

# Green Energy as a Source for Future Energy

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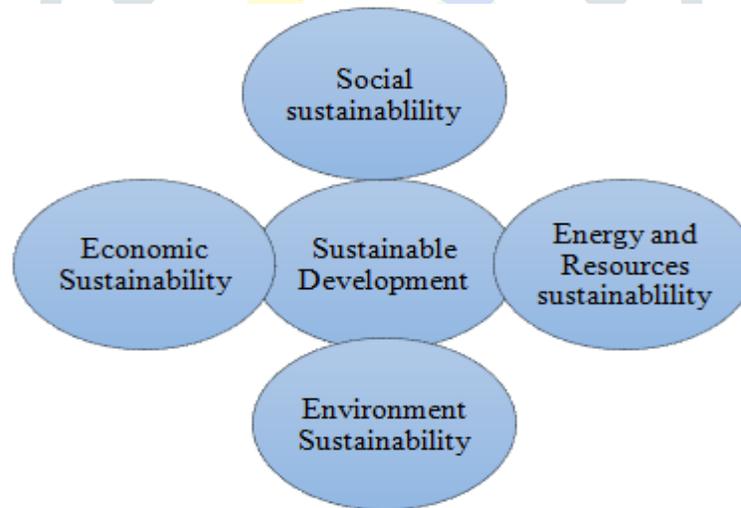
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**ABSTRACT:** *The science and technology has been growing multifold in comparison to the last few decades and thus the world has been taking a new shape in all the dimension weather it is related to the infrastructure or other new technology such as the mobile and communication or even information technology. The emerging technology has depended on each other in such a way that their existence cannot imagine alone, that are inseparable in nature as one technology depending on the other one. Unfortunately, consumption of the energy is the backbone of the development of the technology and infrastructure and human is mainly dependent upon the fossils fuel for the generation of the energy but this type of the fuel is not last long and it is highly anticipated that one day the fossil fuel will finish. That is why; the human is in search for the alternate energy source in the form of the green energy to full fill the requirement of the energy for the use of the technology and infrastructure.*

**KEYWORDS:** *Fossil fuel, Green energy, Human well-being, Sustainable development, Solar energy.*

## INTRODUCTION

Everyone is well aware of the fact that our environment has been impacted badly due to activities conducted by ourselves. Therefore, it is a very serious issue to think about the transition of the energy need from the conventional to the other some reliable form of the energy. Green energy or sustainable energy is the solution to this problem. Energy is a central element in the discussion of sustainable development's cultural, social and environmental aspects [1]. The form of energy is fossil-based oil, usually comprising coal, petroleum, natural gas, etc. Many forms are renewable energy. Fossil fuels are not, as is understood, renewable. The key negative consequences of fossil fuels should be implemented first to clarify and figure out need for renewable power solutions for green energy supply in addition to expansion.



**Figure 1: Factors Distressing Sustainable Growth and Interdependences**

It has been needed to draw upon a reasonable/systematic structure as key foundation of this education to establish power strategies for growth. A recent report the main factors influencing sustainable development and their interdependencies have been outlined. As seen in Figure 1, introduced development as confluence of sustainability of energy besides resources, economic sustainability, conservational sustainability, and community sustainability, and explored their interrelations. The coordination between the sustainability shown in Figure 1 is vital in order to sustainable development otherwise in absence of the proper coordination the fossil fuel energy can be finished very soon in near future [2].

Unfortunately, widespread use in numerous industrial non-industrial industries, fossil fuels have created approximately serious human health besides welfare issues. These difficulties elsewhere are comprehensive.

In fact, the key cause of problems is seen as widespread usage by human beings of fossil-based technology and strategies to rule cultures, nations, in short, the entire world over the centuries [3]. Consequently, the world has reached a point which no longer can be accepted. The urgent need here is to establish green power solutions for a sustainable future without any adverse impressions on environment in addition to society. Figure 2 has been showing the sustainable energy goals.



