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Southern Alliance for
Clean Energy



Southeast Bioenergy Progress Report

Pre-Release Briefing at SCEN

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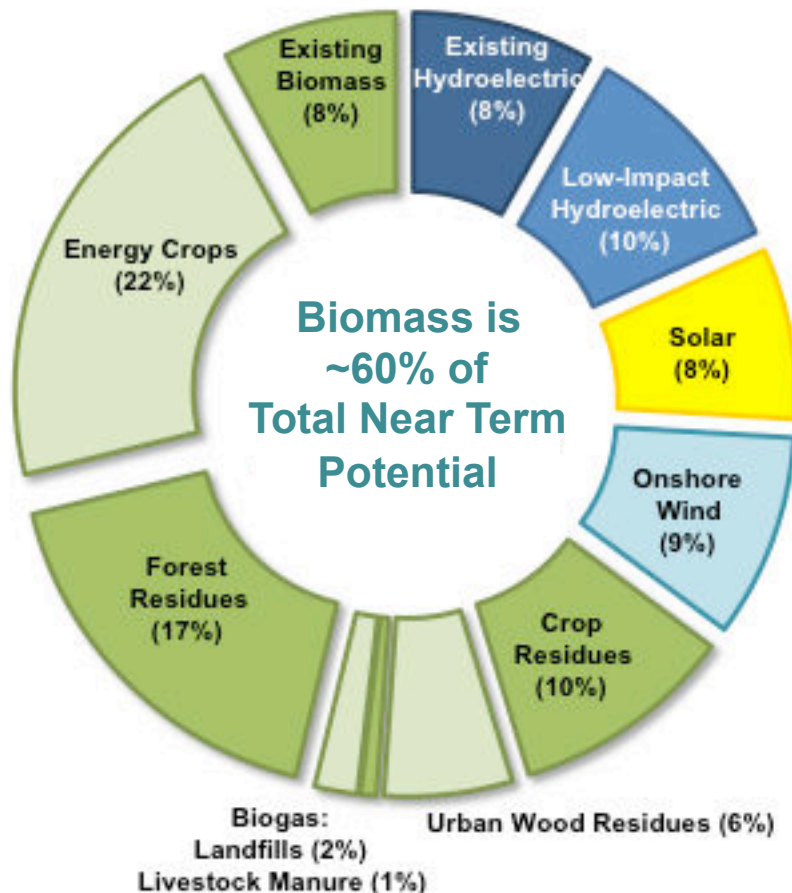
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Overview

- Motivation and Context
- Proposals vs. Developments
- What is Really Happening
- Survey of Developers
- Early Observations
- Some Success Stories

