

ENVIRONMENTAL AND ENERGY STUDY INSTITUTE

Opportunities for Bioenergy Production in Every State

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Forest Stewardship Contracting

- What is it?
- Why is it working?
 - Collaboration
 - Community Priorities
 - Scientific Consensus
 - Partnership

Forest Restoration

- Thinning
- Fire Hazard Mitigation
- Removing materials 3' tall to 16" dbh
 - 12 – 16" 15% Lumber
 - 5 - 11.9" 35% Lumber, composites poles
 - < 5" + slash 50% Landscaping, **ENERGY**
- A Valuable Resource, Renewable
 - Not Unlimited Use it wisely

Highest Value for Residues

Lowest Cost for Restoration

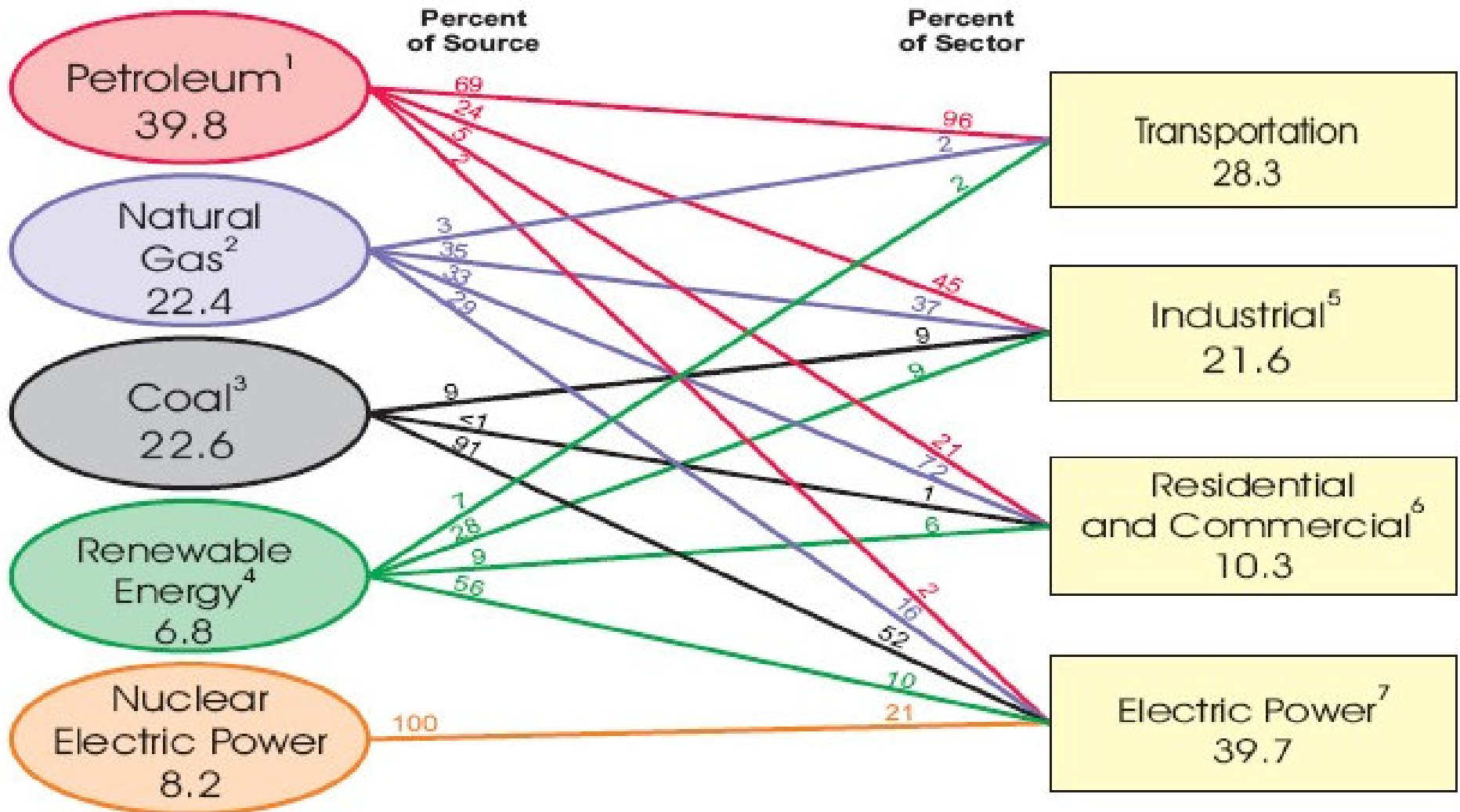
- Impediments
 - Lack of Markets
 - Lack of Appropriately Sized Infrastructure Capacity
 - Cost vs. Residue Value
 - Misplaced Incentives

