Ensuring Forest Sustainability in the Development of Wood Bioenergy

National Policy Forum

Resources and Conservation Center
Washington, DC
February 9 -10, 2009

PINCHOT INSTITUTE FOR CONSERVATION

Pocantico Scoping Workshop

September 2007

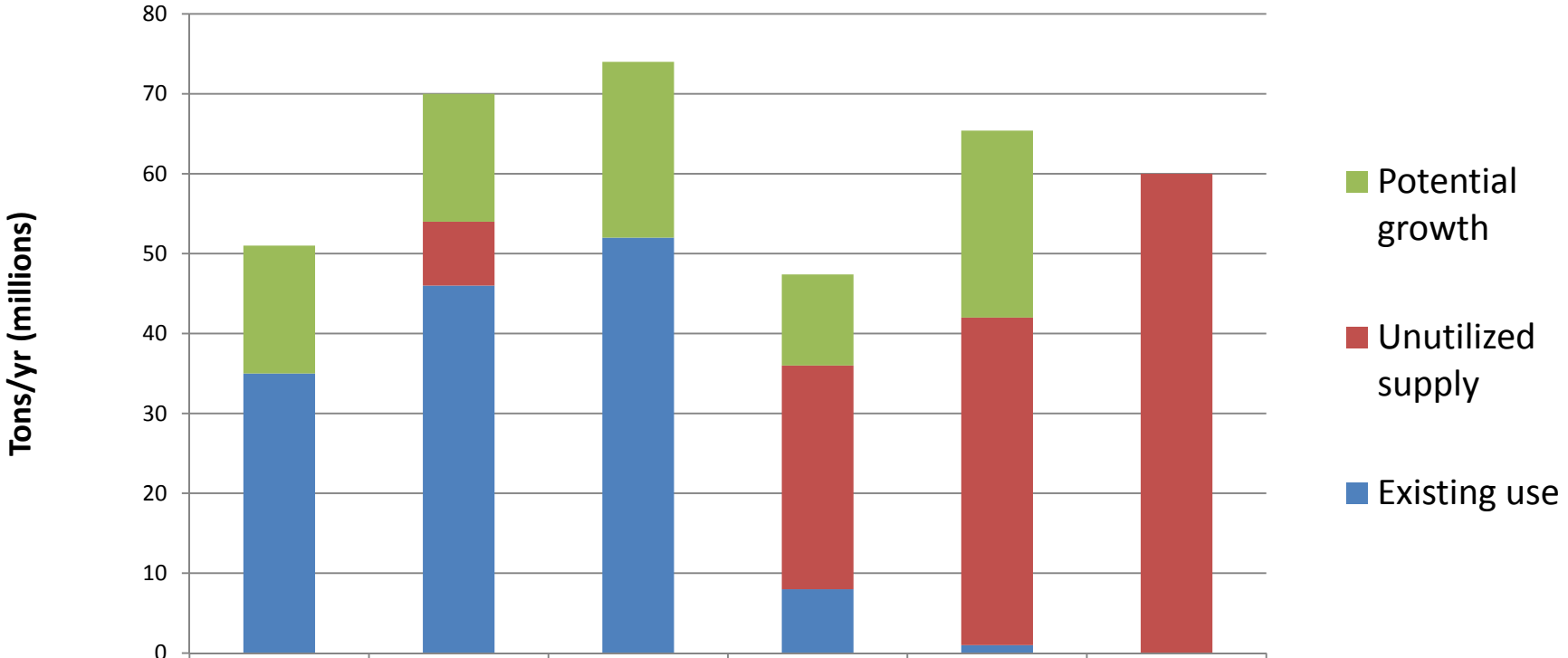
- New national priority on expanding production of renewable energy.

- Substantial public incentives to stimulate development of biofuels/bioenergy industry.

- Could expanding demand for woody biomass outstrip sustainable supply, and set back conservation of biodiversity, water quality, wildlife habitat, and other forest values?

