

# Renewable Energy

Drumdigus N.S/TullycrineN

# WHAT IS renewable energy?

# Renewable Energy Definition

**Renewable energy** is generally defined as energy that comes from resources which are naturally replenished on a human timescale such as sunlight, wind, rain, tides, waves and geothermal heat. Renewable energy replaces conventional fuels in four distinct areas: electricity generation, hot water/space heating, motor fuels, and rural (off-grid) energy services.

- 3 MAIN TYPES
  - Air - Wind
  - Water - Hydro
  - Sunlight - Solar

# WIND ENERGY

## Wind Turbines

### ❖ Advantages:

- Wind is free.
- Suitable for remote areas.
- No greenhouse gases or other pollutants.
- Takes up only a small plot of land.



# WIND ENERGY

## Wind Turbines

### ❖ Disadvantages

- Wind is not constant
- People feel that they are ugly
- Wind turbines are noisy
- Large wind farms are needed to provide entire communities with enough electricity



# WHAT are THE advantages OF WIND-ENERGY?

# WHAT are THE DISADVANTAGES OF WIND-ENERGY?



# SOLAR ENERGY

## Solar Panels

### ❖ Advantages

- Solar energy is free
- Solar energy does not cause pollution
- Can be used in remote areas
- Items such as calculators can be powered by solar energy
- Will never run out



# SOLAR ENERGY

## Solar Panels

### ❖ Disadvantages

- Can only be collected when sunny
- Panels cost too much
- In Ireland, sun is not guaranteed
- Takes up too much space