Biopower Potential in the South

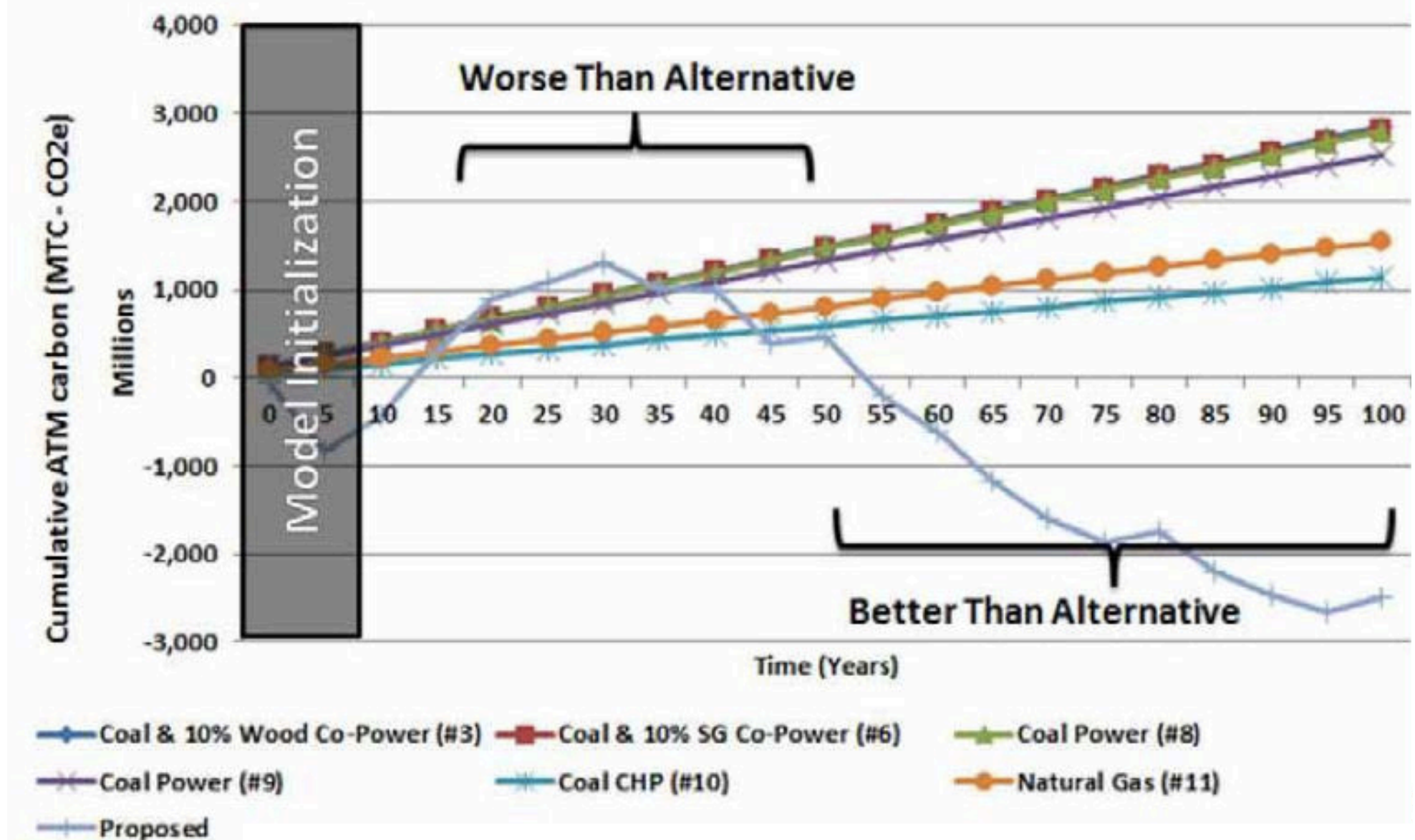
Near Term Potential Renewable Energy Resources



- An Important Part of Our Portfolio of Options
- How Much?
- Impacts of Expansion?