**Figure 2: Sustainable Development Goal [4]**

The present paper has been analyzed green power. It could be defined as source of energy generated from solar, wind, biomass, geothermal, etc. that has zero or minimal environmental effect, as more environmentally friendly and more sustainable. This form of energy decreases harmful possessions of fuels and total emissions from power generation, reduces greenhouse emission, offers occasion to play a dynamic role in improving atmosphere and meets renewable power claim for industrial as well as non-industrial tenders. Given benefits of renewable power, green energy supply and change are considered to a central factor in relationships between nature in addition to society.

Sustainable expansion necessitates a supply of dynamism possessions that are obtainable sustainably at cost and have no or negligible negative influences on society. Obviously, power supplies such as remnant fuels are incomplete and thus deficiency sustainability physiognomies, whereas others as energy sources are honestly long-term maintainable [5]. In particular, low-priced renewable power is most important resources to improve supportable technological growth besides engineering efficiency or standard of living in a communal. Hence, efficient renewable energy approaches to upsurge use of green energy foundations besides technologies should be put forward.

A reliable supply of power is obviously prerequisite for social in addition to economic growth in the manufacturing in addition to non-industrial sectors. Power is also important to humanoid well-being besides to excellence of life. Energy manufacture and use, however, create major conservational difficulties, which could have severe implications and even threaten long-term survival of ecosystems of the earth. No research on renewable energy sustainable growth approaches have, however, been published in the scientific literature [6]. That was probably the inspiration behind the initial research. Hence, this paper basically purposes to establish key green power approaches for a supportable future in addition to to derive key limitations such as green energy effect ratio in addition to the sustainability ratio founded on green energy.

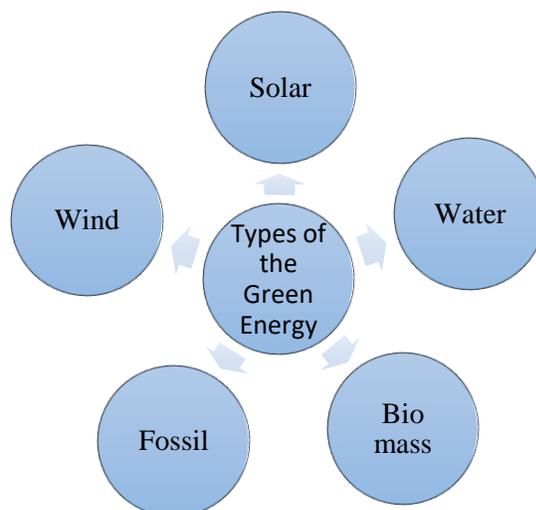
### **GREEN ENERGY AIMED AT SUSTAINABLE DEVELOPMENT**

In market, a lot of the options are available where green energy has been used. Many considered the green energy as renewable energy but there is a slight difference between the green energy and renewable energy. As per the environmental agency, green energy is defined as the energy which uses the solar, geothermal, wind, biogas, and certain biomass for the power production and possesses the highest environmental benefits.

When you flip a power bulb or charge your battery, these renewable sources join the power grid but were different from traditional energy sources. Even though renewable energy covers the same resources as green energy, renewable energy covers technologies and goods more generally, which can have a direct effect on both the national and international climate? Essentially, when you consume green energy, you often support different ventures in the field of renewable energy as well as invest in features that enable them expand.

One should aware about the energy consumption source as in the power grid the green energy is mixed up with the other source of the energy as the conventional energy and transport to the consumers. The power grid or the electric grid is the arrangement where the all the energy is mixed up before entering into the transmission grid. Therefore, when a customer pays for green power it is not only green power but the combination with the conventional energy also [7]. Another way to avail the green energy consumption is the solar energy installation at the roof top space. The use of the green energy is the best way to reduce the carbon foot print. This is best ways to use the renewable power for the large scale investment in order to reduce the carbon foot print.