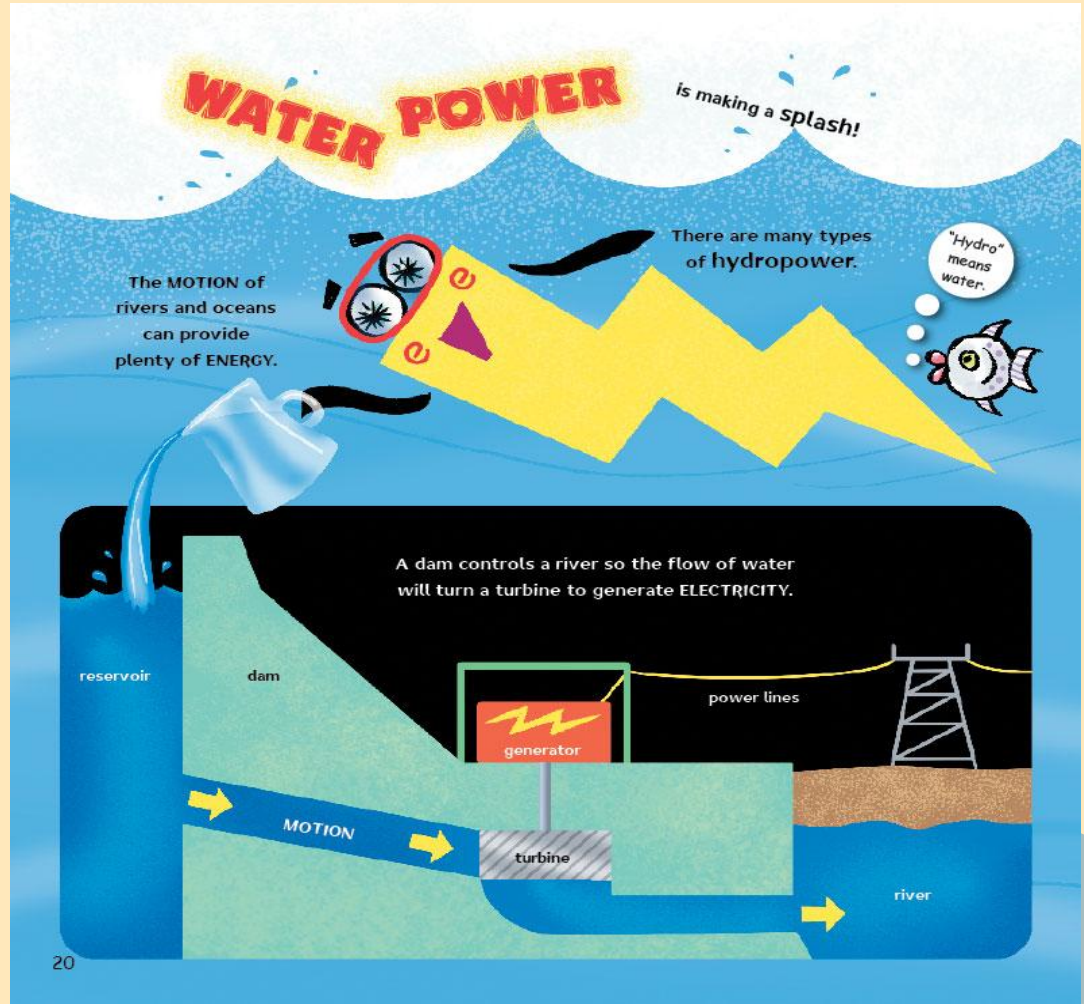


# WHAT are THE advantages OF solar energy?

# WHAT ARE THE DISADVANTAGES OF SOLAR ENERGY?

# HYDROELECTRICITY

Collecting the  
power from  
waves and water



# HYDROELECTRICITY

## ❖ Advantages

- Electricity can be produced at a constant rate
- If electricity is not needed, the gates can be shut
- The lake that forms can be used for water sports & leisure
- The lake's water can be used for irrigation
- Dam systems do not produce greenhouse gases.



# HYDROELECTRICITY

## ❖ Disadvantages

- Extremely expensive
- Natural environment is destroyed.
- The building of the Hoover Dam in the USA has triggered earthquakes worldwide.
- Old dams have been known to be breached (the dam gives under the weight of water in the lake)



