

Different Green Technologies and their Impacts

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ABSTRACT: *Green technologies are really a broad concept of technologies that help to reduce human environmental consequences and promote long-term growth. Social equity, long-term viability and economic feasibility are the main considerations for renewable energy. Today, the world is on the brink of reaching a tipping point, at which point we will have harmed the planet in an irreversible and permanent way. Green technology offers solutions to issues such as carbon dioxide emissions, pollution, deforestation, and resource depletion. It has the chance to transform waste policies and development in such a way that it has no harmful effect on the environment and helps us in being more environmentally aware. The benefits of green technologies and the profits that can be made from it are the focus of this study. The key motive of this study is to enhance and develop clear understandings about sustainability on the green-solar energy, and to prioritize the strategies to implement them and promote knowledge about sustainable development of the resources of green energy to utilize them. Furthermore, the objectives of this report is just to address the relationship between environmental power-related mitigation as well as global constancy, as well as to highlight importance about renewable technology in attaining maintainable developing goals as well as maintaining worldwide constancy. This study will aid the readers to carry out further researches and spread the awareness about the green technology.*

KEYWORDS: *Energy, Environment, Green, Solar, Sustainable, Renewable, Resources.*

1. INTRODUCTION

When a system has been developed, upgrading or modifying the operation methods will be extremely difficult. Designers therefore need recognize as well as contrast the basic concept and terms of occupational properties of many other storage photovoltaics that have already been thoroughly examined in selecting the most suitable planetary panels for something like a particular geographical region. Human beings' need for energy resource deployment has always been a fundamental aspect of all human life, and seeking to acquire a single eternal energy resource has long been a human ambition. As a result of population growth and technological developments, the world's energy demand is rapidly increasing.

To meet energy requirements, and therefore it is critical to find a clean, outlay, and everlasting renewable resource. Biomass, coal, oil, and gas processing and storage the energy market as human society advances. However, as energy demand increases, fossil resources become scarcer, and the environmental consequences of burning these non-restricted energy resources become more significant, their use becomes more difficult.

1.1. Principles of Green Energy Recognition

Solar energy, like all alternative energy sources, is a promising and cheaply accessible source of energy for discussing long-term energy crisis issues. These are the basic principles on which green energy works to attain any new type of energy source or even recognize any preexisting energy source as green energy or not. Also, these principles can be implied on most of the aspects of chemistry as well[1]:

- When supplementary products are used, they should really be kept under control and made as harmless as possible. The economic and environmental impacts of energy consumption in renewable power processes should be identified and minimized.
- Synthetic processes should be conducted at room temperature and pressure if it is at all possible. When technically and economically feasible, raw materials or animal feed should be renewable instead of just depleting.
- Because certain steps require significant reagents and therefore can harm the environment, or as much as practicable, through use of disrupting classes, security, and immediate alteration of biological phenomena should really be prevented.
- Green products should be engineered so that when they no longer accomplish their goal, these items decay into harmless degradation products and have no negative environmental effects. To support independent control and monitoring of operations leading to the advent of dangerous chemicals, diagnostic techniques must always be strengthened.

- Substances in addition to their forms used in energy generation should be chosen carefully to reduce the risk of accidents such as releases, explosions, and fires. Materials should be engineered to perform their intended function while being as toxic as possible.
- Green energy has several benefits, such as being environmentally friendly, safe, nontoxic, cheap, waste-free, sustainable, and, most importantly, cost-effective. It has been attempted to design synthesis for manufacturing processes in such a way that waste products are minimal, have no impact on the environment, and are easily disposed of.

Despite the fact that the main energy source, fossil fuel, is limited and other sources are inexpensive, the solar industry is rapidly receiving more and more attention due to the high demand for electricity. Because it is now cost effective as a result of years of intensive study to speed up its expansion, it has become an approach for achieving developing countries' economic status and sustaining the lives of many underprivileged people. When compared to other renewable energy sources, the solar industry will undoubtedly be the best option for meeting future energy demands due to its superior availability, cost effectiveness, accessibility, capability, and performance.