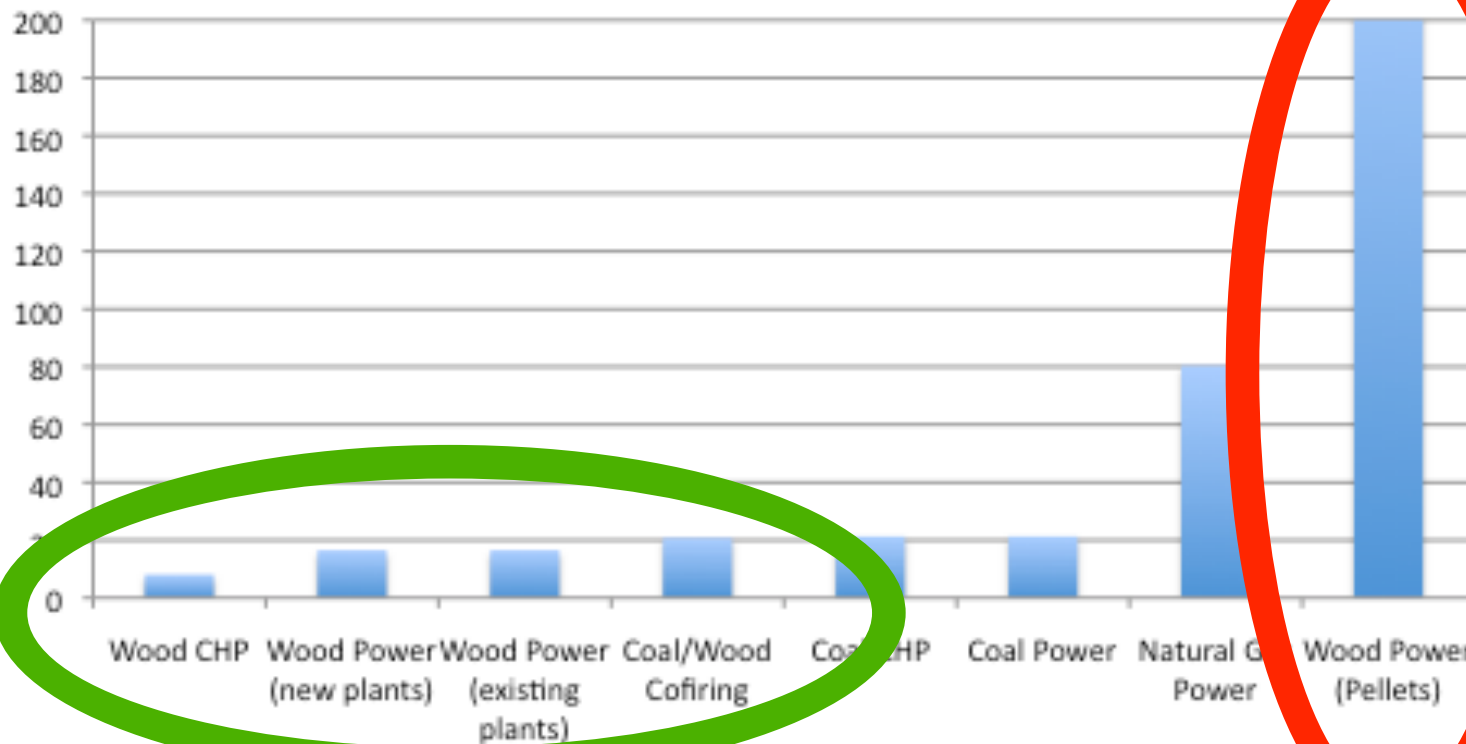
Not All Bioenergy is Climate Friendly



Source: BERC *et al*, <http://tiny.cc/SEcarbon> (Figure 22)

Not All Bioenergy is Climate Friendly

Total CO2 Emissions from Fuel Production and Transportation of 12 Technology Pathways (lbs/mmBtu)



Derived from
BERC
report,
Table 24,
page 62.

Source:
BERC *et al*, <http://tiny.cc/SEcarbon>



Proposals VS. Developments

VS.

Only about 49% of woody biomass projects are expected to succeed.

