

Presentation

by Paul Anthony Roseway

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Effective Low Costs Energy For Your Home And Business

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**Certificate of Higher Education in Skills for Electronics
(Level4)**

Integrating Project (ACHA4008)

University of Wales Trinity Saint David.

The goal of the project

The cost of energy is high and it will continue to rise in the future, there are effective low cost energy solutions that can help to reduce Carbon footprint, this is better for the environment, it helps save money, you can also benefit financially from it in the future.

Governments are looking for ways of reducing energy consumption and cost.

Project Objectives

- **Energy consumption plays a crucial part in our everyday life**
- **The cost of energy is a financial burden for businesses and households**
- **There are ways you can reduce your energy consumption by**
- **Checking your bills to see where you can save on energy**

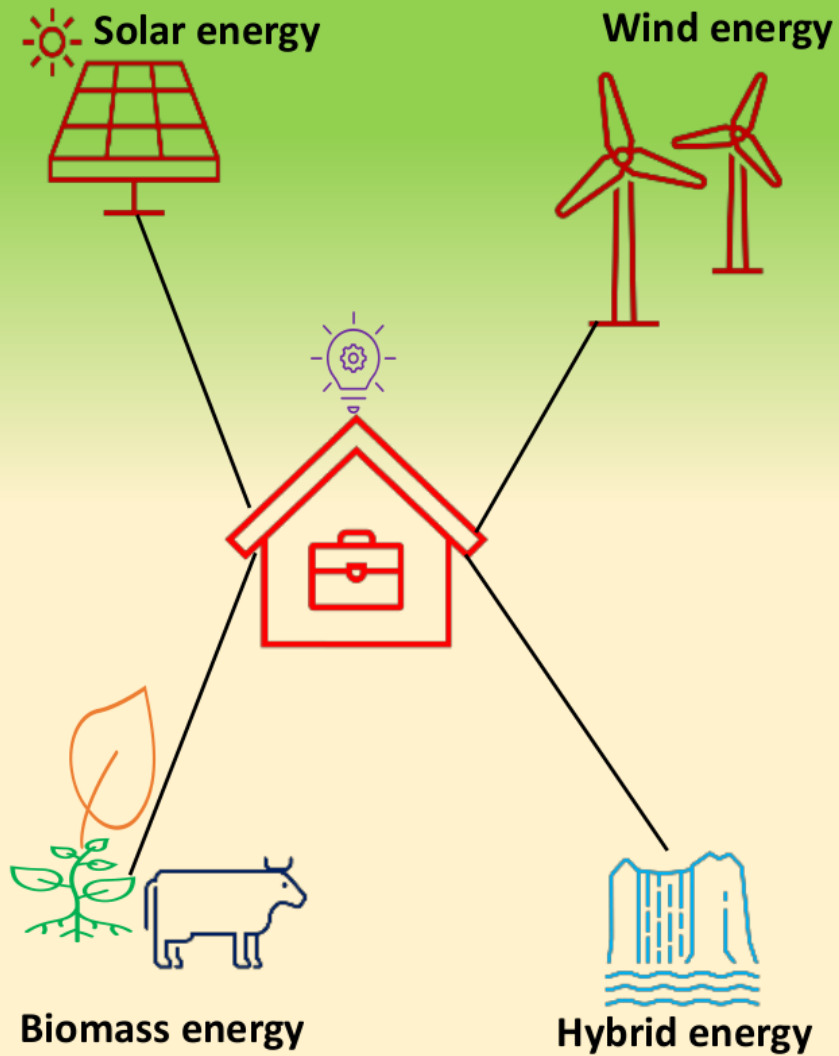
Objectives of the project

- **Using appliances more efficiently**
- **Replace old appliances**
- **Invest in some LED lights they use up less energy**
- **Insulate your home and business properly it can cut energy costs**
- **Use a programmable thermostat to check your energy system**

Renewable energy is the way to go

- **Ways you can generate your own electricity**
- **Benefits you get from renewable energy**
- **Storage for excess energy**

What is Renewable Energy



- Renewable energy is environmentally friendly
- Renewable energy comes from a natural source
- Renewable energy is better than fossil fuels

Types of Renewable energy

- **Solar power using solar panels**
- **Wind Hybrid system**
- **Micro hydropower system**
- **Bioenergy**
- **Geothermal energy**

