



The Future Role of Wood for Energy – Traditional Wood Industry Perspective

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The Future Role of Wood for Energy

Current Forest Products Industry use of Biomass

Policies to Retain Current Use and Expand It

Fiber Supply Issues

Opportunities for Plentiful Biomass

Current Forest Products Industry Energy Generation

Leading producer of carbon-neutral, renewable biomass energy

In 2005

- 98% of pulp mill electricity was co-generated.
- 96% for wood products
- 66% of cogenerated electricity is from biomass.

28.5 million megawatts annually – enough to power 2.7 million homes

Policy Priorities

Equal treatment – New and Existing

- Make renewable biomass energy generated and used onsite eligible for Section 45 production tax credit.
- Full RES credits for the renewable power we generate whether used onsite or sold to the grid

Most state RESs do this.

Broad renewable biomass definition in the RES.

- And revision of the narrow definition in the RFS.

Grid access and competitive tariffs

Incentives to increase biomass supply.

Fiber Supply Issues



Generating Plentiful Biomass

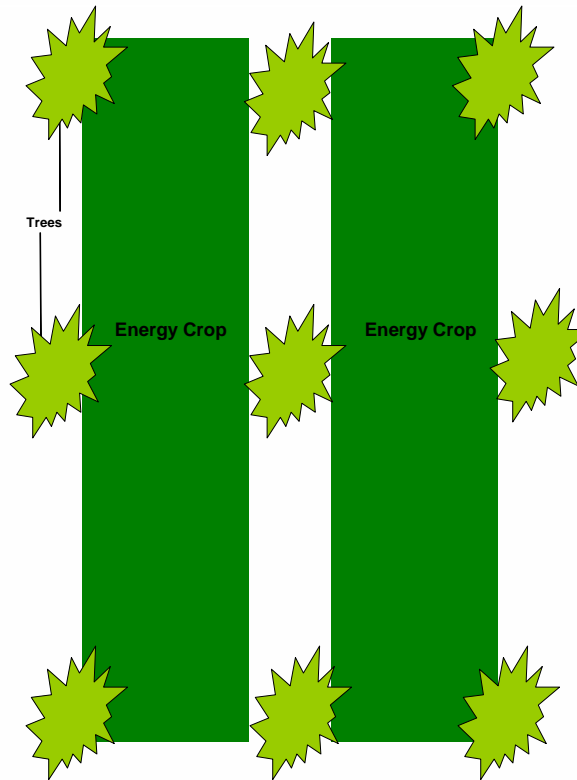
A greater supply of biomass will lessen the impact of biomass energy on traditional forest products companies. How to get there?

- New crops.
- Government policy.
- Improvements in biomass harvesting technology.
- Improvements in silviculture.
- Innovative ways to integrate biomass cultivation with forest management.

Intercropping of Dedicated Energy Crops

How might this work

- Grow strips of pine trees and an energy crop
- Perennial energy crop harvested annually for a number of years
- Trees managed for wood products and fiber.



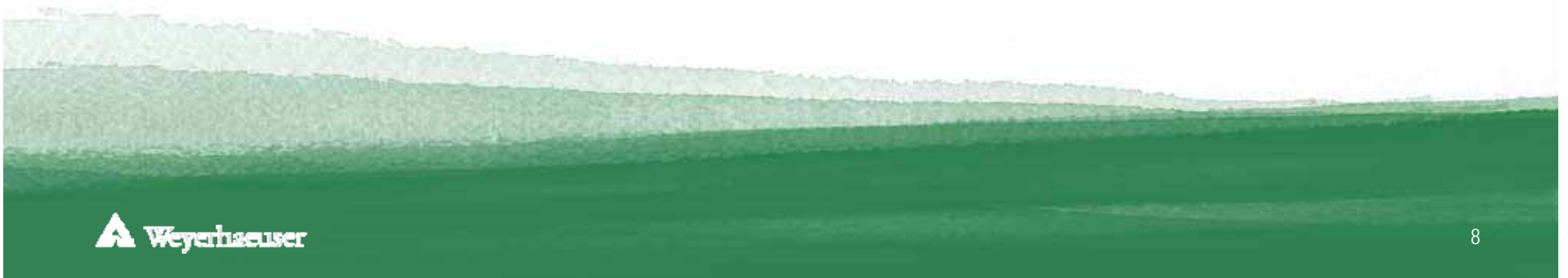
Government Policies and Biomass Supply

The south is limited on some renewable resource.

