

RETECH 2010

Renewable Energy Technology Conference & Exhibition

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Washington Convention Center
Washington D.C.



Bruce Lisle

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CEO

Energex Pellet Fuel

Founder & Retired CEO, Director

PELLET FUELS INSTITUTE

Past President & Director
Chair, Government Affairs



www.thebiomassboiler.com

BIOFUEL

BOILER TECHNOLOGIES, LLC

A North American Biomass Boiler Company

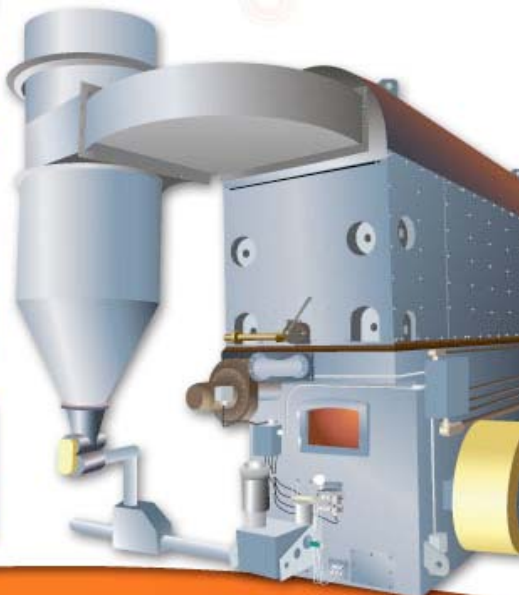
**LET US SHOW YOU
HOW TO TURN YOUR WASTE
INTO ENERGY!**

**MULTIPLE FUEL COMBUSTION BOILERS
FOR ALL TYPES OF APPLICATIONS**

WHAT DO YOU HAVE TO BURN?



**AUTOMATED ASH REMOVAL
SYSTEM - NO HASSLE, NO MESS!**



Pellet Fuels Institute

MISSION STATEMENT

The Institute's mission is to be a trade association which represents the fuel preparation and clean burning technology of **renewable biomass energy resources** and is dedicated to the advancement and promotion of the fiber and densified (pellets) fuel technology that will help solve global ecological problems through the utilization of locally renewable energy sources.



