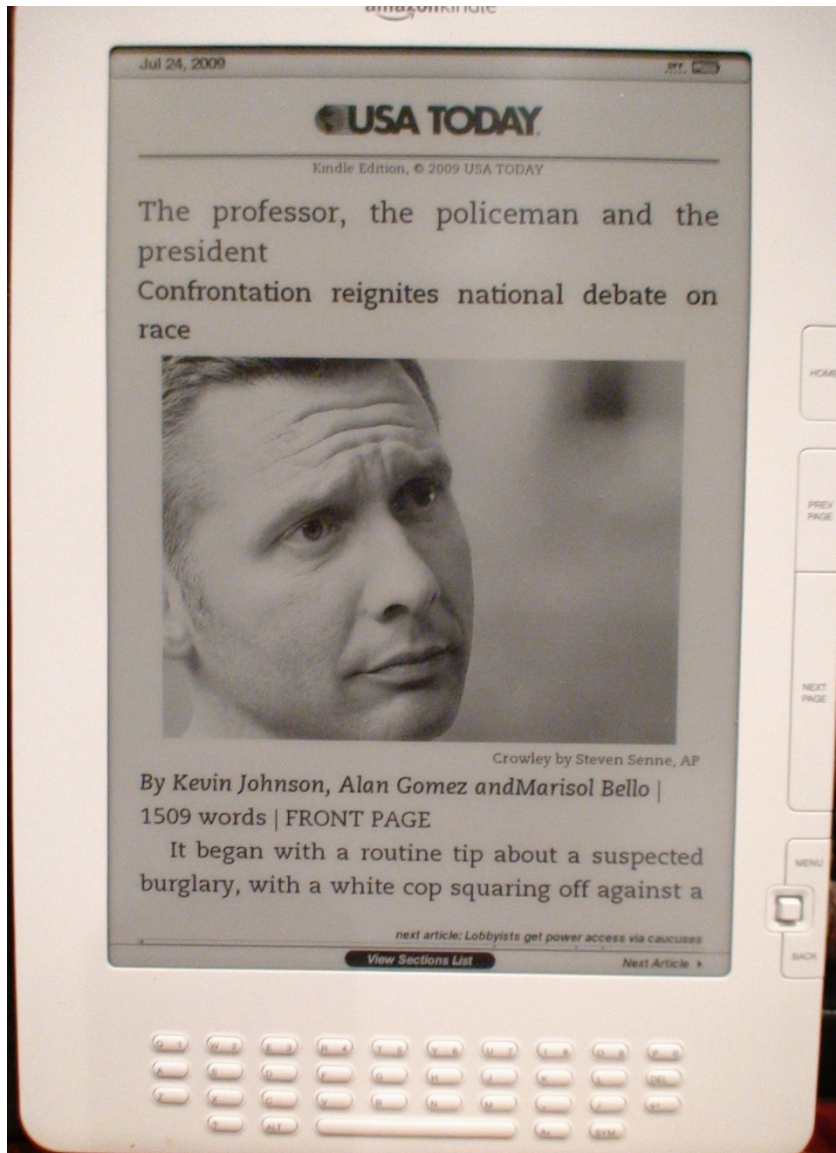
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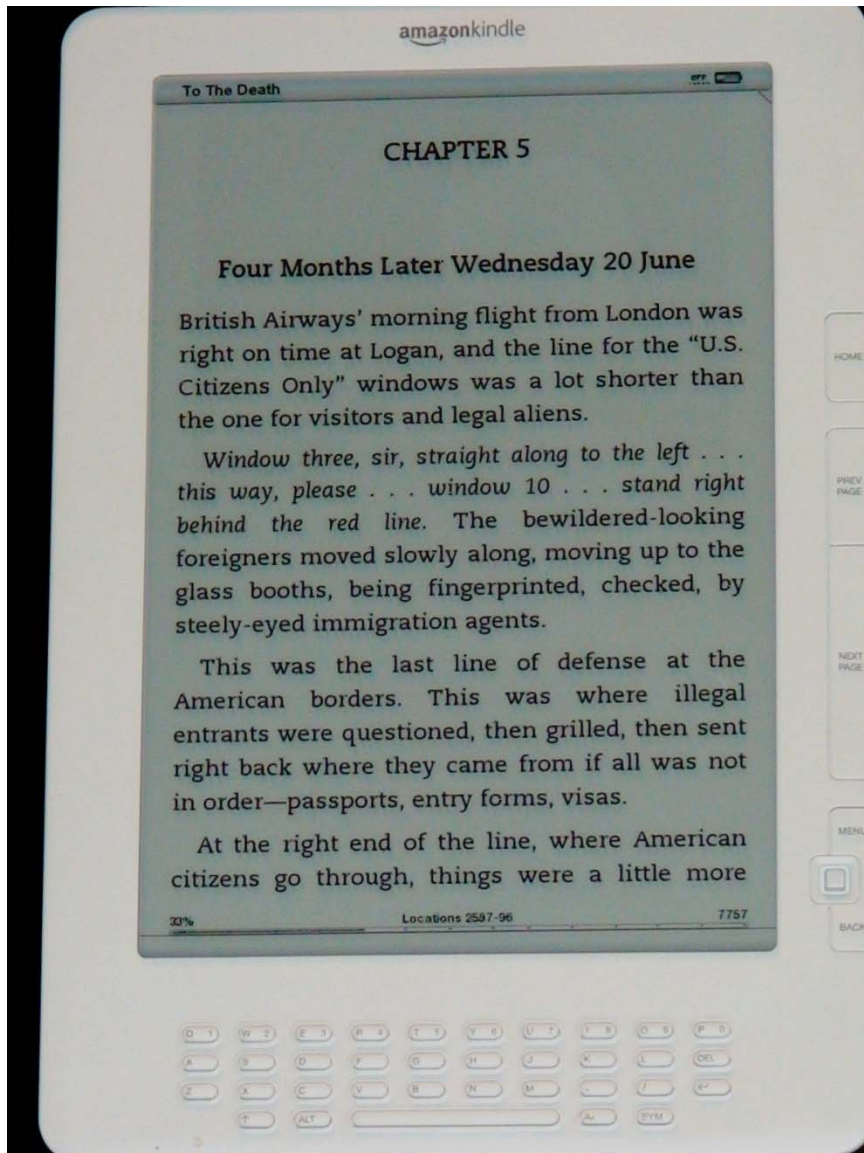
The future of newspapers

(sound here now – color and video to follow)



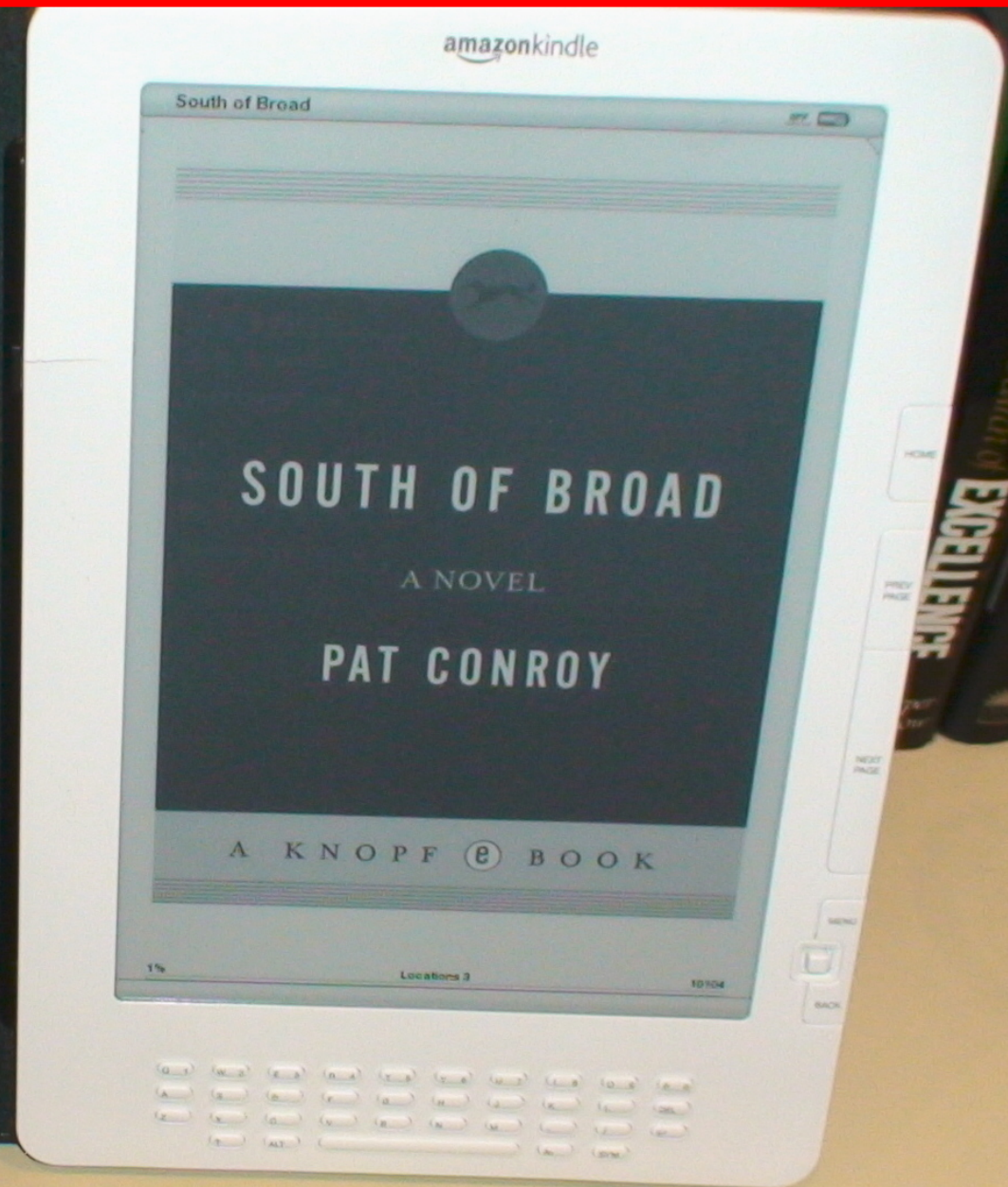
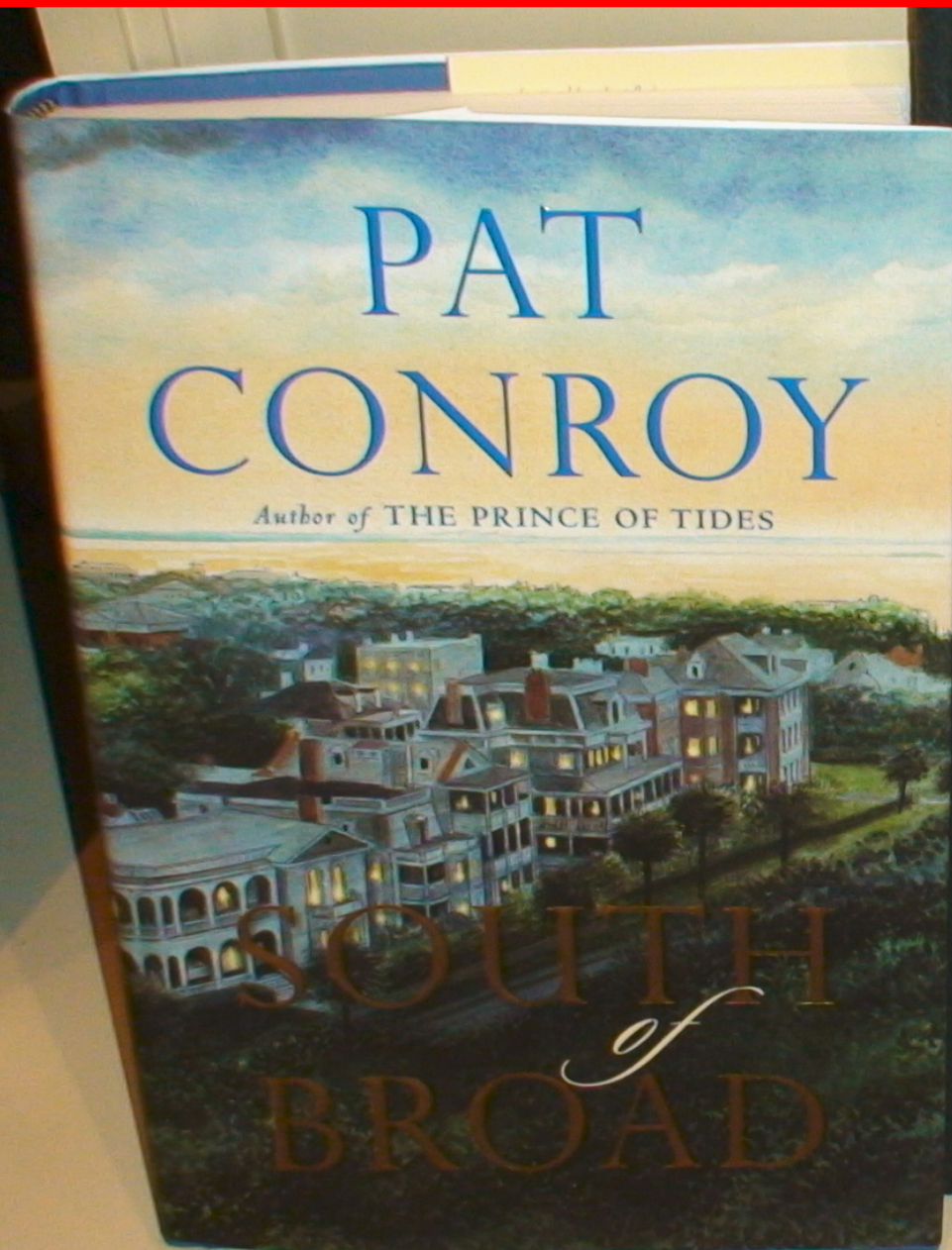
- Downloaded in less than 1 minute in Siberia

Amazon Kindle



- **Electronic readers final nail in newspaper coffin?**
- **First nail in the paper book publishing coffin?**

Print trumps pixels for visual appeal



Price Trumps Color

PRAISE FOR BEACH MUSIC

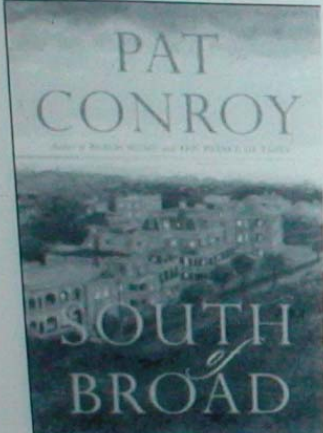
"Astonishing . . . stunning . . . the range of passions and subjects that brings life to every page is almost endless."
—*Washington Post Book World*

"Incandescent." —*Atlanta Journal-Constitution*

"Breathtaking . . . perhaps the most eagerly awaited book of the year . . . a knockout."
—*Charlotte Observer*

"Few novelists write as well, and none as beautifully . . . Conroy's narrative so fluid and poetic that it's apt to seduce you into reading just one more page, just one more chapter."
—*Lexington Herald-Leader*

Richard's Kindle



South of Broad
by Pat Conroy

Publisher's Digital List Price: \$29.95

Print List Price: \$29.95

Kindle Price: \$9.99*

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* Includes free wireless delivery via Amazon Whispernet

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Publisher: Nan A. Talese
Published: Jul 28, 2009
Print Length: 528 pages
Text-to-Speech: Not enabled

