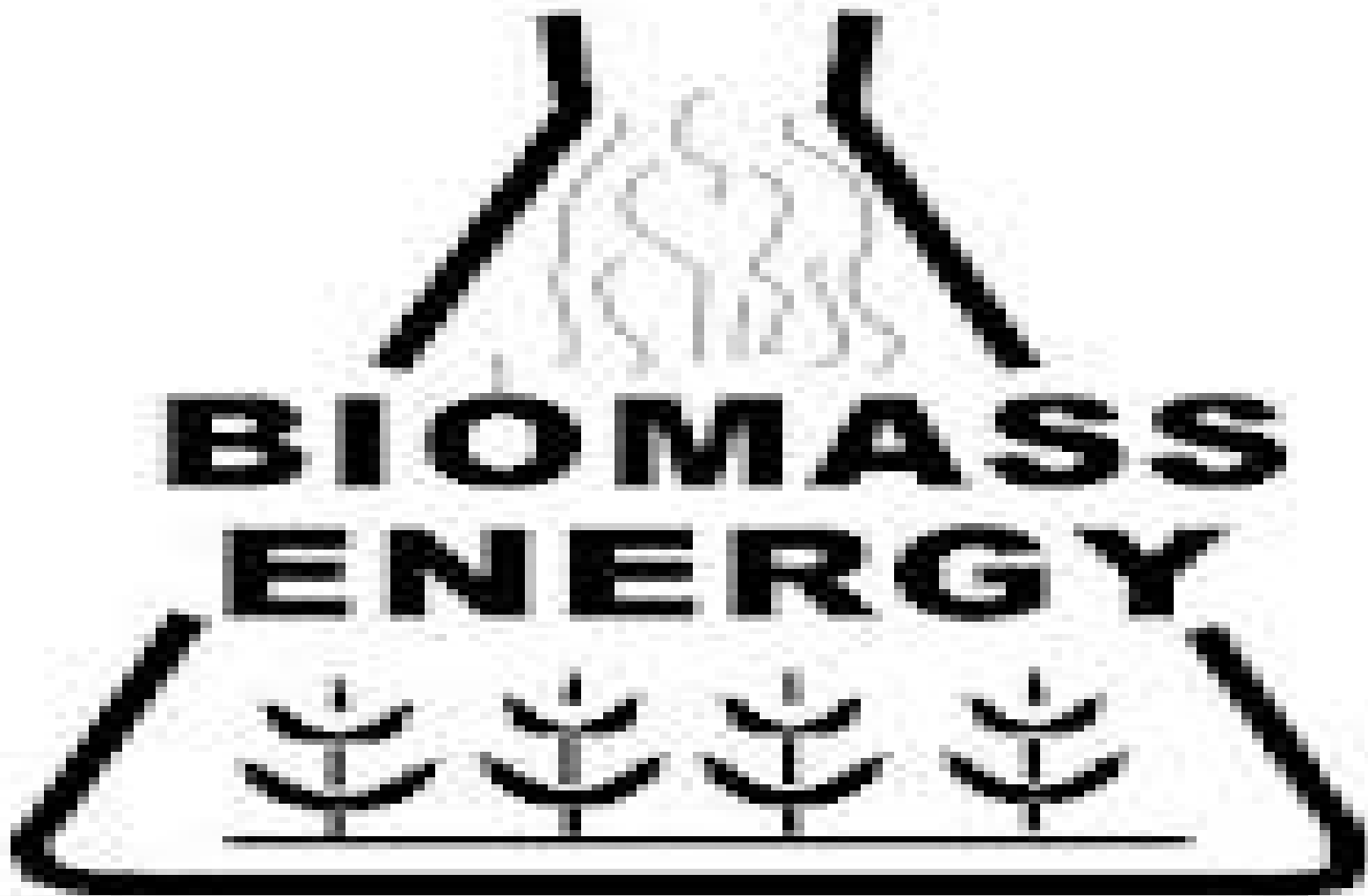


# Energy from organic materials

A cura di: Lucia Scuteri



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**Wood was once our main fuel.**