The lessening of carbon productions, the prevention of further damage to the environment and the development of jobs are just some of the opportunities created by green energy investment. And you are helping get the future closer by buying green energy. The sun gives the earth more than enough energy each day for powering the whole world, but there's a problem. Going green means increasing support for solar wind and other initiatives in the field of renewable energy, developing technologies to better leverage the renewable sources around us and making them more available and affordable for everyone. Materials, such as coal, oil, and even kerosene, have historically provided us with the energy needed. These fuels however are non-renewable and release pollutants into our atmosphere and climate. Figure 3 has been showing the types of the green energy.



**Figure 3: Types of the Green Energy**

### 1. Types of the green energy:

#### 1.1.Solar Energy

The sun is the source for the solar energy and it is cleanest sources for green power. The enormous energy is generated due to the nuclear fusion reaction at the surface of the star as the sun is also considered in the family of the star. In the process of the nuclear fusion, the small atom fused in to the bigger atom by application of the heat and pressure and thus releases a lot of the energy in that process and this energy is in the form of the radiation, later it collects and convert into the usable energy. The solar panel has been used for conversion of radiation energy in to serviceable solar energy. The solar panel integrated with the photo voltaic cells which upon the hitting of the sun light generate the electric current due to photovoltaic effect. This current is converting into the alternating current through the inverter and mixed with the conventional energy through national power grid.

### 1.2. Wind energy

The wind energy is also because of the heating effect of the sun. The atmosphere of the planet earth is heat up by the sun and this heating is uneven because of the varied topology of the earth. The unevenness of the effect caused the flow of the wind, which further modulated by the typical topology of the earth and also due to spin of the earth. The wind help to turn the blade of the wind turbine which further rotate an internal rotor inside the turbine. The rotor helps to move a shaft, which spins the generator and generate the electricity [8].

### 1.3. Hydroelectric energy

By harvesting energy stored inside flowing water, hydropower energy is generated. By forcing fluid to drain along a narrow path, this is best accomplished, thus increasing its power per square meter. This is normally done by storing storm water or dam and also by opening an outlet, selectively trying to purge the water. At tremendous speed, the gravitational force generated by keeping water higher up in the dam pushes the water via the intake. The flow activates a generator once released, which again stimulates a generator, producing electricity. Hydroelectricity is among the most common types of green energy because of its effectiveness. It is projected that 4 billion tonnes of carbon dioxide have not been emitted into our environment by producing hydroelectric power electricity in 2017 alone.

### 1.4. Bio-gas

The biogas is not only a source of the green energy but also it has been applied in the waste management of the food, sewages, manure and agricultural waste. The materials are stored in the oxygen less containers which causes the fermentation of the materials and produce the methane and carbon dioxide in addition to other gases. The methane produced in the process is used to heat homes, fuel vehicles and produce the electricity apart from the product inside the container become nutrient rich and used as the fertilizer.

## FACTORS RESPONSIBLE FOR SELECTING THE GREEN ENERGY FOR FUTURE ADVANTAGES

Below are some key factors in the review for the model creation which are supposed to speed up use of renewable power technologies besides incorporate green energy approaches. Therefore, relationship amongst power use and development in addition to sustainability is multifaceted. Sustainable development as involving four main factors as Economic, cultural, social, energy and sustainability of resources [9]. In that regard, association between energy in addition to sustainability will examined finished our contemporary model. It is perfect that green power solutions as discussed below would contribute to sustainable growth.

### 1. Green energy in addition to sustainability:

Sustainability described as an important to addressing present environmental, and growth challenges. Green energy will production an important role in sustainable development in conference energy needs in almost applications. Consequently, a high priority for sustainable expansion in a nation should be given to developing and using green power strategies and technologies. The world's need for sustainable energy production is increasingly growing. Extensive usage of green sources besides technologies in developing in addition to developed nations is critical for achieving sustainability in the energy sectors. For three primary purposes, renewable resources and technology are a central constituent of sustainable growth [10].