PINCHOT INSTITUTE FOR CONSERVATION

Current and potential woody biomass utilization for bioenergy

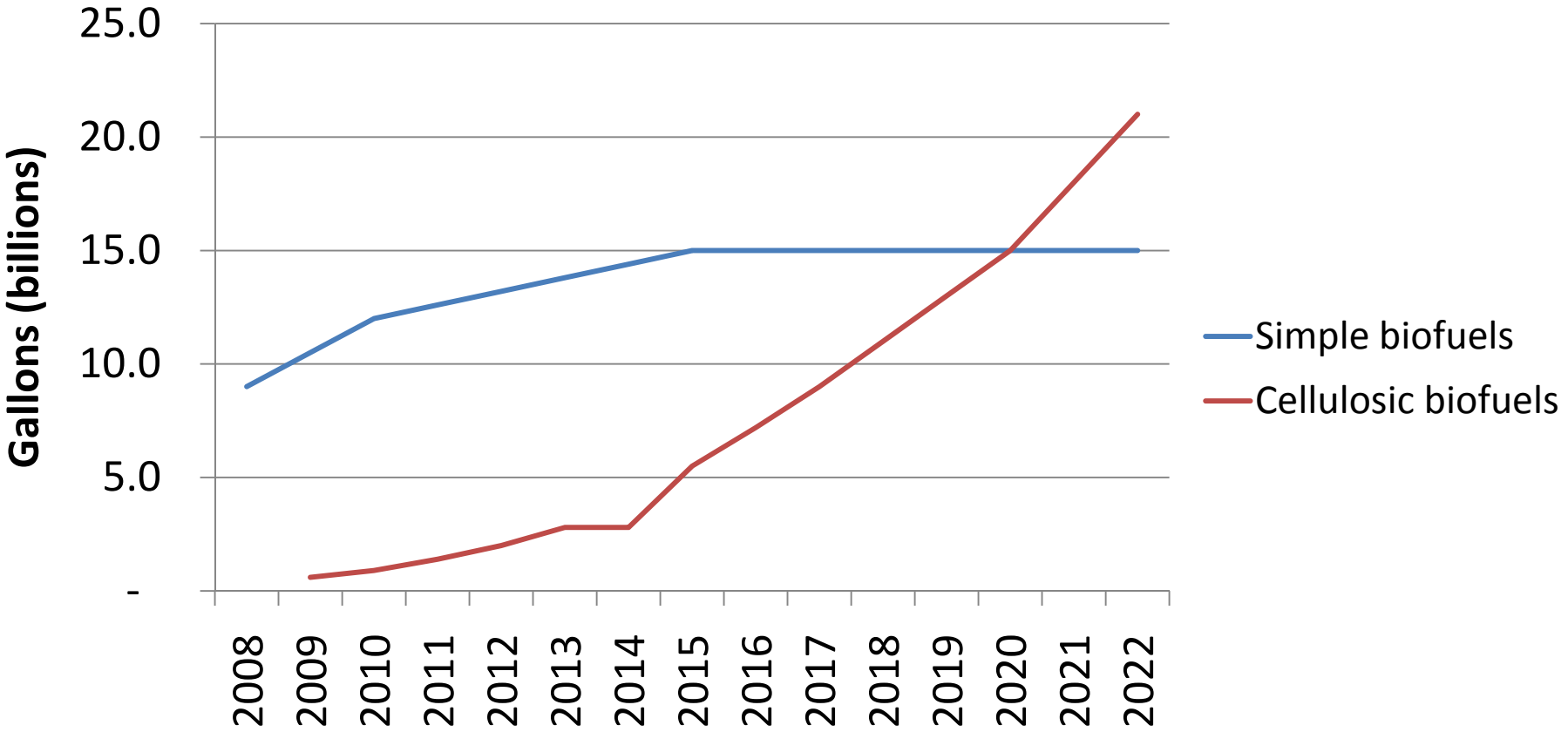


	Fuelwood (heating and electric utilities)	Secondary wood residues (forest industry)	Pulping liquors (forest industry)	Urban wood waste	Primary wood residues (logging and other)	Hazardous fuels treatments
Potential growth	16	16	22	11	23	
Unutilized supply		8		28	41	60
Existing use	35	46	52	8	1	

Source: Perlack et al. 2005. Biomass as Feedstock for a Bioenergy and Bioproducts Industry.