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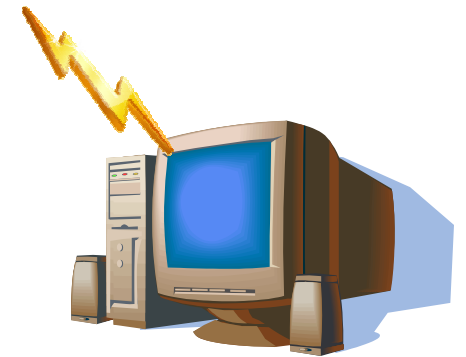
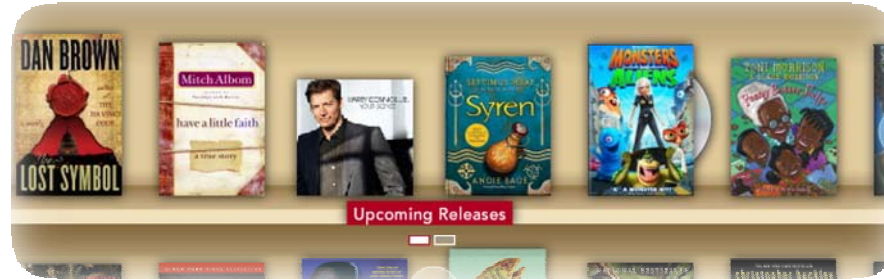
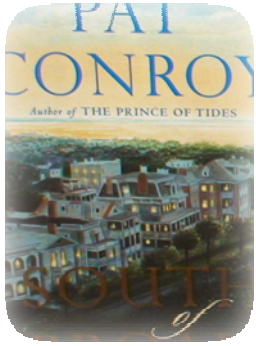
Fiction/ Lit 2213

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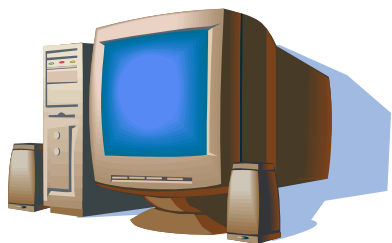
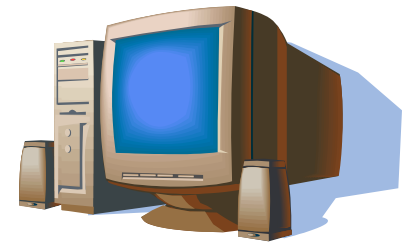
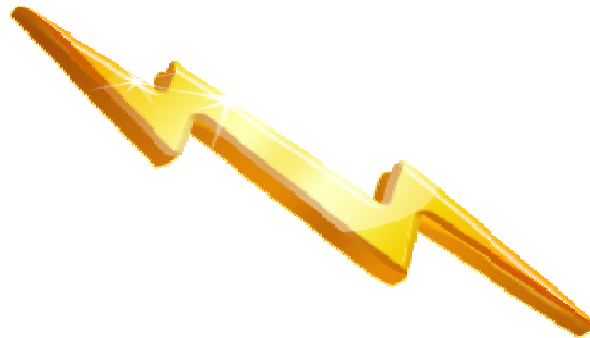
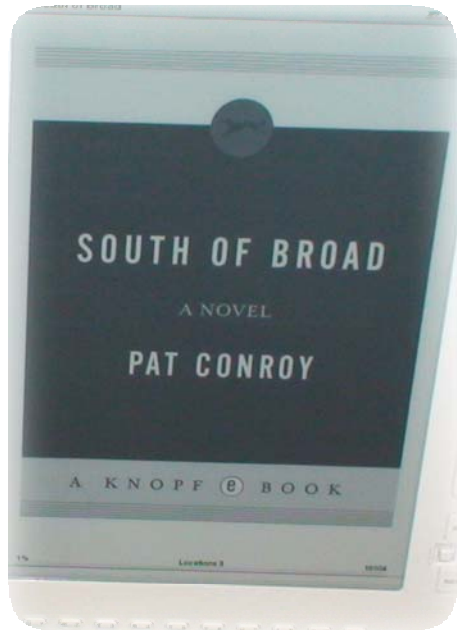


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Tortured Supply Chain for Book Delivery

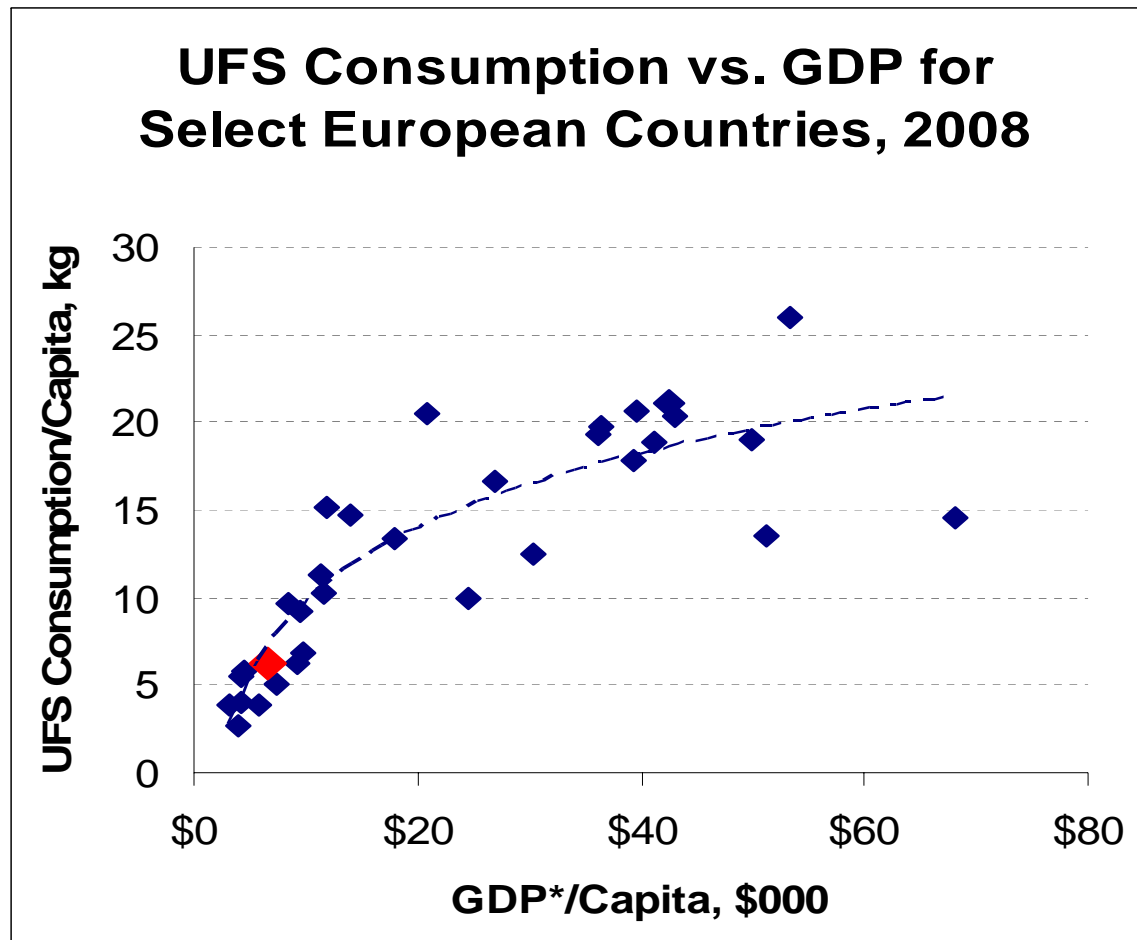


Book Reader Supply Chain

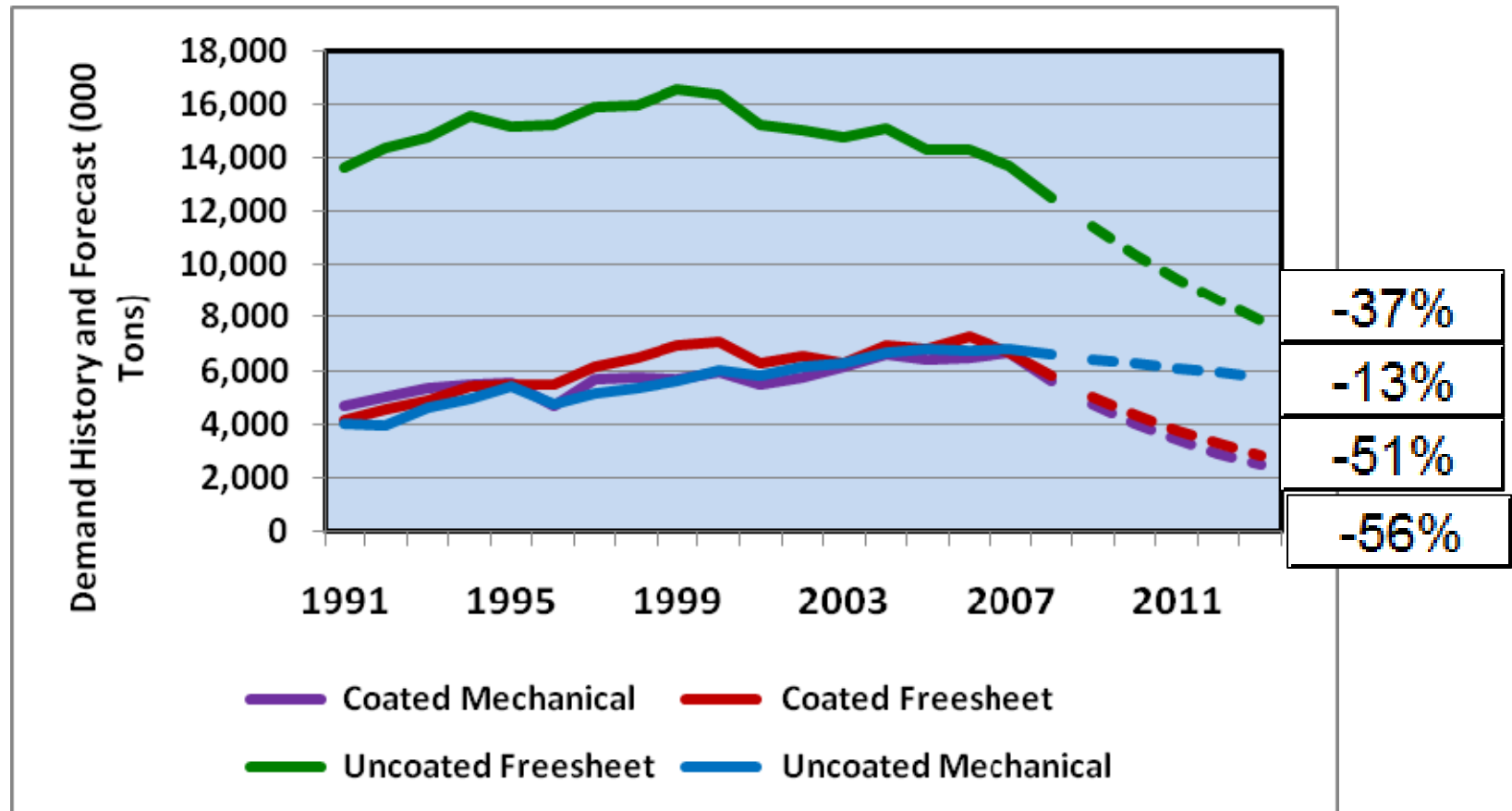


Where will it end up?

Now 41 Kg per Capita – future most likely at Western European levels ~ 25 Kg per Capita



Where will it end up?



	Change in Demand		Forecast USA Consumption		Current WE Consumption
	Tons	% Change (2008 - 2013F)	Short Tons (000)	(Kg per Person)	(Kg per Person)
Coated Mechanical	3,165	-56%	2,468	7.7	16.9
Coated Freesheet	2,956	-51%	2,849	8.9	19.1
Uncoated Freesheet	4,629	-37%	7,888	24.6	21.6
Uncoated Mechanical	839	-13%	5,765	18.0	13.0

United States Consumption – Summing Up

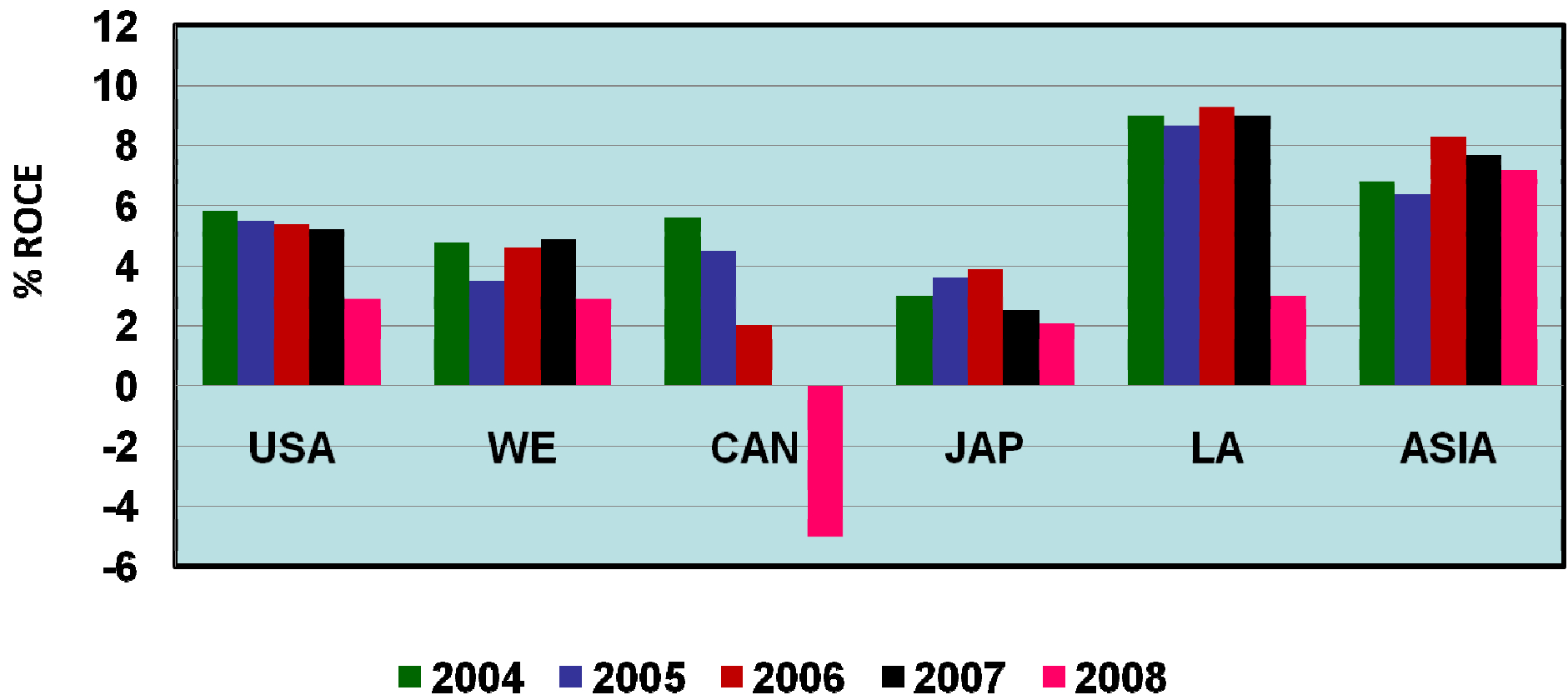
- A. The problems that paper producers face are minor compared to the problems customers for paper products have**
- B. Electronics has grown from being a threat 10 years ago to being the victor today**
- C. Corrugated packaging survives today as a superior product, but what will we produce in the United States to package?**
- D. Some glimmers that paper vs plastic debate swinging back our way but we have generally failed to make our main unique point of Sustainability**

2. International competitors have their own problems

- A. Company Returns on Investment are unsatisfactory in general business terms – Canada overall negative**
- B. Demand trends – especially Western Europe – are beginning to resemble our own**
- C. Currency exchange rates – in the absence of an new international financial crisis – will protect USA producers from imports over the near term**
- D. Not likely our cost structure – especially labor costs – will allow the USA to become major exporter**