COMPANY	CITY/TOWN	STATE	TYPE	STATUS
TACO Power LLC	Marionville	FL	CHP	Shut down
New Hope Power Comp	South Bay	FL	CHP	Operating
Buckeye Florida	Perry	FL	CHP	Operating
INEOS New Planet BioE	Vero Beach	FL	CHP	Construction
Florida Power Developm	Brooksville	FL	Biopower	In Development
Multitrade Biomass Hold	Telogia	FL	Biopower	Operating
Wheelabrator Technolog	Auburndale	FL	Biopower	Operating
American Renewables LL	Gainesville	FL	Biopower	Construction
INEOS New Planet BioE	Vero Beach	FL	Biofuel	Construction
University of Florida Tayl	Perry	FL	Biofuel	Construction
Green Circle Bio Energy	Cottondale	FL	Pellets	Operating
Graphic Packaging Coge	Macon	GA	CHP	In Development
Pratt Industries	Conyers	GA	CHP	Operating
North Star Renewable E	Wadley	GA	Biopower	In Development
Multitrade Biomass Hold	Rabun Gap	GA	Biopower	Operating
Rollcast Energy	Barnesville	GA	Biopower	Construction
First Georgia BioEnergy	Waynesville	GA	Pellets	In Development
FRAM Renewable Fuels	Baxley	GA	Pellets	Operating
Briar Creek Wood Fibers	Sylvania	GA	Pellets	Operating
Rockwood Pellets	The Rock	GA	Pellets	Operating
RWE Innogy	Waycross	GA	Pellets	Operating
Vega Biofuels	Cordele	GA	Pellets	Site Selection
Fram Renewable Fuels	Lumber City	GA	Pellets	Operating
ADM	Valdosta	GA	Heat or Steam	Operating
Ameresco	Jesup	GA	Heat or Steam	Operating
Wellons Energy / Perdue	Lewiston	NC	CHP	Construction
Wellons Energy / House	Rose Hill	NC	CHP	Construction
FLSEnergy / Mountaire F	Candler	NC	CHP	Construction
Wellons Energy / Camp	Maxton	NC	CHP	Construction
Prestage Farms	Clinton	NC	CHP	Construction
Catawba County CHP	Newton	NC	CHP	In Development
Coastal Carolina Clean F	Kenansville	NC	CHP	Operating
Corn Products Internatio	Winston Salem	NC	CHP	Operating
Wellons Energy / Perdue	Cofield	NC	CHP	Operating
Pfizer Global Supply Cor	Sanford	NC	CHP	Operating
Capital Power Income L	Roxboro	NC	CHP	Operating
UNC Chapel Hill	Chapel Hill	NC	CHP	Technical plan
Decker Energy	New Bern	NC	Biopower	Operating
Duke Energy	Salisbury	NC	Biopower	Operating
Enviva LP	Northampton	NC	Pellets	In Development
Enviva LP	Ahoshkie	NC	Pellets	Operating
Carolina Wood Pellets	Franklin	NC	Pellets	Operating
Nature's Earth Pellet	Laurinburg	NC	Pellets	Operating
Domtar	Bennettsville	SC	CHP	Operating
Ameresco	Jackson	SC	CHP	Construction
Duke Energy	Williamston	SC	Biopower	Operating
Carolina-Pacific	Georgetown	SC	Pellets	Operating
Low Country Biomass	Ridgeland	SC	Pellets	Construction
Ameresco	Jackson	SC	Heat or Steam	Operating
DOE/SRS	Jackson	SC	Heat or Steam	Operating
Ameresco	Estill	SC	Heat or Steam	Operating
Ace Pellet Co.	Cedar Grove	TN	Pellets	Operating
Henry County Hardwood	Paris	TN	Pellets	Operating
Hassell & Hughes Lumb	Collinwood	TN	Pellets	Operating
Oak Ridge National Lab	Oak Ridge	TN	Heat or Steam	Construction
MeadWestvaco Corpora	Covington	VA	CHP	In Development
Dominion	Altavista	VA	Biopower	In Development
Dominion	Hopewell	VA	Biopower	In Development
Dominion	Franklin	VA	Biopower	In Development
Dominion	Hurt	VA	Biopower	Operating
South Boston LLC (own	South Boston	VA	Biopower	Construction
Wood Fuel Developers	Jarratt	VA	Pellets	In Development
Enviva LP	Courtland	VA	Pellets	In Development
Turman Hardwood Floor	Galax	VA	Pellets	Operating
Big Heat Wood Pellets	Chester	VA	Pellets	Operating
O'Malley Lumber Co	Tappahannock	VA	Pellets	Operating
Biomass Energy, LLC (a	Bumpass	VA	Pellets	Operating
Lignetics	Kenbridge	VA	Pellets	Operating
American Wood Fibers	Marion	VA	Pellets	Operating
Potomac Supply	Kinsale	VA	Pellets	Operating
Eden Pellets	Chesapeake	VA	Pellets	Construction
Wood Fuel Developers	Waverly	VA	Pellets	Construction
Wise Correctional Unit 1	Coeburn	VA	Heat or Steam	In Development
Metrolina Greenhouses	Huntersville	NC	Heat or Steam	Operating
Lumberton Energy LLC	Lumberton	NC	Biopower	In Development
Elizabethtown Energy LI	Elizabethtown	NC	Biopower	In Development
JEA (formerly Jacksonvi	Jacksonville	FL	Biopower	Operating on e