Biscuit Fire, southern Oregon (2002)
3.5 - 4.4 million metric tons carbon released

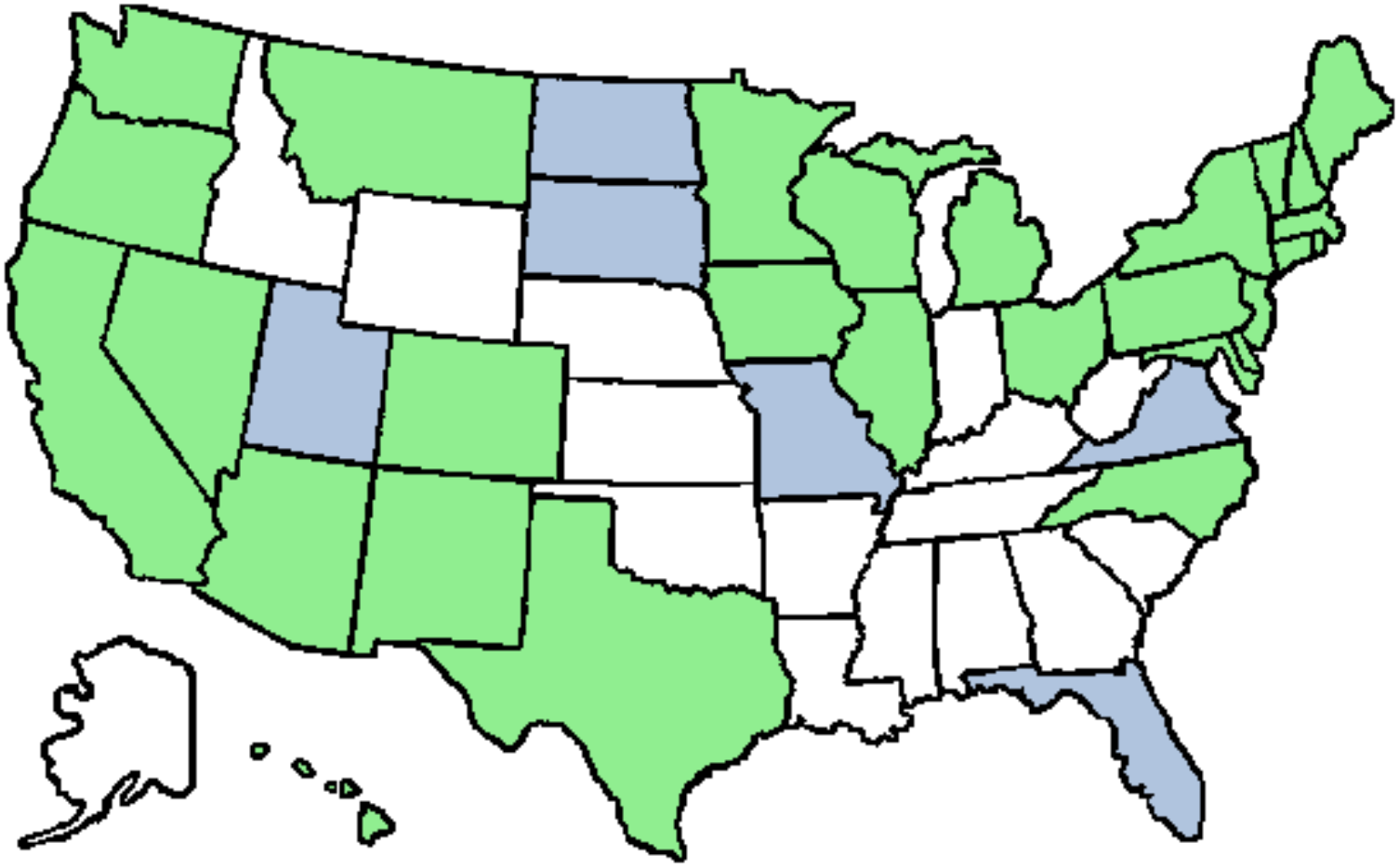
Biofuels production goals under the 2007 Renewable Fuels Standard



Source: Energy Independence and Security Act of 2007 (P.L. 110-140)

PINCHOT INSTITUTE FOR CONSERVATION

States with mandatory Renewable Portfolio Standard (RPS) or voluntary goals



Mandatory RPS

State Renewable Goal

PINCHOT INSTITUTE FOR CONSERVATION

Typical wood requirements

- 100 MW electric power plant
- 50 million gallon/year cellulosic ethanol plant
- 500 million ton/year wood pellet plant

= 1.0 - 1.4 million green tons of wood annually

= more than 20,000 acres of forest annually, an area about half the size of Washington, DC