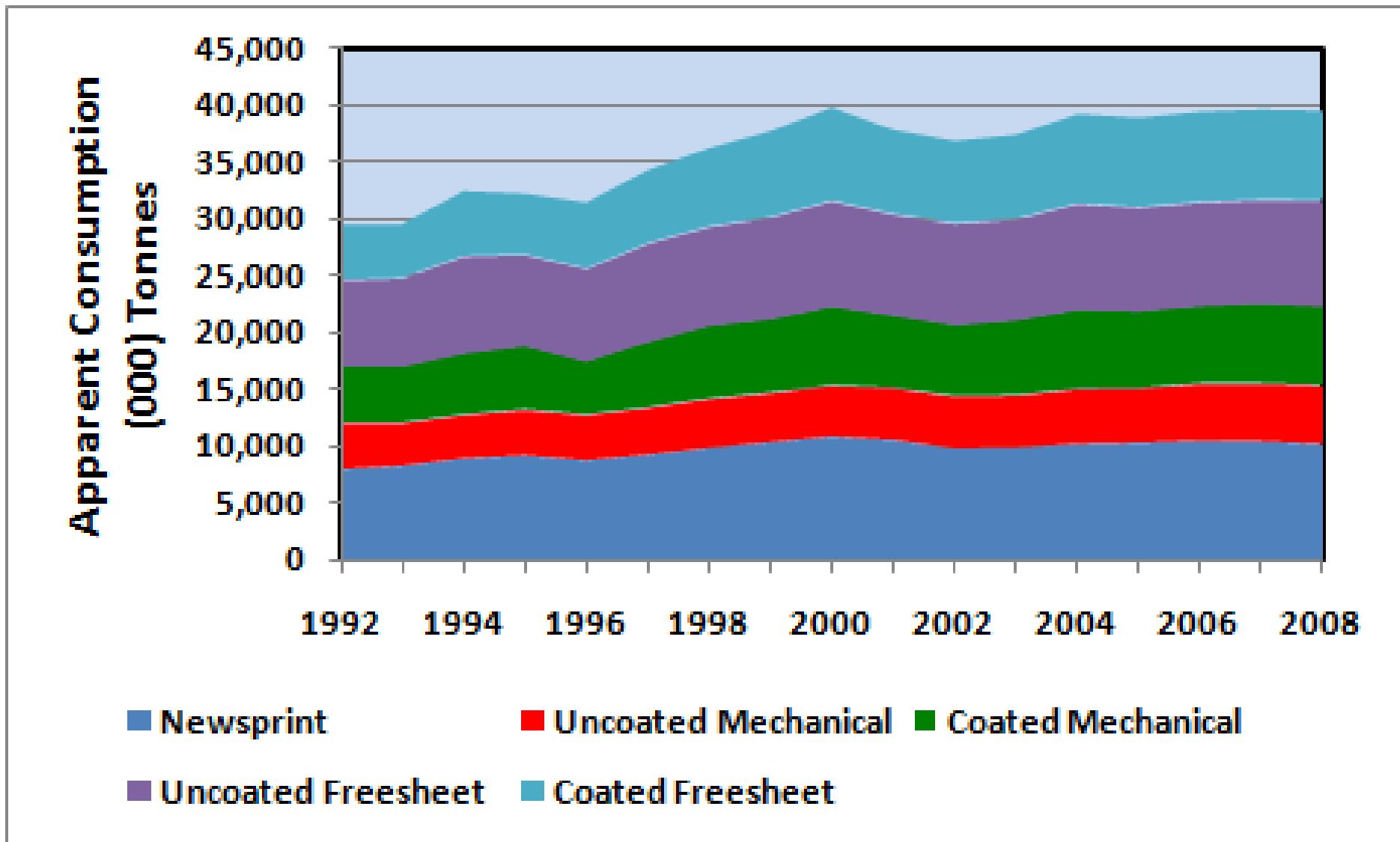
Worldwide Return on Capital Generally Poor

*Non-Japan Asia marginally acceptable, Latin American fell in 2008
Canada a disaster*



Western Europe P&W Consumption

No growth since 2000



No growth since 2000

Currency Rates can influence international competitiveness more than assets can

Brazilian Reals



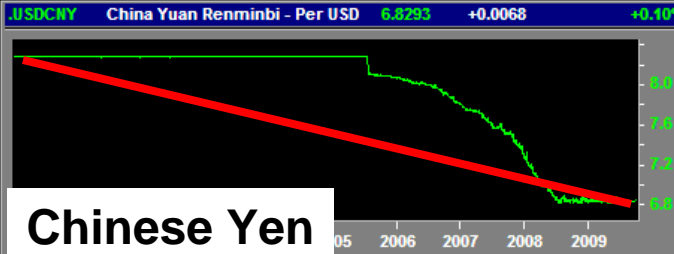
Euro



Rouble



CA Dollar



Chinese Yen



Yen



Chilean Peso



Indian Rupee



Krona



NZ Dollar



Indonesian Rupiah



AU Dollar

Impact of Currency Exchange

The Euro



Expected
Long term
Rate

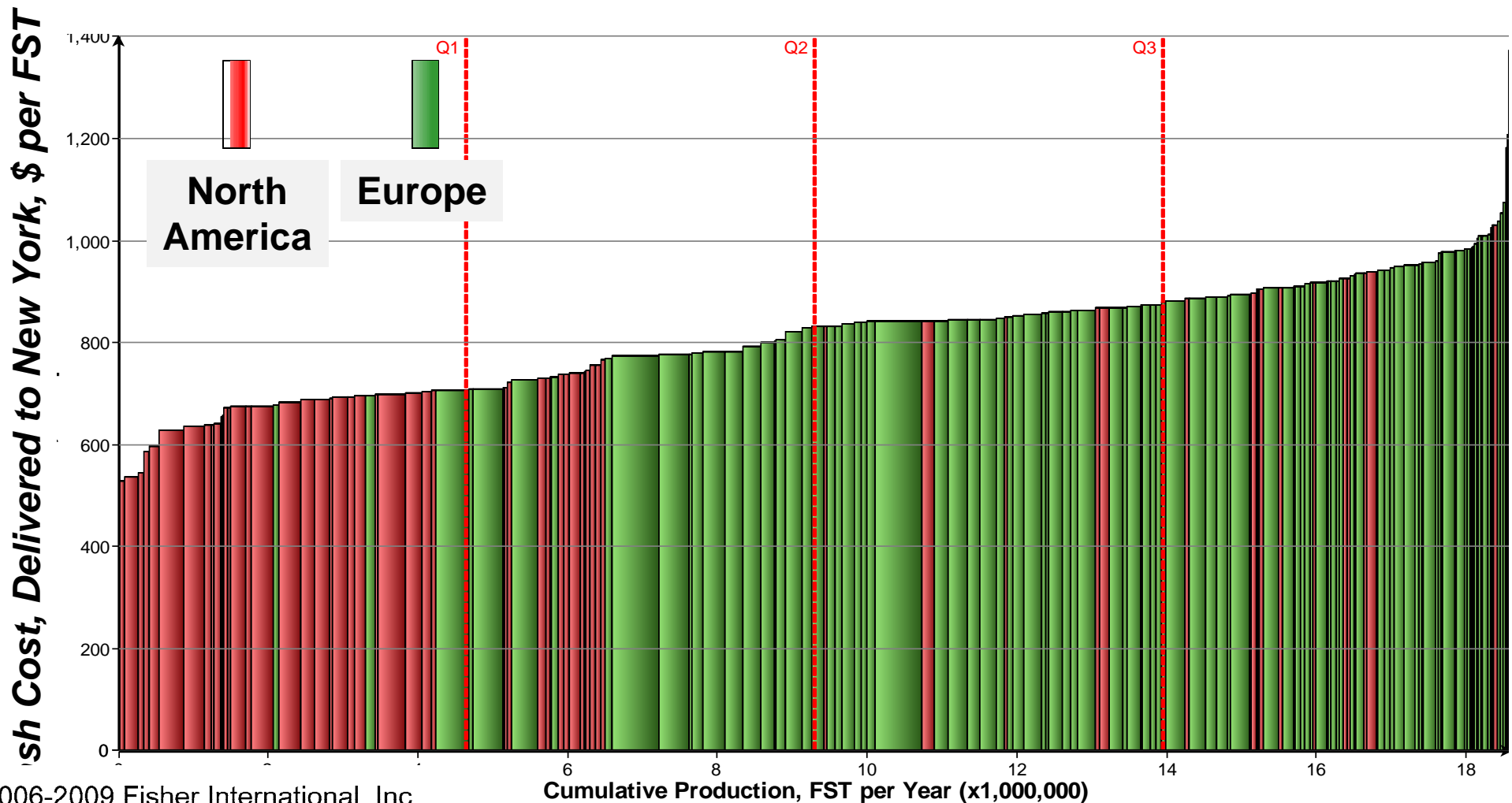
Weakest
Dollar

Financial
Panic

Long Term
Decline ?

Impact of Imports on Coated Freesheet

Euro at \$0.766

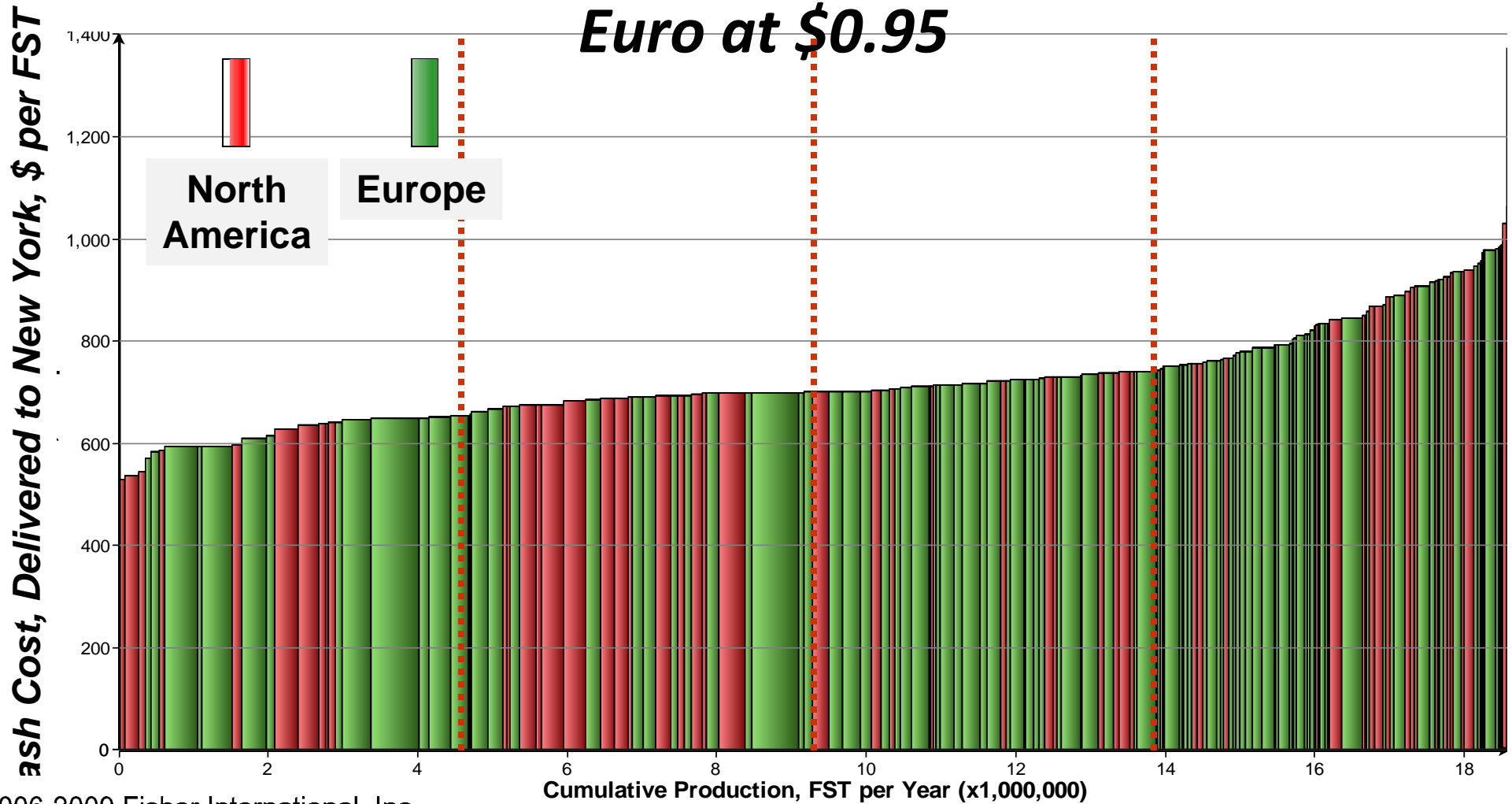


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North American Producers well protected against imports at Q1 2009 Currency Rate

Weaker Euro improves Western European Competitive Position

Euro at \$0.95



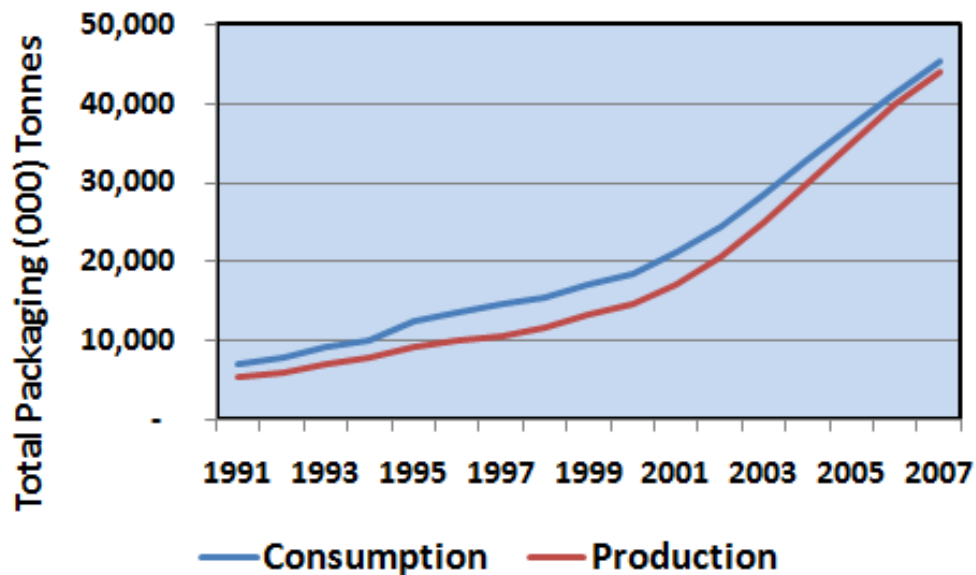
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More than half of North American Production slides to 3d Cost Quartile