Biomass Energy Goals

- Displace Fossil Fuels
- Improve Energy Independence
- Pay for Restoration and Management
- Increase energy availability
 - Electricity
 - Transportation Fuels
 - Thermal Energy

EIA Annual Energy Review 2006

**31.9 % of Energy use is Industrial, Residential, & Commercial
Primarily Thermal Energy**

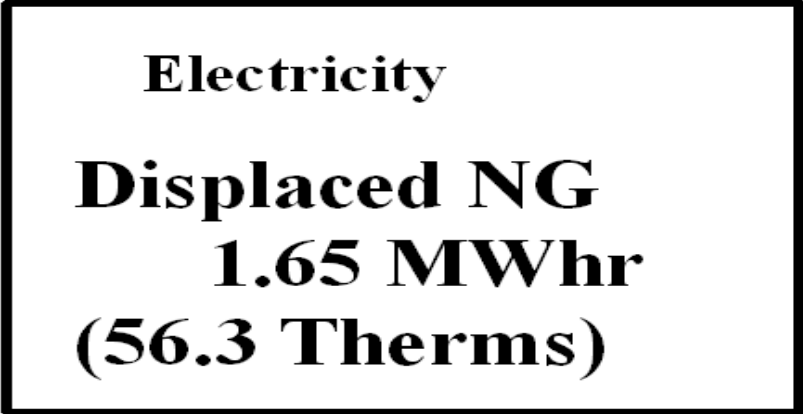
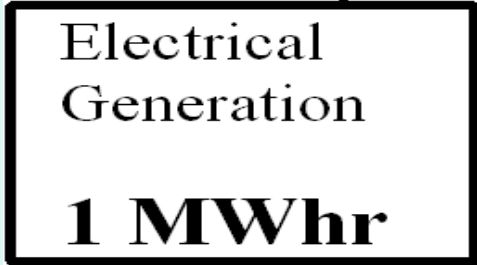
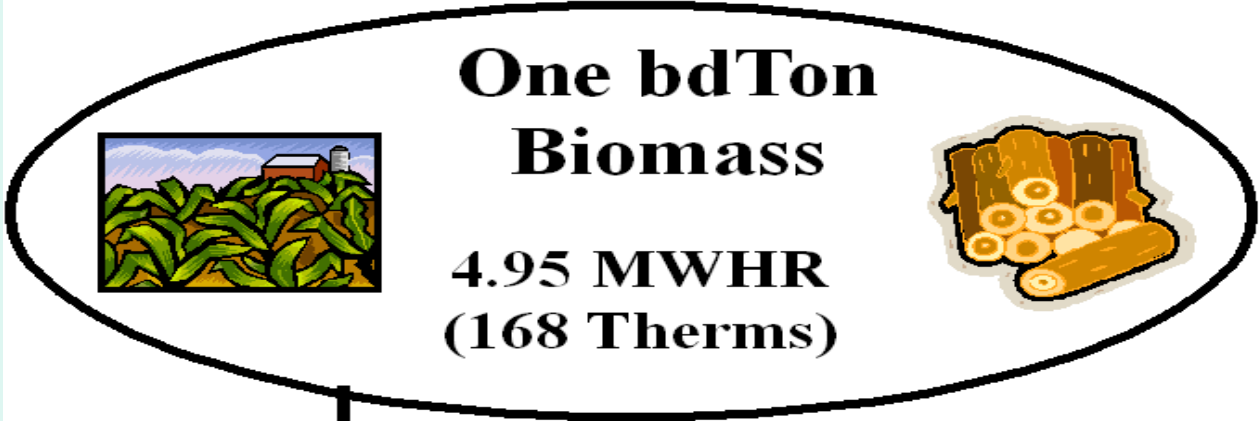


The Highest Value??

