



Renewable Energy



Image Courtesy: Arthon meekodong (canva.com)

long range in terms of their scale – a renewable energy source like wind turbines at the sea-shore. According to the International Energy Agency (IEA), renewable energy had more than 28% share of the global energy supply in 2020.

Renewable Energy is the form of energy derived from natural sources or processes which are constantly replenished. These sources may be available for a limited amount of time in a year but are virtually inexhaustible. For example, sunlight, wind, geothermal energy, rain, tidal waves, etc. The usage of renewable energies is very old as the wind has been used in sailing boats and sunlight for heating, but with the advent of new electronic technologies, renewable energy has been redefined as the natural source or processes which can be converted into electrical energy. The renewable energy sources have a wide range of applications. A rooftop solar panel or as large as an array of solar panels, renewable energy had more than

Green Energy

Green energy is mostly generated from natural energy resources which are renewable and do not produce greenhouse gases or any other kind of pollution. Green energy sources and renewable sources have a very important difference, which is often ignored. An energy source can be renewable but may not be green in nature, such as a few biomasses are considered as renewable but these are not green. Green energy is very important for the environment as it replaces the fossil fuels and other conventional energy sources causing harm to the environment. In general, the green energy sources are local in nature, thus these are less affected by the geographical crisis, global price hikes in raw fuels, etc. Wind energy is renewable and green in nature as it comes from natural sources, it replenishes and it also does not cause emission of any pollutant. The several renewable energy sources must be managed carefully such that these can be labelled as “Green Energy” sources.



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Photovoltaics



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Photovoltaics is the technological process of conversion of light into electrical energy with the help of semiconductor technology. Photovoltaics is most commonly used in solar cells to convert sunlight into electrical energy. Sunlight is a renewable energy source. Photovoltaics has potential to produce affordable and sustainable electricity which can further help in mitigating climate change caused by global warming and CO₂ generation. There are debates on classifying photovoltaics as green energy source as production and installation of photovoltaics causes emission of greenhouse gases but scientists are trying to minimize it. Effective use of photovoltaic panels is also being explored. According to a study, the cost of solar photovoltaics was approximately four times between 2004 and 2011. In 2019, energy produced by Solar Energy Systems, Germany. It is the third most used renewable energy source after hydro and wind powers in terms of global capacity.

Carbon Capture and Sequestration

Carbon Capture and Sequestration (CCS) are technologies that have the capability of reducing carbon dioxide from different industrial processes such as coal-plants, other power plants and other carbon dioxide sources. CCS works in three steps. In the first step, carbon dioxide is captured from its different sources. The second step involves the transport of the carbon dioxide gas from the capture point to rocks and other destinations. In the third step, this carbon dioxide is subjected to underground injection and geological sequestration or permanent storage in the porous rocks.



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