What's Really Happening

- Pellet Mills showing >75% success (due to export demand).
- Biopower: <49% may succeed, even fewer will be built.
- CHP/Thermal: 77% likely to succeed & be built.

Source: SACE's forthcoming *SE Bioenergy Progress Report*

Survey of Developers

INTERNAL CHALLENGES:

- 89% said financing among greatest challenges (43% said top challenge).
- Half (50%) said their top challenge is off-take contracts (i.e., power purchase agreements, pellet purchase contracts, etc.), and 75% said it was in the top three greatest challenges.
- Feedstock, Permitting, Siting = lower order challenges.

EXTERNAL CHALLENGES:

- The Recession (78%)
- Lack of an RES (75%)
- PURPA “Avoided Costs” (71%)
- Low Natural Gas Prices (64%)
- Dominance of Fossil Fuels (57%)
- Emission Regulations (50%)
- Supply Chains (25%)

Status & Future of Bioenergy

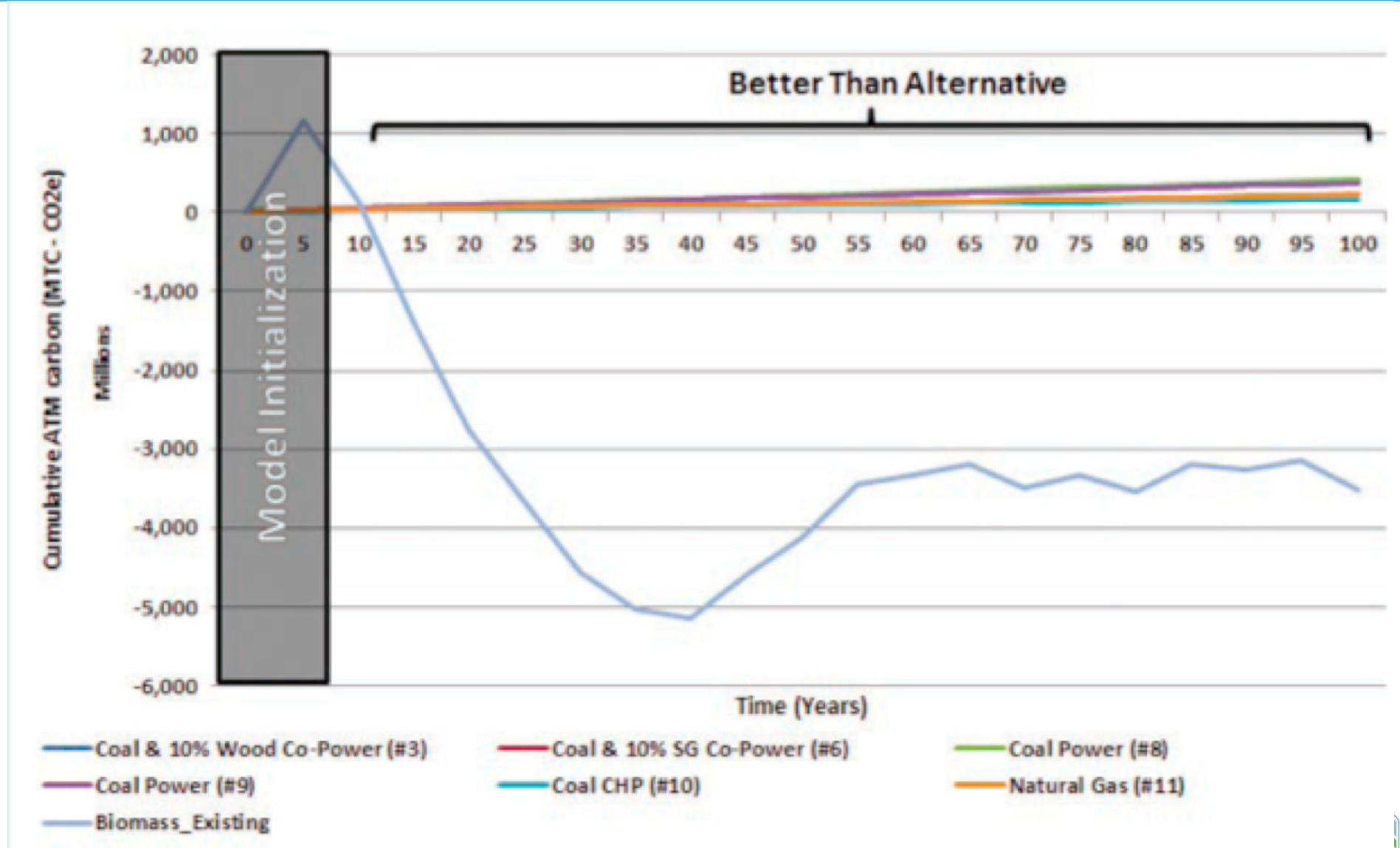
STATUS

- Pellet Mills growing rapidly (for export)
- Biopower is inching along
- Significant growth in use of biomass for CHP or thermal
- Biofuels – very few projects, still pre-commercial

FUTURE

- Pellet production continues to expand (black pellets?)
- Biopower likely to flatten until policies change
- CHP & Thermal will continue growing slowly, especially in propane displacement, or if NG prices become more volatile.

Bioenergy *can be* Climate Friendly



Source: BERC *et al*, <http://tiny.cc/SEcarbon> (Figure 18)

Agriletric Power Partners

Lake Charles, LA



Picture from Biomass Power Association

- Operating since the 1980s
- 12 MW electric generation facility
- Rice mill complex