**We burned it to heat our homes and cook our food.**

**Wood still provides a small percentage of the energy we use.**



**Sugar cane is grown in some areas,**  
**and can be fermented to make**  
**alcohol, which can be burned to**  
**generate power.**



**Other solid wastes, can be burned to provide heat, or used to make steam for a power station.**



**"Bioconversion" uses  
rubbish, animal manure, woodchips,  
seaweed, corn stalks and other  
wastes.**



## **How it works**

**For a biomass power station making electricity, it's like a fossil fuel power station:**

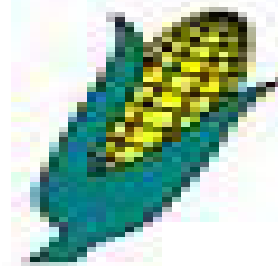
**For other biofuels, we may burn it to get the heat for our home, or burn it to get energy for a car engine.**



# Types of Biomass



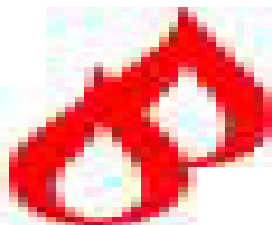
**Wood**



**Crops**



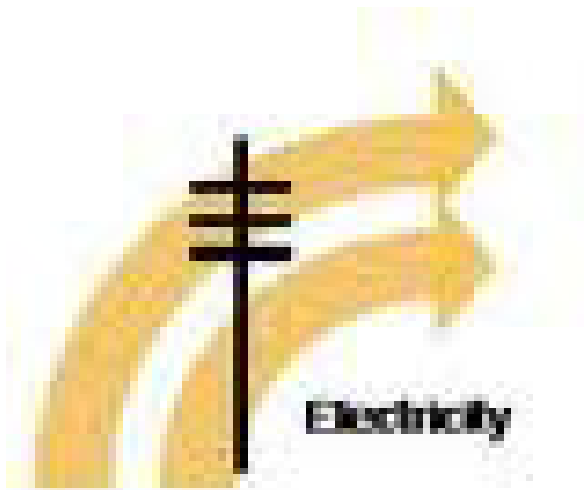
**Garbage**



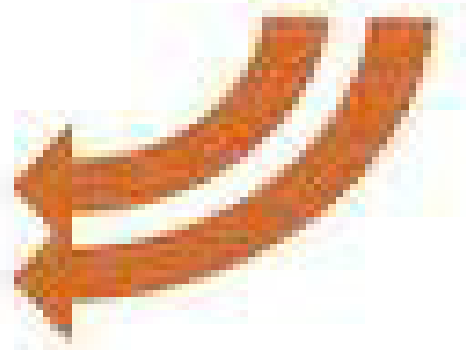
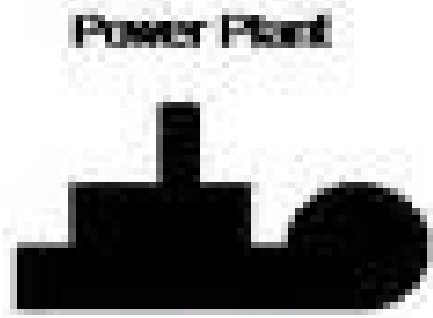
**Landfill Gas**