BIOMASS

THERMAL

ENERGY

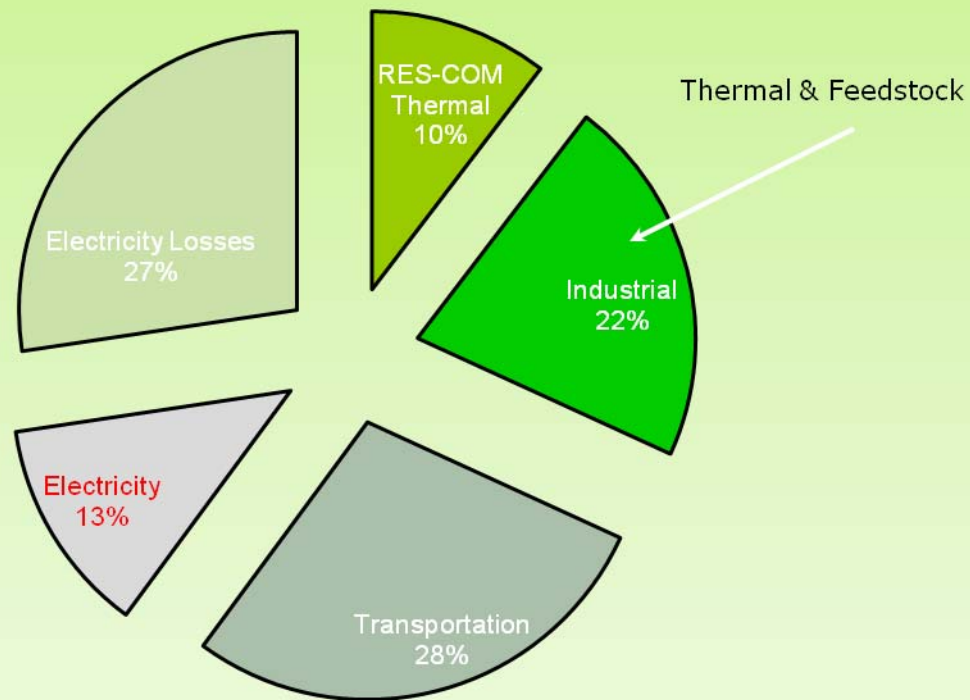


**The Most Efficient Use Of
Renewable Biomass Resources**

Thermal, **The Lost Energy**

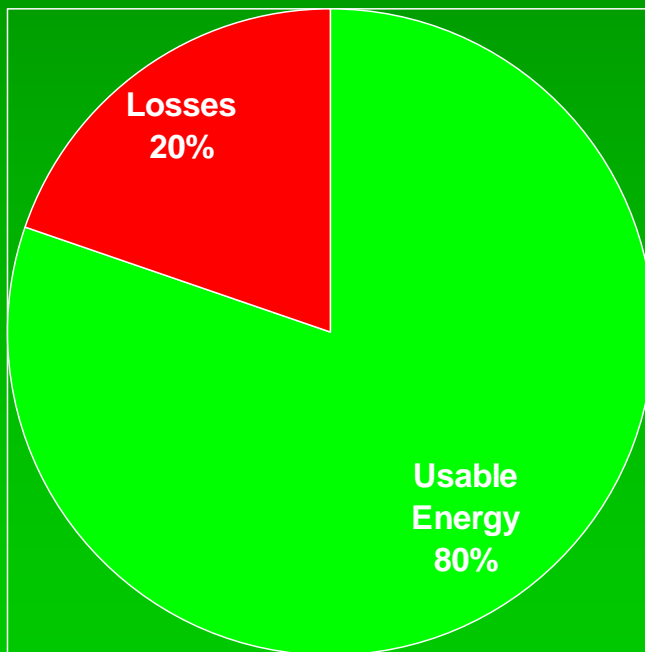
Energy Consumption, 2007 , from DOE-EIA

Energy Consumption - By Usage
Quadrillion Btu's



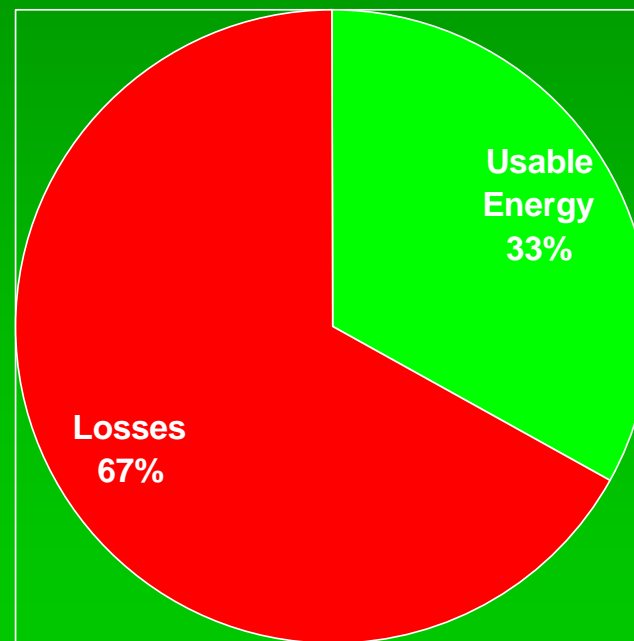
Thermal Conversion of Biomass = Efficiency