Government policy can impact biomass supply.

- Letting markets operate leads to efficient outcomes.
- Cost share programs, education and and favorable tax policy can result in greater investment in silviculture and ultimately, more biomass.

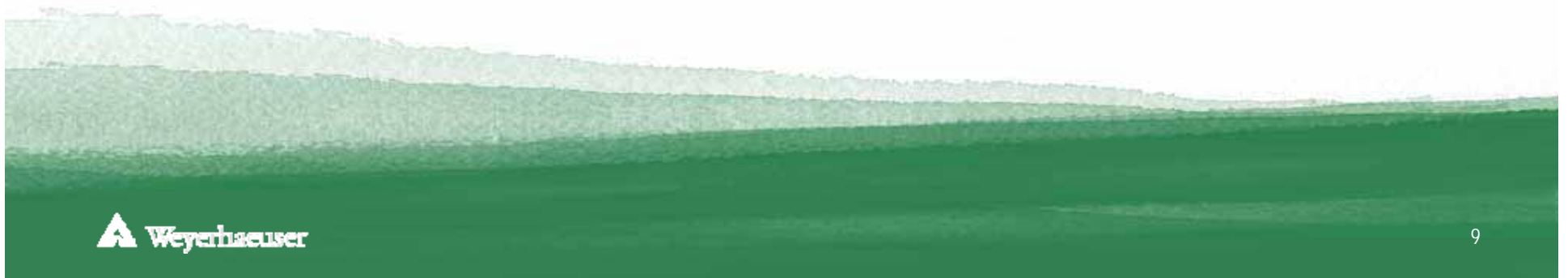
A broad definition of renewable biomass will increase the supply, reducing supply impacts on existing fiber users.



Biomass Harvesting Improvements



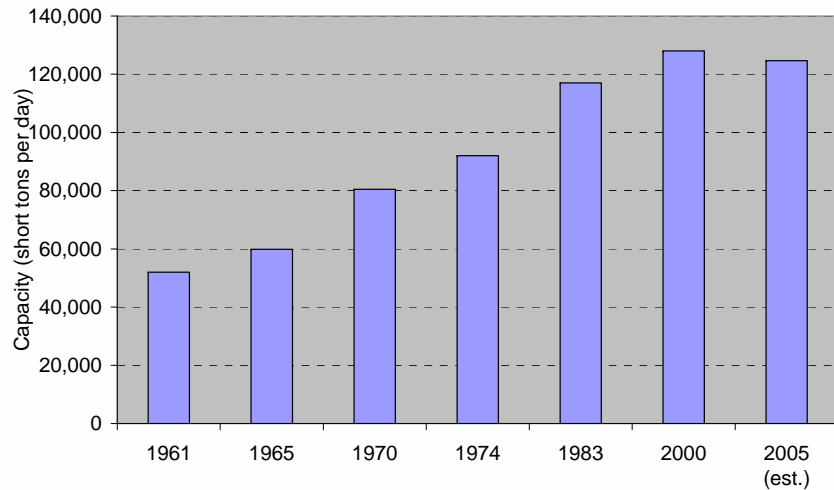
As technology improves and costs decline, more biomass becomes available.



US South: Historical Supply/Demand Perspective

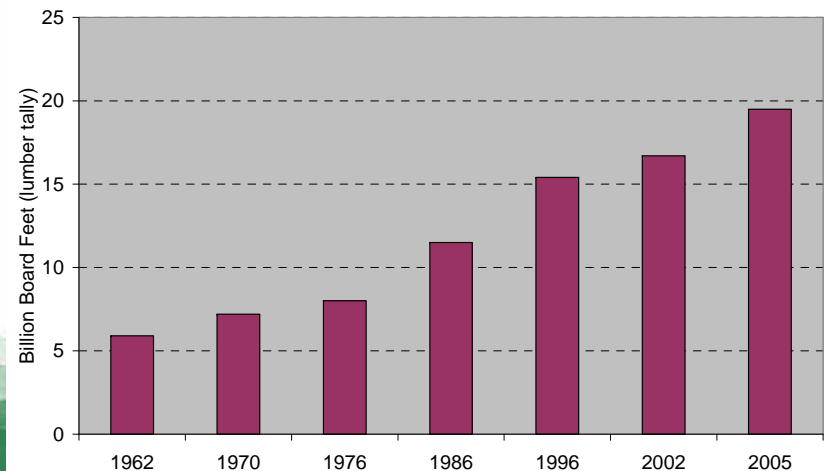
The US South has seen a substantial increase in production of wood products over the last 50 years.

