SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

COIMBATORE-35

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

COURSE NAME: 19EEO305 /Renewable Energy Generation Technology

IV YEAR / VII SEMESTER

UNIT 1- SCENARIO OF RENEWABLE ENERGY

Topic 7 – Limitations of Renewable Energy Sources

SUCCESSFUL STUDENT

Positive Attitude

Professionally Groomed

Socially Interactive

Technically Skillful

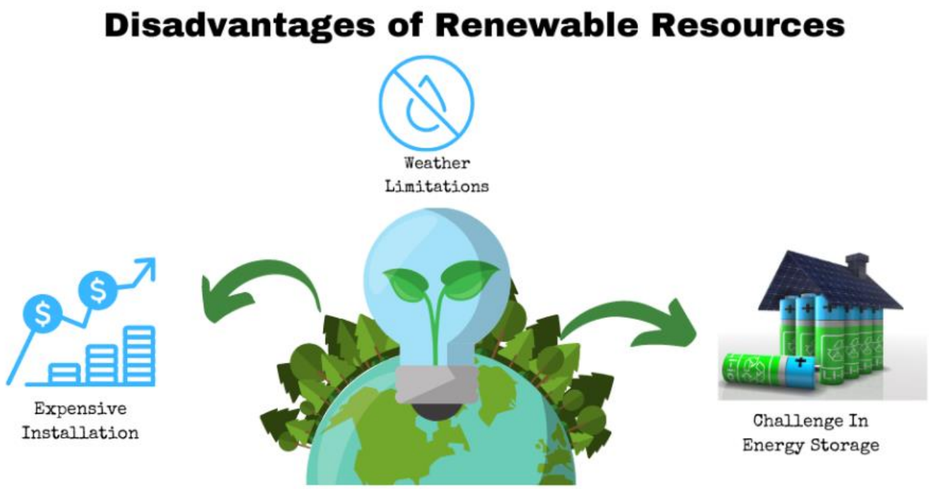
Limitations of Renewable Energy Sources

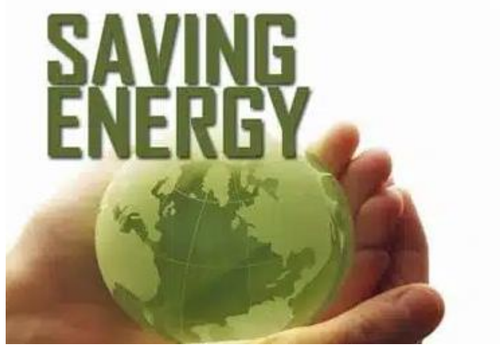
Currently a major problem is the amount of space required to produce a significant amount of energy. As time goes on and technologies advance, this will change, but currently renewable energy takes up much more land than traditional sources.

There is evidence that the carbon dioxide emissions from gasoline, diesel, fossil fuels, coal, and biomass are higher. These energy sources are the main contributors to greenhouse gas emissions that weaken the ozone layer and contribute to global warming.

What Are the Disadvantages of Renewable Energy?

- Renewable energy isn’t very efficient
- Renewable energy isn’t available 24/7
- Renewable energy is very expensive initially
- Renewable energy still creates pollution
- Renewable Energy requires a lot of space





What Exactly Is Renewable Energy?

Renewable energy is any form of energy available in the natural environment and can be replenished repeatedly. For example, **solar energy** is naturally available, and we can't run out of it by consuming it.

On the contrary, as we're burning fossil fuels like oil and coal, their resources constantly decrease. Scientists have estimated that the total remaining oil resources might last around **190 years**. This estimation is up to 230 years for natural gas resources.

Unfortunately, renewable energy is supplying less than **16% of the total energy** that we're currently consuming in the world. However, this share is constantly increasing, especially in advanced countries that have supportive policies. For instance, the UK has planned to increase its renewable capacity from 47.16 GW in 2019 to **86.21 GW by 2026**.

Disadvantages of Renewable Energy - in detail

Now, it's time to look at some disadvantages of renewable energy that make using them difficult.

1. Renewable Energy Is Not Available Round the Clock

Renewable energy sources are natural forces that are strongly dependent on the weather condition. Therefore, when you have bad weather conditions, renewable energy technologies such as **solar cells will be of less use**.

For example, when it rains, your PV panels can't generate electricity, and as a result, you have to get back to traditional power sources. We can consider this uncertainty the most important drawback of relying on renewable technologies.

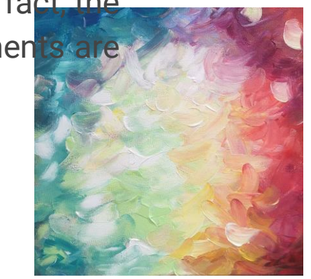
2. The Efficiency of Renewable Technologies Is Low

Each type of energy requires a specific technology so that we can convert it into electricity. The efficiency of energy conversion devices is of great importance when it comes to prioritizing energy sources. Unfortunately, the efficiency of renewable technologies is not that high compared with traditional energy conversion devices.

For example, **solar panel efficiency**, that are available in the market, is between 15% and 20%. On the other hand, traditional technologies that use coal or natural gas can respectively reach efficiency levels of up to 40% and 60%.

3. The Initial Cost of Renewable Energy Is High

Considering the amount of energy we can get from renewable technologies, their initial cost is high and sometimes unaffordable. In fact, the manufacturing and installation processes of renewable energy devices like PV panels are relatively expensive. That's why governments are setting aside considerable budgets, such as **solar panel grants** to help these technologies grow.



4. Renewable Energy Sites Require A Lot of Space

To harness nature's energies, we need a lot of space. This will cause many problems for renewable energy sites. In comparison with traditional power stations, we have to use more land for establishing renewable energy farms.

5. Renewable Energy Devices Need Recycling

Generating electricity from renewable energy sources produces way lower levels of pollution. But renewable devices are subject to some concerns because manufacturing them and also their disposal process might emit pollution.

For example, solar cells will fail to perform well after a while, so we need to throw them away. But these devices might be toxic, and as a result, we need to think of a **recycling process** for them.

ASSESSMENT

REFERENCE

Reference Book:

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2. D.P.Kothari, K.C.Singal and Rakesh Ranjan,”Renewable energy sources and Emerging Technologies”, PHI Pvt. Ltd., 2009. (UNIT I-V)

THANK YOU!!