Biomass Thermal Energy



■ Usable Energy ■ Losses

Biomass Electric Energy



■ Usable Energy ■ Losses

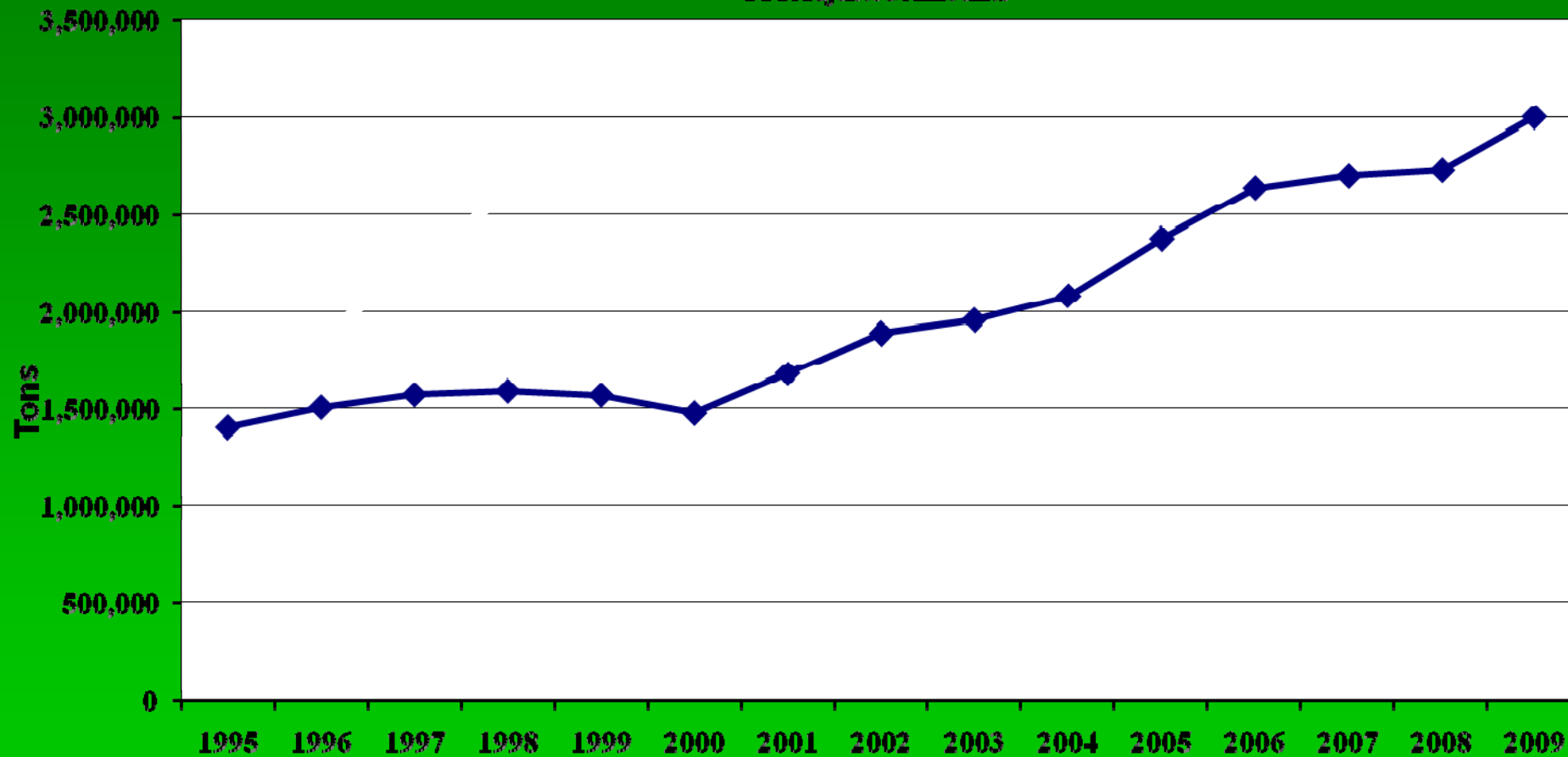
Energy Equivalency of Pellet Industry



About 3,000,000 pellet tons
or
the same amount of energy in
five Ultra Large Crude
Carriers (ULCC)

Residential Fuel Shipment Trends

PFI Adjusted Amounts



EQUIPMENT

Historic Market - Space Heating

- Densified Biomass Fuel Market developed with Pellet Stoves
 - About 1,000,000 Homes in USA have a Pellet Appliance



New Market Trend: Central Heating

BIOMASS EQUIPMENT

- ✓ Mainstream
- ✓ Reliable
- ✓ Readily Available
- ✓ Smaller Cogeneration (CHP) Facilities
- ✓ Waste Disposal