Installing renewable energy on your property

- **First you should consider licences, regulations and planning permission**
- **Consider your budget and upfront capital spending**
- **Check if your house or property is suitable for the type of system you are interested to install**
- **Consider a suitable structure for your solar panels or wind turbines to Stand on**
- **Also consider the weather patterns in your area**

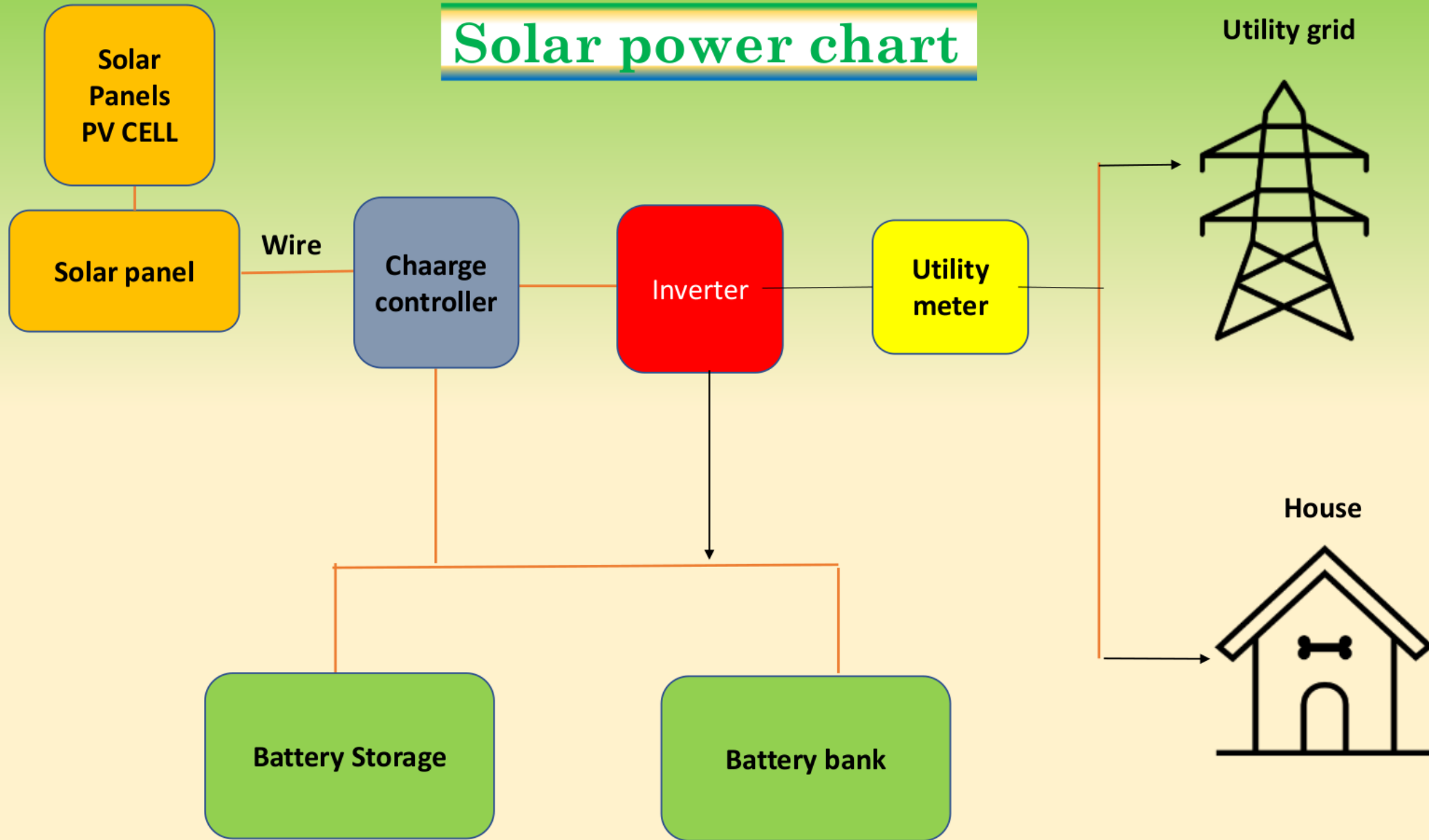
Before start project

- **You should consider a qualified person with knowledge, understanding and licences to do the job**
- **Get a quote for the items you need for your installation, so you can be prepared**