US South Pulp Output Processing Capacity



source: USDA USFS, RISI

US South Softwood Lumber Production



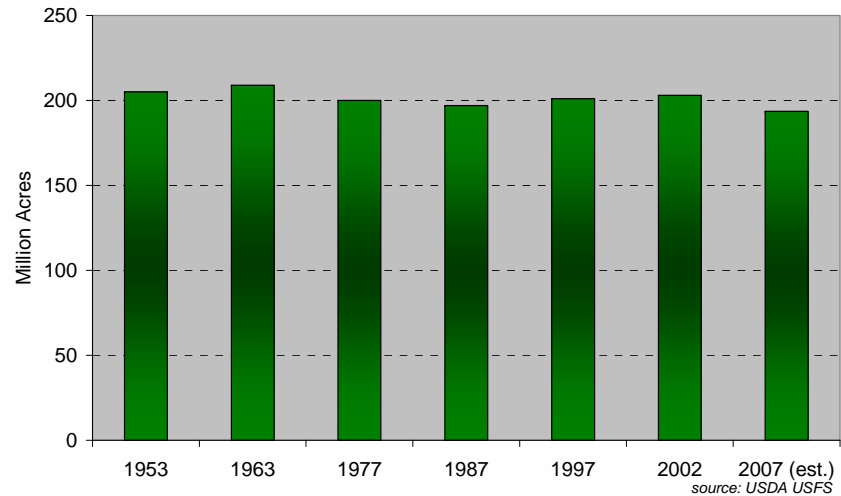
source: USDA USFS, RISI

US South: Historical Supply/Demand Perspective

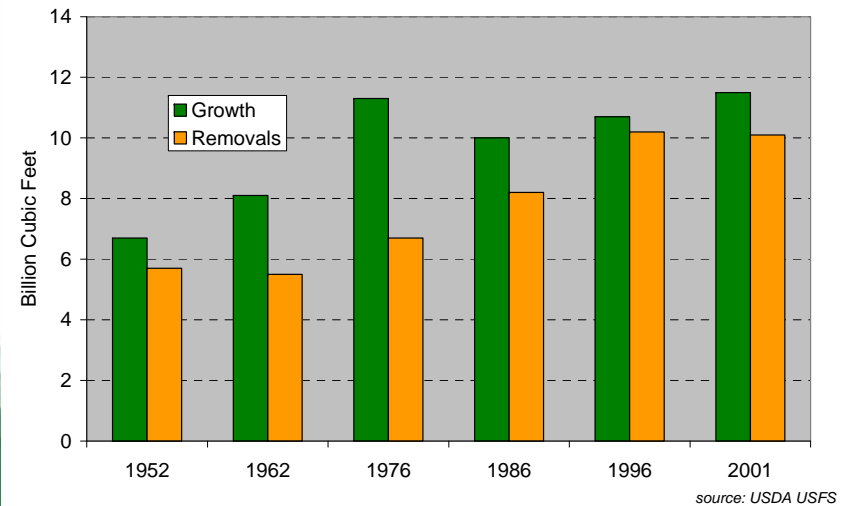
Timber land base has been stable.

Investments in forest management have resulted in a significant increase in volume growth over the same time period

