

# Forest Biomass

Bioenergy 2016

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Weyerhaeuser Company

# Weyerhaeuser Company

- 116 years old
- Own 13.2 million acres of timberland including 7.3 million acres in the US South
- 100% of our timberlands are certified
- 14,000 employees
- We planted 650 million trees in the last five years

# Weyerhaeuser Company



## Most Admired Companies

FORTUNE Magazine, 1988-2014



## World's Most Ethical Companies

Ethisphere Institute, 2009-2010, 2012-2014



## Winning Rating

### 2020 Women on Board

2013-Present



## Top 100 S&P 500

### Clean Capitalism Ranking

Corporate Knights, 2013-Present



## 100 Best Corporate Citizens

Corporate Responsibility Magazine, 2008-2014

Top 10 Best Corporate Citizens, 2014



## Global 100

Global 100 Most Sustainable Corporations in the World  
2011, 2014

## Dow Jones Sustainability Index

2005-2014 (North America)

2011-2015 (World)



## The Sustainability Yearbook

RobecoSAM, 2011-2014



## FTSE4Good Index Series

FTSE Group, 2005-2008, 2011-2015



FTSE4Good

## Maplecroft

### Climate Innovation Indices

Cycles 1-3 (#16)



## ECPI Global Equity Indices

Global Ethical Equity

Global Eco Real Estate and Building

2007-Present



## STOXX ESG Leaders Indices

2012/2013, 2013/2014



# Themes - Context is the US South

Forest landowners respond to markets

The southern forestland base is dynamic

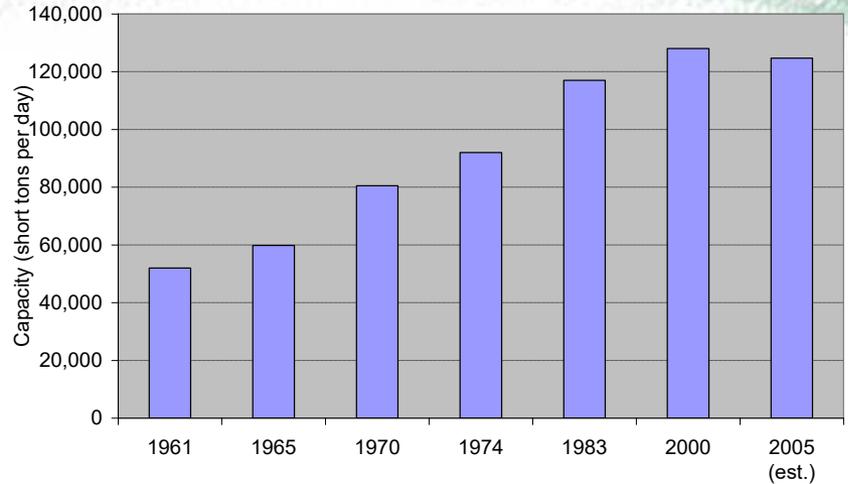
Biomass markets benefit

- Forest landowners
- The landscape
- Rural communities

# US South: Historical Supply/Demand Perspective

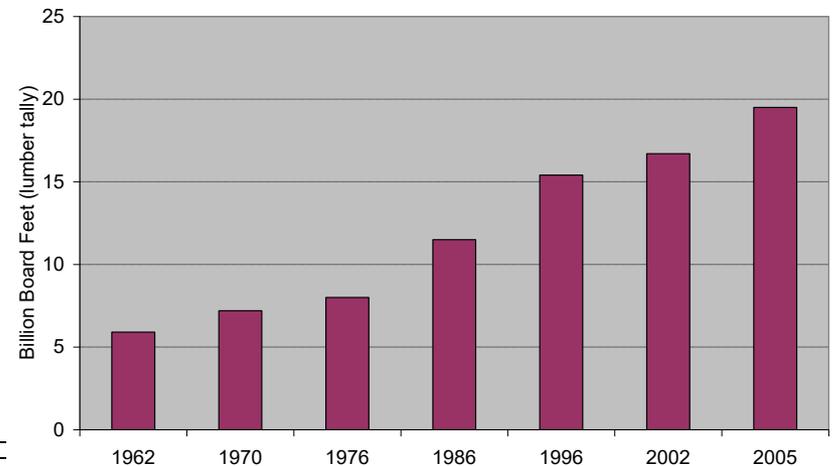
The US South has seen a substantial increase in production of wood products over the last 60 years.