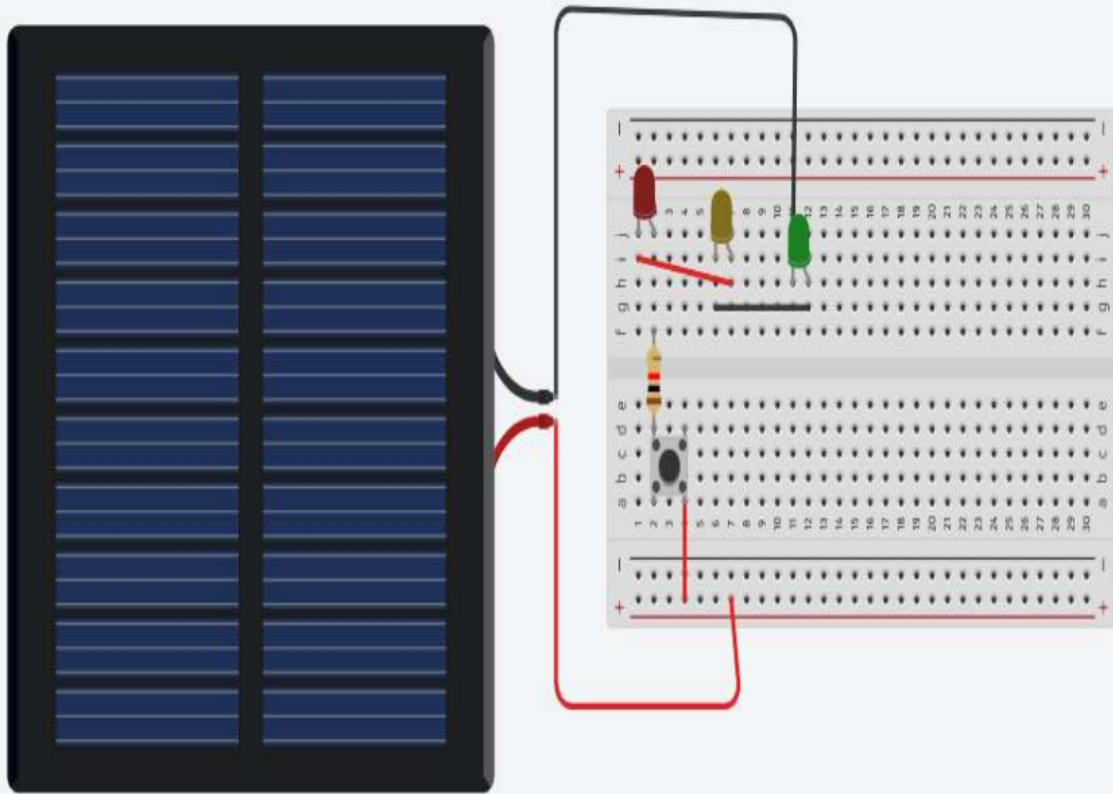
Solar power

- **solar power is affordable and it is most used and abundant sources for alternative energy**
- **Solar panels are used to capture the energy from the sunlight and convert that energy into electric energy, even on a cloudy day**
- **Solar panels come in different sizes, big or small it depends on the amount of energy you need they work the same**
- **You will need a battery bank to store the excess energy for when you need it**

Solar power chart



End product



C1	1	1 uF, 16 uV Polarized Capacitor
R1	1	1 kΩ Resistor
D7	1	Yellow LED
D8	1	Green LED
SC1	1	5 V, 100 mA Solar Cell
S1	1	Pushbutton