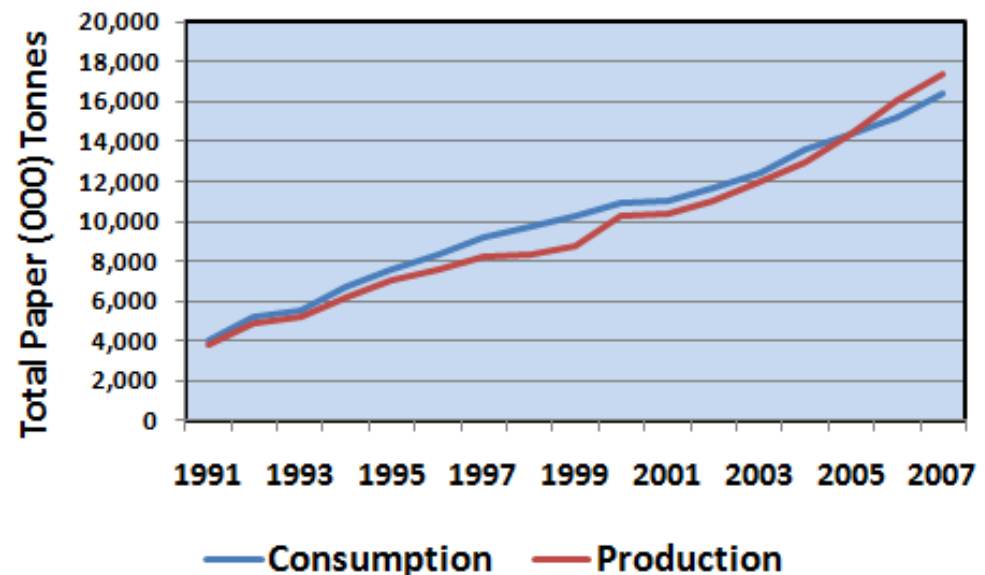
China Supply – Demand in Balance

Likely to exceed balance in future

Packaging



Paper



5 - Year CAGR, %

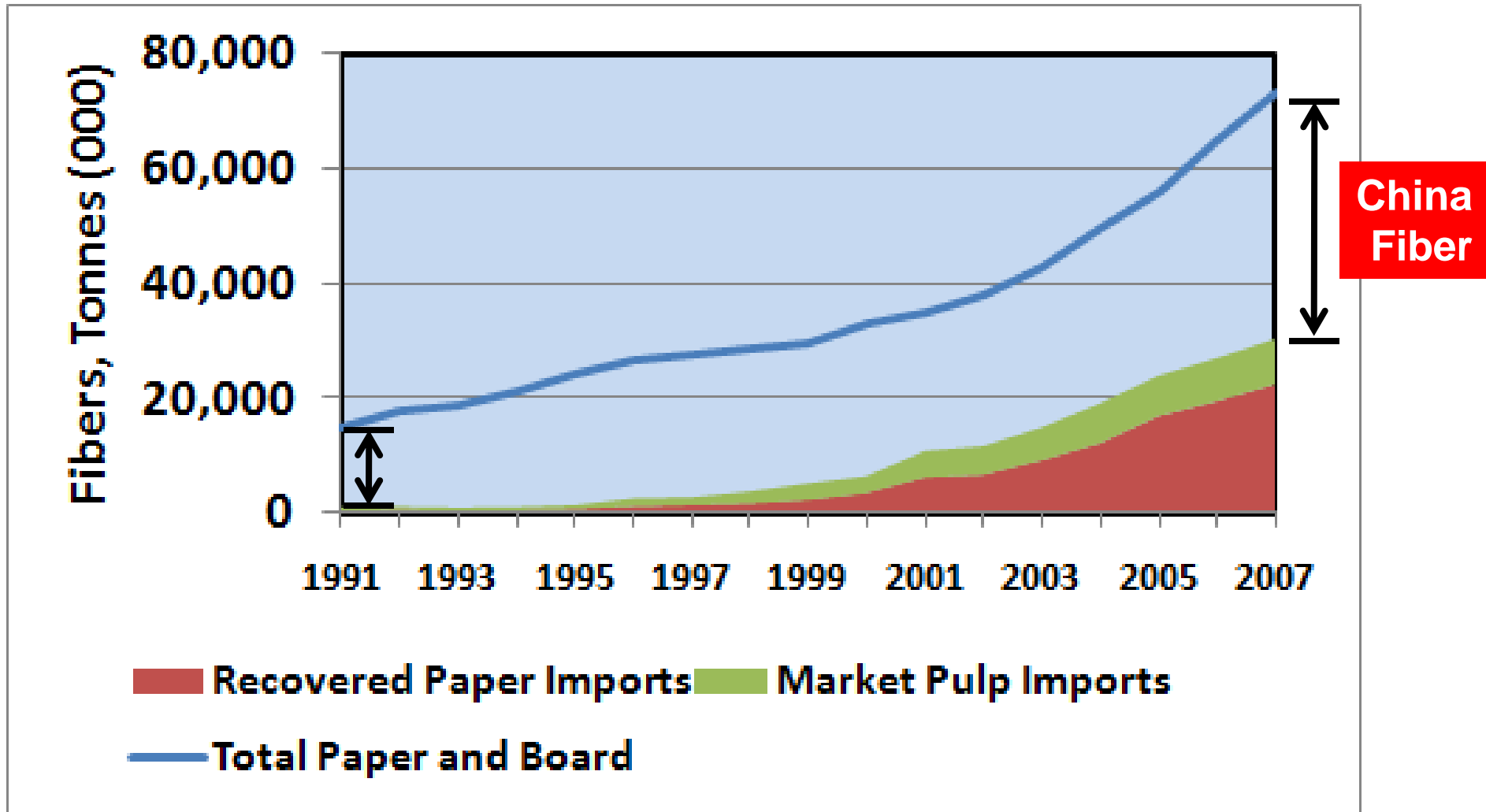
9.22%

11.4%

6%

9%

China dependence on imported fiber declining



The Miracle of China

Tell me again what's wrong with "Globalization"

From Numbers to See the Changes in China

Year	1952	2009
Population (million)	542	1300
GDP (Billion RMB)	67.9	30,000
GDP per cap (USD)	51	2770
Foreign Reserve (Billion \$)	0.1	2,000
Life Expectance (year)	36.5	73.4
Students in University/yr (Thousand)	117	20,200
Paved Road (Thousand KM)	80	3,730
Import/export (Million \$)	1,140	2,560,000
Food produced/year (million Ton)	164	529

Seems unstoppable ... until you remember Japan

International Outlook – Summing Up

- **Only China (Paper + Packaging) and Latin America (Pulp) have economically sustainable Forest Products Industry**
- **The United States has the largest customer base and seems adequately protected by Freight and by Currency (at present)**
- **Looking Forward at the Forest Products Sector ...**
 - *Worsening conditions for Western Europe*
 - *Potential collapse for Canada*

3. There are a limited number of solutions to the impending crisis for USA pulp and paper mills

- A. USA producers in an unsustainable financial condition**
- B. “Corporate Strategy” is important, but which one?**
- C. New Products unlikely to change the game**
- D. Nor is Bioenergy**
- E. Manufacturing strategy must change from Capital Orientation to Operational Improvement**

USA Industry in unsustainable financial condition

Capital Turnover

$$\frac{\text{Revenue}}{\text{Capital Employed}}$$

X

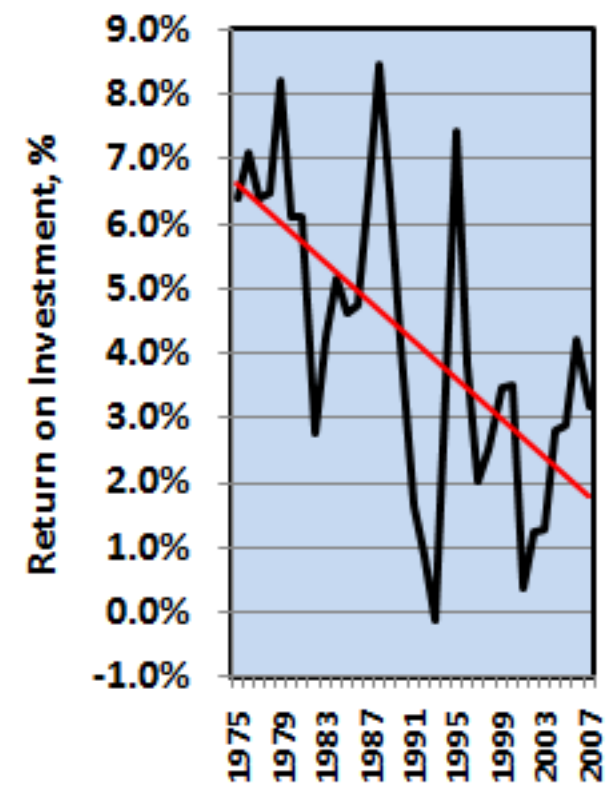
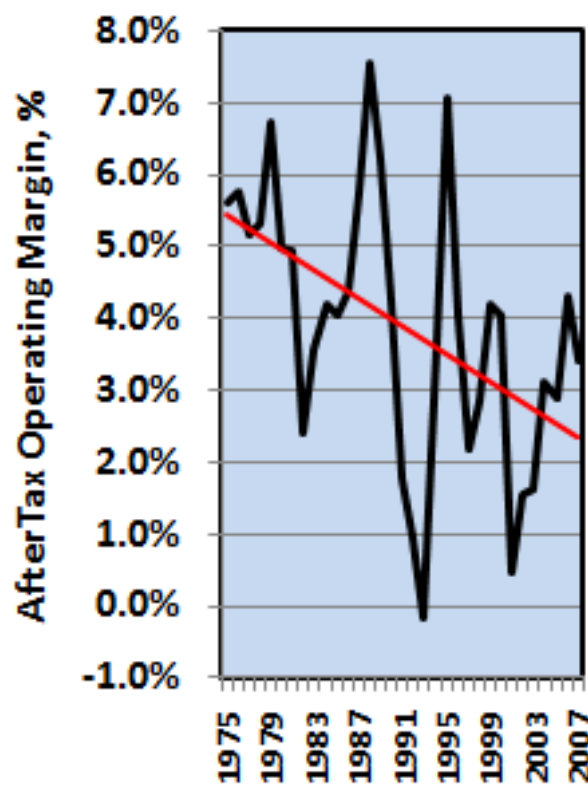
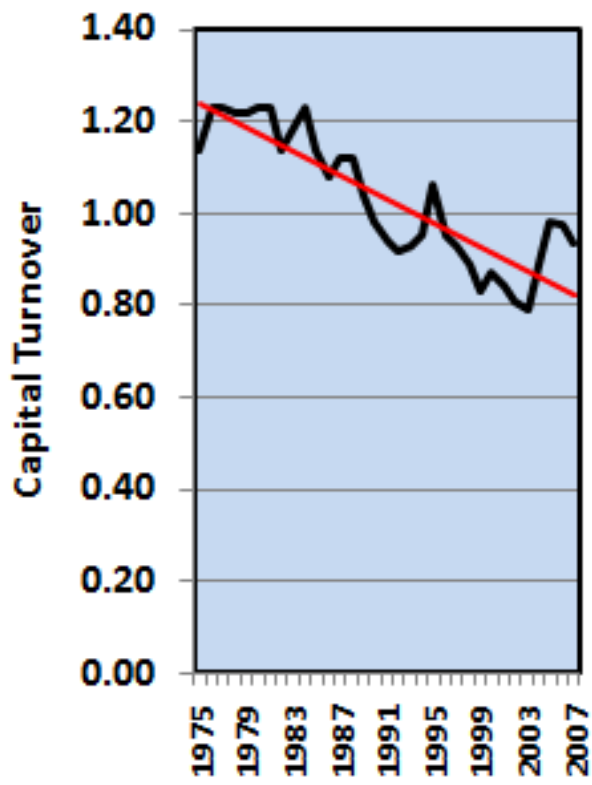
After Tax Operating Margin

$$\frac{\text{After Tax Profit}}{\text{Revenue}}$$

=

Return on Investment

$$\frac{\text{After Tax Profit}}{\text{Capital Employed}}$$



Two Companies – Two Strategies

WEYERHAEUSER

1999 - Bought MacMillan Bloedel
Containerboard, Dryden Paper, Trus –
Joist Wood Products

2001 – Built Cedar Rapids, IA, recycled
board mill

2002 – Bought Willamette Industries

2007 – Sold Paper Mills to Domtar, formed
Catchlight Bioenergy Company

2008 – Sold containerboard business
to IP

2009 – sold Trus Joist to Atlas

INTERNATIONAL PAPER

1999 – Merged with Union Camp

2000 – Purchased Champion

2003 – Sold Veratec Non Wovens and
Scitex Imaging

2004 – Sold Weldwood Canadian Pulp
Mills and Bought Box USA

2005 – Purchased Moroccan Packaging
Business, Sold Carter Holt Harvey New
Zealand Forest Products Company

2005 – 2009 Sold Forestlands and Wood
Products Plants

2006 – Formed Joint Venture with Sun
Paper China, exchanged Brazilian
Plantations to Votorantim for Luis Antonio
Pulp and Paper Mill

2007 – Formed Joint Venture with Ilim
Group Russia, sold Arizona Chemical
Company

