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Advanced Energy Resources

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Abstract: ***The consumption of energy increases due to population increased day by day. This is necessarily in each step of life. Energy resources are of two types, one is renewable energy sources and other is non renewable energy sources. But we know that non renewable sources will exhausted. The importance of renewable sources cannot be underestimated. According to utilization of renewable sources , the fundamental point is impact on environment . In this paper we discuss about the some pros and cons of renewable sources and future trends . In recent years, the more prices of fossil fuels and greenhouse effects have built the opportunities in the production of renewable energy resources. Renewable energy is considered a more better source of fuel than nuclear power now a days because they are more safe than non renewable energy sources.***

Keywords: renewable, non renewable, Bio Mass Energy, Geothermal Energy, Hydroelectric Energy, Solar Energy, Wind Energy

I. INTRODUCTION

Renewable energy is the energy which is derived from a infinite source. Proper use and distribution of energy resources is the main concern these days. It is required to select where to use particular source of energy and its reason behind that particular usage . Factors such as cleanliness, cost, stability, efficiency and environmental effects must be taken into consideration. It is a sad truth that many industries around the world are still using fossil fuels for electricity production [3]. These fossil fuels are more widely used due to efficient power production , but they are not useful in long time. Fossil fuels may be depleted in nearby future, so the industries must change to renewable energy sources . Moreover, these fossil fuels provide a more environmental friendly and doesn't cause ecological hazards. The renewable energy sources supply is increasing day by day[4]. Now a days more investment has been made and the advancement of technology has helped countries to produce renewable energy more cost effectively. Due to some negative and irreversible difficulties coming with conventional energy production, it is imperative to promote and develop renewable energy supply technologies and its cost effective distribution.[5].

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These technologies may not be comparable with conventional fuels in terms of cost effectiveness, but they could be comparable if we consider their associated difficulties , such as their environmental and social effects. Also, it should be considerable that economies of scale could play a effective role in reducing the unit production cost. Here We discuss about the development of the main renewable energy supply techniques[6].

II. PROPOSED METHODOLOGY

1. Bsio Mass Energy: Biomass is prepared from living organisms, such as plants and animals .Plants, wood, and waste are utilized as a most preferable biomass materials known as biomass feed stocks.. It is also a renewable energy source. It is derived from sun. The sun's energy absorb by plants by using a method of photosynthesis. It change carbon dioxide and water into glucose and oxygen. The energy from these organisms may be changed into usable energy by direct and indirect method[7]. Heat can be created by burning of biomass , changed into electricity (direct or by bio fuel). Biomass energy is available at cheaper cost and it does not harm the environment . It also controls the pollution of the environment. Biomass energy can be good renewable energy source for rural areas in India. Production of Biomass energy has huge scope for innovation and its application in remote & rural areas. we will need efficient resources, Sustainable, renewable, non-conventional and equally essential resources of energy is needed to full fill the potential of India in the future. [1] The availability of biomass in the worldwide due to by-product of many industrial and agricultural processes[2]

WATER + CARBON DIOXIDE+SUN LIGHT =GLUCOSE+OXYGEN

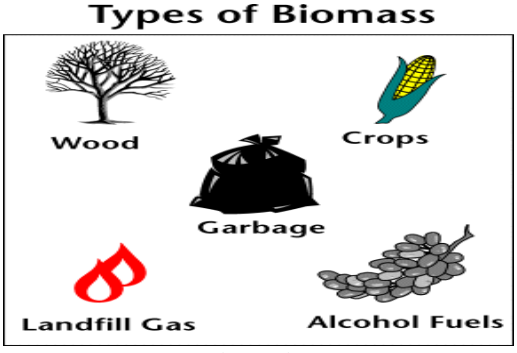

Fig1. Bio Mass Energy

2. Geothermal Energy: In 1904, Italian scientist Piero Ginori Conti invented the first geothermal electric power plant in which steam was used to generate the power. Geo, means earth, and thermal means heat. It is also renewable energy resources .The energy produced by heat below the Earth[8]. It is utilized to produce electricity, provide heat for buildings. It is clean due to produced without burning fossil fuels. The types are

1) Direct use and district heating systems method

2) Electricity generation power plants method
3) Geothermal heat pumps method[9]

Fig2Geothermal Energy

3. Hydroelectric Energy: The first modern water turbine – the Francis turbine developed by British–American engineer James Francis in year 1849– which remains the most widely-used water turbine in the world today. It, is a type of renewable energy that uses the water stored in rivers and dams to produce electricity in hydro power plants. In this the energy of falling water to generate electricity[10]. A turbine changes the kinetic energy of falling water into mechanical energy. Then a generator changes the mechanical energy from the turbine into electrical energy. It is used to produce electricity, Benefits for Business, Enabling Irrigation for Agriculture. There are three types of hydropower: impoundment, diversion, and pumped storage[11].