US South Timberland Area



US South Growth versus Removals

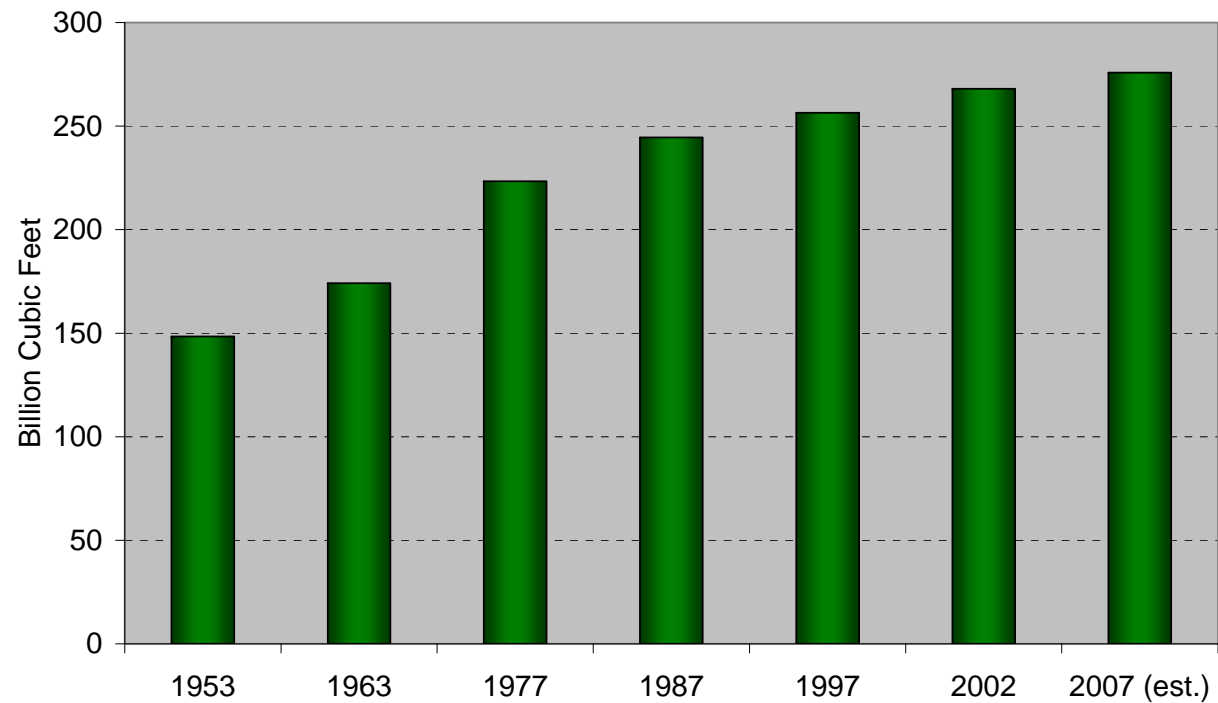


Historical Supply/Demand Perspective

Forest management in the south is a success story:

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

US South Timber Inventory Volume

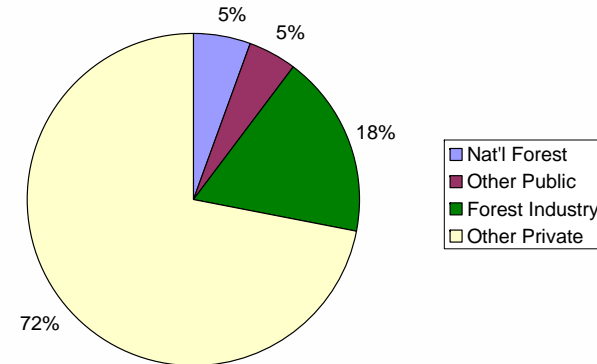


source: USDA USFS

Historical Supply/Demand Perspective

Most southern forests are privately owned

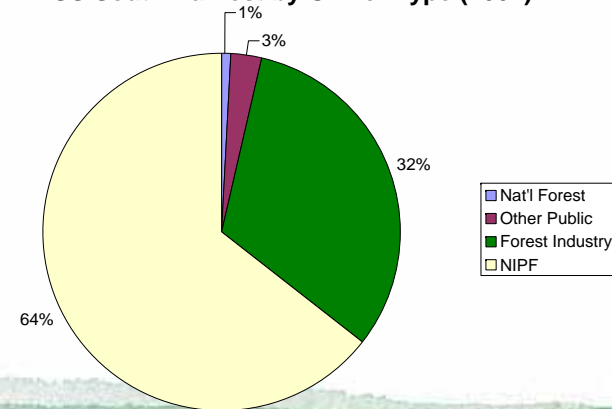
US South Timberlands by Owner Type (2002)



source: USDA USFS

Almost all of the harvest comes from private lands

US South Harvest by Owner Type (2002)