Domestic battery packs as well as appliances, in general, sometimes include hazardous chemicals which can damage the environment groundwater upon processing, irradiating our land and groundwater with substances that are impossible to extract through watercourses including nutrient related harvests growing over the polluted soils. The dangers in public well-being are immense. As a result, it is imperative that every investor recommend going green. They need to understand which greener innovations as well as cleaner machineries being sustainable which can profitable marketplaces that are constantly increasing. Consumers should also be aware that purchasing green inventions will assist them conserve money on their electricity prices as well as those greener innovations being harmless in addition to health improving goods. In regards of environment and the energy, up to 2030, the climate on the surface of the earth will change as a result of human movements earth's sustainability activities, particularly in the energy sector.

1.2. *Current Need of Greener Energies*

Greener energies should act as reagent to the nation's energies safe keeping, lengthy developments, in addition to communal, technological, manufacturing, as well as administrative developments. Increased green energy consumption has a constructive effect on financial development as well as communal developments in many countries. Furthermore, because energy is important to global industrial and technological growth, the supply and use of close to zero green fuel is particularly important in international stability. Greener energies are roughly well-defined by way of any of energy type which has zero or else minimum adverse ecological, financial, or social as well as environmental considerations. This being critical for fulfilling of sustainability's objectives, as well as it might be more easily accomplished throughout combining local power sources like lunar, hydric, bio mass, airstream based, geo-thermal, as well as several additional renewable energy sources.

Most global environmental and weather changes can be explained in this way[2]:

- CO₂ has increased by 31% in value since it was first published 200 years ago. From 1800 to now, the value of CH₄ has increased by at least two fold.
- Increased atmospheric pressure has a downward impact on middle geographic fields, causing flooding and severe storms. The free levels of sea water of the world have risen 1 - 2 millimeters per year over the last century. Every decade's growth season has gotten longer over the last 40 years, averaging from 1 to 4 ages.
- In the next 30 years, the price of carbon dioxide, the publication of impacting produce, and energy use will all increase faster than simple energy consumption.
- Usage in underdeveloped nations accounted for two-thirds including its rise, and power station and distribution restrictions resulted in either a 75 percent buildup of greenhouse gases that might have been exported. from industrial countries to developing companies in the form of geographic growth carbon dioxide.

Greener energies could be utilized for reducing the environmental effects of hydrocarbon renewable energy sources and its production, primarily greenhouse gas emissions, mostly during electricity generation. Massive steam-powered power plants age for generating electricity seems to have been drawing to a close. Problems concerning traditional fossil fuels' effects on the environment, particularly one's climate - related, also increased.

These have been important drivers of the transitions to greener energies as well as the power generations using abundant and free renewable sources of energy[3]. Federal agencies as well as organizations of all sizes are focusing on reducing carbon dioxide emissions from their recent operations, with such an emphasis on clean and renewable energy systems[4]. Solar technology is a promising backup energy source due to its numerous strengths over many other options. Renewable energy such as solar form of energy that really is easily obtainable and environmentally friendly, although it is being used to produce electricity immediately.

Solar power is a good approach of renewable energy because it produces no pollution, requires very little maintenance, and has a long life expectancy of 20–30 years. Solar water heating, drying system, and rooftop Solar are really only a few of the many implementations of photovoltaic devices; but, electrical applications first were developed for electricity production including communications systems. Multiple factors play a significant role throughout achieving long-term development[5]. One will be the prerequisite for something like a perfectly sustainable supply of renewable energy sources. A reliable availability of energy supplies becomes widely identified as an important although insufficient condition for societal growth.

Sustainable development frequently necessitates a steady supply of renewable sources, and also good and productive sustainable technology technologies like solar, tidal, and hydro power stations, non-fossil fuel hydrogen production plants, and so on. Furthermore, long-term sustainability necessitates a consistent supply of energy services at a fair cost with no or limited serious negative repercussions. Clearly, some energy supplies, including such carbon energy, are limited and therefore lack the benefits of lengthy conservation, whereas others, including such renewable energy, are not [6].

