Biomass Resources in the Southeast

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EESI Briefing—Can States Meet the Proposed 15% National RPS?

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Allowed Biomass Resources (H.R. 3221)

- Plants planted for the purpose of producing energy
- Agricultural crop, crop byproduct, or residues
- Wastes: landscape and right-of-ways but excluding MSW; painted, treated or pressurized wood; recyclable paper
- Forest industry resources: Restricted on public lands to pre-commercial thinnings, brush, slash, ecological forest restoration (fuel treatment), and mill residues
- Animal wastes
- Landfill methane

States Included

- Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia

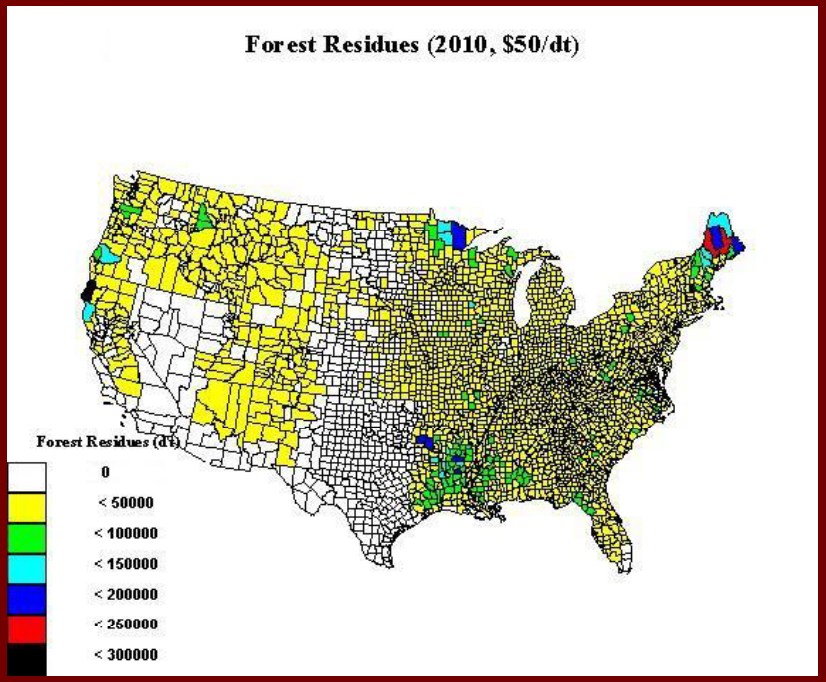
Forestry Residues

Forest Residues Generated, 2002 (million dry tons)	
Logging Residues	20.11
Other Removals	14.35
Total	34.47

Costs of Forest Residues* (million dry tons)			
	$30/dt	$40/dt	$50/dt
2010	12.4	16.8	19.2