Fig 3. Hydroelectric Energy

4.Solar Enrgy: The photovoltaic effect explains how electricity can be produced from sunlight discovered by Alexandre Edmond Becquerel in year1839. The energy obtained through Sun and change it into electricity called Solar Energy. The use of sun energy as to light up our homes and streets,, and power machines and cook food and heat water. The most common types of solar energy are Photovoltaic systems, Solar water heating systems, Solar power plants, Passive solar heating[12]

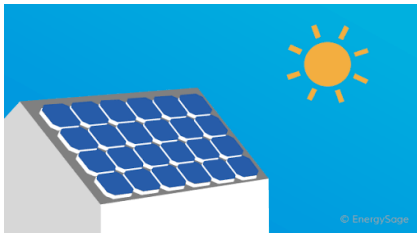

Fig4. Solar Energy

5.Wind Energy: In 1888, Cleveland, Ohio by Charles F. Brush invented the first electricity-generating wind turbine. Wind energy is a type of renewable energy. It does not contaminate, it is inexhaustible and reduces the use of fossil fuels, which are produce of greenhouse gasses that cause global warming. For these reasons, production of electricity by wind energy and its efficient use contributes to sustainable development. [13]

Fig 5. Wind Energy

Result Analysis

	Pros and Cons of Renewable Energy Resources		
		Pros	**Cons**
1	Geothermal	1.Renewable energy 2.Plentiful 3.Liveable 4. Environmental friendly 5. Availability is high 6. Electricity Cost is less 7.Less Maintenance 8.Improved Technology	1.High Priced 2.Interrupted 3.Energy storage capacity is costly 4.Causes pollution 5.Requires expensive infrastructure 6.Require huge Space
2	Hydroelectric Energy	1.Renewable energy 2.Green 3.Reliable 4.Flexible 5.Safe	1. Negative effect on Environment 2.Expensive 3.Droughts 4.Limited Reservoirs
3	Renewable energy	1.Stable Energy Prices 2.Continual Source of Energy 3.Reliable 4.Low green house Effect 5. Large Scale Job Creation 6.Low Cost Operation 7.Micro Station Options Possible	1.High Development Cost 2.Vulnerable 3.Unable to Produce in Large Quantity 4.Not Available in All Area 5.Large Areas Required
4	Solar Energy	1. Renewable 2.Reduces Electricity bills 3.Diverse Applications 4.Low Maintenance cost 5.Technology Development	1.Cost 2.Weather Dependent 3.Energy storage is Expensive 4.Requires more space 5.Associated with pollution
5	Wind Energy	1. Clean source of power 2.Renewable 3.Cost Effective 4.Extra Savings For Land Owners 5.Use of Modern Technology 6.Can be Built on Existing Farms	1.Wind Reliability 2.Threat to Wildlife 3. Noise and Visual Pollution 4.Expensive to set up 5.Safety of People 6.Suitable to certain locations 7.Effect on Environmental
6	Bio Mass Energy	1..Renewable 2.Reduces Dependency on Fossil Fuels 3.Don't Produce Carbon 4.Widely Available 5.Used in many forms	1.Not 100% clean When Burned 2.Relies Heavily on Natural Materials 3.Inefficient 4.Needs a Lot of Space 5.Expensive

III. CONCLUSION

Renewable energy sources is new in our daily life . These sources are integral part of the energy. These sources are to reduce the environmental effects generated with non renewable energy sources eg. coal, oil and natural gas. These are money saving over the long time, but prevent the environment from the hazard of fossil fuel emissions. Awareness campaigns may be initiated at school and college level about the use of renewable sources. Moreover, power companies should gradually resort to the use of renewable resources as they are decline and will never deplete. Social media also help by writing articles on pros and cons of renewable energy resources. Education will be provided about renewable energy resources as a compulsory subject at each level.

REFERENCES

1. Rahul Seth, Rohit Seth, Shrish Bajpai, Need of Biomass Energy In India, Progress In Science and Engineering Research Journal , March 2015
2. Miguel-Angel Perea-Moreno , Esther Samerón-Manzano and Alberto-Jesus Perea-Moreno , Biomass as Renewable Energy: Worldwide
3. Research Trends, Sustainability MDPI, 7 February 2019Umair Shahzad, The Need For Renewable Energy Sources, International Journal of Information Technology and Electrical Engineering, 2012
4. Fang-Yu Liang, Marta Ryvak, Sara Sayeed and Nick Zhao, The role of natural gas as a primary fuel in the near future, including comparisons of acquisition, transmission and waste handling costs of as with competitive alternatives, BMC Chemistry, 2012
5. Dilip Ahuja and Marika Tatsutani,Sustainable energy for developing countries, SAPIENS, 2009
6. http://ase.tufts.edu/gdae
7. Guozhu Mao, Ning Huang, Lu Chen, Hongmei Wang, Research on biomass energy and environment from the past to the future, Science of the Total Environment, Volume 635, 1 September 2018, Pages 1081-1090
8. Askari Mohammad Bagher,Mirzaei Vahid and Mirhabibi Mohsen, Geothermal Energy, Journal of Engineering and Technology Research, december 2014
9. *https://www.nationalgeographic.com ›*
10. www.hydropower.org
11. https://www. Conserve- energy-future.com
12. José Antonio Luceño-Sánchez , Ana María Díez-Pascual , and Rafael Peña Capilla , Materials for Photovoltaics: State of Art and Recent Developments, International Journal of Molecular Sciences, 2019
13. Leon Mishnaevsky Jr, Kim Branner, Helga Nørgaard Petersen, Justine Beauson,Malcolm McGugan and Bent F. Sørensen Materials for Wind Turbine Blades: An Overview, Materials, 2017

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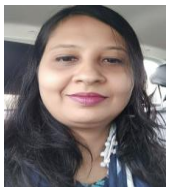

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