Green energy costs must be increasing in order to advance maintainable technical growth as well as manufacturing efficiency, aimed at raising societal life principles. In order to achieve economic development, long-term steps are taken to recognize today's energy shortages and environmental issues. Amongst the most effective methods to accelerate the development of a sustainable development appears to have been the usage of renewable energy resources. Develop as well as introduce productive as well as lengthy sustainable energy strategies would be another powerful method. [7].

Engineering practicality, reliability, potential applications, economy, supply scarcity, and publically acceptable should together all be deliberated for these activities. The lack of information is the motivating factor behind this project. Furthermore, the purpose of this article is to identify the connection through ecological energy-based mitigation and world stability, as well as to emphasize roles of greener energies in attaining maintainable developments as well as worldwide constancy. Instances of economic security, the renewable technology proportion are given utilizing information from in the literature [8].

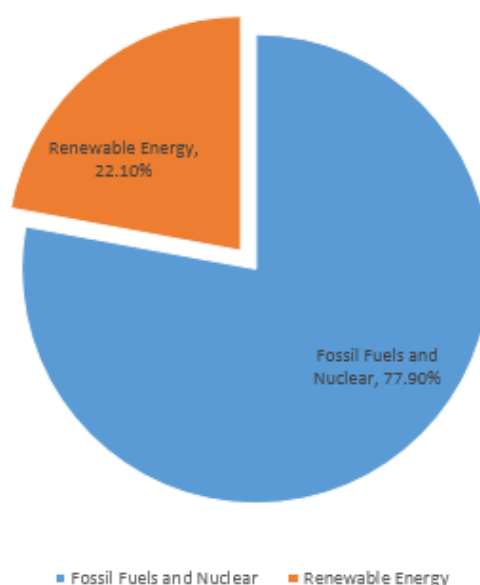


Figure 1(A): Classification of the Resources Based Distribution of the Electricity.

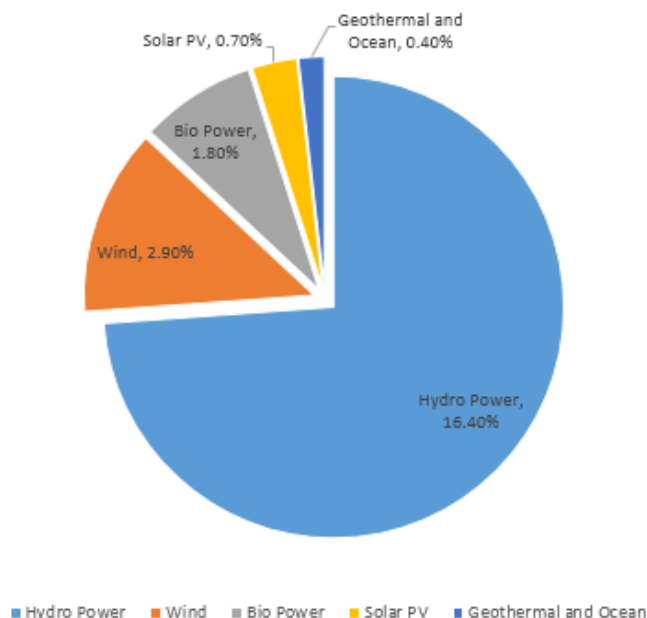


Figure 1(B): Renewable Resources Based Distribution of the Electricity Around the World.

1.3. Studying the Possible Usage of Solar Based Energies via Financial Point of Views.

Though costs of consuming energy from the sun being considerably lower than any other energy form available in the market, today's policymakers take into consideration not solitary, the price of celestial systems, but also advantage offered via their usage, such as lower environmental impact along with only one-time investment for about next 30 years more and so[3]. If we pay attention to all built matter, could discovering any region of our country that uses solar energy have an economic explanation? Using solar cells in remote areas, for example, could cost a lot of money over time. In terms of existing technologies and global solar energy adoption.