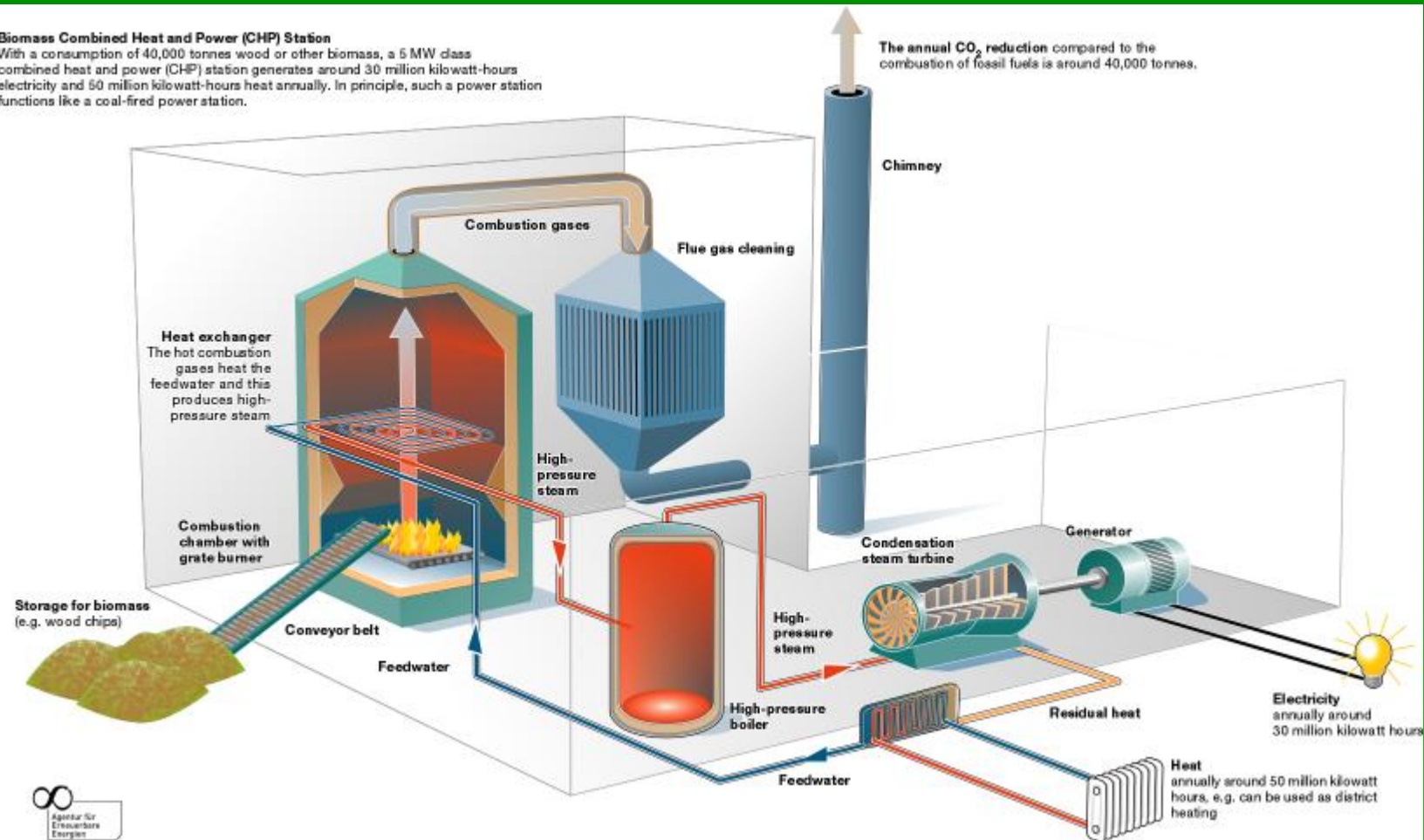


Industrial Markets - Combined Heat & Power

Biomass Combined Heat and Power (CHP) Station

With a consumption of 40,000 tonnes wood or other biomass, a 5 MW class combined heat and power (CHP) station generates around 30 million kilowatt-hours electricity and 50 million kilowatt-hours heat annually. In principle, such a power station functions like a coal-fired power station.

The annual CO₂ reduction compared to the combustion of fossil fuels is around 40,000 tonnes.