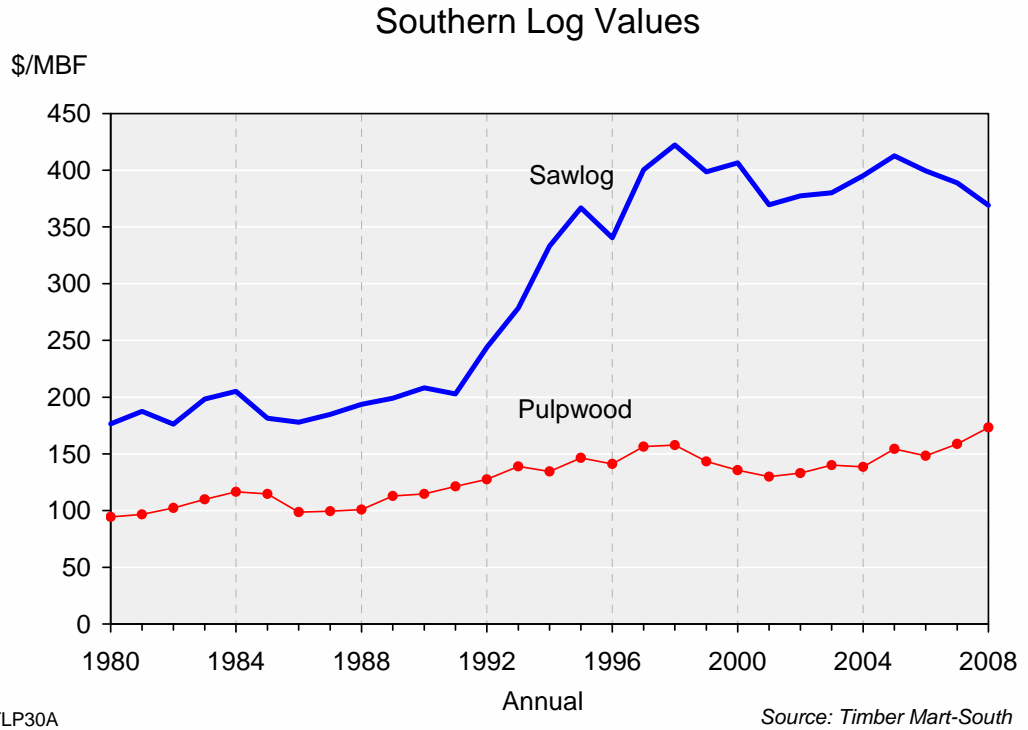
source: USDA USFS

Timber Price Behavior

Private owners respond to financial incentives

Sawlog prices are much higher than pulpwood prices

Thus, sawlog values are the primary driver for more intensive forest management



Single Acre Economics – US South

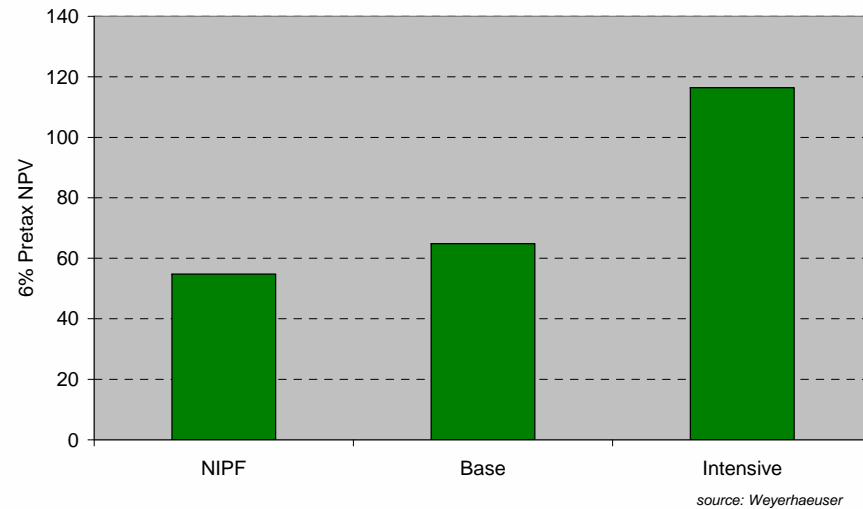
Intensive management produces:

- Better financial returns
- More sawtimber

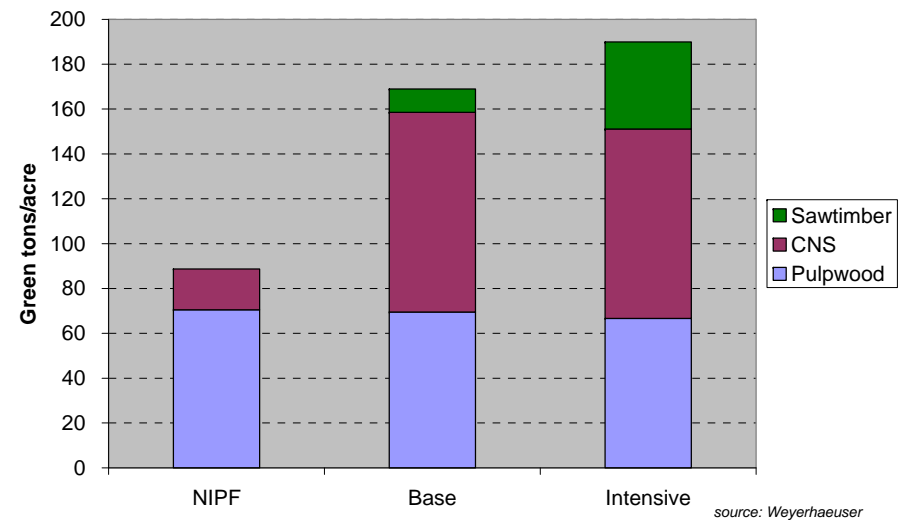
And fiber residuals

- Forest management certification and best management practices promote production from sustainably managed forests

Financial Effect of Intensification



Volume Production Effect of Intensification



Effects of Incremental Biomass Demand

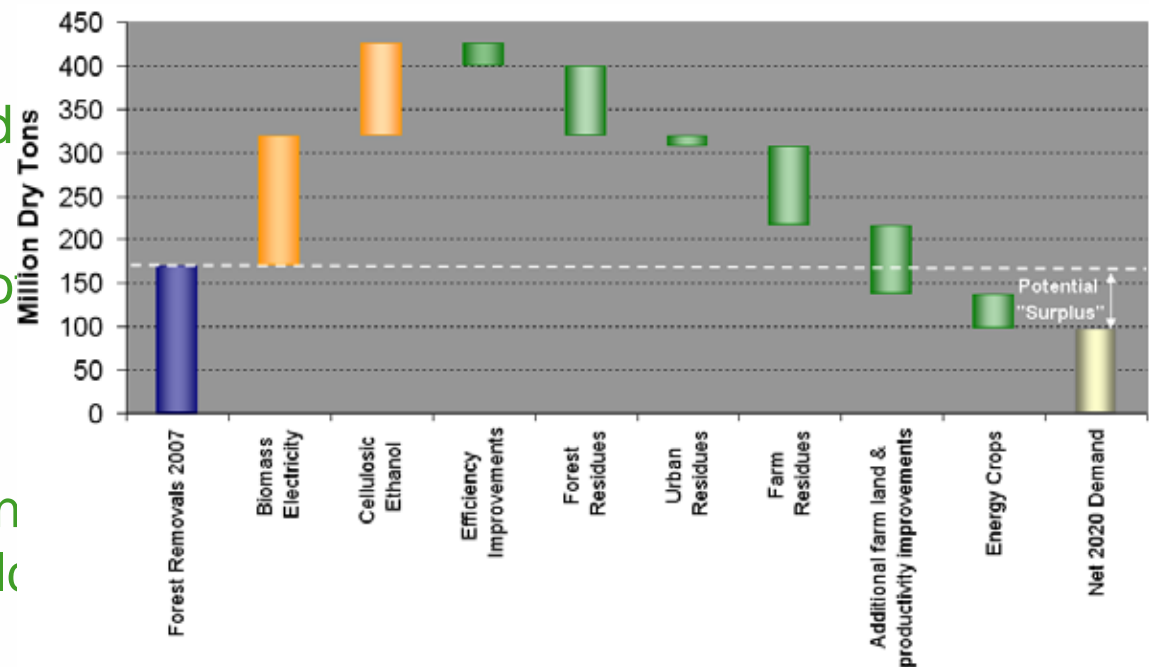
What about wood for energy use?