PINCHOT INSTITUTE FOR CONSERVATION

Existing and Proposed Biomass Facilities in the Southeast

Id	Plant Name	Output	Unit	Plant Type	City	County	State
1	Range Fuels Cellulosic Ethanol Plant	unknown	Gallons/Year	Cellulosic Ethanol	Soperton	Treutlen	GA
2	Gulf Coast Energy Cellulosic Ethanol Pilot Plant	unknown	Gallons/Year	Cellulosic Ethanol	Livingston	Sumter	AL
3	C2 Biofuels Cellulosic Ethanol Plant (proposed)	unknown	Gallons/Year	Cellulosic Ethanol	Marietta	Cobb	GA
4	Decker Energy Electrical Generating Plant	80	Megawatts/Year	Electric Power	New Bern	Craven	NC
5	Decker Energy Electrical Generating Plant	80	Megawatts/Year	Electric Power	Auburndale	Polk	FL
6	Georgia Mitchell Power Plant Conversion (proposed)	100	Megawatts/Year	Electric Power	Albany	Dougherty	GA
7	Yellow Pine Electrical Generating Plant (proposed)	110	Megawatts/Year	Electric Power	Ft. Gaines	Clay	GA
8	Rollcast Energy - A (proposed)	80	Megawatts/Year	Electric Power	Newberry	Newberry	SC
9	Rollcast Energy - B (proposed)	80	Megawatts/Year	Electric Power	Franklin	Heard	GA
10	Rollcast Energy - C (proposed)	80	Megawatts/Year	Electric Power	Barnesville	Lamar	GA
11	Multi Trade Corp at Fruit of the Loom Mill (proposed)	20	Megawatts/Year	Electric Power	Robun Gap	Robun	GA
12	Allied Energy (proposed)	50	Megawatts/Year	Electric Power	Cochran	Bleckley	GA
13	Oglethorpe Power (1 of 2 proposed plants)	100	Megawatts/Year	Electric Power	unknown	Washington, Warren, Echols, or Appling	GA
	Oglethorpe Power (1 of 2 proposed plants)	100	Megawatts/Year	Electric Power	unknown		
14	Decker Energy Electrical Plant (proposed)	80	Megawatts/Year	Electric Power	Fitzgerald	Ben Hill	GA
15	BGE Electrical Plant (proposed)	40	Megawatts/Year	Electric Power	unknown	Fulton	GA
16	Nacogdoches Electrical Power Plant	100	Megawatts/Year	Electric Power	Lufkin	Angelina	TX
18	Dixie Pellets	500000	Tons/Year	Wood Pellets	Selma	Dallas	AL
19	Green Circle	550000	Tons/Year	Wood Pellets	Cottondale	Jackson	FL
20	PRAM Renewable Fuels	145000	Tons/Year	Wood Pellets	Baxley	Appling	GA
21	Dixie Green Pellets	600000	Tons/Year	Wood Pellets	Jackson	Clarke	AL
22	Woodlands Alternate Energy	300000	Tons/Year	Wood Pellets	Meigs	Thomas	GA
23	American Green Holdings	125000	Tons/Year	Wood Pellets	Waycross	Ware	GA
24	Briar Creek Wood Pellets	75000	Tons/Year	Wood Pellets	unknown	Screven	GA
25	Genera Energy	2000000	Gallons/Year	Cellulosic Ethanol	Vonore	Monroe/Loudon	TN

SOURCING AREAS OF EXISTING AND PROPOSED BIOMASS FACILITIES IN THE SOUTHEAST WOULD COVER AN ESTIMATED 46% OF THE HISTORIC RANGE OF THE LONGLEAF PINE

Legend

- Cellulosic Ethanol
- Electric Power
- Wood Pellets
- Biomass Facility Sourcing Area 50 Mile Radius
- Urban Areas
- Interstates

Primary Data Source: Dartnell, Devon - Georgia Forestry Commission (December 9, 2008). "The Forest Biomass Industry in the Southeast." 2008 Forest Management Chiefs/Southern Extension Forestry Unit Leaders Meeting. Athens, GA.

Other Data Sources:
SELC (2009), ESRI (2008), NOAA (2003)

Map produced by the Southern Environmental Law Center (SELC) February 3, 2009 (2nd iteration).
Please direct comments/questions to:
Jovian Sackett, GIS Analyst jsackett@selcnc.org or
Lark Hayes, Senior Attorney larkhayes@selcnc.org
Phone: (919)-967-1450, Fax: (919)-929-9421

0 25 50 100 150 200 250 Miles

Southern Environmental Law Center

Table 2. Relative efficiency of electricity, thermal, and combined-heat-and-power (cogeneration) facilities.