Biomass Fuel Distribution

Storage / Fuel Handling



UNDENSIFIED

DENSIFIED



Success Is Market Driven

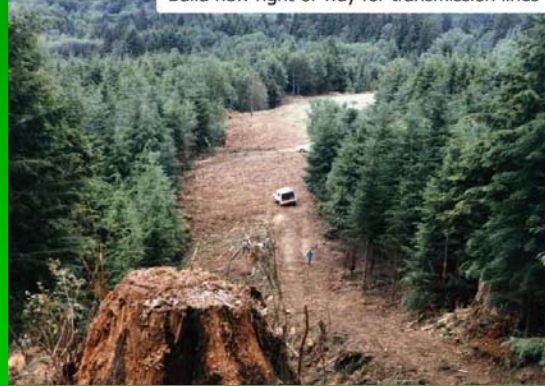


BIOMASS RESOURCES

BIOMASS WASTE STREAMS – Energy Source

Expensive Real Estate – Landfills

Regulations – No Wood Wastes

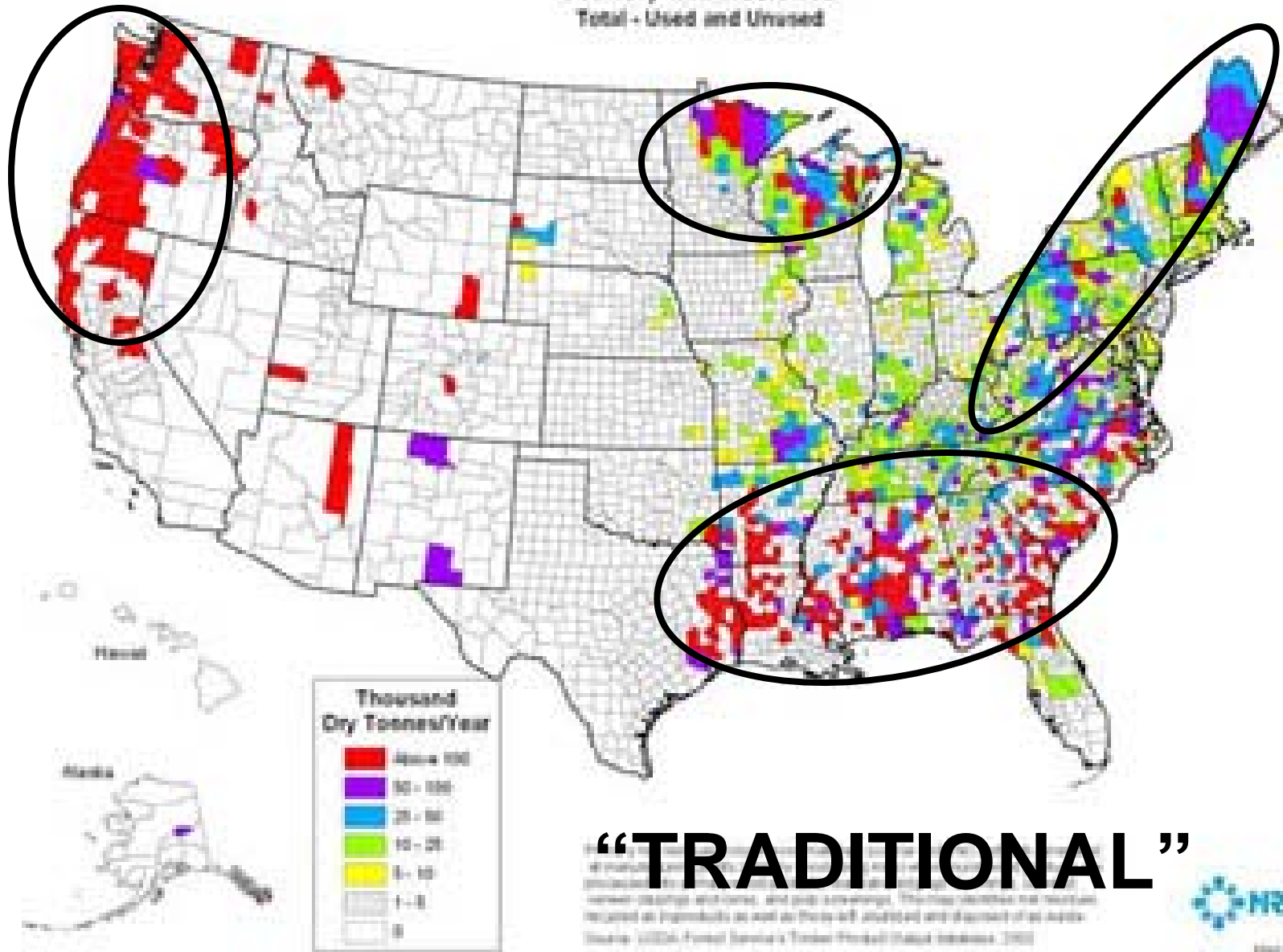


Forest Management
Managed vs. Unmanaged
Rodeo Fire - Montana



Silviculture

Primary Mill Residues
Total - Used and Unused



“TRADITIONAL”