# WHAT are THE advantages OF HYDROELECTRICITY?



# WHAT are THE DISADVANTAGES OF HYDROELECTRICITY?

# 2 ADDITIONAL TYPES

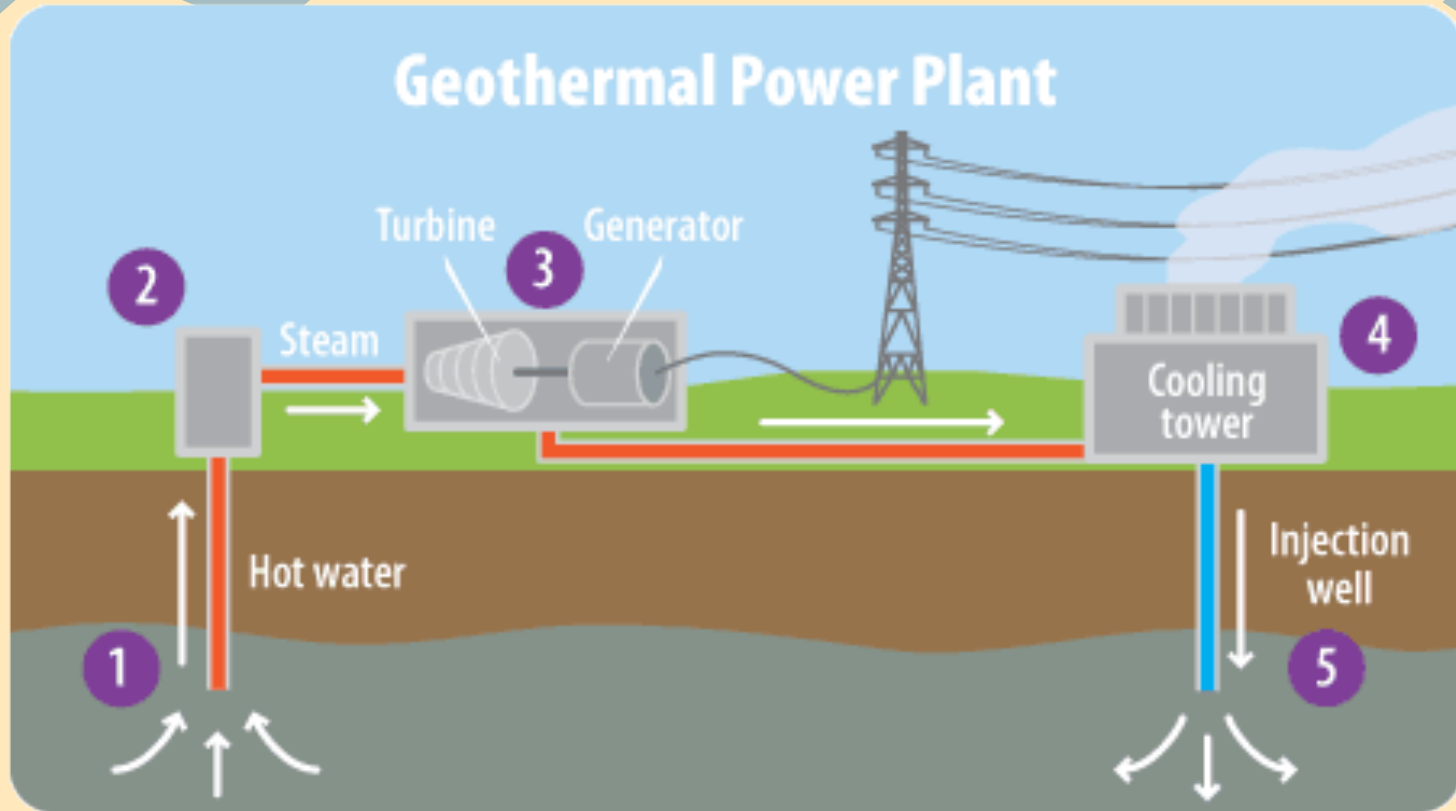
❖ GEOTHERMAL

❖ BIOMASS

# Geothermal

Geothermal energy is formed from the heat inside the Earth that causes hot springs, geysers and volcanoes. Some countries have used it for thousands of years in some as a source of hot water, cooking and heating. Steam produced from heat found beneath the surface of the earth can also produce electricity.

The primary impacts of geothermal plant construction and energy production are gaseous emissions, land use, noise and potential ground disturbances (also known as subsidence).



**THE PROCESS OF GEOTHERMAL ENERGY**

# Geothermal Energy

## Geothermal Electric Plants

### ❖ Advantages

- Geothermal energy is renewable
- Geothermal energy doesn't produce pollution
- Small Power stations
- No Fossil Fuels needed to operate power stations
- Low Maintenance



# Geothermal

## Geothermal Electric Plant

### ❖ Disadvantages



- Need a location that offers the right kind of hot rocks.
- Some rocks too strong to drill.
- Need to be within a reasonable depth
- Sometimes a geothermal site might, run out of steam.
- earth and steam is able to escape, Hazardous gases can seep up from the ground