According to studies, building not dependent on sun powered station isn't lucrative at this time, hence combinations of cycled powers station such as solar vaped is more cost effective. The most significant barriers with the use of solar energy is the capital necessary to establish lunar businesses which should consider their rudimentary tasks. The sun shining's effect creates different types of limitation energies. Electricity-producing photovoltaic cells, solar concentration towers, as well as wind and thermal ground energies, all derive energies through sun. See Figure 1(A) and 1(B). A number of European countries were already focusing increasing energies towards solar energy, and the use of this energy in the future will have far-reaching implications for human relationships.

1.4. Difficulties in Implementing Green Technology

Green technologies, in general, are expensive and inefficient as they expose to ecological prices of the equipment and devices that is currently completely externalized by the current market place, and because they are the related developments and relative preparation will inevitably create these for greater exclusive as time goes on [6]. A variety of other factors can obstruct the adoption and dissemination of these technologies. Technical, environmental, political, educational, or legal in nature, such as a lack of an adequate regulatory framework. High implementation costs, low data, lower HR and their related expertise are all obstacles to companies embracing green technologies. Overcoming these obstacles is a difficult task. To promote green development, it is necessary to identify and remove the obstacles that prevent the extensive acceptance of clean technologies in emerging nations.

As a result, both its benefits and drawbacks must be considered. Green technology allows non-depleting natural resources to be used. Cutting-edge energy generation technologies are used in green technology. Green nanotechnology, which combines greener engineered as well as greener Science, is among most recent greener developments. Solar power, fossil fuels, and other green technologies are used to generate electricity. They have no negative effect on the climate and will not reproduce. As a result, generations to come will be able to benefit from them, reducing the amount of damage towards environment. The study discusses the significance of sun industry, as well as its important elements, the global energy scenario, highlights of research done to upgrade the solar industry, its potential applications, and future constraints to

a better solar industry in order to address the energy crisis. Green technology, as the title suggests, is technology that aims to have been environmentally sustainable. We're not talking about color green. Green technologies are those that concentrate on the environment, such as energy conservation, safety, recycling, as well as health concerns, sustainable resources, and so on. The world's natural resources are finite, and some have already been exhausted or destroyed.

2. LITERATURE REVIEW

Constriction and development have a negative effect on jungles, pastures, planet habitats, as well as animals and agricultures. So, in terms of environmental programs and international policies, limitation on energy resources play a specific role in the expansion and stability of the world economy and sustainability, but with current systems of world energy use, coordinating restricted sources has some problems, and in order to address them, specific world research must be allocated to them. Nuclear energy and electricity, as well as wind energy, are two feasible alternatives to fossil fuels with modern human technology. Iran is the richest nation in terms of different power sources; Iran has the greatest potential for limited resources of energy like wind, geothermal, and among others.[9].

Solar energy has enormous potential to close the energy demand-supply gap in India's future. As a result, it's clear, solar alternates surely become costlier in the near future. This industry faces a number of challenges, including lower production costs, increased R&D initiatives, customer awareness, improved standards, and more financial support. It is critical to overcome these obstacles in order for the technology to evolve quickly and gain widespread acceptance [10].

With appropriate design and choice of buildings, issues like deforestation, increasing pollution and many more similar environmental constraints in charge, as well as irregular cities which are serious problems, could be avoided[12]. Reconstruction of current buildings, utilization of previously underutilized ground between buildings, and utilization of previously underutilized ground that was previously obstructed by machines existence that prevented unutilized growth cities Buildings that used LEED (Leadership in Energy and Environmental Design) technology consumed less energy and water than older structures[13].

3. DISCUSSION

As per credible knowledge, the mean temperature of the ground atmosphere is increasing. The combustion of fossil fuels has resulted in increased levels of carbon dioxide and other greenhouse gases (GHGs) throughout the environment. Global warming would inevitably trigger dramatic changes in the global atmosphere, with far-reaching consequences for human life and the built environment. As a result, steps must be taken to reduce all fossil fuel use and promote green energy, particularly in the construction industry. Minimizing energy needs, judicious electricity use, heat recovery, and the use of renewable energy sources are all examples of ways to reduce energy use.