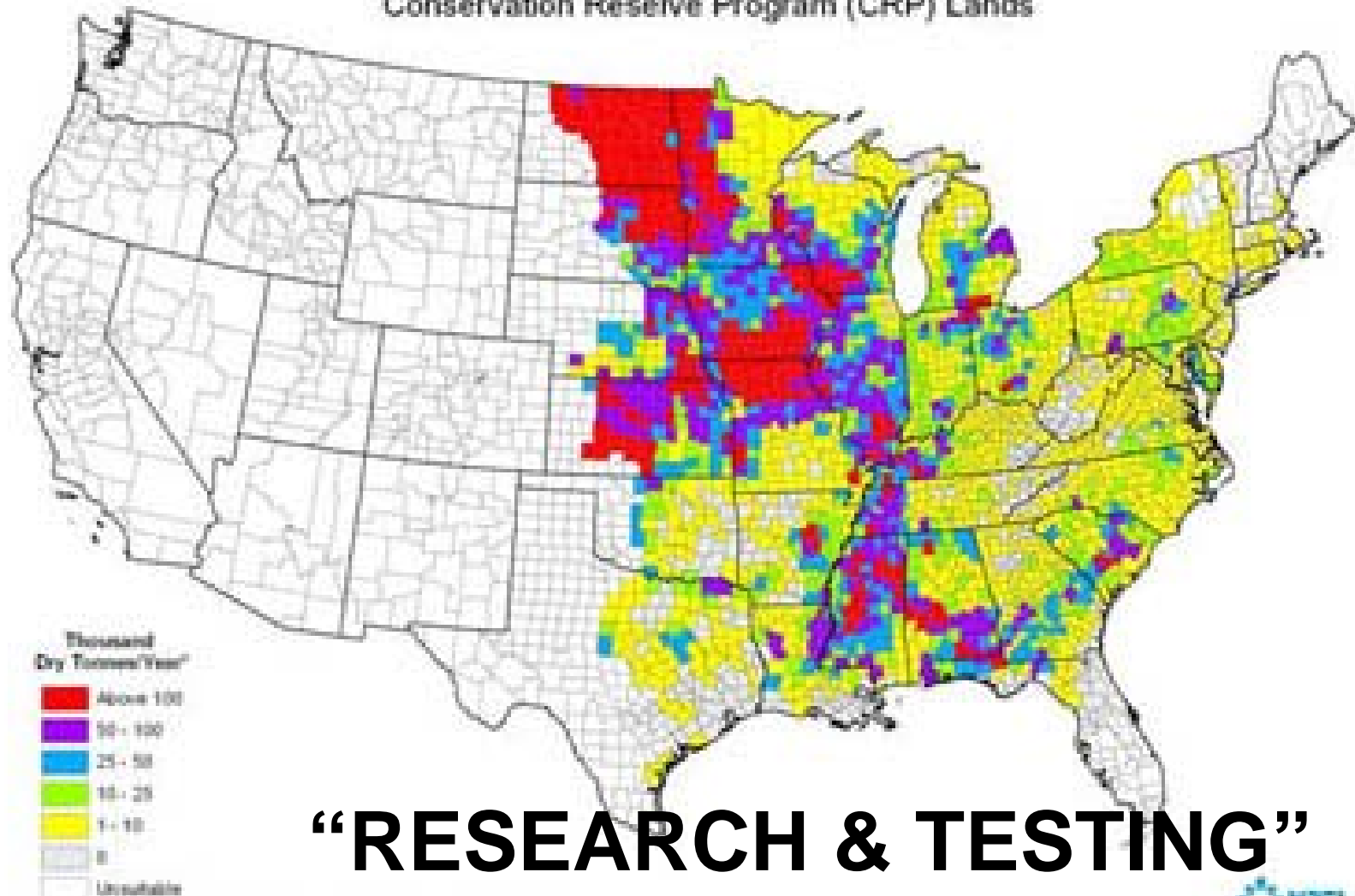


April 2009

Forest Residues



Potential Switchgrass Production on Conservation Reserve Program (CRP) Lands