**Alcohol Fuels**



CO<sub>2</sub>





# BIOMASS FUEL CYCLE

solar energy

Electricity

Biomass Processing

Fuel

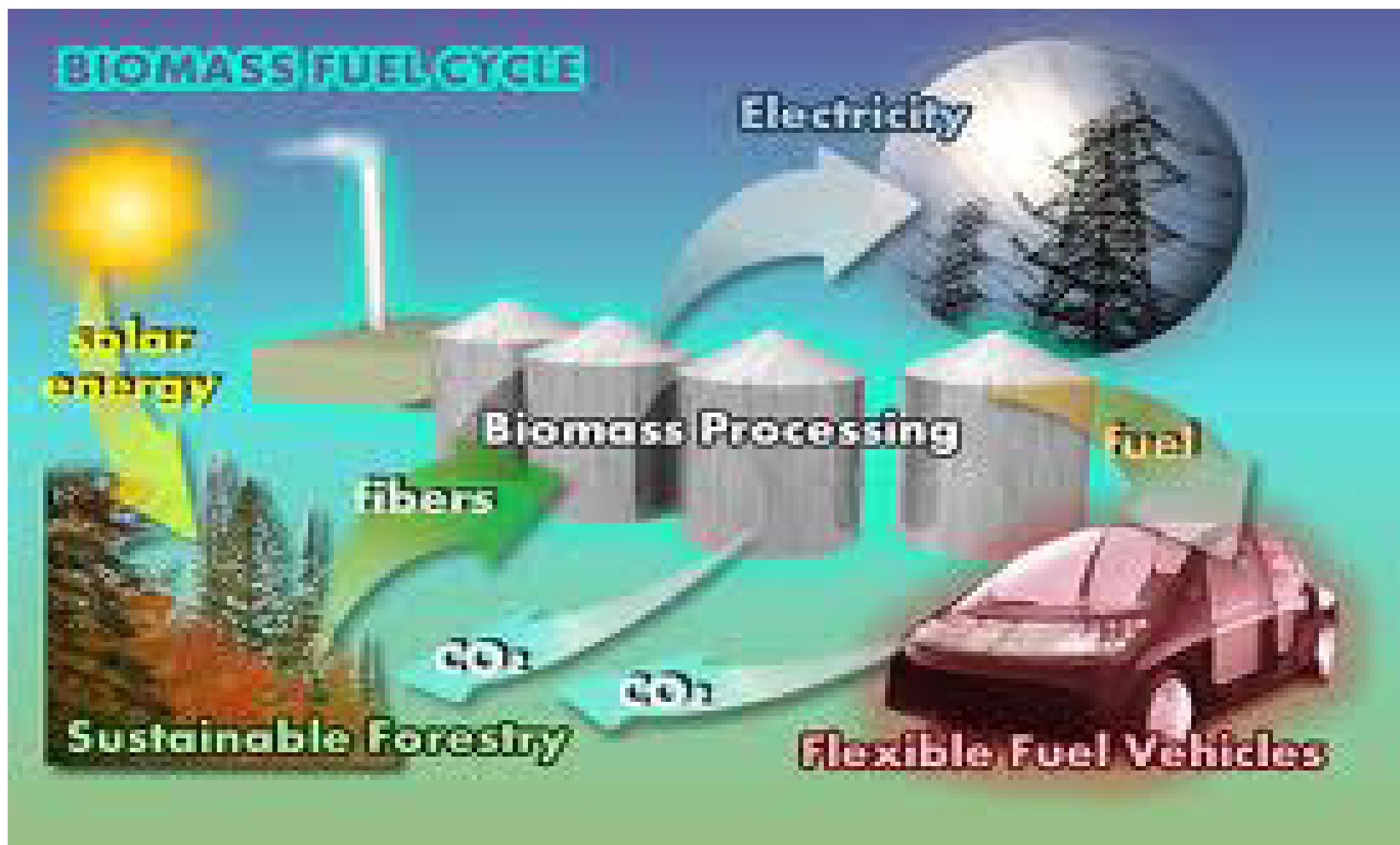
Fibers

CO<sub>2</sub>

CO<sub>2</sub>

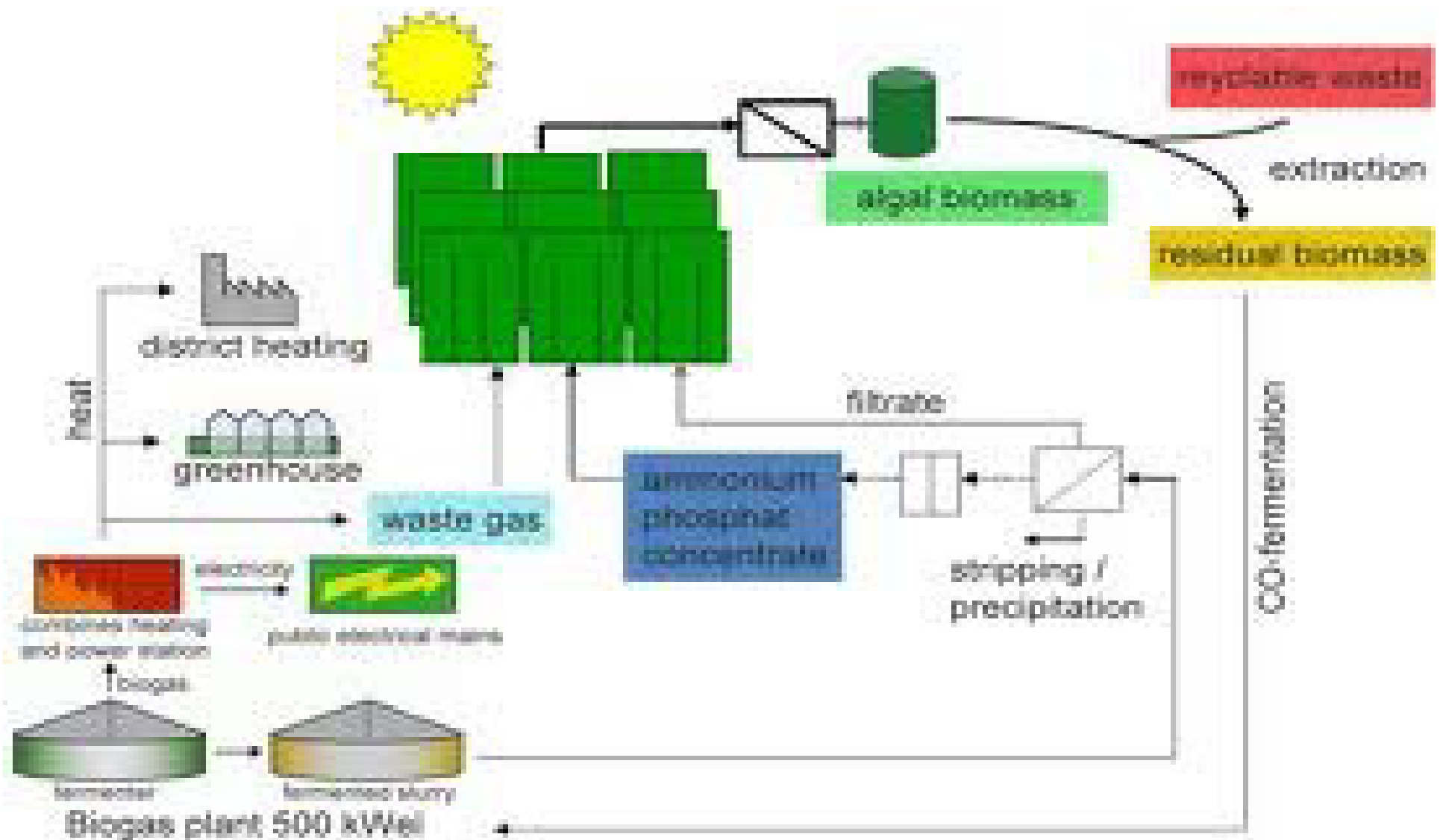
Sustainable Forestry