2008 – Purchased Weyerhaeuser
Containerboard Business

Forest Products Industry

Substitute

New

Forests

Super trees

Wood Products Plant

Pulp Mill

TCF Pulp

Lumber Mill

LVL

Plywood Mill

Oriented Strand Board

Chip Mill

Paper Mill

Printing Papers

94 % Brightness
Copy Paper

Liquid Packages

Paperboard
Juice Cartons

Tissue

Absorbent and soft
single-ply tissue

Corrugated Boxes

Rigid – when - wet

Superabsorbent
enabled thin
diapers

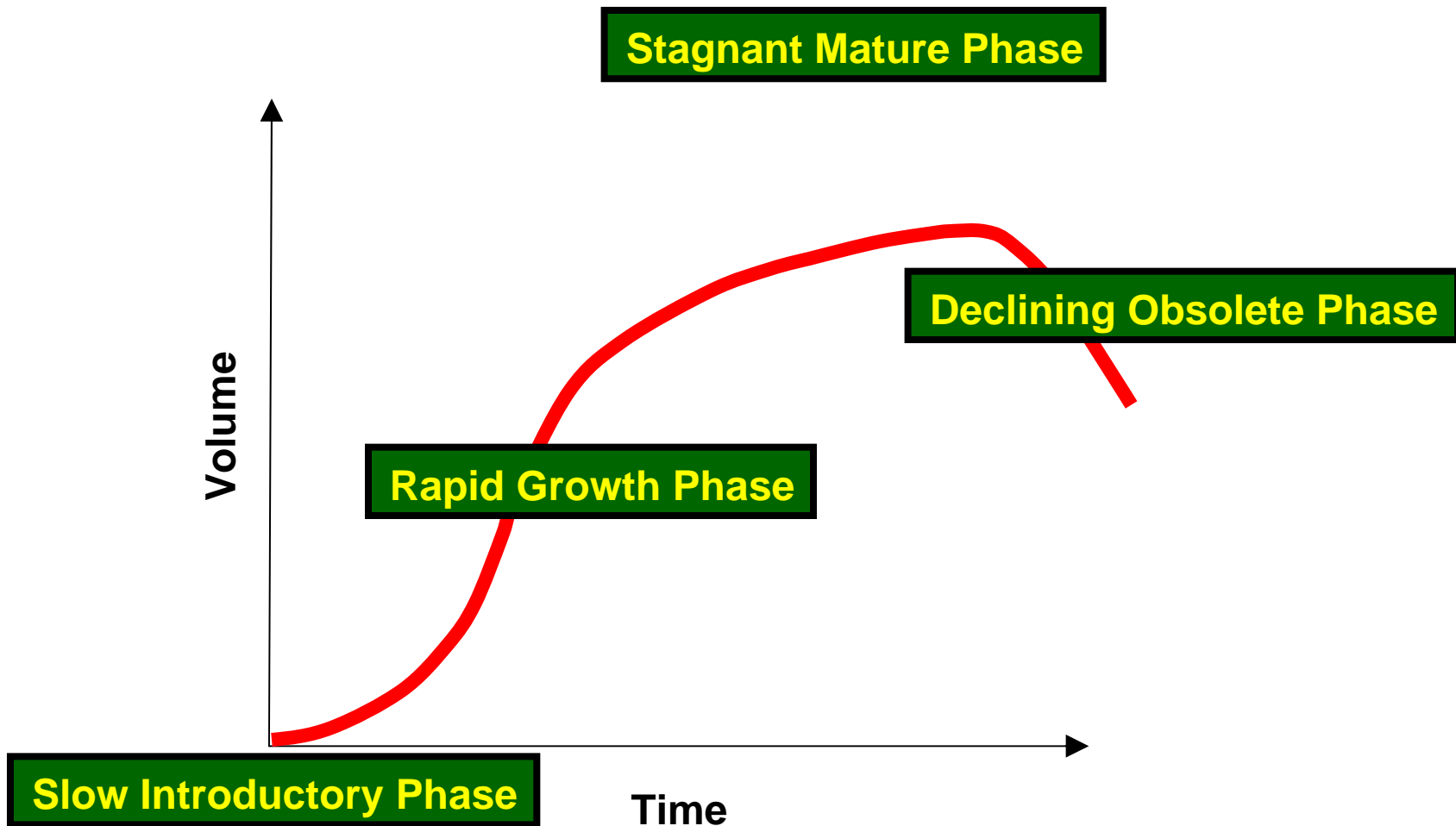
New Product Development

Corrugated Box in 1900 supplanted Wooden Boxes



All products exhibit a life cycle

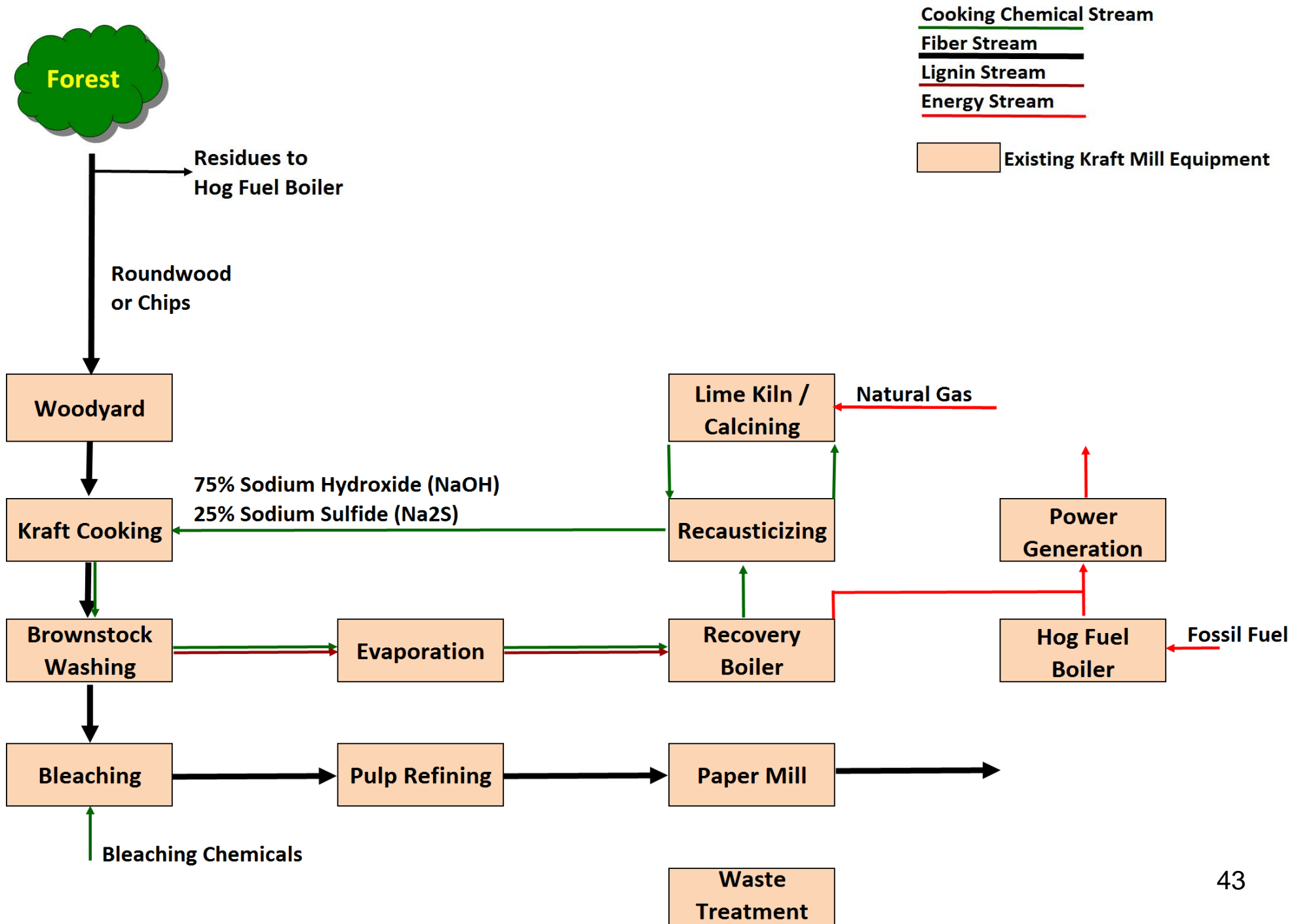
Classic Product Life Cycle



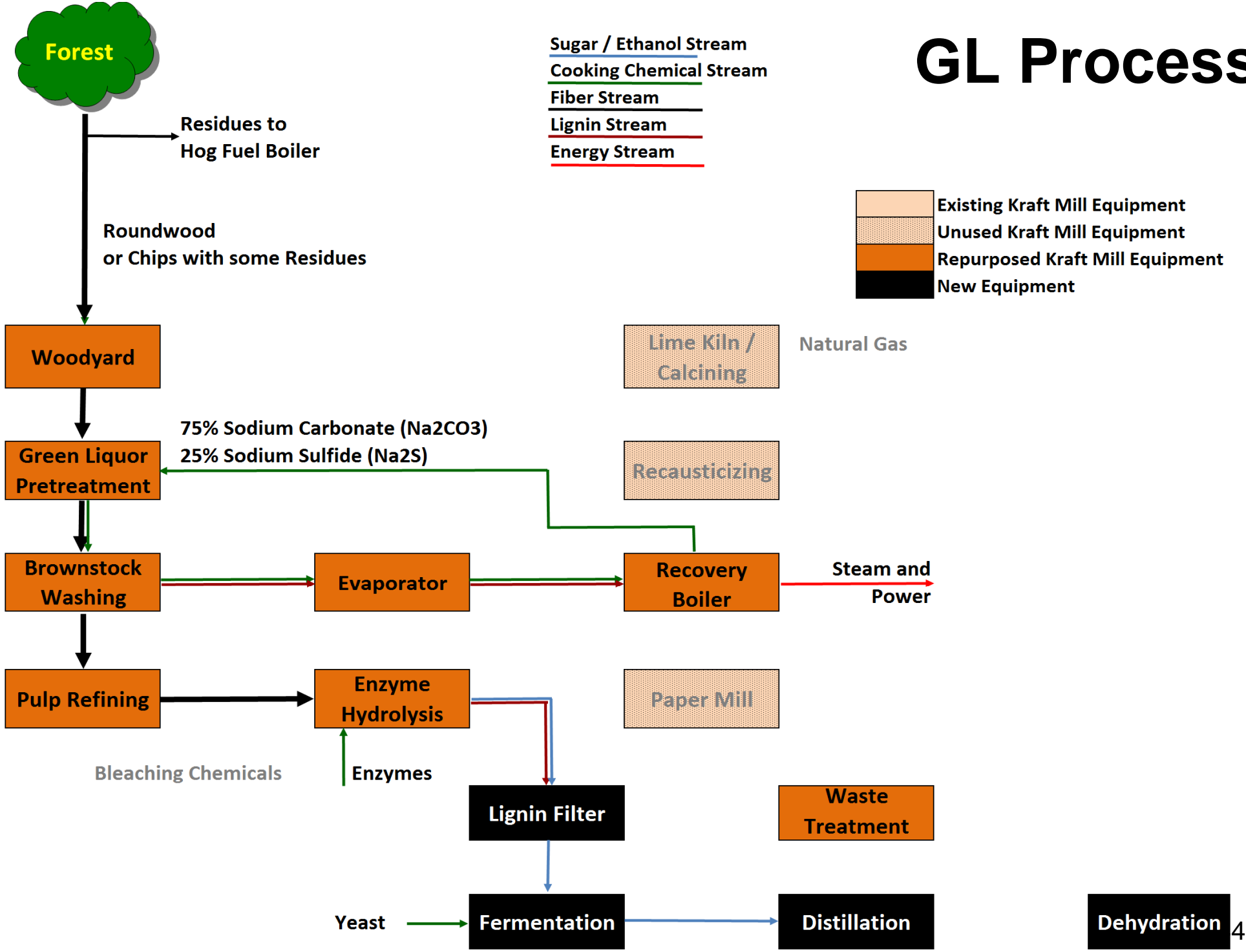
Bioenergy

- **Forest Products Industry not well positioned to participate in Bioenergy Industry ... more likely to be a victim**
 - *Most forest products companies (Weyerhaeuser notable exception) have sold their forestlands*
 - *More than 30 states have legislated Renewable Portfolio Standards (RPS) ... Power Companies have first choice on paying for biomass*
 - Wood Pellet plants right behind, shipping “Renewable Fuel” to European consumers
- **Opportunity may exist to “Repurpose” failed kraft pulp mills to produce biofuels**

Conventional Bleached Kraft Mill



GL Process



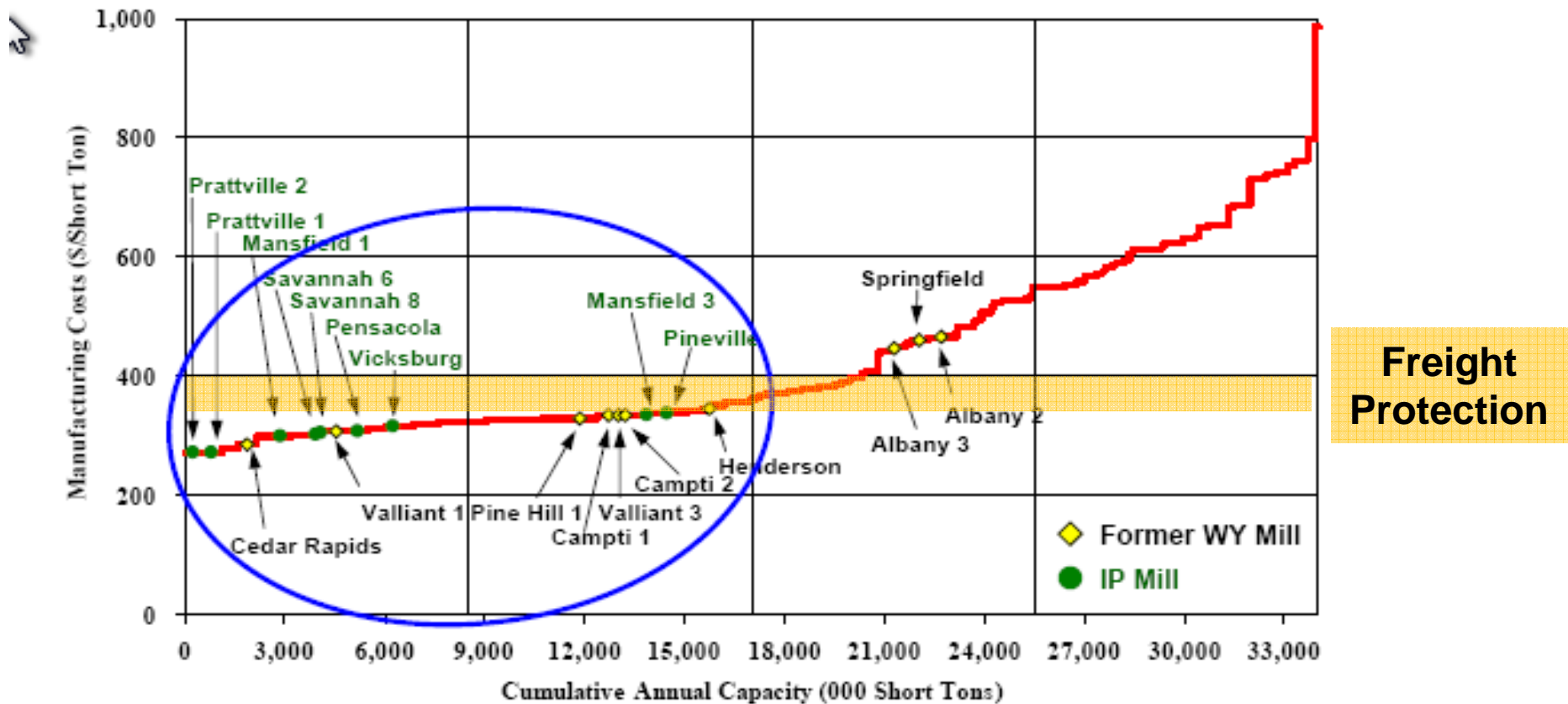
Main Challenge with USA Paper Mills

How to achieve acceptable level of profitability?

- **Supply will continue to decline to match decline in Demand**
 - *Implies product pricing stability*
- **Only lowest cost producers will survive**
 - *And “Low Cost” must be achieved without major capital*
- **Relatively well positioned against imports**
 - *Unless currency rates change to stronger dollar*
- **Illustration with model “Average Cost” Paper Mill**
 - *1985 – 1995 vintage Uncoated Freesheet Mill*

Currency and Freight becoming major barriers to global trade of pulp and paper products

Containerboard Global Cost Curve

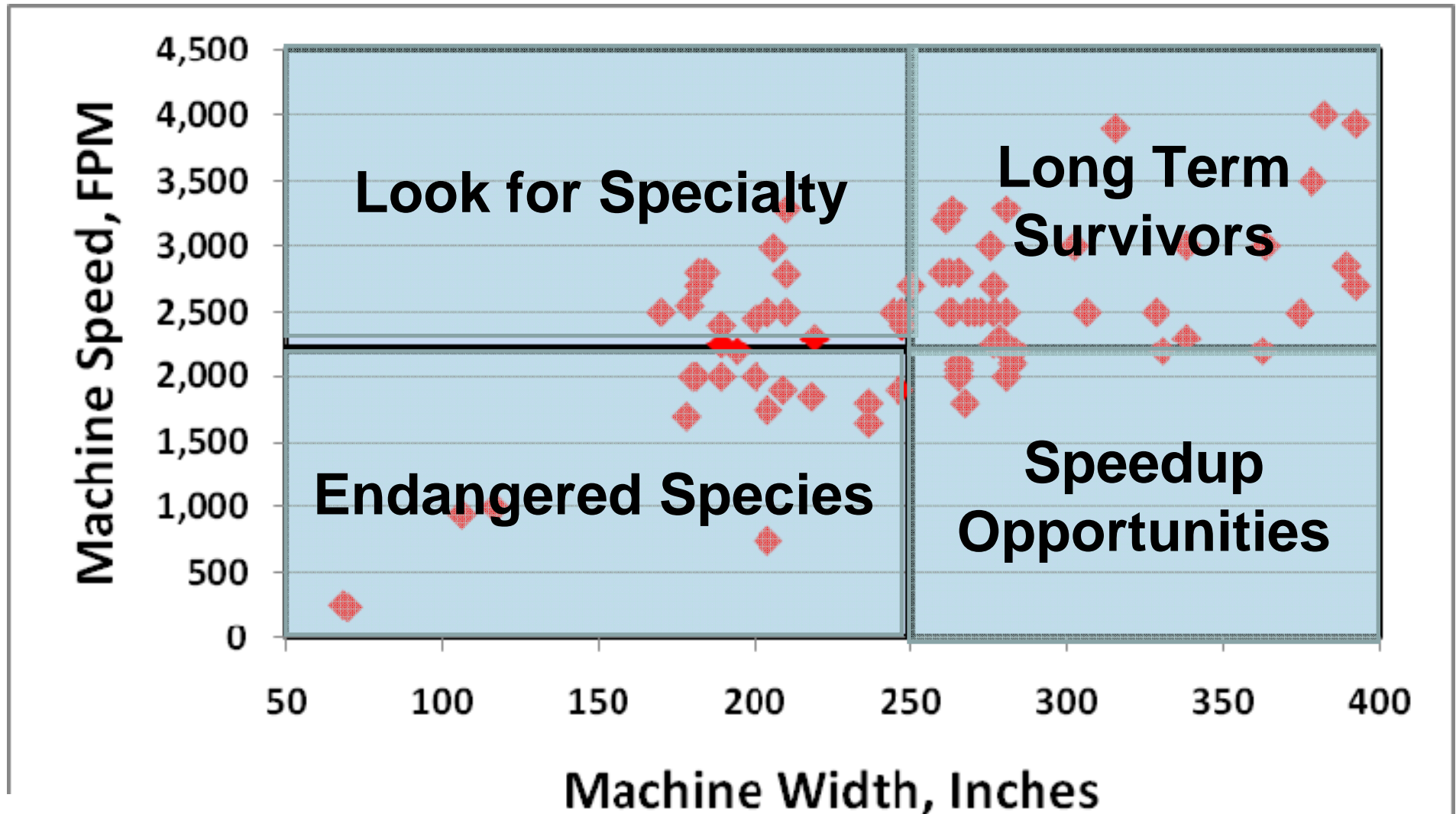


Source: Pöyry CostTrac – 1st Quarter, 2008
 42# and 26# Global Kraft Linerboard cash cost per ton delivered to Chicago