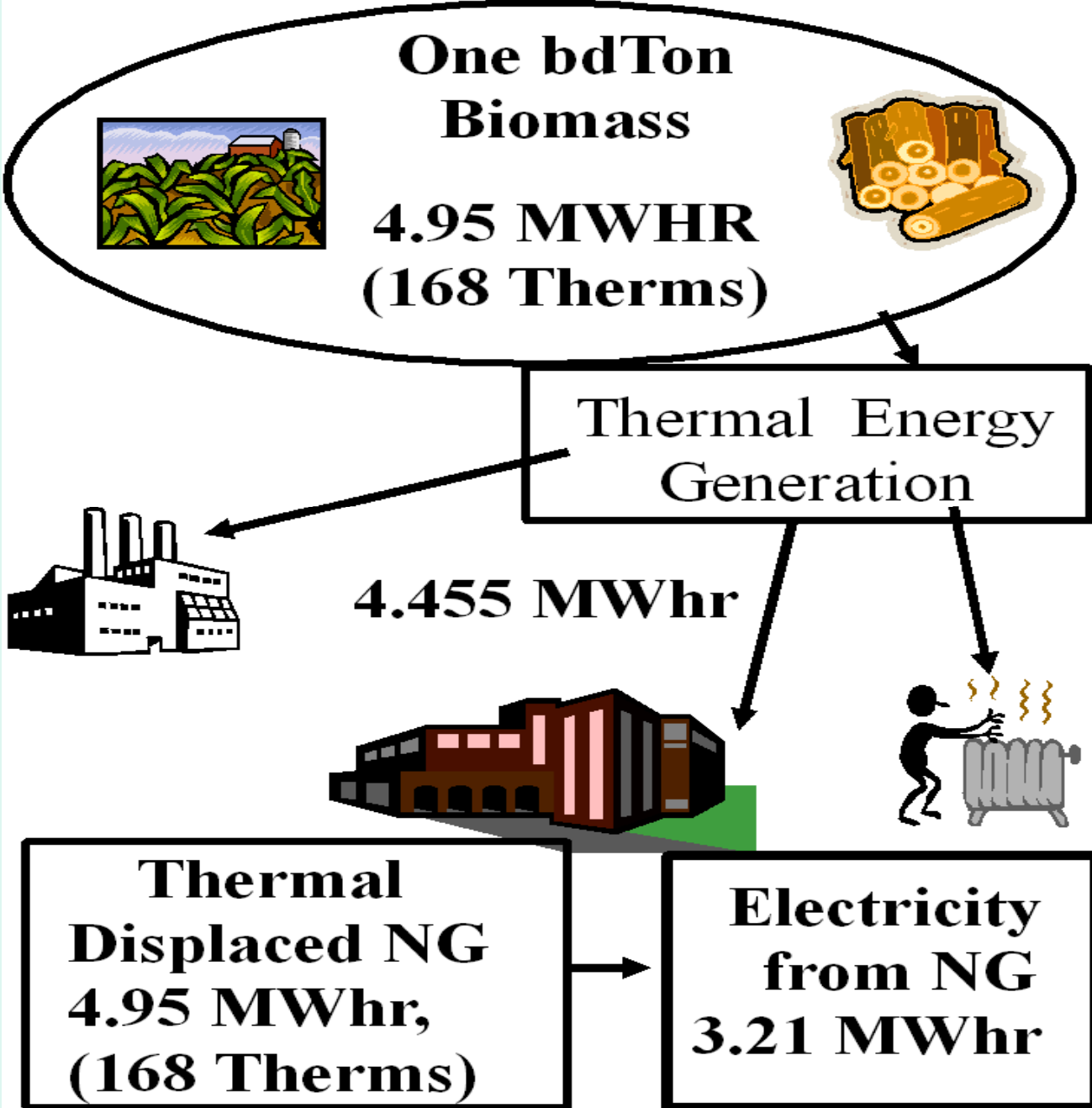
Achieving goals using the least resource

- Not all resources Fit all energy production technologies. Technically possible, but not the highest value use of the resource.
- Solar
 - Heat
 - Electricity
 - Transportation Fuels
- Biomass
 - Transportation Fuels
 - Electricity
 - Heat
 - CHP
 - Cofiring

Biomass Electricity



Biomass Heating





Biomass
One bone dry Ton

4.95 MWHR
(168 Therms)

	Electricity Produced MWhr	Fossil Fuel Displaced MWhr (Therms)
Generate Electricity (only)	1.0	1.65 (56.3)
Thermal Energy	-0-	4.95 (168)
Use NG to produce elec	3.21	

Renewable Energy Credits

- Achieving the energy goals Earns Credits
- All technologies that achieve goals earn credits.
 - Cellulosic Ethanol
 - Electricity
 - Thermal Energy
- Tradable to meet objectives / mandates
- Utilities most equitable benefit / payment

- **AZ REST** - Distributed Generation / Thermal

Benefits ©

Local Resources,

Local Benefits