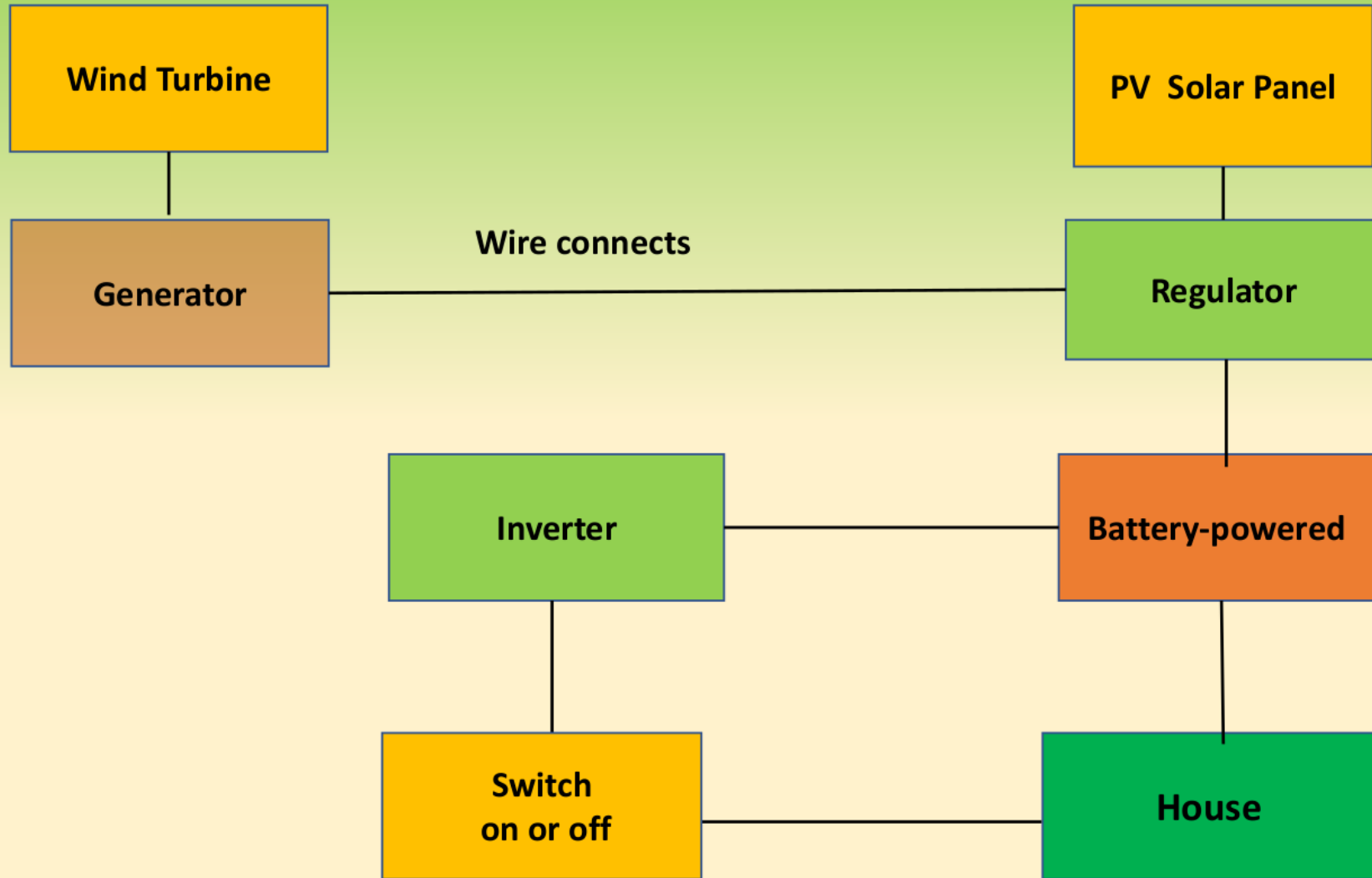
Wind Hybrid system

- **Wind turbines are another source of generating electricity**
- **It is zero emission and contributes strongly in energy consumption**
- **Wind is free and is every where, its depending on the lift of the wind**
- **This can go around your home depending on Laws, regulations and your land space**