Flexible Fuel Vehicles





# BIOMASS energy






**FORESTRY  
CROPS & RESIDUES**



**AGRICULTURAL  
CROPS & RESIDUES**



**SEWAGE**



**biomass  
sources**

**INDUSTRIAL  
RESIDUES**



**ANIMAL  
RESIDUES**

**MUNICIPAL  
SOLID  
WASTE**

# Advantages

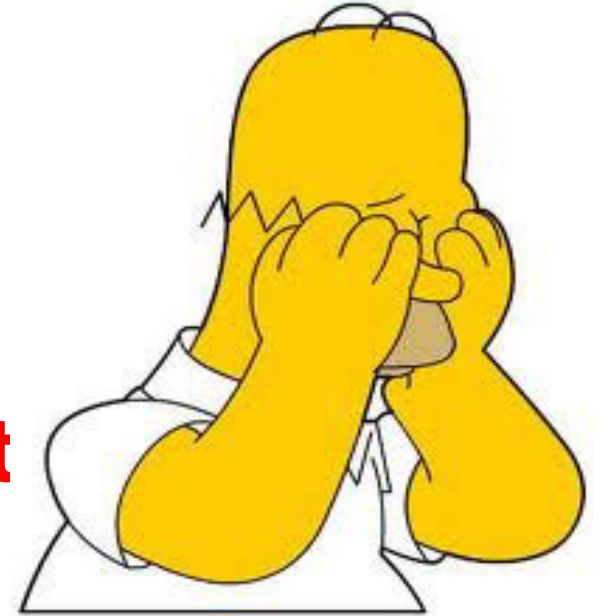