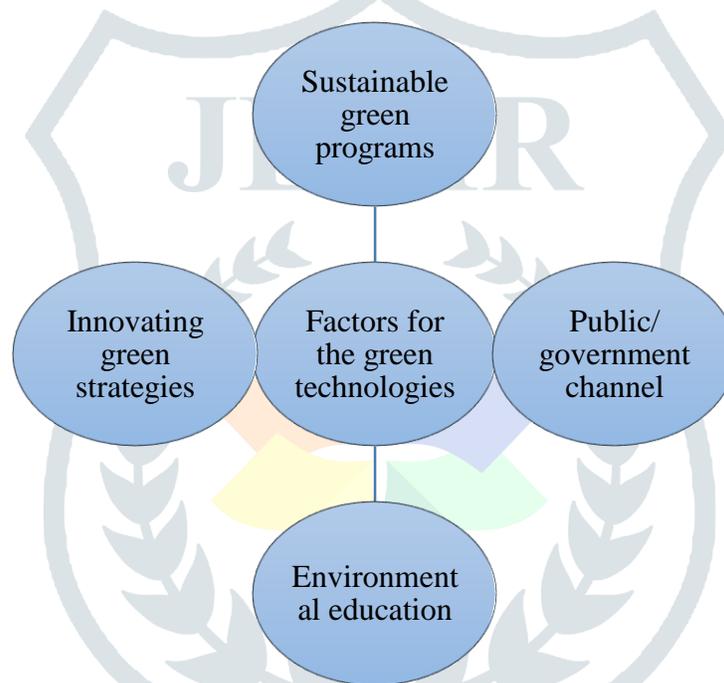
These typically have less impact on the atmosphere than other forms of electricity. The spectrum of green energy tools offers a broad variety of use choices. They just can't be drained. If recycled carefully in suitable presentations, renewable technologies can almost forever deliver a secure and sustainable supply. They support decentralization of the system in addition to local explanations that are slightly separate from national system, therefore improving system stability and creating monetary benefits for minor isolated communities. Furthermore, small size of apparatus also decreases time needed from original enterprise to service, allowing superior adaptability to respond to unexpected development and/or energy demand variations.

Green power and technology are also required for sustainable growth, ensuring that global instability is minimized. Energy possessions such as fossil fuels are determinate, and consequently lack characteristics

required for growth, whereas renewable energy foundations are fairly long-term maintainable [11]. The relationship between green power in addition to sustainability is inordinate importance to both the developed and emerging and/or less developed countries. In addition, the study of relationships between renewable energy foundations and sustainability designates that renewable knowledge is straight linked to maintainable growth. When renewable energy policies are put into action efficiently, countries can optimize the advantages of green sources besides technology, while reducing global instability accompanying with use of remnant fuels.

## 2. Essential factors:

These factors will help to define and achieve the green strategies and know-hows that are needed for sustainable expansion as illustrated in Figure 4. Green technologies are primarily influenced by strong and influential developments which are embedded in fundamental humanoid needs. In accordance with this, the cumulative world populace demands concept of green technologies and their effective application. Briefly, the essential criteria and their interrelations as required for carrying out best green energy system in addition to selecting most suitable green technology/technologies for maintainable growth.