# WHAT are THE advantages of GEOTHERMAL Energy?

with the

*The Green Team Kinnihil*

# DISADVANTAGES OF GEOTHERMAL energy?



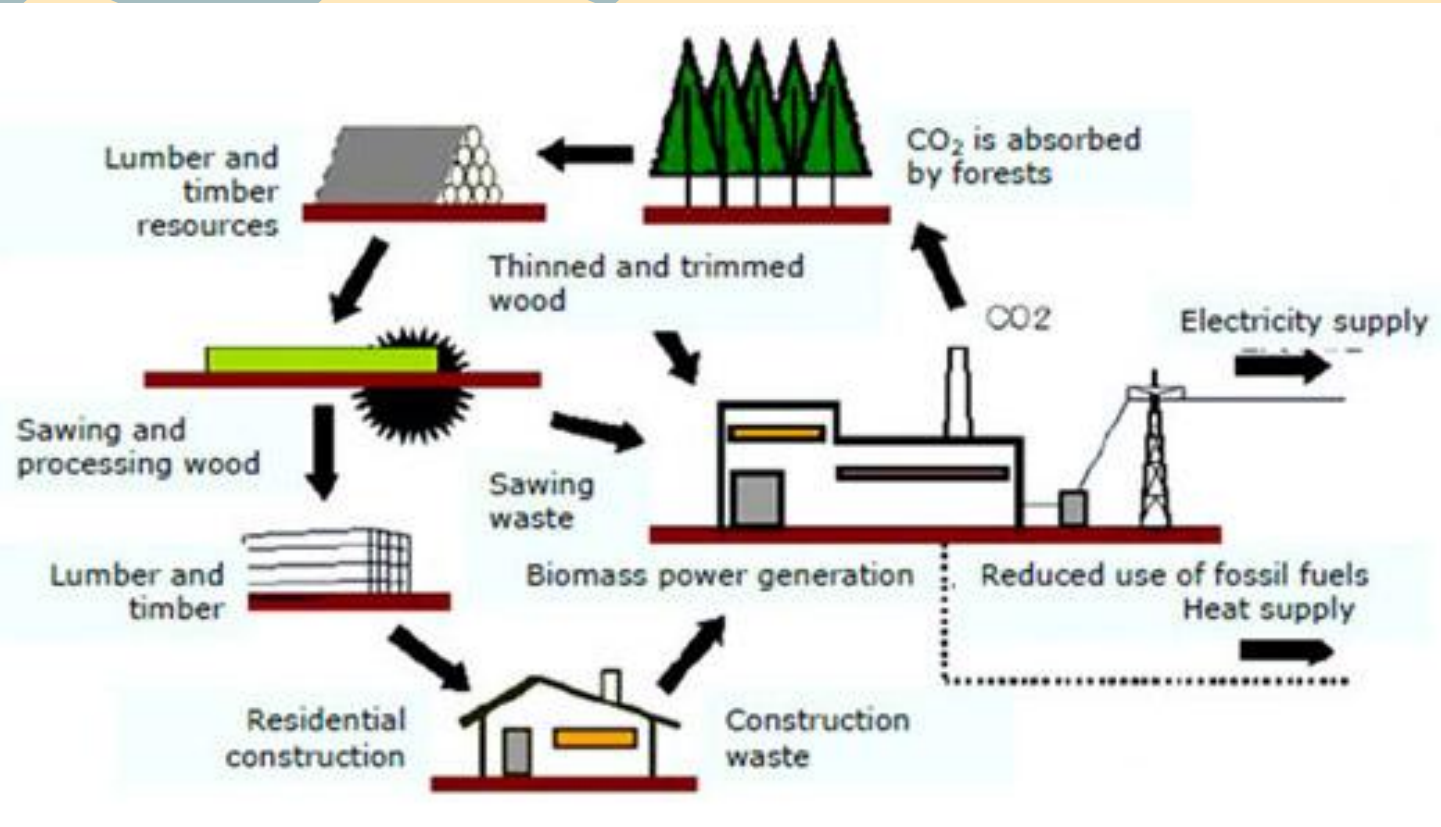
# Biomass Energy

Biomass energy is produced from energy crops or from waste materials. Heat, electricity, and transportation fuels can be made from plant materials and wastes such as agricultural residues, forest underbrush and organic human wastes. The food you eat, plants that die, woodchips and seaweed are all sources of biomass energy.

Most rubbish we throw out is buried in the ground (also known as a landfill). The gas generated by a landfill as it rots (biomass) is another form of renewable or "green" energy.

Landfill gas is created when the waste you throw away starts rotting (or decomposing) in the ground. This gas can be captured and processed to create electricity. Biomass may also include biodegradable wastes that can be burn as fuel.

Biomass energy can have a negative environmental impact if there is too much CO<sub>2</sub> produced. The CO<sub>2</sub> contributes to global warming.



**Biomass Cycle**

# Biomass Energy

## Biomass Plant

### ❖ Advantages

- Infinite fuel source
- When direct combustion of plant mass is not used to generate energy (i.e. fermentation, pyrolysis, etc. are used instead), there is minimal environmental impact
- Alcohols and other fuels produced by biomass are efficient, viable, and relatively clean burning



# Biomass Energy

## Biomass Plant

### ❖ Disadvantages

- Expensive
- Inefficient as Compared to Fossil Fuels Ethanol
- Harmful to Environment
- Consume More Fuel

# WHAT are THE advantages OF BIOMASS ENERGY?

# WHAT are THE DISADVANTAGES OF BIOMASS energy?

*The Green Team Kilmihil*

**THANK YOU  
FOR  
LISTENING!**