* Costs = collection cost

Forest Residues



Other sources of forest residues include fuel treatment for fire reduction

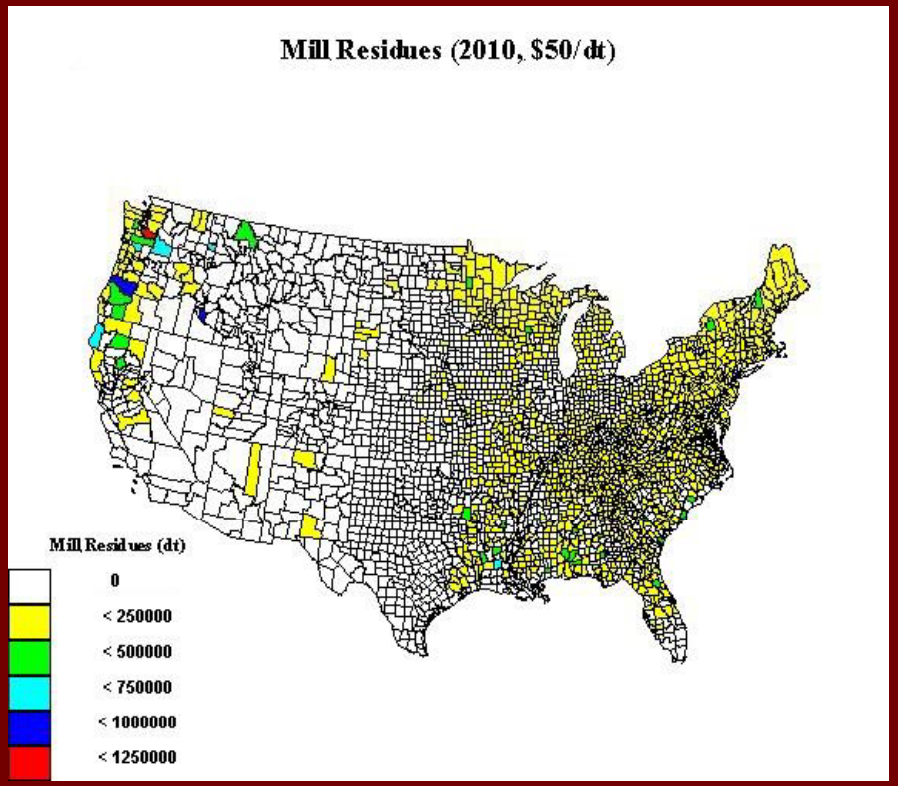
Primary Mill Residues

Mill Residues, 2002 (million dry tons)	
Generated	49.0
Not Used	0.63

Costs of Mill Residues* (million dry tons)			
	$30/dt	$40/dt	$50/dt
2010	15.6	26.4	28.6

*Cost = Size reduction, price to attract away from current use

Mill Residues



Urban Wood Wastes

Estimated Quantities of Urban Wastes Generated (million dry tons)			
	Generated	Total Clean	Yard Trim Only
2010	14.6	6.5	2.0

Wood in MSW, Yard Trimmings, Construction, Demolition, and Renovation Wastes

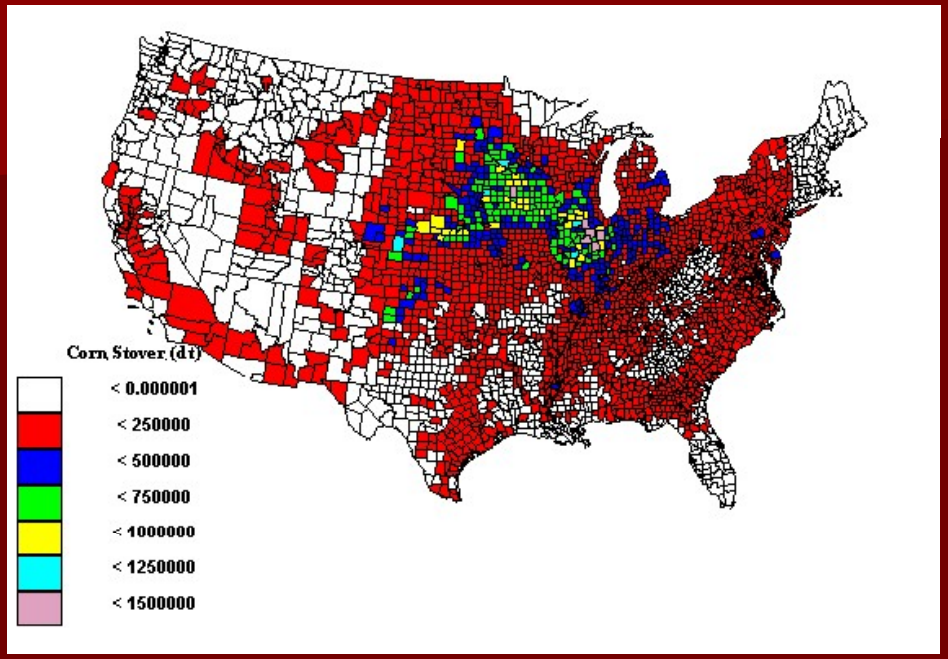
Costs of Clean Urban Wastes (including MSW)*				
	$20/dt	$30/dt	$40/dt	$50/dt
2010	1.35	3.08	5.06	5.17

Ubiquitous and everywhere in small quantities and concentrated in metropolitan areas—but not necessarily cheap