Delivered to Chicago

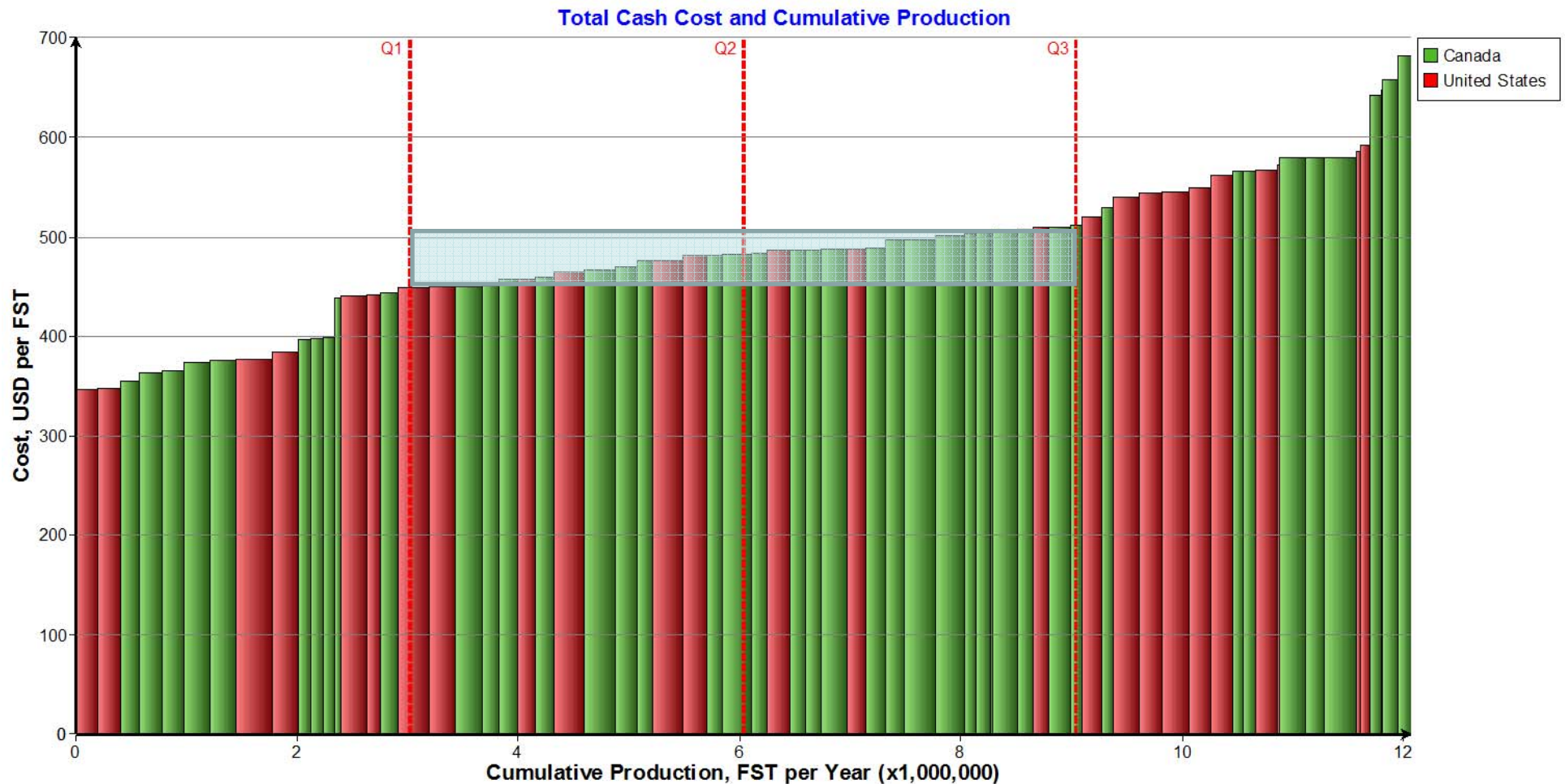
Must take a realistic view of “Viability”

Linerboard Speed vs Width



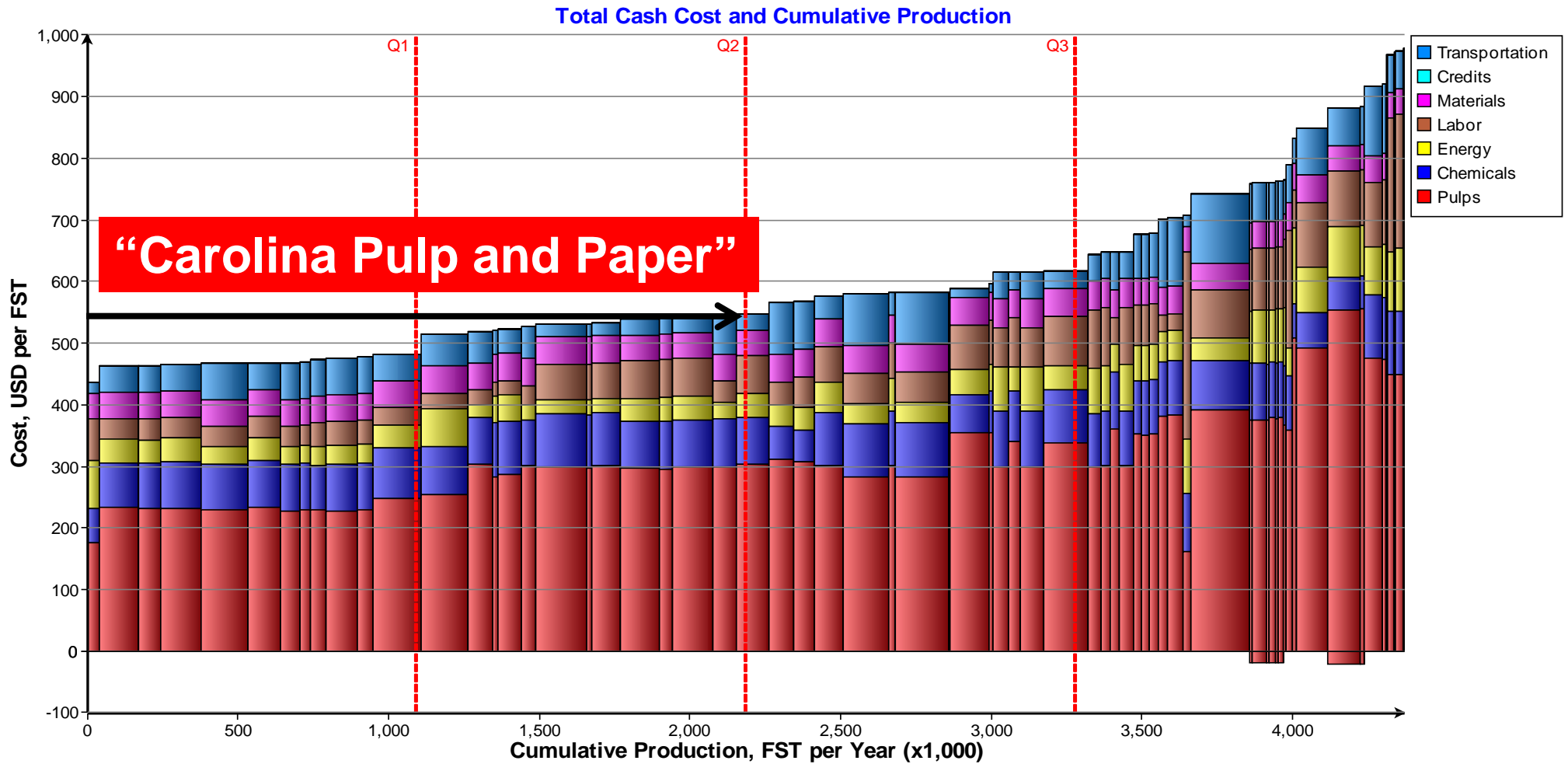
The shape of the cost curve is important

*Newsprint ~ 50% of capacity with \$50 per Ton
Delivered Cost to New Jersey*



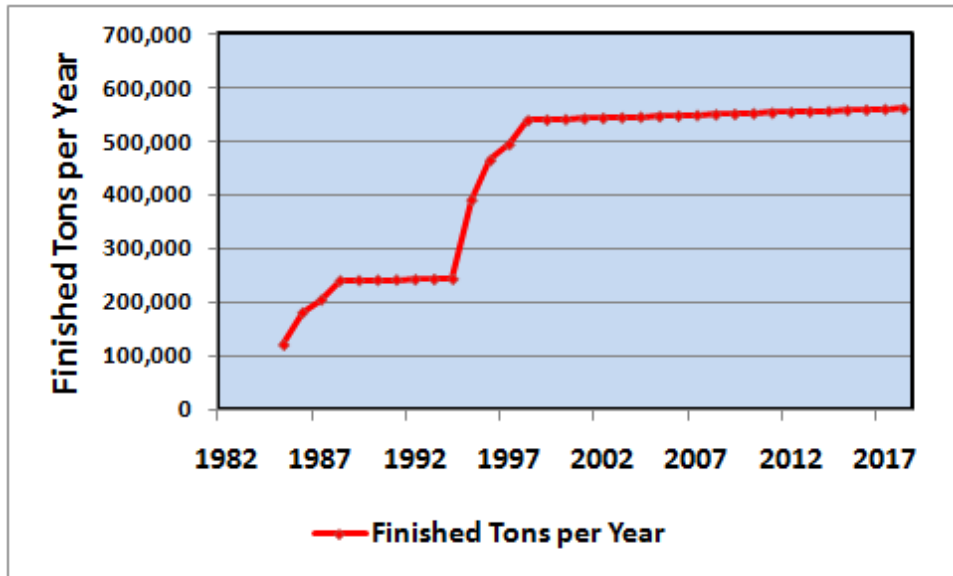
USA Uncoated Friesheet Cost Curve

Rolls, Delivered to New York

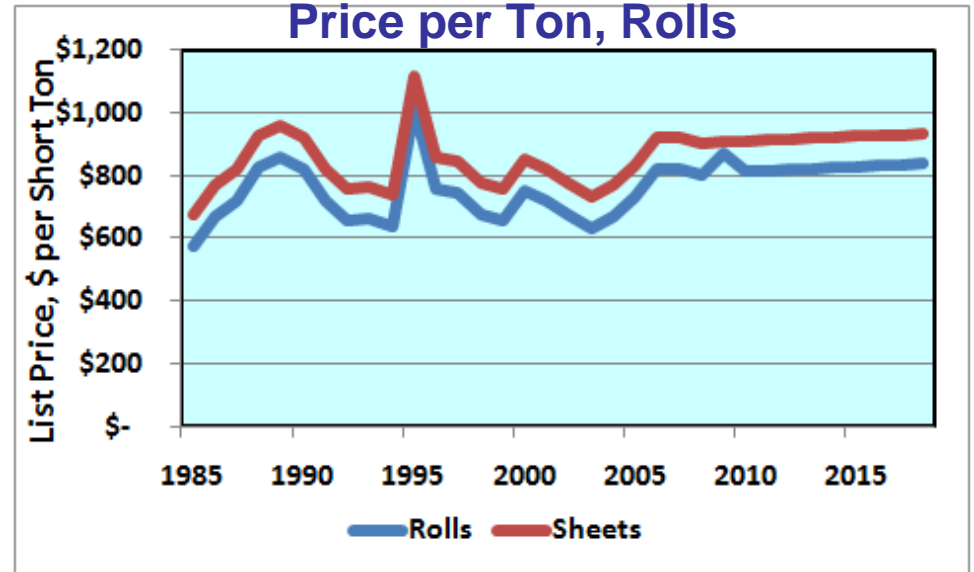


Base Case

Finished Tons per Year

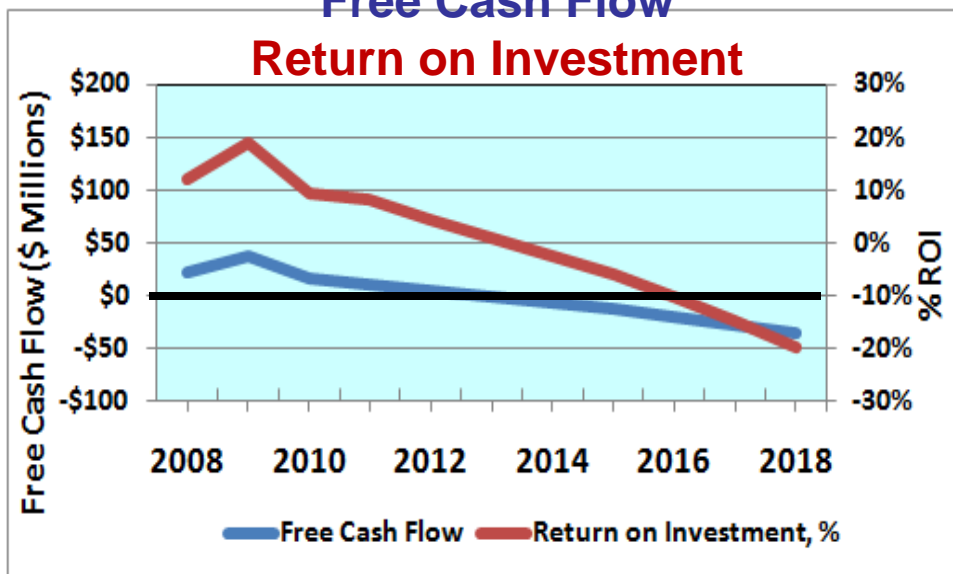


Price per Ton, Sheets Price per Ton, Rolls



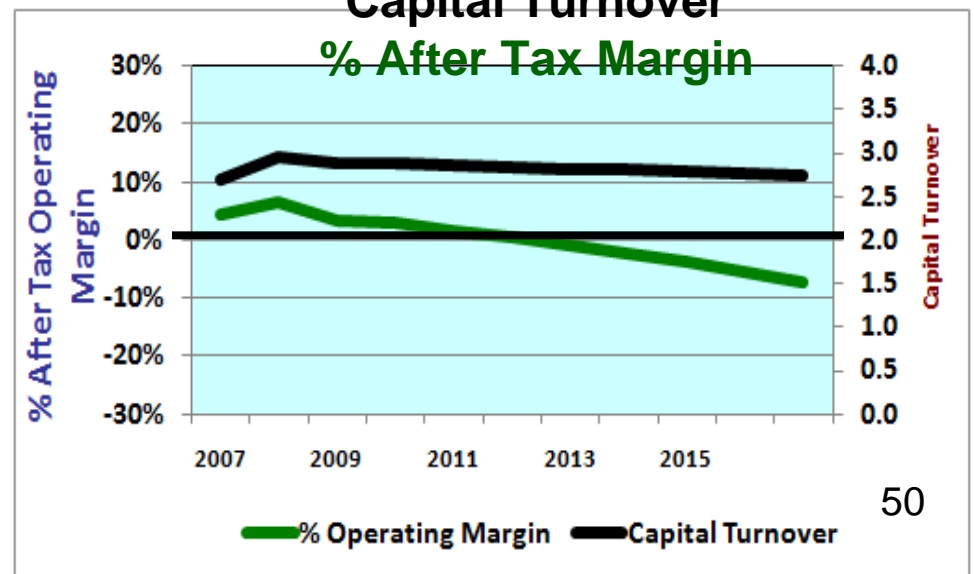
Free Cash Flow

Return on Investment



Capital Turnover

% After Tax Margin



Scenarios for Success

	Run for Cash	Modest Cost Reduction Capital	Same + WCP	Same + WCR	Same + Higher Payback
Productivity, % Annual Output Improvement	0.2%	0.2%	0.5%	0.5%	0.5%
Cost of Reliability, % of RAV	3%	3%	3%	2%	2%
Cost Reduction Capital Investment, % of RAV	0 % RAV	0.5% RAV	0.5% RAV	0.5% RAV	0.5% RAV
Payback Years	N/A	3	3	3	2

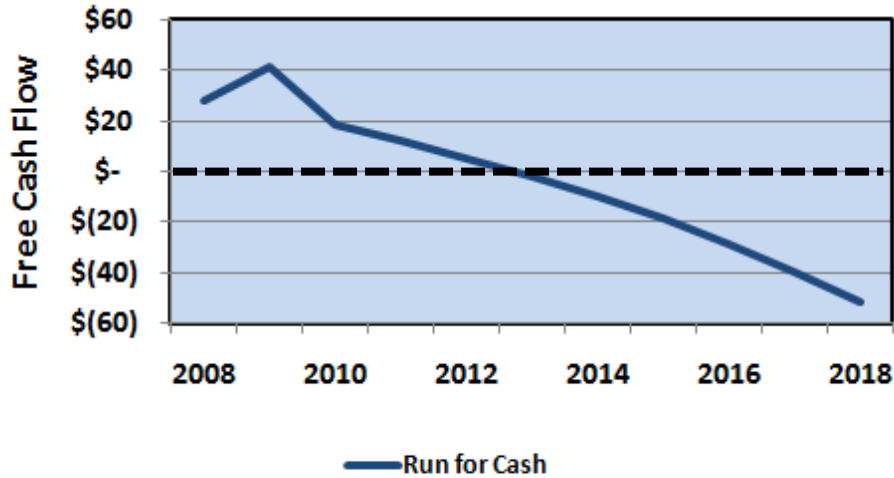
RAV = Replacement Asset Value: the cost in current dollars to build a facility today “as is / where is”