### US South Pulp Output Processing Capacity



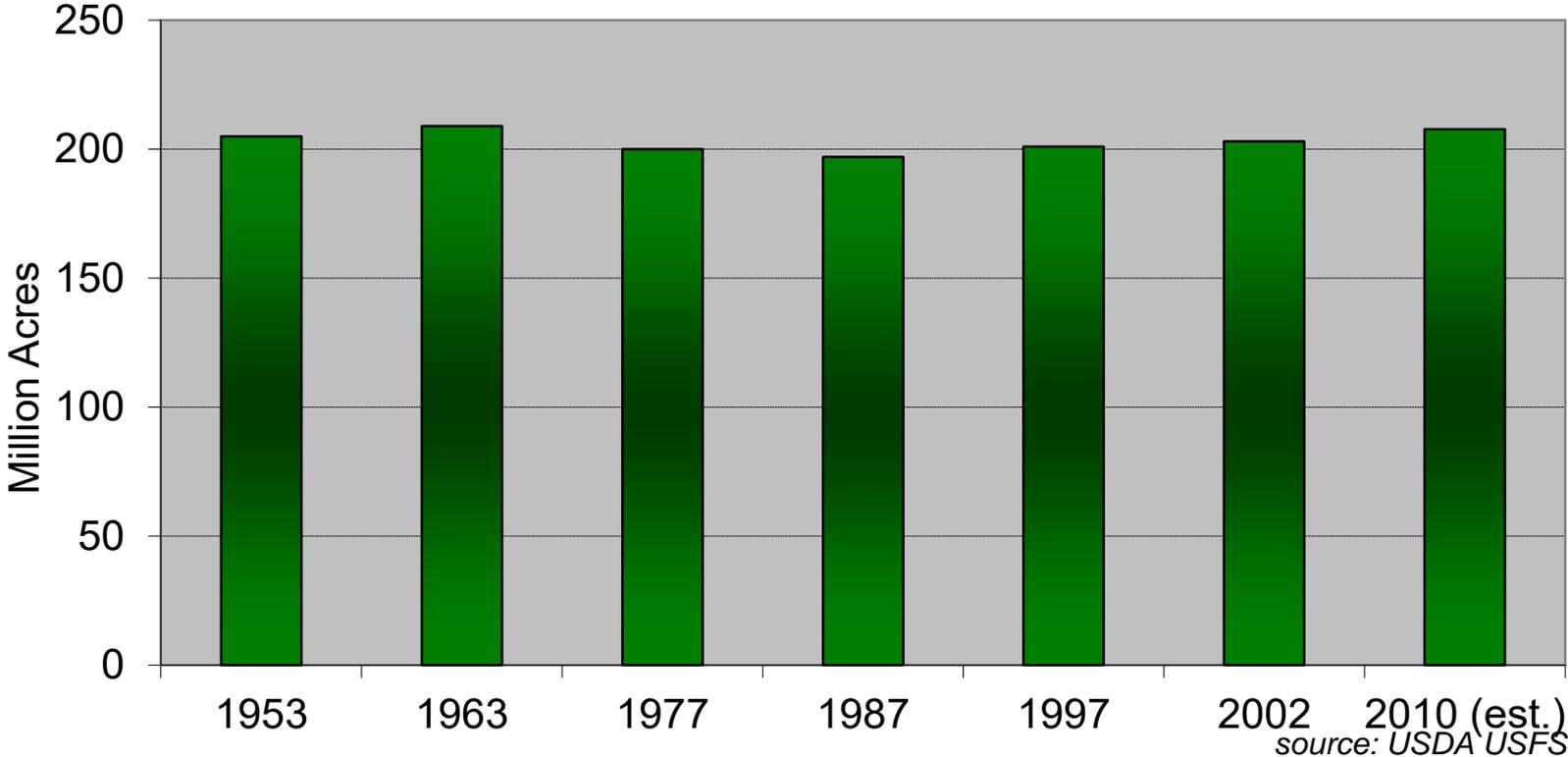
source: USDA USFS, RISI

### US South Softwood Lumber Production



source: USDA USFS, RISI