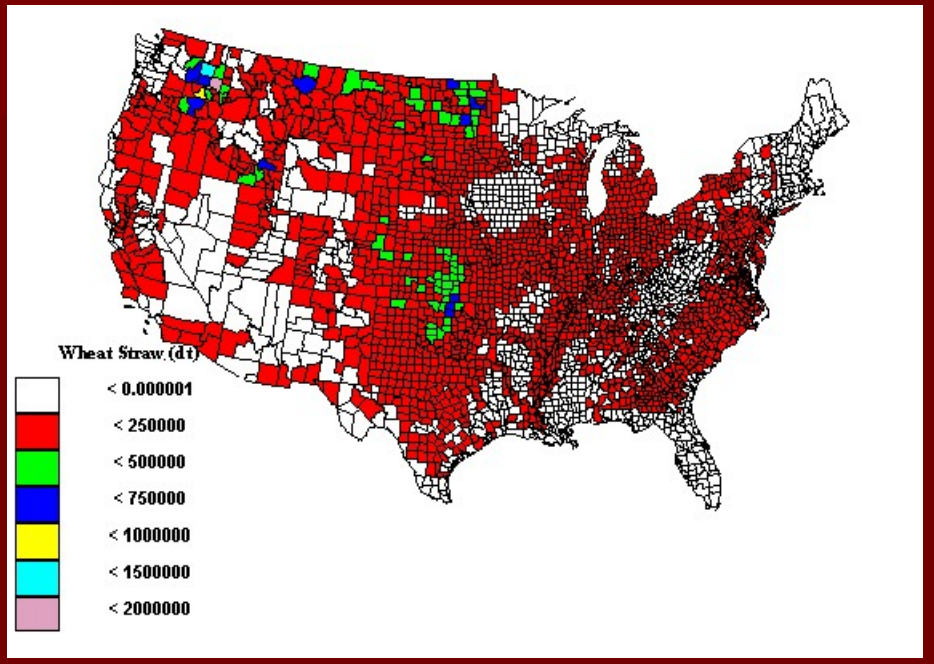
* Cost = Sort, size reduction, price to attract away from existing use

Crop Residues (Corn Stover and Wheat Straw)

Corn Stover Generated—2005



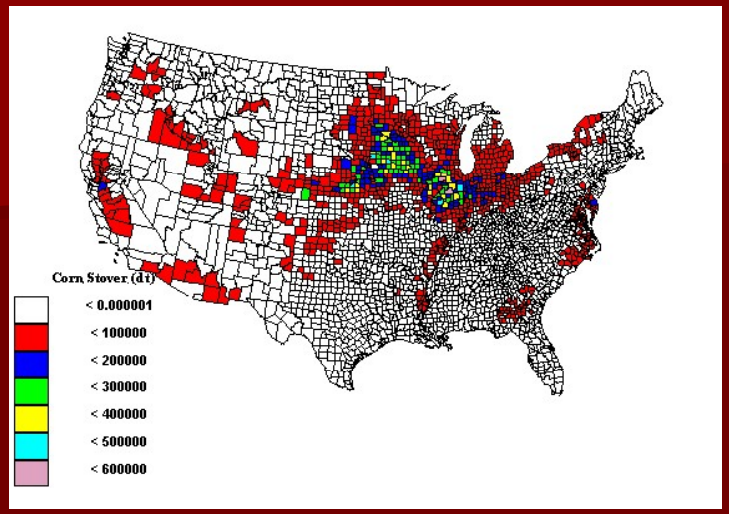
Wheat Straw Generated--2005



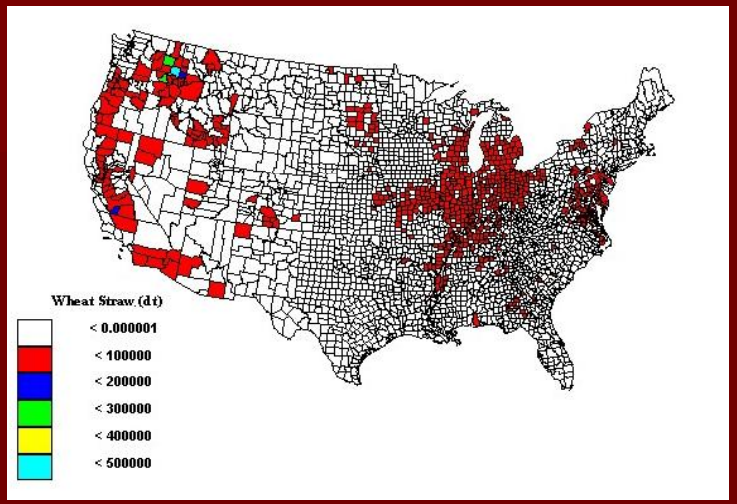
	Quantities Corn Stover Generated (million dry tons)	Quantities Wheat Straw Generated (million dry tons)
2005	15.6	7.4