- High amount of uncertainty about potential quantities and timing
- Several studies have been published recently, e.g.,
 - US DOE “Billion Ton Study”
 - Hawkins Wright
 - Forest2Market
 - Galik, Abt and Wu (Journal of Forestry)
- Underlying assumptions can drive out widely different estimates

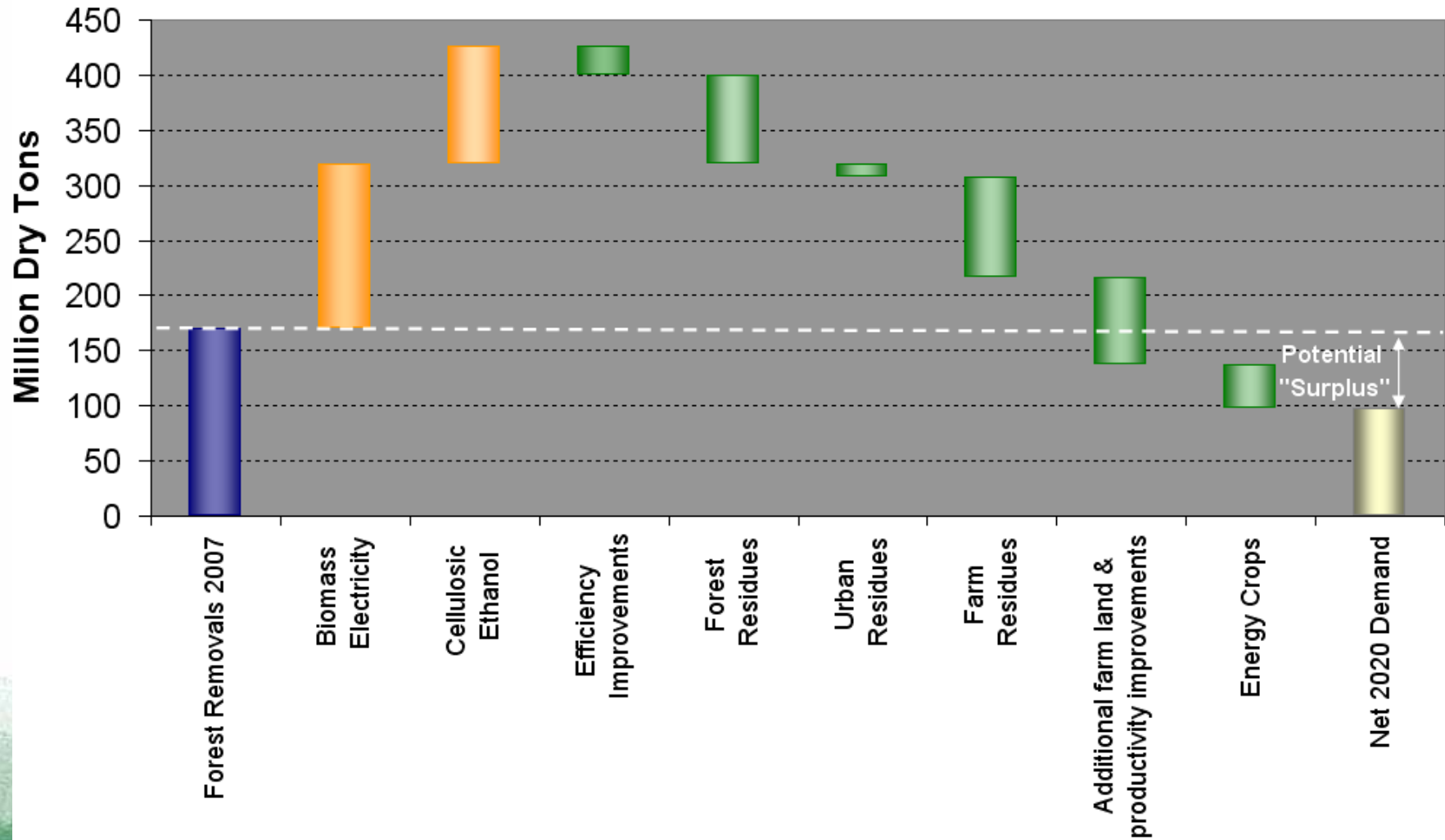
Effects of Incremental Biomass Demand US South

Assuming a high feedstock demand future for the South...