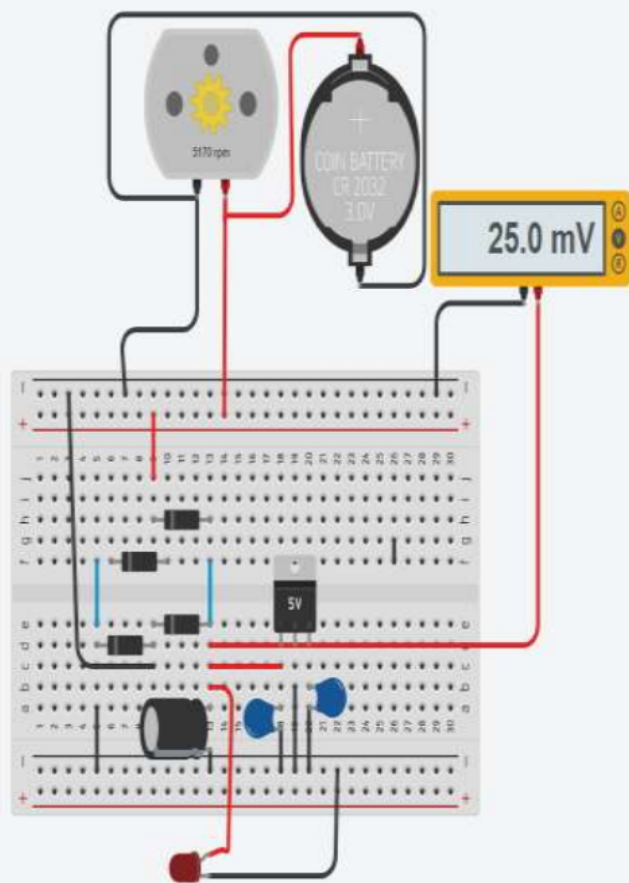
Wind Hybrid system

- **This works when the wind lift is strong, it rotates the blades of the turbine**
- **as the blades rotate the mechanism inside the motor rotate the generator which converts DC to AC electricity energy**
- **It can also work with solar power to have as a backup source of incoming energy from the wind**