Crop Residues (Corn Stover and Wheat Straw)

Available Corn Stover



Available Wheat Straw

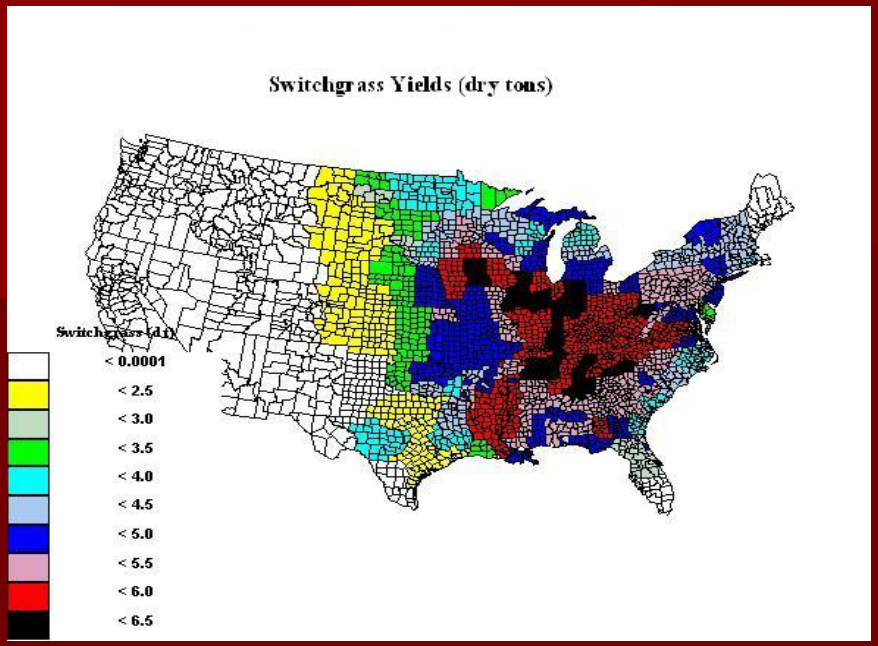


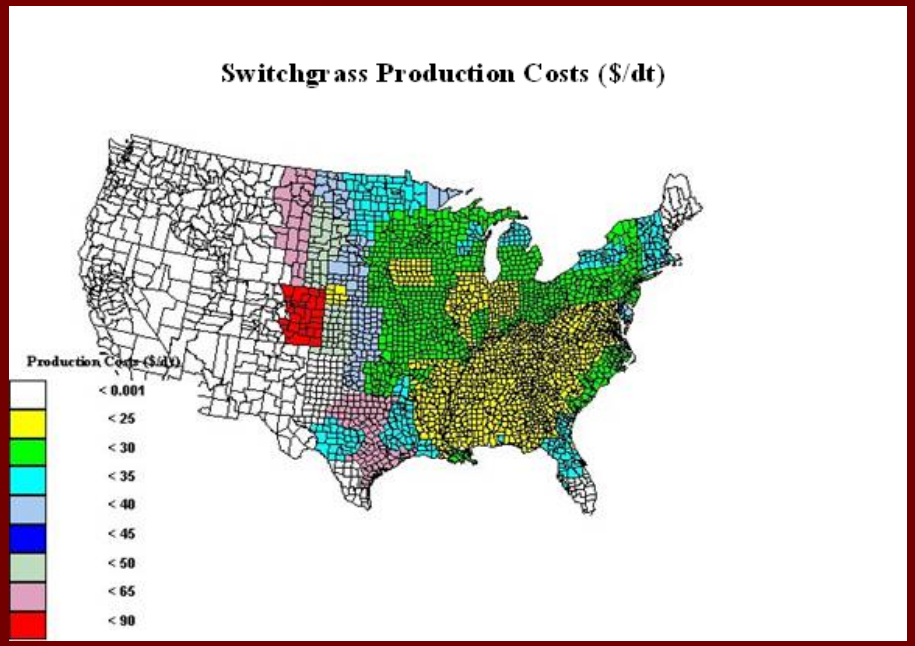
Available quantities account for quantities that must remain to control erosion and maintain soil organic matter by soil type under current crop rotation and tillage practices