WCP = World Class Productivity: 0.5% per year increase in output

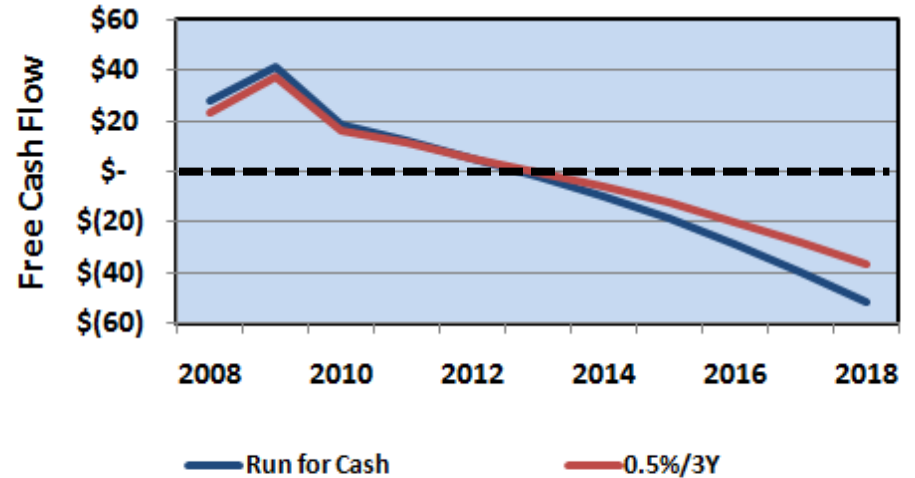
WCR = World Class Reliability: 2% of RAV spent to be Reliable Operations

Scenario Analysis

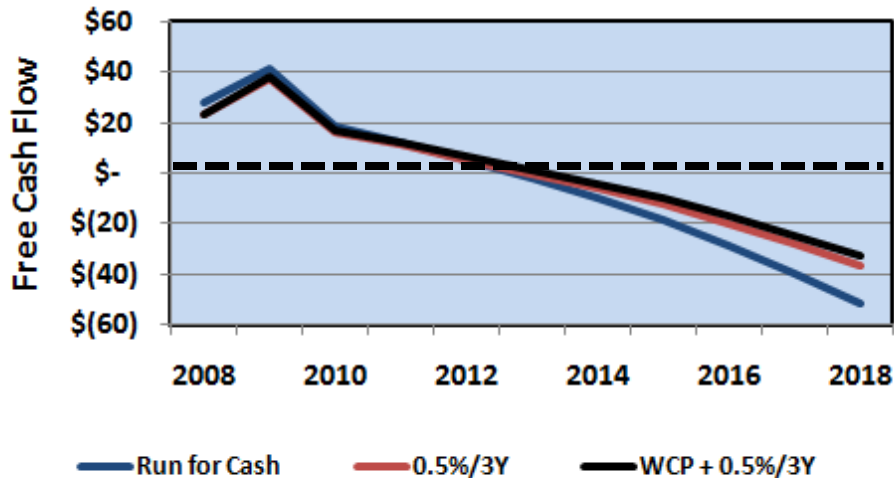
**Basic Productivity + Basic Reliability
+ 0 % Capex**



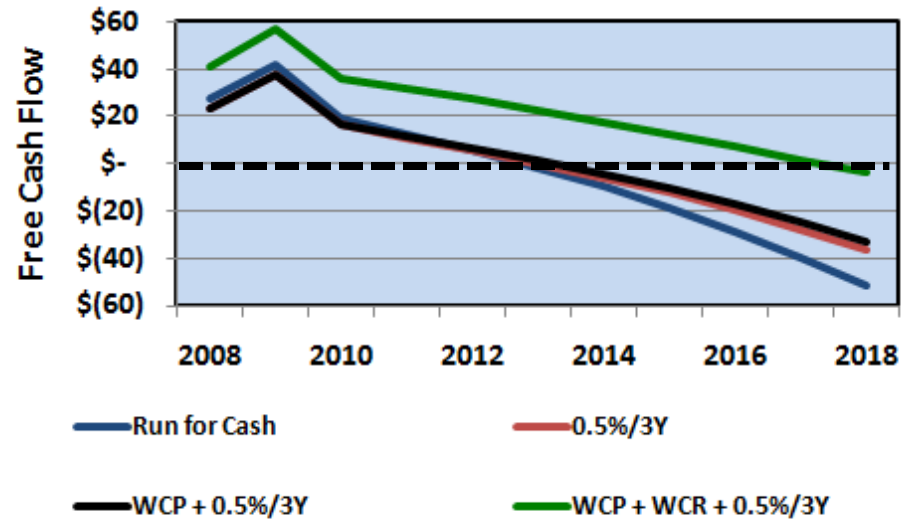
**Basic Productivity + Basic Reliability
+ 0.5% RAV Capex**



**WC Productivity + Basic Reliability
+ 0.5% RAV Capex**



**WC Productivity + WC Reliability
+ 0.5% RAV Capex**



Summing Up – Saving the USA Pulp and Paper Industry

- **Doing what is now being done is the right thing**
 - *Will lead to significant (~50%) loss of production over the next 10 years*
- **Must eventually commit strategic capital to the Best Mills**
- **Do not abandon New Product Development**
 - *Functionality to displace glass, metal and plastic in packaging*
 - *Move more printing paper grades into high impact color graphics applications*
 - *Shamelessly sell our Sustainability – fight against the “Treeless” opportunists*
- **Pick the mills / machines with the “Technical Right to Succeed”**
 - *Reliable operations sprinkled with Low / No Capital Cost investments*
 - *Reliability will provide the advantage over the competition*
 - And prevent imports from taking share away from our best mills
- **Don’t count on Bioenergy Salvation ...**
 - *... Unless you shut the mill down*
- **In the end, there is sustainability**



Change in Industrial Forest Ownership

Top Ten US Timberland Owners, 2002 & 2007

<u>2002</u>	<u>Acres</u>	<u>2007</u>	<u>Acres</u>
International Paper	8.57	Plum Creek	8.20
Plum Creek	8.12	Weyerhaeuser	5.64
Weyerhaeuser	7.52	Resource Management	2.70
MeadWestvaco	2.94	Campbell Group	2.61
Hancock Timber	2.38	Hancock Timber	2.40
Temple-Inland	2.21	GMO-RR	2.25
Rayonier	2.16	Rayonier	2.18
Sierra Pacific	1.53	Forestland Group	2.15
Potlatch	1.15	Forest Capital	2.10
Regions Morgan Keegan	0.91	Forest Investment Associates	1.90

Note: Acreage in millions. Color denotes ownership category. Red represents industrial owners, blue represents REITs, and Green represents TIMOs.

United States Forest Dynamics

304 Million Ha Total Forest Area

317 Million M³ Excess Growth

35 Million M³ Harvest Residue

93 Million M³ Harvest Residue

447 Million M³ "Available"

202 Million BDt "Available"

757 Million M³ Annual Growth

440 Million M³ Growing Stock Removals

160 Million M³ "Other Removals"

424 Million M³ Roundwood Products

46 Million M³ Other Products

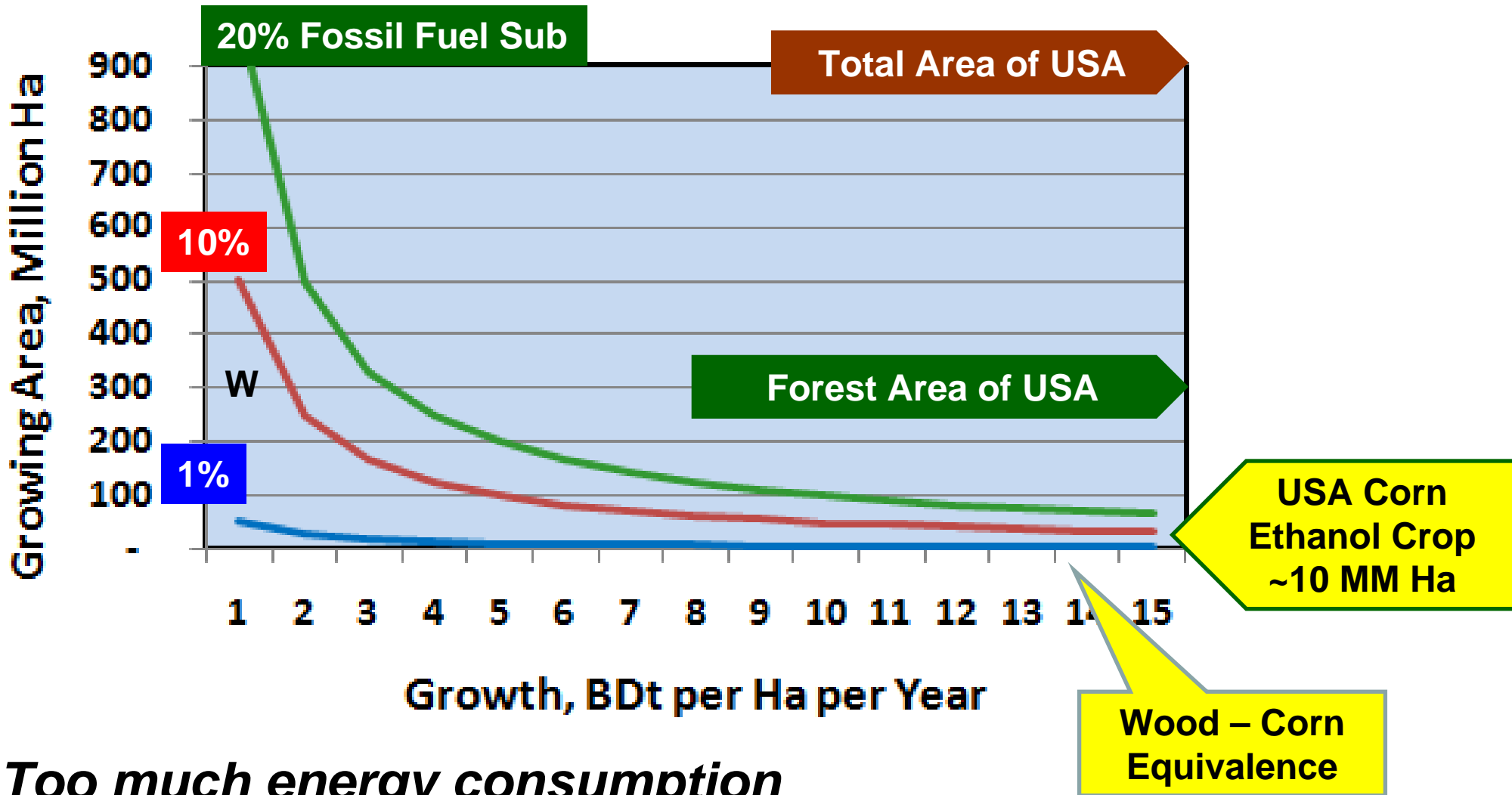
2.6 Quad BTU
Thermal Energy

15.5 Billion Gallons
of Ethanol

2.6 % of USA
Consumption

8.2 % of USA Gas
Consumption

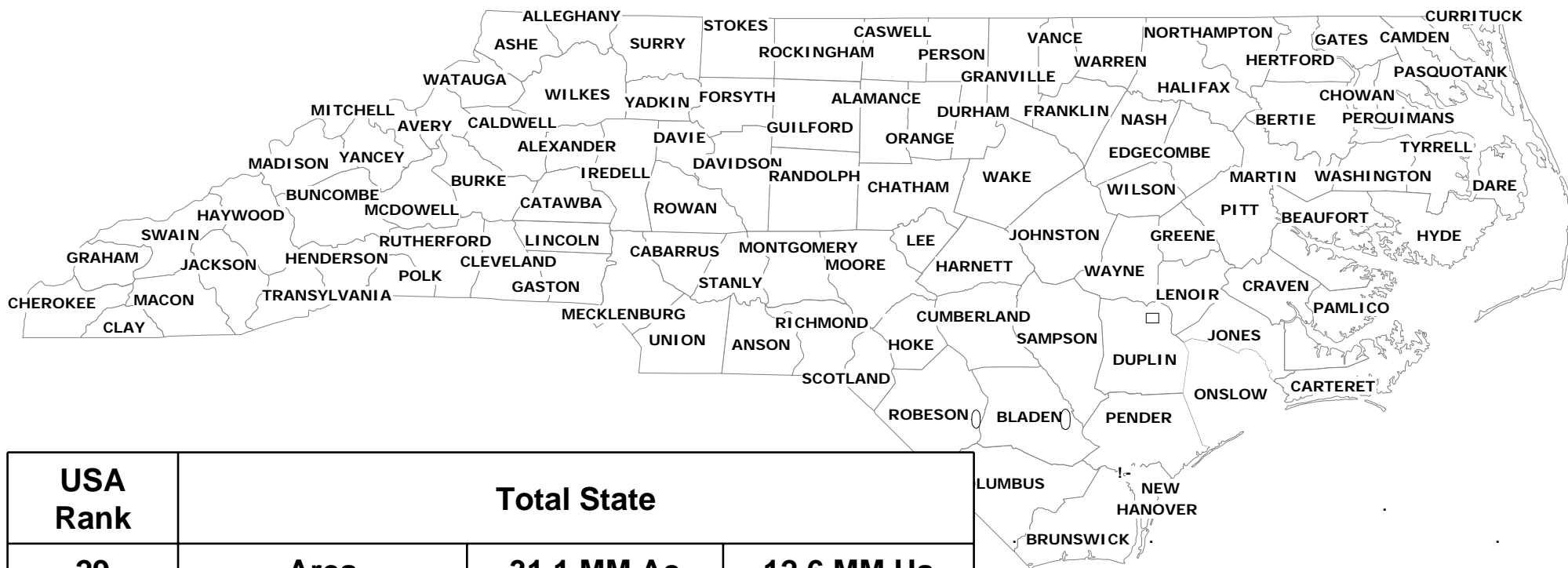
Can the USA Forest Support a Bioenergy Business?



