

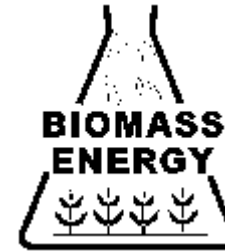


RENEWABLE & SUSTAINABLE
ENERGY STUDIES

What is Biomass

- Through **photosynthesis** light energy from the sun is **changed** into **chemical energy** which is stored in plants






- **Biomass** is **stored solar energy** that we can convert to **electricity**, **fuel**, **heat**



Biomass

Biomass Energy Sources

- Biomass is **available** almost everywhere in the world
- Good biomass energy resources have a high yield of **dry material** and **use minimal land**
- Crops should **generate more energy** than its production consumes
- Biological power sources are **renewable**, **easily stored** and if harvested sustainably, **CO₂ neutral**

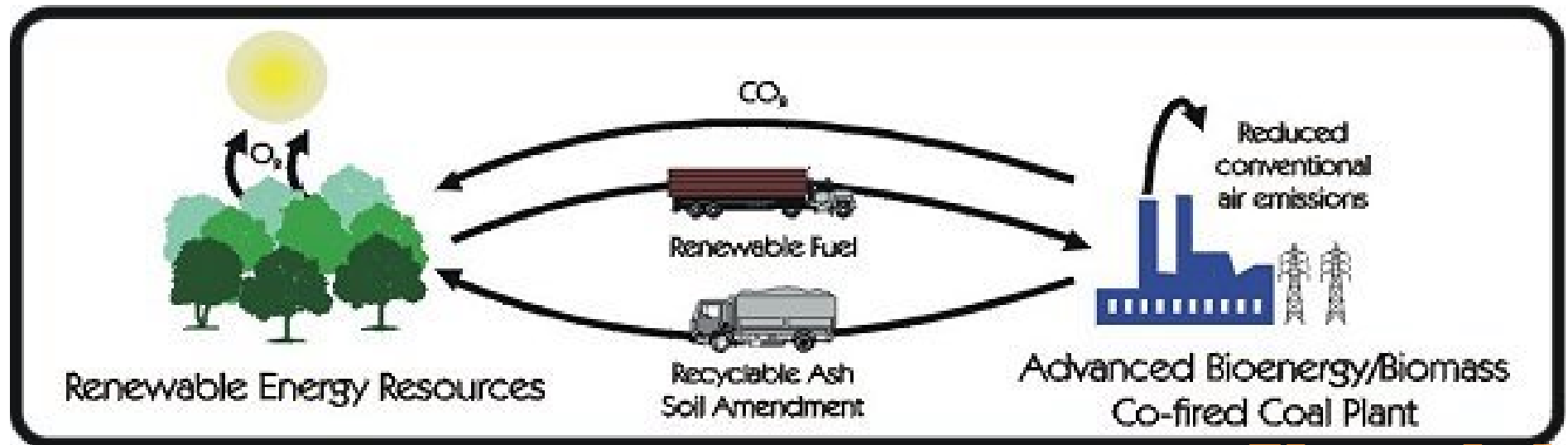
Types of Biomass	
	Wood fuel
	Rubbish
	Alcohol fuels
	Crops
	Landfill gas

Energy Sources

Usage of Biomass

Electricity

- **Biomass** can be **burned** in power stations to **make electricity**
- In combined Heat and Power systems, the **waste heat energy** is also used to **heat nearby homes**.



Electricity

Usage of Biomass

Heating and Cooking

Wood can be burned in a stove:

- **Heat** a house
- **Prepare food**



Heating and Cooking

Usage of Biomass

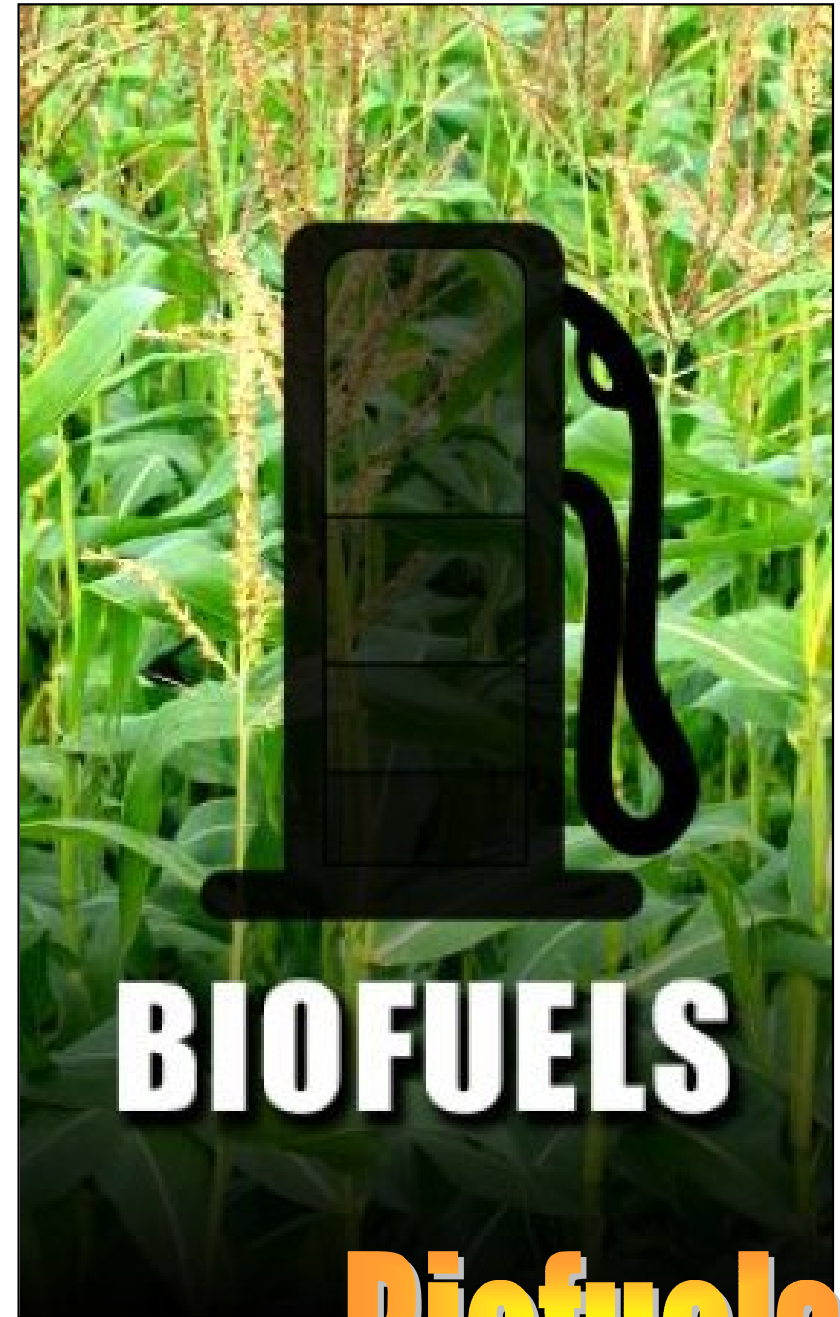
Biofuels

- **Maize** and **sugar cane** can be converted into **Ethanol** - *liquid* biomass fuel
Methane - *gas*

- **Sunflower seed-oil** and **soya-bean oil** can be converted into **biodiesel**

? Effect of mono-crops on nature

? Can we use food for fuel



Biofuels