	Costs of Crop Residues (million dry tons)-2010*		
	$30/dt	$40/dt	$50/dt
Corn Stover	0.35	1.14	1.61
Wheat Straw	0.21	0.21	0.25

*Costs = Collection cost, fertilizer replacement cost

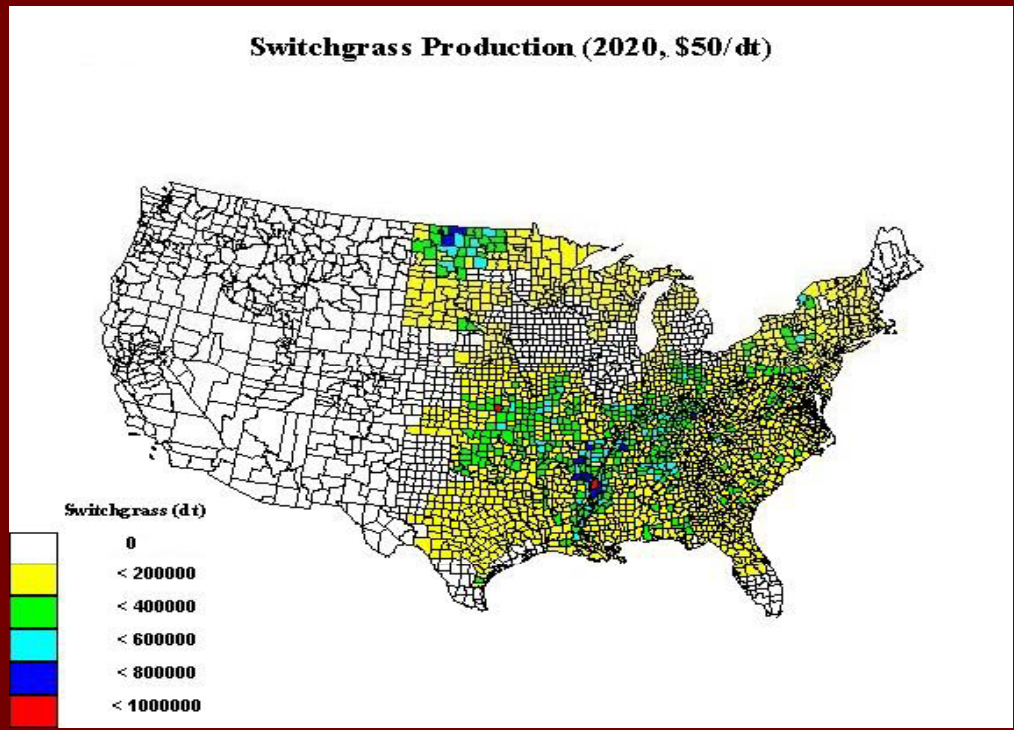
Energy Crops (Switchgrass)





	Costs of Switchgrass* (million dry tons)		
	$30/dt	$40/dt	$50/dt
2010	7.1	9.1	9.3
2020	83.7	109.3	120.2