- 15% of electricity production sourced from biomass
- 9.6 billion gallons of cellulosic ethanol
- Biomass supplies from forest and non forest sources could meet feedstock demands

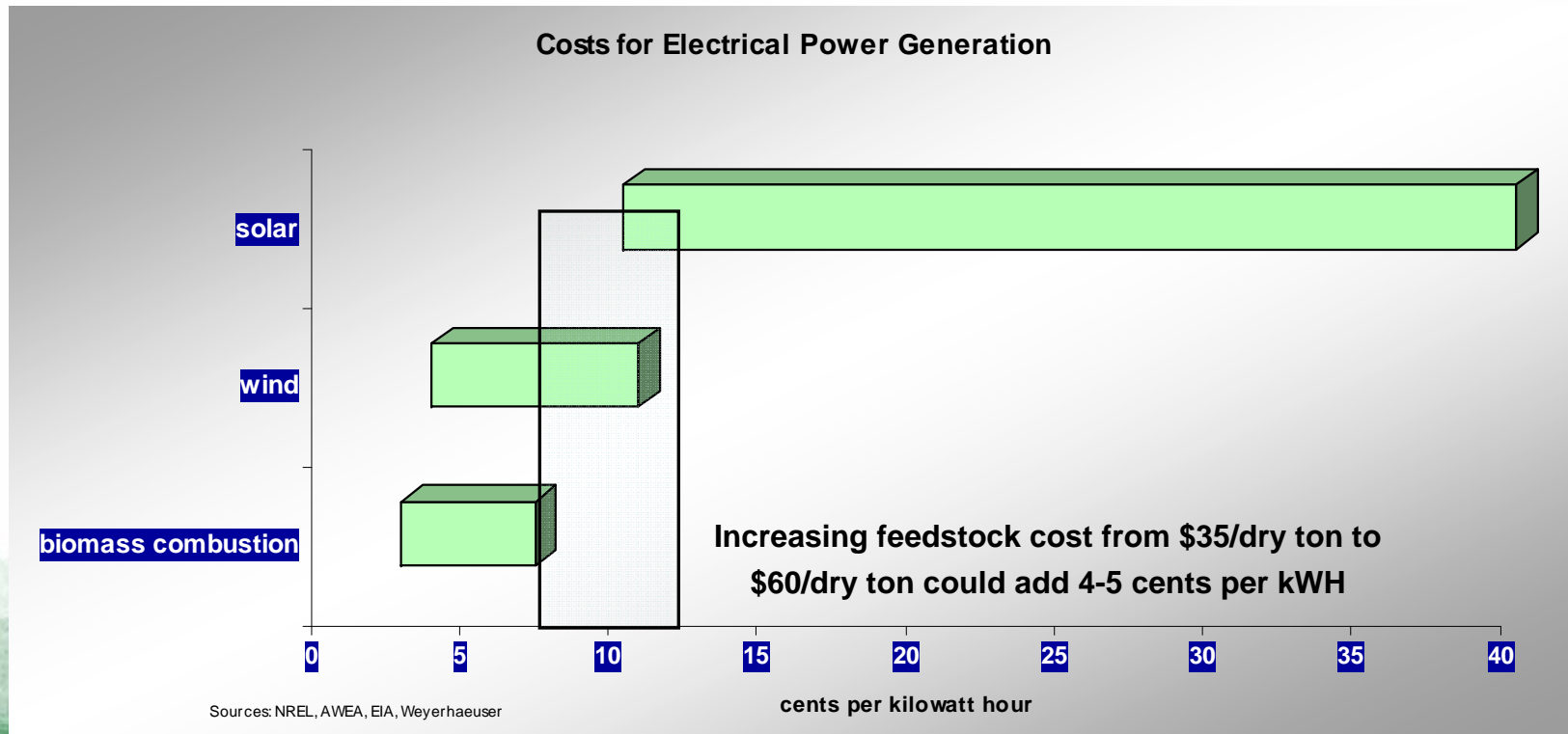


Effects of Incremental Biomass Demand US South



Costs of Alternatives

- Other technologies become competitive if biomass costs start rising significantly from today's levels
- Other technologies thus can limit how high biomass prices would rise
- Biomass for energy will develop over a number of years with ample opportunity to adjust course as needed.



Conclusions

Let the market work

Biomass feedstocks deserves equal treatment

Sawlog values drives forestry

New biomass markets will keep forest in forest

Supplies can plausibly meet potential demand

Promote production from sustainably managed forests