	Size (MW)	Wood use (Green tons/yr)	Capital cost (US$millions)	Operations cost (US$millions	Efficiency (Percent)
Electricity only					
Utility plant	10-75	100,000-800,000	20-150	2-25	18-24
Industrial plant	2-25	10,000-150,000	4-50	4-50	20-25
School campus	N/A	N/A	N/A	N/A	N/A
Commercial/industrial	N/A	N/A	N/A	N/A	N/A
Thermal only					
Utility plant	14.6-29.3	20,000-40,000	10-20	2-4	50-70
Industrial plant	1.5-22.0	5,000-60,000	1.5-10	1-3	50-70
School campus	1.5-17.6	2,000-20,000	1.5-8	0.15-3	55-75
Commercial/industrial	0.3-5.9	200-20,000	0.25-4	0.02-2	55-75
Combined heat and power/1					
Utility plant	25(73)	275,000	50	5-10	60-80
Industrial plant	0.2-7(2.9-4.4)	10,000-100,000	5-25	0.5-3	60-80
School campus	0.5-1(2.9-4.4)	5,000-10,000	5-7.5	0.5-2	65-75
Commercial/industrial	0.5-2(2.9-7.3)	5,000	5	0.5-2	65-75

1. Sizes for combined-heat-and-power (CHP) facilities are a combination of electical and thermal capacity; the first figure is electrical and the figure in parentheses is thermal. 1 MW = 3.413 Btu/hour.

Source: USDA Forest Service. 2004. Techline: Wood Biomass for Energy WOE-1. Forest Products Laboratory, Madison, Wisconsin.

White Paper

- Evolving methodologies for assessing supply of available woody biomass
- Current status of range of biofuel and bioenergy technologies—scale? efficiency?
- State-level efforts to strengthen woody biomass harvesting guidelines

PINCHOT INSTITUTE FOR CONSERVATION

White Paper

- Abstracts are in policy forum notebook
- Complete DRAFT versions of more than 30 papers available at:

  http://pinchot.org/bioenergy_paper

PINCHOT INSTITUTE FOR CONSERVATION

Basic Principles

1. Woody biomass has an important role to play in the expansion of renewable energy production.

2. New markets for woody biomass can result in improved forest conservation and stewardship.

3. But if not managed well, can also result in local overharvesting and unsustainable forest management, with negative impacts on biodiversity and other conservation values.