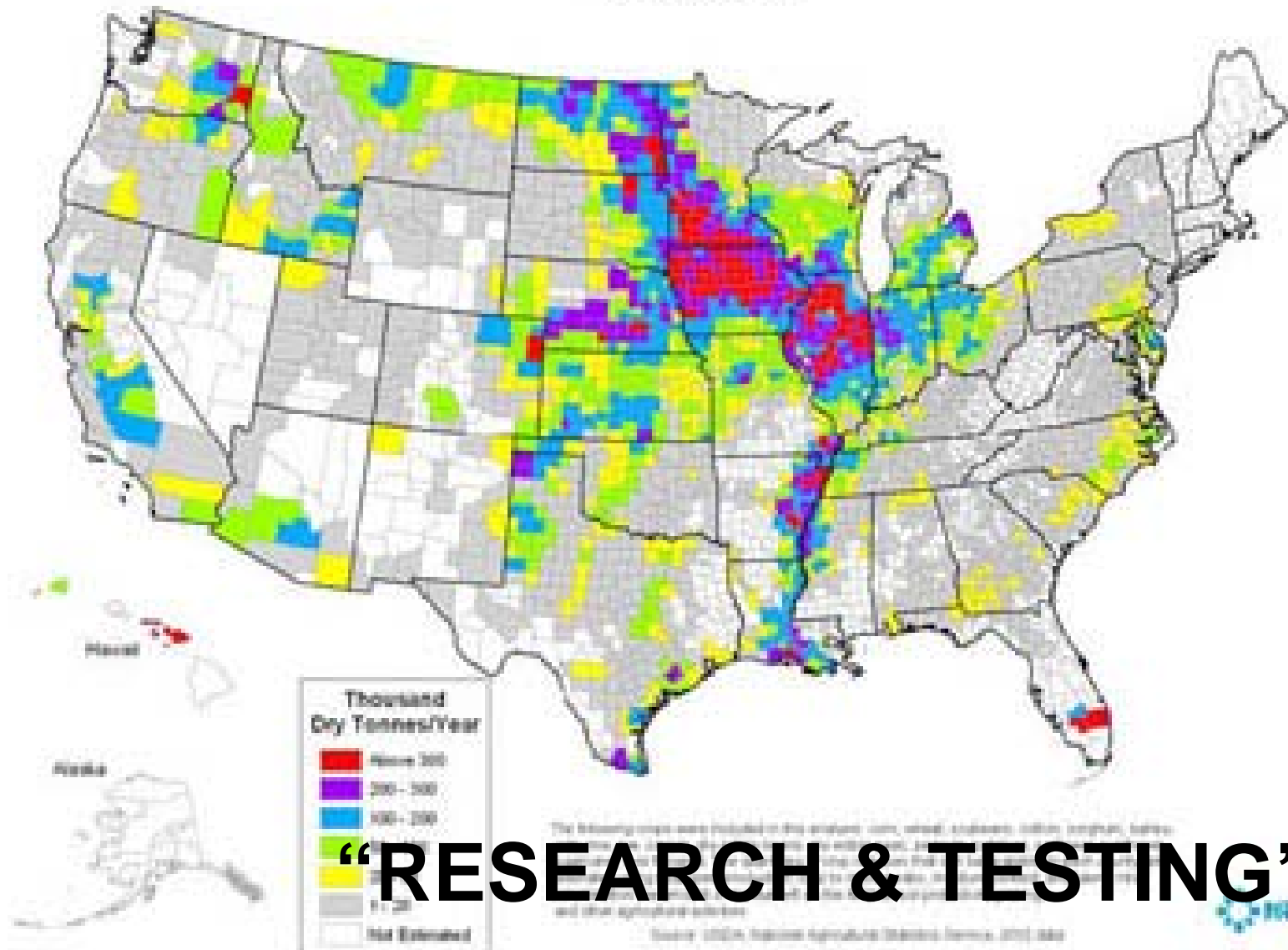


*Data from The Great Plains States Soil Conservation Service (revised 2001) and
USDA Farm Service Agency County Soil Report (revised 10/10/2001)