**Figure 4: Essential Factors for Green Strategies and Machineries**

## 3. Green Applications:

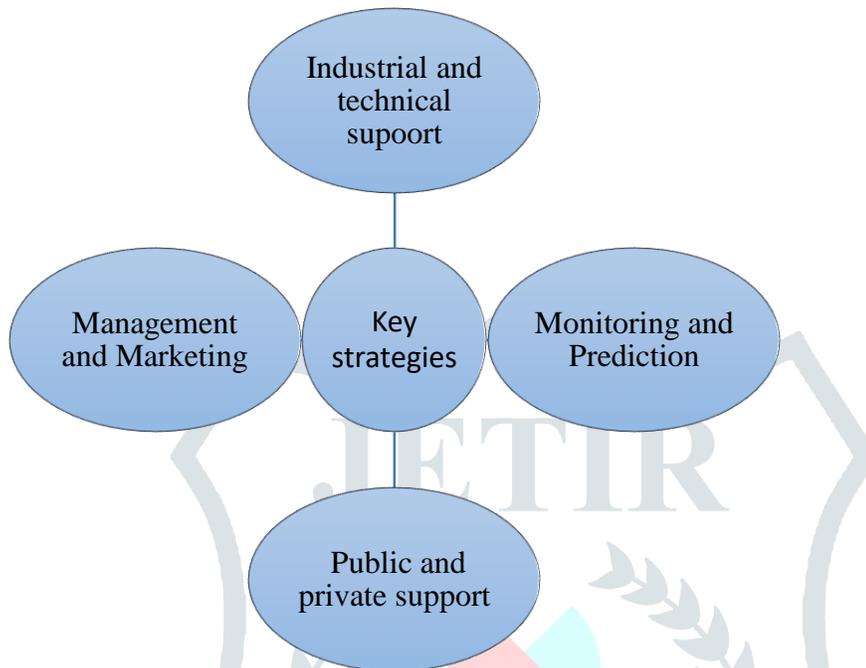
The renewable power technology will play key role in future sustainable scenarios. Energy demand will likely be the primary influence that will decide basic position of green energy in addition to technologies. Thus, green power can be generated from renewable sources such as tidal, wind, solar, biomass, geothermal, wave etc. to offset power requirement.

## 4. Key strategies:

It has been presented some main strategies here, taking into account social, environmental, economic and development of energy besides resources. An increase in country's energy consumption has an optimistic effect on its financial as well as social changes. However, renewable energy supply and usage is particularly important for sustainable energy machineries. The greatest critical situation for encouraging renewable energy use and promoting maintainable energy-based machineries is to provide nations, scientists, researchers, communities, and others with the requisite opportunities and interactions.

It is essential to identify potential sustainable energy solutions for future of nations commerce with renewable energy besides technologies. The following essential green approaches should occupied into account to establish and broadcast sustainable energy machineries in a industrialized or less industrialized

country [5]. Main key strategies are manufacturing and technical provision for transition to green technologies, including monitoring prediction besides investigation of green sources, public and policy sustenance for green economies, including growth, use, circulation, adaptation, management in addition to advertising of green power, including investigation, creation and implementation of green energy machineries. Figure 5 has been illustrating the key strategies for the implementation for the green energy measure.



**Figure 5: Main key strategies for implementation of green energy**

## CONCLUSION

In this analysis, the sustainable development green energy strategies are investigated, and some main parameters are established. The results of the impact ratios of technical and functional applications on the renewable energy impact ratio are extensively studied. Then, this review paper has extracted some relevant comments to summarize; green power approaches will brand a major influence to frugalities of nations where abundant green power is generated. Consequently, savings in renewable power source should be promoted for future of nations by managements and additional authoritative frames that demand to provide a renewable alternative to fossil fuels for strategic purposes.

## REFERENCES

- [1] H. Machrafi, *Green Energy and Technology*. 2012.
- [2] R. Gopichandran, S. R. Asolekar, O. Jani, D. Kumar, and A. M. Hiremath, "Green Energy and Climate Change," in *An Integrated Approach to Environmental Management*, 2016.
- [3] H. F. Castleton, V. Stovin, S. B. M. Beck, and J. B. Davison, "Green roofs; Building energy savings and the potential for retrofit," *Energy and Buildings*. 2010.
- [4] "sustainable development goal."
- [5] N. A. Lee, G. E. Gilligan, and J. Rochford, "Solar Energy Conversion," in *Green Chemistry: An Inclusive Approach*, 2018.
- [6] International Energy Agency, "IEA - Report," *International Journal of Renewable Energy Research (IJRER)*, 2016. .
- [7] S. Shams and M. M. Rahman, "Green building," in *Sustainable Utilization of Natural Resources*, 2017.
- [8] A. Sharma and S. K. Kar, *Energy Sustainability Through Green Energy*. 2015.
- [9] S. P. Singh and P. Singh, "Effect of temperature and light on the growth of algae species: A review," *Renewable and Sustainable Energy Reviews*. 2015.
- [10] O. Saadatian *et al.*, "A review of energy aspects of green roofs," *Renewable and Sustainable Energy Reviews*. 2013.