PINCHOT INSTITUTE FOR CONSERVATION

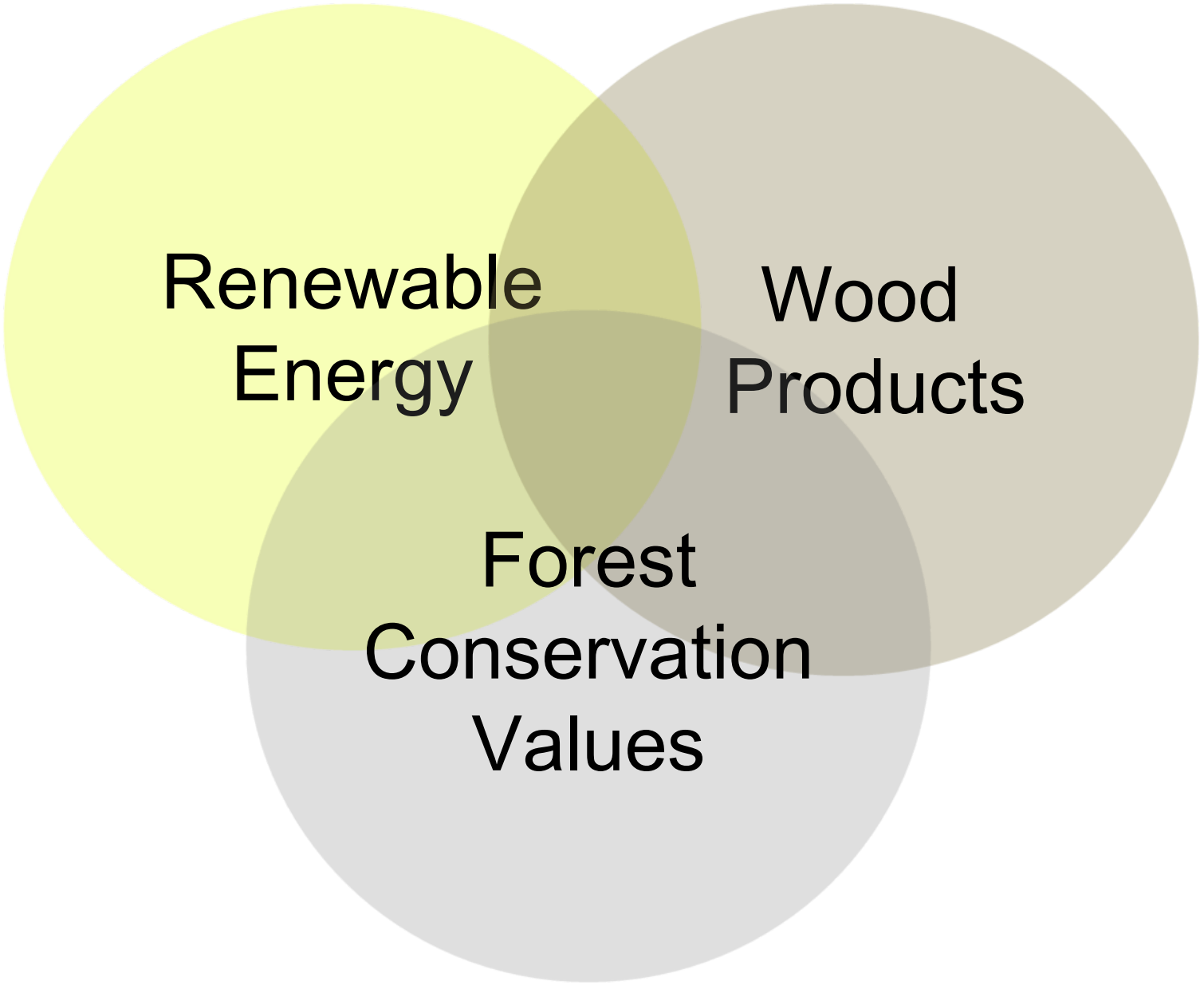
Basic Principles

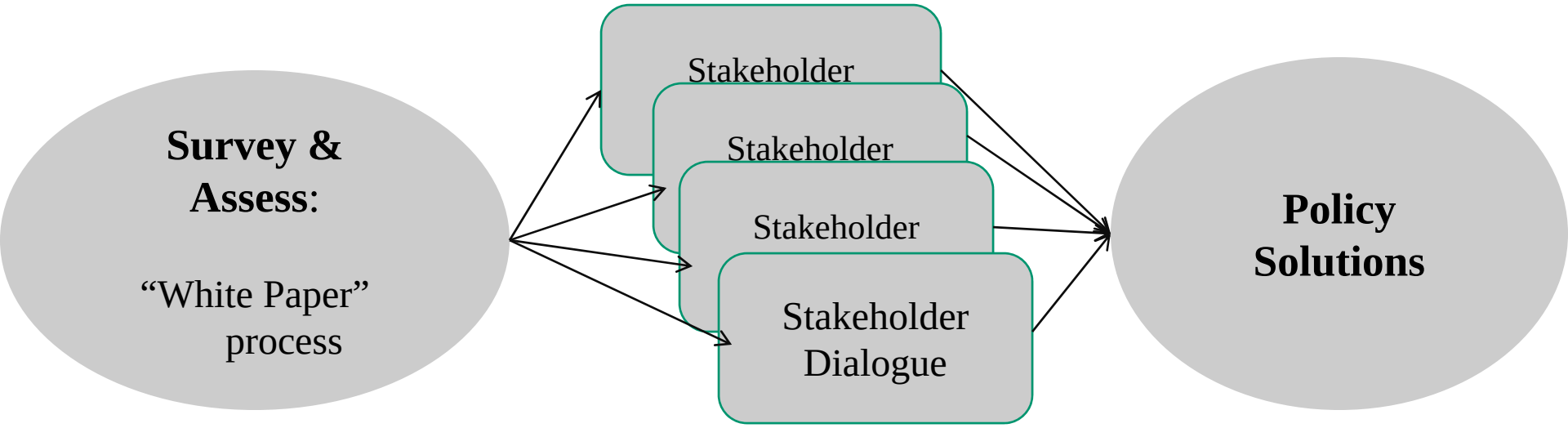
4. A range of biofuel/bioenergy options exists for meeting renewable energy goals.

5. Some options are better suited than others to local ecological and economic conditions.

6. Some viable options face substantial disincentives or policy barriers that discourage capital investment in expanded capacity.

PINCHOT INSTITUTE FOR CONSERVATION


Renewable Energy
Wood Products
Forest Conservation Values



Comprehensive survey of wood-based bioenergy status, trends, and prospects.

Broad stakeholder engagement in dialogue to:

- ✓help define sustainable bioenergy
- ✓clarify views, plans, and constraints
- ✓determine areas of overlapping interests
- ✓identify policy options