# US South Timberland Area

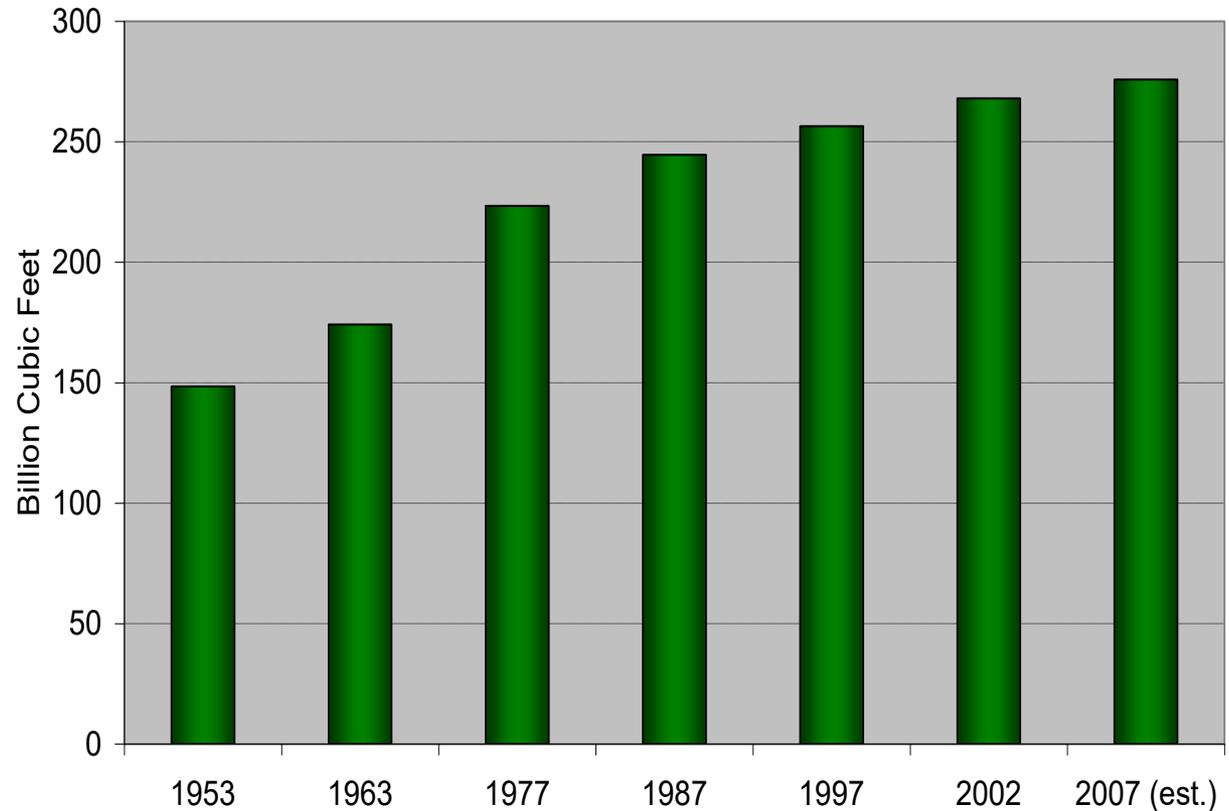


# Historical Supply/Demand Perspective

## US South Timber Inventory Volume

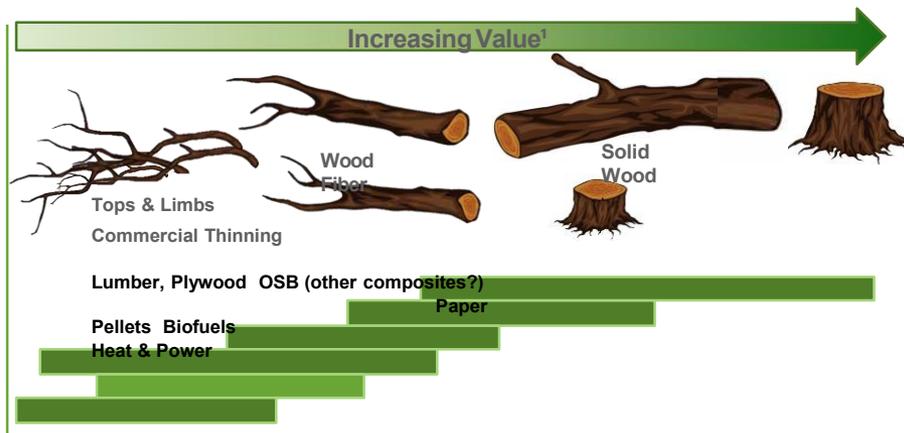
Forest management in the south is a success story:

- Stable land base
- More harvest volume
- More inventory volume
- Greater productivity



source: USDA USFS

## SAW TIMBER IS PRIMARY LANDOWNER VALUE PROPOSITION



<sup>1</sup> Graphic: Plum Creek

<sup>2</sup> Munsell, J. F. and Fox, T. R. 2010. An analysis of the feasibility for increasing woody biomass production from pine plantations in the southern United States. Biomass and Bioenergy 34: 1631 – 1642.

# Timber Market Futures

## Southern Forest Futures Project - US Forest Service

Supply growth can support an orderly expansion in timber production

- +40 percent (from 2007 levels) without productivity increases
- +70 percent with productivity increases

Question: what is the source of demand growth.

- RPA and other assessments indicate that bioenergy is only likely source

# Biomass Benefits Landowners

- Some (minor) incremental revenue at final harvest and thinning
- The ability to thin on time
- Reduction in site preparation costs (preparing to plant)
- Incremental revenue and cost reduction result in better financial returns

Better financial returns incent forest land retention and investment in management

# Greatest Risk to Southern Forests?

The greatest risk to southern forests is conversion to another land use – US Forest Service Southern Forest Futures Project

# Retention of Forestland on the Landscape

“Assuming that forest land rents increase with increases in non-sawtimber feedstock prices and that changes in land use are tied to forest land rents, the amount of timberland will increase with an increase in demand for feedstock for pellets, as more plantations are established on marginal agricultural land.”

Abt, Abt, Galik and Skog - **Effect of policies on pellet production and forests in the U.S. South**

## **STRONG MARKETS FOR WOOD HELP TO MAINTAIN AND INCREASE FOREST VOLUMES AND IMPROVE FOREST HEALTH IN THE US**

•>750 million acres of forest area (>304 million hectares)

•Total US forest area is within ~1% of what it was 100 years ago.<sup>1</sup>

•During the last 60 years, forest inventories have grown by more than 50% in the US.<sup>2</sup>

•US forest carbon stocks: +31% since 1990, during a period of intensive forest products industry activity.<sup>3</sup>

<sup>1</sup>Brat kovich, S., Bowyer, J., Brat kovich, J., Fernholz, K., Stal, S., & Frank, M. (March 2017). Forests of the United States, Understanding Trends and Challenges. Dovetail Partners Inc., p.7.  
<sup>2</sup>USDA Forest Service. (2009). US Forest Resource Facts and Historical Trends. USDA Forest Service, p.17.  
<sup>3</sup>US Environmental Protection Agency. (2012). Inventory of US Greenhouse Gas Emissions and Sinks: 1990–2010. Washington, DC: US Environmental Protection Agency, Section 2, p.11.

## Insight 2: The Carbon Impacts of Market Responses to Increased Demand

**Increased demand** for wood **can** trigger investments that **increase forest area and forest productivity** and **reduce carbon impacts** associated with increased harvesting.



- The evidence for this includes (1) general observations over time, (2) empirical studies and (3) modeling.

# Benefits to Rural Communities

Since the recession 1/3 of the 1.5 million forest products sector jobs, often the best paying/best benefit rural jobs, have been lost – US Endowment for Forestry and Communities

In a rural GA county with 17 % unemployment a new wood-to-energy project with 75 direct and indirect jobs is the equivalent of 30,000 new jobs in Atlanta.

# Summary

The South's forests are abundant and productivity is increasing

Markets provide an incentive for landowners to retain their forests as forests and to invest in management

Bioenergy development can provide a significant economic boost in rural communities

# Takeaway

The forests of the US South are a dynamic resource and history tells us that as demand for wood from the forest increased:

- Output from the forest increased
- The forestland base remained stable
- The forest inventory increased dramatically

Landowners respond to positive market signals by retaining their forestland and making forest management investments.