Wind Turbine Flow chart



Wind System

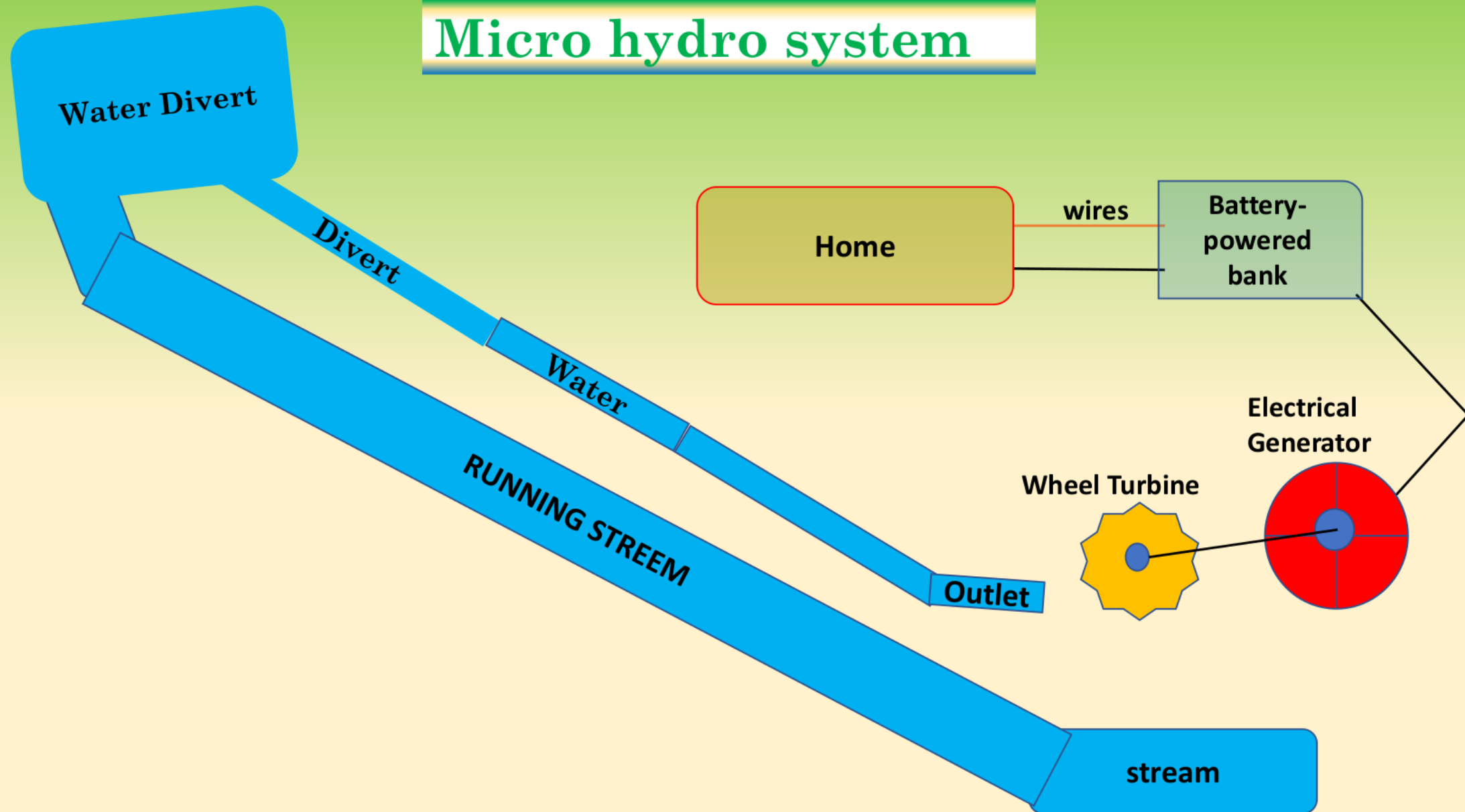


Name	Quantity	Component
C2 C3	2	100 uF Capacitor
D4	1	Red LED
U1	1	5V Regulator [LM7805]
M1	1	DC Motor
BAT2	1	Coin Cell 3V Battery
Meter1	1	Voltage Multimeter
D1 D2 D5 D3	4	Diode
C1	1	1 uF, 16 uV Polarized Capacitor

Micro hydro systems

- **Micro hydro systems works in the similar way as the hydropower**
- **Both used kinetic energy from the water movement while it flows**
- **the movement of the water flowing through the turbine turns the generator which generates electricity**

Micro hydro system



Biomass Energy

Biomass is considered a source of energy,

Biomass is any organic matter that can be burnt, can be used to produce energy.

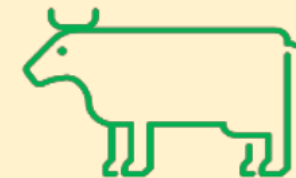
This works when you burn organic waste, wood pellets in a furnace or biomass boiler it produces hot water, that gives off heat that spins the generator which creates electricity.

Biomass Energy



Biomass energy comes from organic things such as,

- **animals waste,**
- **plants, such as cane, soy, corn, grassy , wood.**
- **Some industrial waste, and also human waste**



Geothermal Energy

Geothermal energy is a source renewable energy that gives off less greenhouse gas emissions and is considered sustainable to use.