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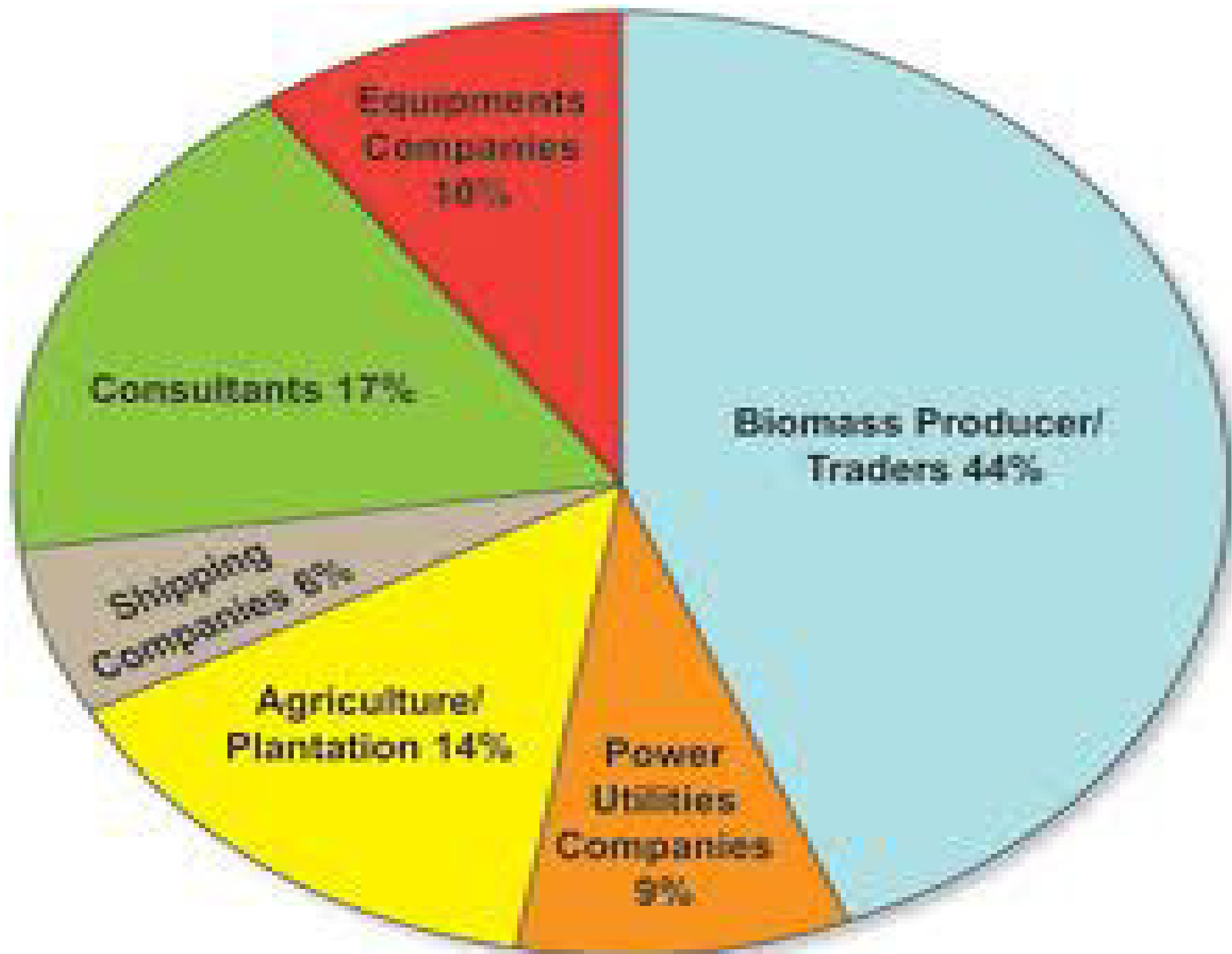
- Biomass is renewable
- It makes sense to use waste materials where we can.
  - The fuel tends to be cheap.
  - Less demand on the fossil fuels.