- *Too much energy consumption*
- *Not enough planted forest*
- *Biomass grows too slow*

North Carolina Forest Characteristics

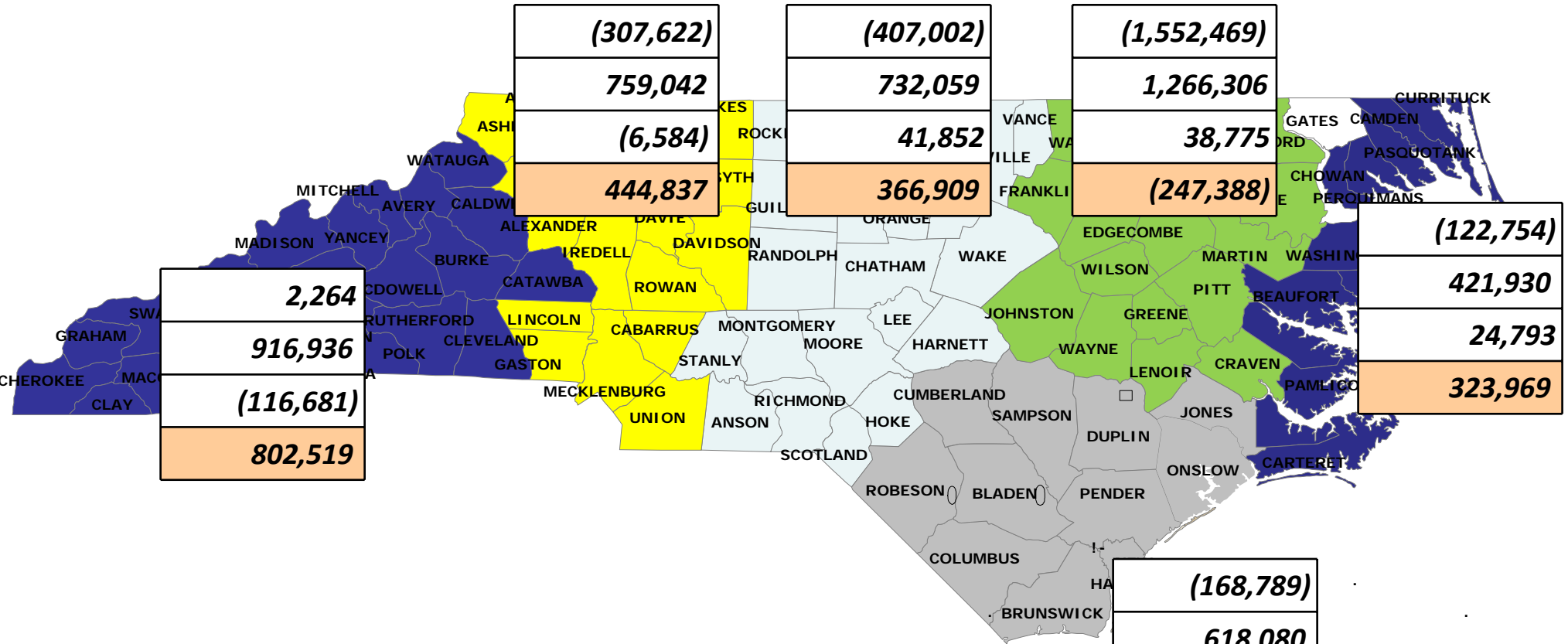
North Carolina Privately Owned Timberland is among the largest timber areas in the United States



USA Rank	Total State		
	Area	31.1 MM Ac	12,6 MM Ha
29	Area	31.1 MM Ac	12,6 MM Ha
16	Forestland	18.4 MM Ac	7,5 MM Ha
10	Timberland	17.9 MM Ac	7,2 MM Ha
8	Planted Forest	3.4 MM Ac	1,4 MM Ha
7	Privately Owned	9.8 MM Ac	4,0 MM Ha

Growth less Removals, Bone Dry Tons (BDT)

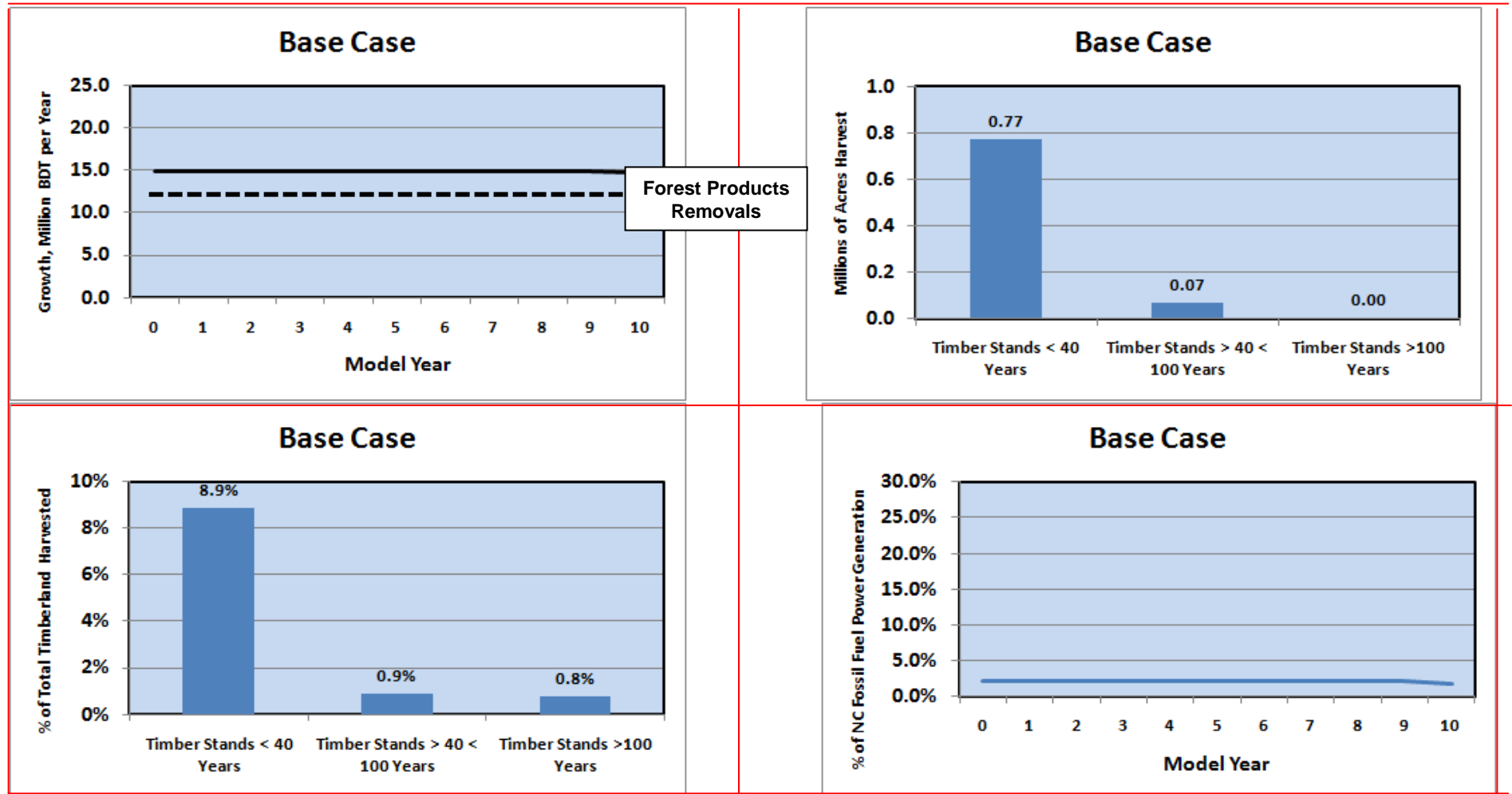
Regions 1 and 5 Account for 65% of Excess



	BDT
< 40 Years	(2,675,316)
> 40 < 100 Years	4,714,353
>100 Years	155,513
Total NC	2,194,550

**< 40 Year Old Stands are intensively harvested
> 40 <100 Year Old Stands major Opportunity**

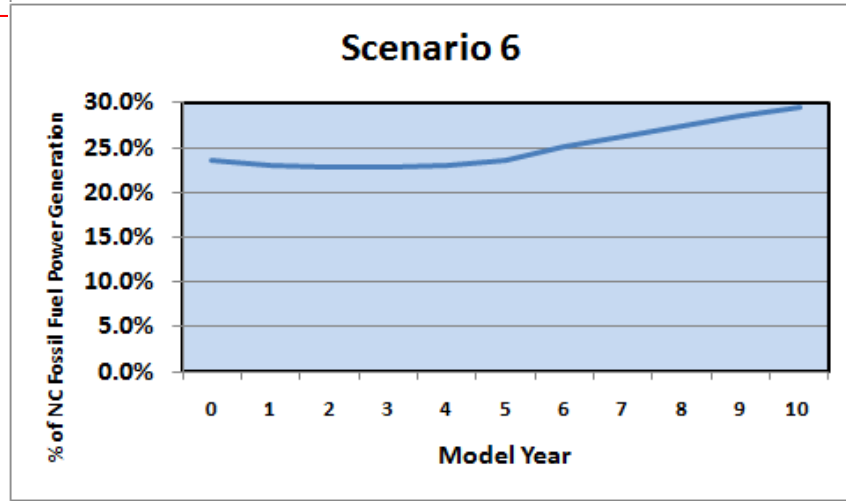
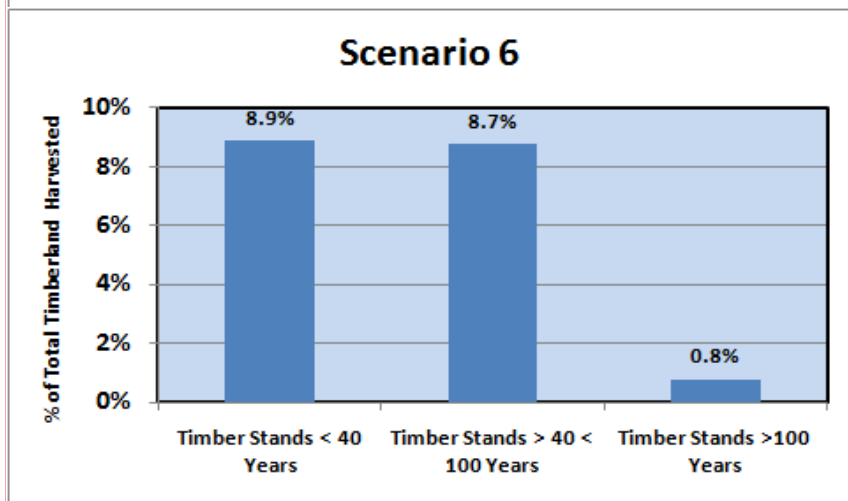
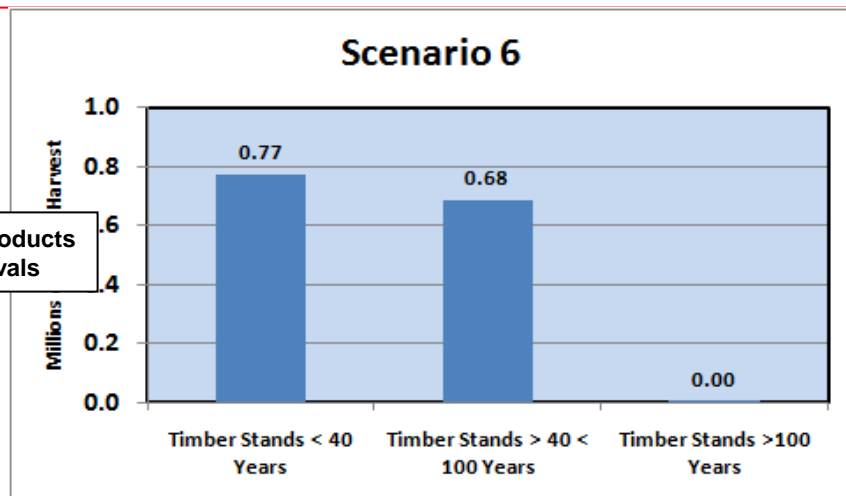
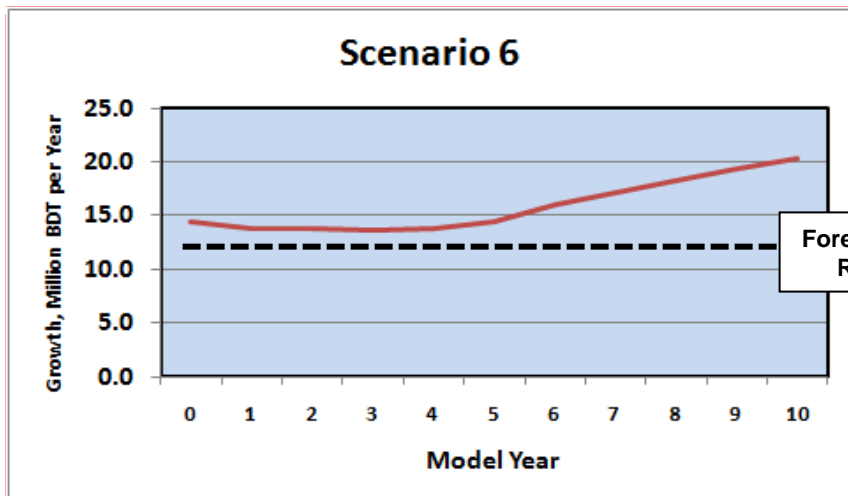
Model of Current North Carolina Bioenergy Potential



Level Growth – Under Utilized Middle Age – Minor Power Potential

Untapped Potential of Slow-Growing older Timbers Stands

10 x Base Case Harvest - Regrow at 3 X



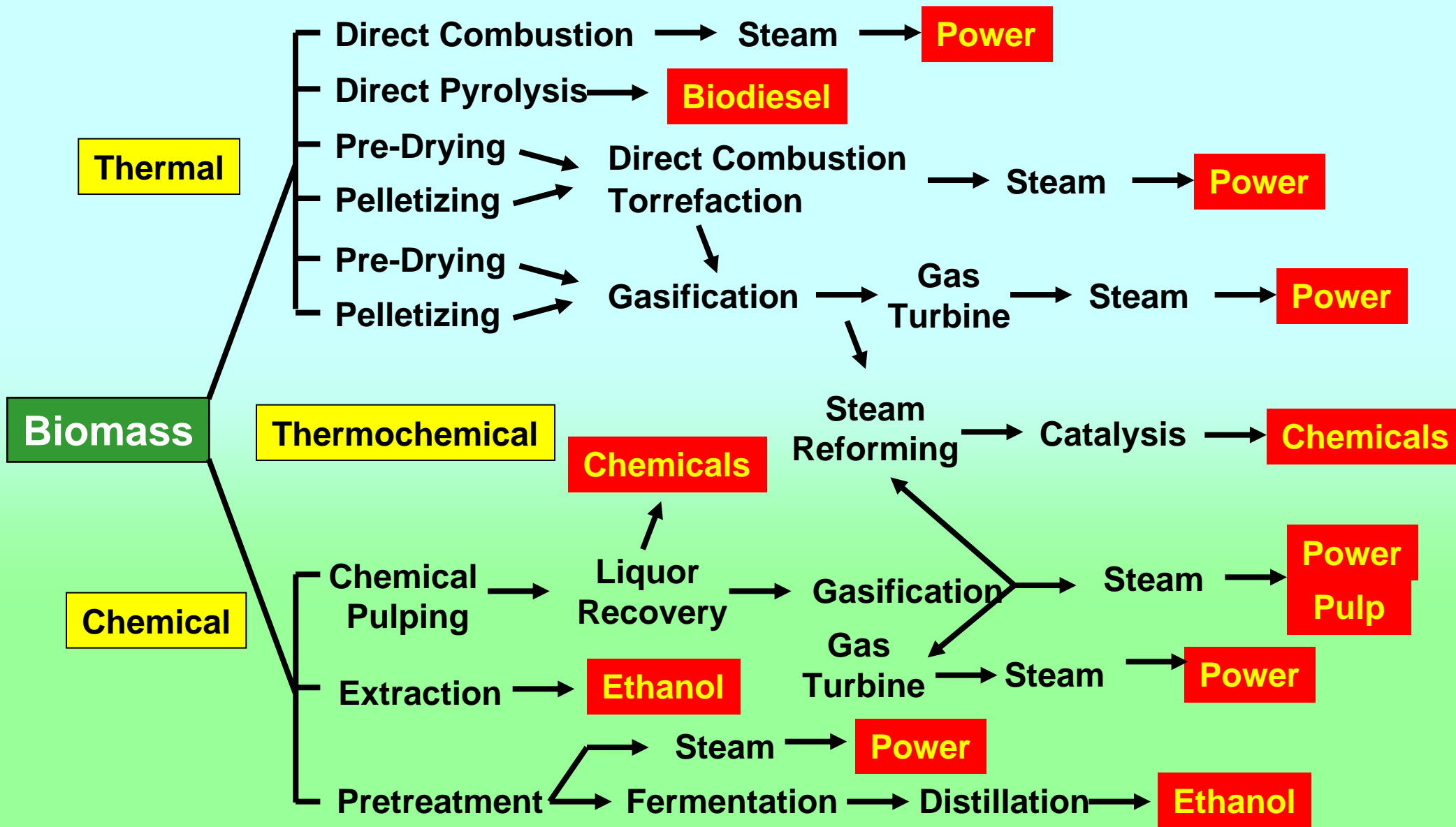
10 X power generation from Base Case – Out Year Growth

Outlook for Forest Bioenergy Potential

- **USA Forestland and productivity is more than adequate to meet current demand**
 - *Best evidence is the shrinking stumpage prices*
- **Current Forestry practices can likely achieve < 10% fossil fuel replacement**
 - *If we keep doing what we currently do*
- **Middle-age Timber stands can double the available biomass for bioenergy**
 - *Can do so sustainably with disciplined replanting strategy*

Bioenergy Landscape is Complex

Technologies very Capital Intensive



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