- Uses rice hulls (otherwise landfilled)
- Lower emissions (lower moisture content)
- Ash used as insulation in the steel industry

Gainesville Renewable Energy Center



Picture from American Renewables

- 100 MW electric generation facility
- Fluidized bed combustion, selective catalytic reduction
- Forest-derived woody biomass, urban wood waste, mill residues

Sustainability Requirements

- Chain of Custody system
- Adherence to state BMPs
- No biomass from converted natural forests or conservation
- No stumps, no invasives
- Must replant

Incentive payments for biomass from

- **Forest Stewardship Council certified lands (\$1 per ton)**
- **Lands under FL stewardship mgmt planning (\$0.50 per ton)**



Purdue AgriBusiness / Wellons Energy Cofield, NC



- Soybean mill replacing natural gas with biomass
- 41,400 pph co-gen (steam & 375 kW)
- 8 mos from ground-breaking to start-up
- Mill waste (soybean stems and pods), peanut hulls, and residuals from forestry operations

Seven
comparable
projects across
North Carolina

Piedmont Green Power Barnesville, GA



- 350+ local jobs (construction)
- Ash sold as soil amendment

- Operational by end of 2012
- 54 MW electric generation facility
- Bubbling fluidized bed boiler
- Slash from forestry operations



Burgess Biopower Plant

Berlin, NH



Picture from Biomass Power Association

- Scheduled to open in 2013
- 75 MW electric generation facility
- Former brownfield paper mill
- Local jobs previously lost
- Revitalization of depressed town

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Questions?

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