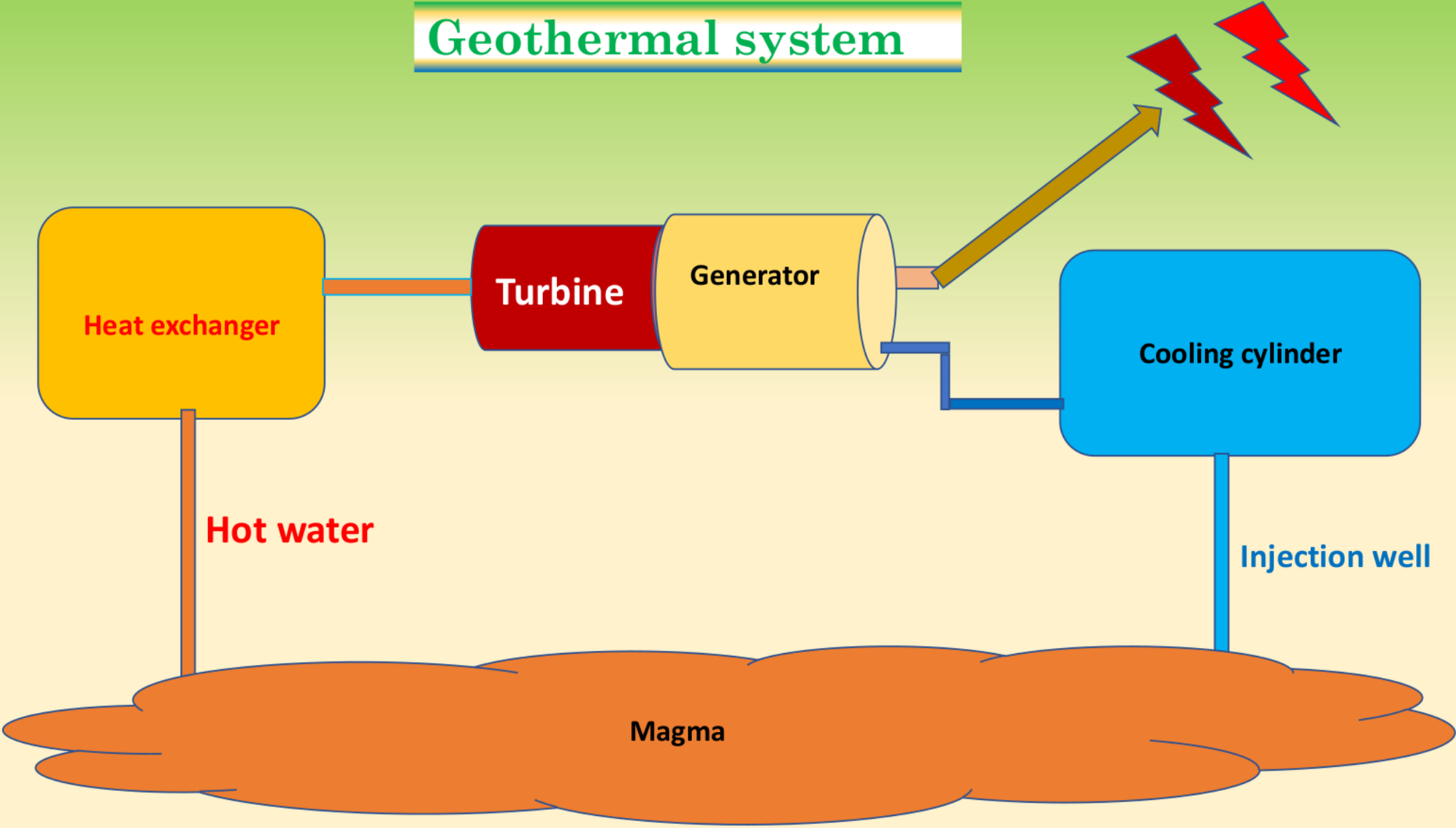
Geothermal energy comes from underground, it is a form of energy conversion that captures heat energy from the earth, and it can be use for several things such as generate electricity.

Geothermal Energy system works

This works when the earth crust and mantle generates heat through the decay of radioactive elements and the friction produced along their movements.

To harness this source of energy involves drilling underground wells to access reservoirs of water and steam, which are subsequently employed to power turbines and produce electricity.

Geothermal system



Conclusion

By investing in renewable sources energy can lower your energy bills and reduce greenhouse gas emissions. Renewable energy sources, such as wind, solar, bioenergy, hydropower, and geothermal. These sources are considered a sustainable alternative renewable energy and its environmentally friendly. There are Government tax incentives on renewable energy.

Presentation

GRADEMARK REPORT

FINAL GRADE

71 /100

GENERAL COMMENTS

Instructor

[Click here to view the feedback report](#)

Feedback/Comments:

a. Introduction to Problem Statement

Good! The main problem and aspects were clearly identified and addressed. 8

b. Literature Review (level of progress, suitable synthesis of background material completed)

Engagement with a limited range of mostly relevant and credible sources. 6

Referencing were made, with no/very few inaccuracies or inconsistencies. 6

c. Discussion of Findings(Clarity & Succinctness)

Clarity on the Finding were seen with adequate evidences 7

a. Project Plan

Work is coherent, fluent, well-structured and organised. 3

b. Code examples /prototypes /demo

Good! Evidence of Simulation and compilation tools are seen. 7

c. Response to Questioning

Satisfactory Level of Answers were noted during Viva Voice. 10

d. Presenting in Teams(20)

Very Good! The flow of Presentation is in logical sequence so that the audience can follow. 8

Excellent! Exhibits a precise pronunciation of terms so that audience can hear presentation. The presentation was of the proper duration. 8

d. Quality of Presentation(10)

Points are clearly made with clear format. Information’s were organized with relevant points. It is a very need Presentation. 8

Total Marks 71%

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