Buildings constructed with some of such technologies may get to an expansion then developing current schemes as explained earlier about the LEED technology and proposed designs prototypes. Existing structures should be reconstructed at a lower cost. Using skills, one project could be used as a cover project in this system. With the reduction in size of some instruments, such as chillers, irregular consumption may be prohibited. The industry, private industry, and democratic institutions working together will usher in a revolution in solar power development. Any of such inventiveness are put to use, then the Indian market into a greener energy resource will be feasible more earlier than expected.

The successful deployment of renewable energy credits, some of the necessary steps to allow growth include the use of carbon trading as a source of income, the enhancement of financial resources, the encouragement of private sector investment, the fast implementation of the net metering system, policy mixing, the simple implementation of grid-powered energy in Rajasthan and Gujarat, and the expansion of off-grid usability. In the private sector and educational institutions, research and development implementations must be held together.

3.1. Different Types of Green Technology

Greener technologies encompass wide range of use as well as production methods for its implementation along with no foreseeing into the future for its sources to end anytime in the nearer future. Environmental technologies are practiced for assessment and monitoring, pollution control and prevention, as well as renovation and remediation as part of the use and adoption of green technologies. The state of the ecosystem,

as well as the release of harmful anthropogenic or natural products, are measured and tracked using environmental assessment and monitoring technologies. Before hazardous substances released into the environment, control technology has made them harmless. Remediation and restoration technologies are techniques for restoring ecosystems which have been degraded due to natural or human activity reasons.

3.2. *Diverse Kinds of Greener Technologies Items*

Greener technologies' items are those who advance ecological consciousness in to their usage and design. Alternative energy products are intended in reducing wastes, reducing pollutants, and also reduce its usage of energy sources. Power creations, greener fuels, defensible or decomposable items, as well as renewable energy technologies are really only a few examples of green technological innovations. Among the most environmental friendly technological innovations used in daily life are panel and Isolated heat diskettes, which help generate alternative energy. Solar cells, that can be installed on homes, structures, and industrial complexes, just use excess energy to recharge sun battery, that can then be used to make energy instead of exhaustible resources like carbon coal.

Isolated disc, that could be used in baths, capture the rays of the sun as well as radiate it via the pool's ground, offering a non-fossil fuel alternative to thermal decomposition. Green substances would be used in a variety of renewable energy generation to reverse the effects of toxic, contaminating compounds although reducing contamination and environmental damage. Home cleaning solutions made of coconut and glycerin, insecticides made of orange or peppermint oil instead of chemical additives, and sometimes even environmental cleaning solutions that also can help enhance quality of water are all examples of green chemical products. Greener items which being both sustainable and recyclable help extend the life of consumer products.

Cell phones made of recycled bottles of water, these products include appliances made from scrap metal and even recyclable laptops. Consumers shopping for a new mobile phone or laptop will want to inquire about specific models that use recycled content. Alternative energy goods that use renewable and recyclable materials also encourage their participation in recycling initiatives. Solar-powered charging devices for phones, laptops, and portable appliances are among the most common renewable energy items. Greener energy reduces the fossil fuel use and lower electricity bills by converting daily commodities to renewable energy sources.

3.3. *Solicitations of Greener Technologies over Daily Life*

3.3.1. *PV Plates or Array*

PV cell is one of the major examples/application of green technologies. Through the process of photovoltaics, a PV cell changes entropies of sunlight straight to electric energy. By means of solar energy in generating electric power reducing usage of fossil fueled carbon based energies resources, lowering pollution and greenhouse gas emissions.

3.3.2. *Heater for Water Using Solar Energy*

Installing the solar heating system can be a worthwhile investment on electricity while still helping the environment. The expenses of constructing heating system will have restored significantly quicker than that of the expenses of using photovoltaic systems to develop electricity. And that is due to thermal energy storage technologies' improved performance and reduced expense as compared to other parts of solar array used to operate a household.