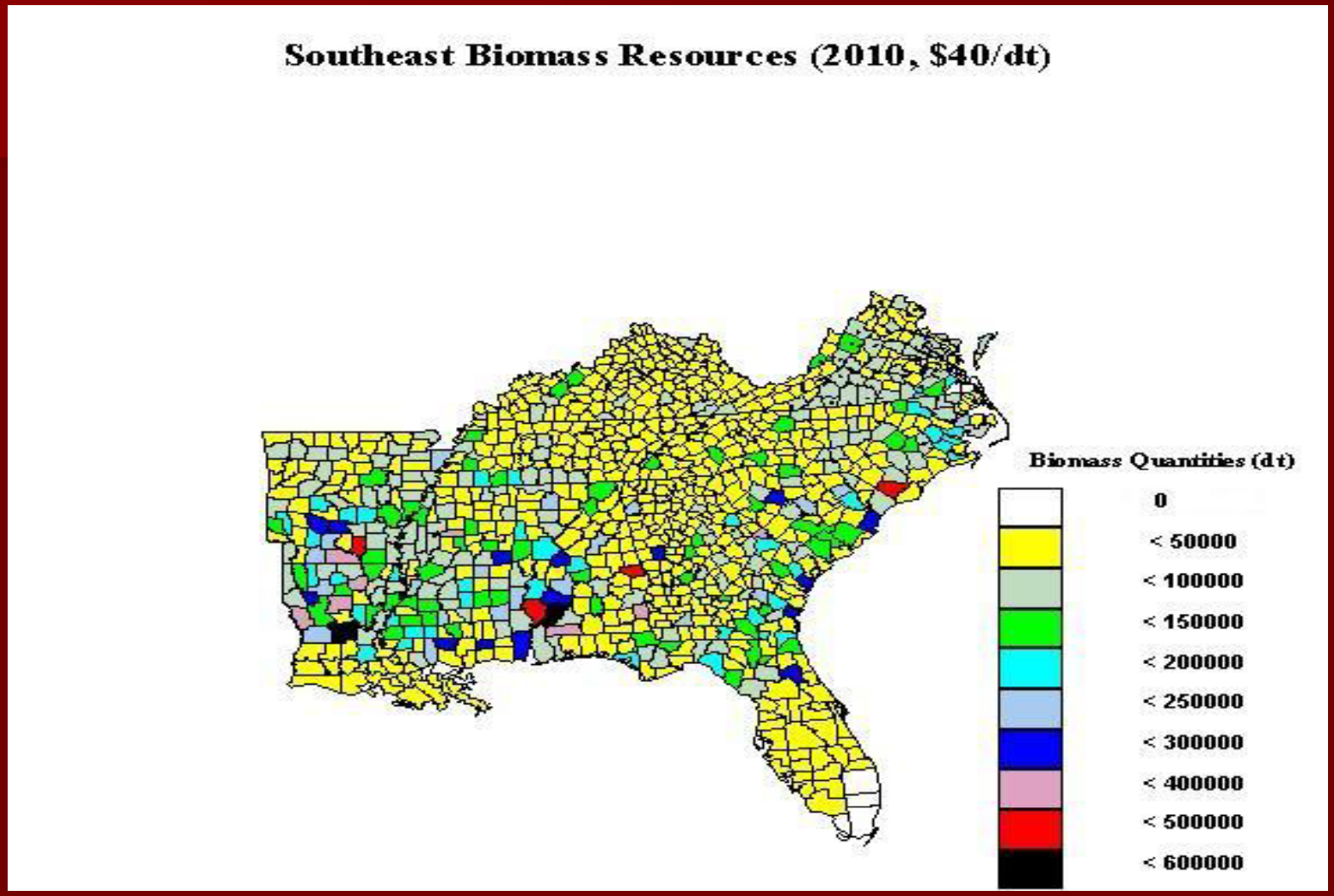
*Cost based on yields, production costs of switchgrass and profits of existing land use



Estimated State Quantities-2010

	Quantities (million dry tons)			Quantities (trillion Btus)
	$30/dt	$40/dt	$50/dt	$2.33-$2.60/MBtu ($40/dt)
Alabama	3.5	7.2	7.7	116.6
Arkansas	5.1	6.3	6.7	101.9
Florida	2.8	3.9	4.2	42.7
Georgia	3.9	7.5	8.1	118.1
Kentucky	1.5	3.3	3.8	49.5
Louisiana	5.4	6.3	6.6	100.7
Mississippi	4.7	7.0	7.9	115.1
North Carolina	3.2	5.4	6.4	81.8
South Carolina	2.0	3.4	3.7	53.2
Tennessee	2.8	4.0	4.2	55.9
Virginia	3.7	4.4	4.9	68.1
Total	38.7	58.6	64.2	903.5

Available Biomass—2010, $40/dt



Resources include forest residues, mill residues, crop residues, and switchgrass

Competition

- Availability/Price of biomass resources available for RPS will depend on policies/markets for biofuels and bioproducts
  - Direct competition for cellulose feedstocks
  - Indirect competition for resources through land competition
- Not sufficient to look at impacts of an RPS for electricity in isolation--need to look at simultaneous development of multiple biobased industries and policies

Location, Location, Location!

- Price/availability of biomass resources are dependent on feedstock concentration and proximity to the user facility
- Regional analysis using average value assumptions is informative, but can be misleading—need to recognize limitations

Wastes Are Resources In The Wrong Place and Time *— Chinese Proverb?*

- Naive assumptions regarding availability and price of biomass resources
  - Opportunities to increases quantities and decrease prices
  - Public and private sector investment need to realize opportunities
  - Public sector investment is lagging