# Disadvantages

**-Collecting or growing the fuel in sufficient quantities can be difficult**



- **We burn the biofuel, so it makes greenhouse gases just like fossil fuels do.**
- **Some waste materials are not available all year round.**

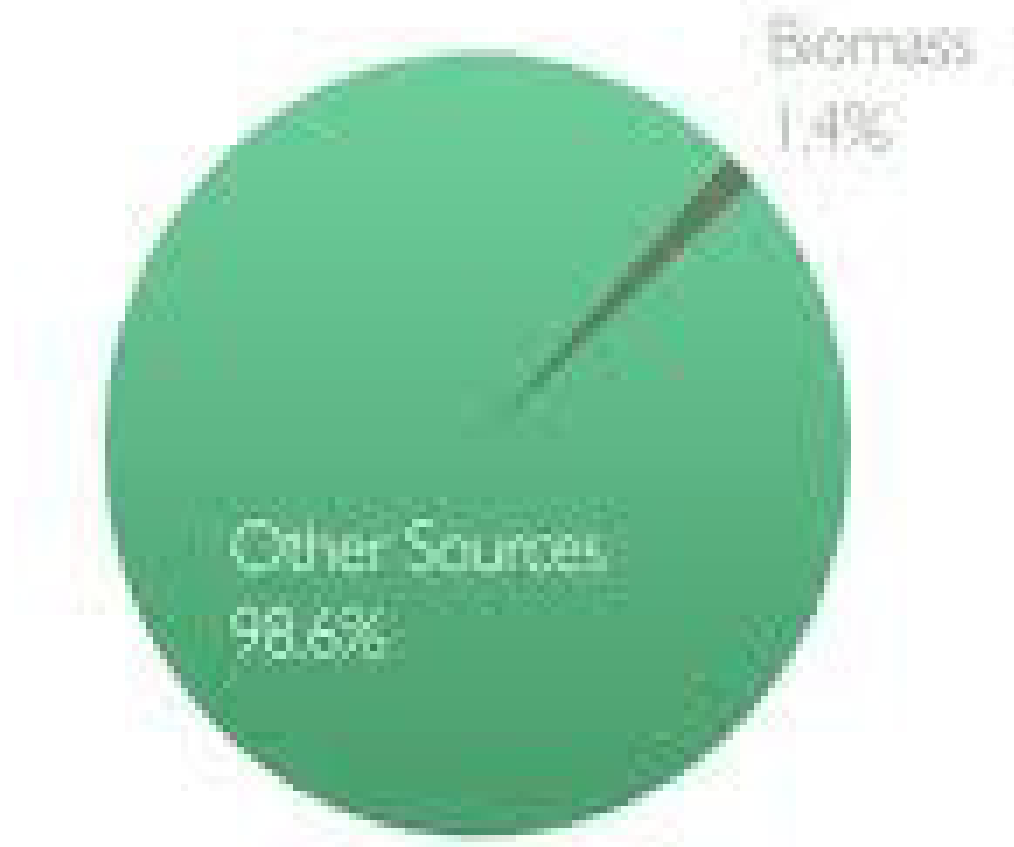




# BIOMASS

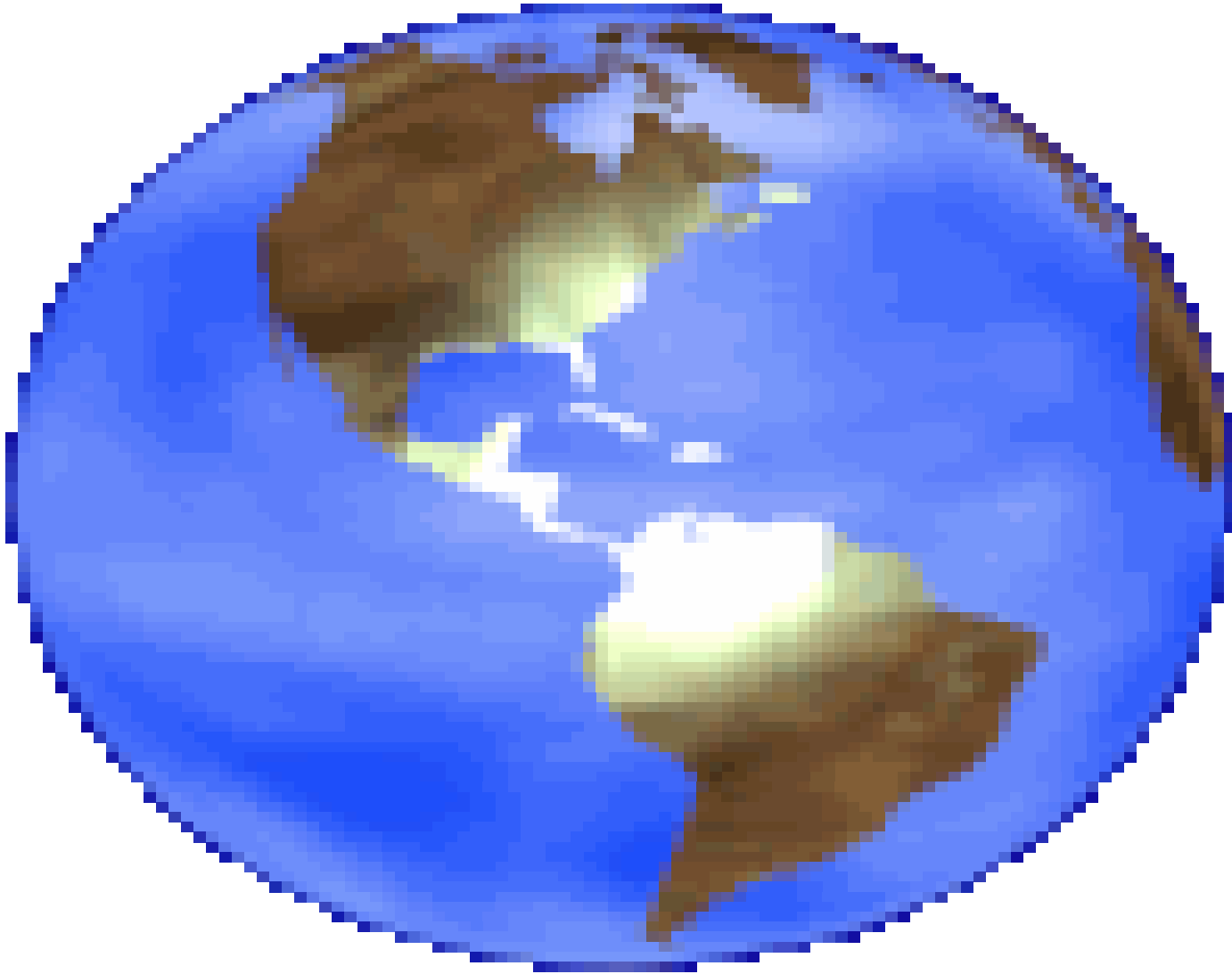
## PERCENT OF TOTAL ELECTRIC ENERGY CONSUMPTION

Electricity generated by biomass in the United States, 2009





**What a pity!!!!!!**



# The end