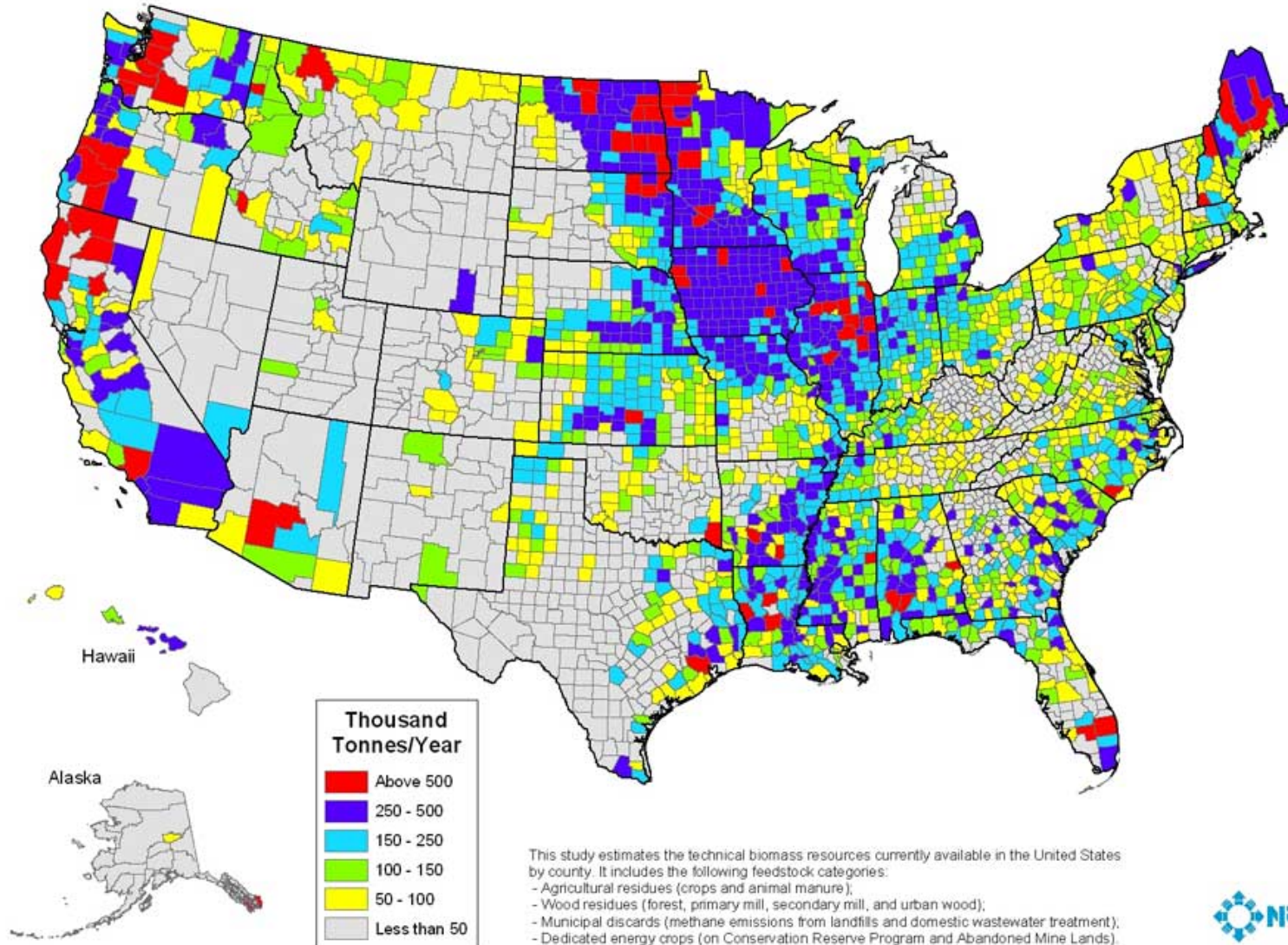
“RESEARCH & TESTING”

Crop Residues



“RESEARCH & TESTING”

Biomass Resources Available in the United States



QUESTIONS?