3.3.3. *Wind Engine*

It is a type which produces electricity from the wind. A home wind generator takes time and money. Some people have made their own wind turbines out of local store-bought components from local hardware stores. A home-made wind blower output power differs just like its initial cost. Several generating units would merely sufficient for counteract over 10.0 to 15 percent of a normal household's energy costs.

3.3.4. *Rain Collector*

These services are extremely standard memory structures that link to a filtration system and perhaps other rooftop rainwater harvesting network and collect rainwater in a bottle to water tank for non-potable use afterwards (like irrigation, flushing toilets and watering plants). The cost of these devices is extremely low.

3.3.5. *Building with Green Technology*

to minimize their impact on the environment, greener structures employ lots of ecological performances. These practices not only help the environment, and so they can also result in buildings which are more economically appealing and healthier for the people that live in them. The major benefit of sustainable projects is that it reduces a building's impacts over the surroundings. Greener structures strategies can also help save money on your building's operating and maintenance costs. Open spaces and natural airflow are used in green ventilation techniques, which reduce any need for old-style AC while also avoiding such issues.

4. CONCLUSION

Greener technology devices are becoming increasingly popular with consumers. Government consumers are increasingly being required to buy green products once they are available, and the selection of materials covered by such mandates is expanding. Whenever it comes to employment clients, if they can show a reappearance on the investments in greener goods, market may grow. The most attractive products in this area are those that decrease energy consumption. Because of its equatorial location, India has a lot of potential for large-scale solar power. Nonetheless, a growing number of commercial buyers are likely to be encouraged solely by a desire to be seen as supporting sustainable development.

Power generation has entered a new era, with urban residential energy production becoming the most common application. Most important barrier in its adoption being high capital's investments requisite. Products have also been engineered while using fewer toxic materials, needless shipping content, consume significantly lesser energies, to indorse last time recycling.

As a result, the technology sectors are promoting transition. They are adapting in order to prevent negative effects, satisfy green demand, or do both. Regardless of their motivations, they are unmistakably moving toward green. Solar is the best option for future energy power generation because of the constant availability of sunshine, minimum maintenance, independence from fuel sources, ecological quality, and contributes to reducing carbon emissions.

For summarizing, a strong government action for implementing solar energy is essential to development in the PV market. Human interference in the environment is being exposed more now than ever. The notion of growth is synonymous with environmental and natural resource protection, as well as major economies, along with the conservation of natural resources, and built environment. Energy is a basic requirement for continued economic expansion, as well as for supplying and ensuring the welfare of the rest of the population. The answer to this question is negative for at least three major factors, and new energy sources must replace old ones. These factors include:

- The limited availability, and yet high demand of the fossil fuels put an urge to provide for the gap rising in between the two factors to which solar energy and green energy resources are a big assistance.
- The consequences of oxidation as well as increased density of CO₂ with environment, as well as its reparations, which caused irreversible as well as heavy changes around the world. The constantly increasing earth's temperatures, weathers change, abruptly rising sea levels non-periodically, and the listening of national conflicts are all sad realities.
- As well as the depletion of crude fuels' resulting cost increases enable policymakers to set a balance of proposals and strategies for environmental control, as well as investigators aimed at expanding sources through lower implications which may also have stronger abilities aimed at substations through existing energy system.
- Because restriction to the energies resources are limited and have more gravity, they take up a larger share of world's energy by providing this sources with the ability to respond to fundamental fossils resources.
- Sometimes, restriction to the energies as expected coordinates through the natures as well as hold no implications. Another feature of these sources is their global dispersion and expansion, necessitating the use of lower-tech, gravity-based technologies.

Some possible steps to mitigate world instability exposed to hazardous environmental impacts include development and skills for structural reform, use of renewable technology, energy efficiency and more

efficient energy use, implementation of cogeneration, district heating, and electricity generation techniques, use of additional forms of transportation, and source of energy shifting.

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