



---

## **A Review on Renewable Energy Applications and Status in Global Context**

**Abdulwahhab Jasim Mahdi**

Department of Environmental Science, Acharya Nagarjuna University, Guntur, Andhra Pradesh, India

---

### **ABSTRACT**

Renewable energy derives from natural resources that are renewed at a faster pace than they are utilised. Sunlight and wind are examples of such sources that are continuously supplied. Renewable energy sources are abundant and present everywhere. The purpose of this paper is to promote and spread knowledge regarding the numerous issues and technology associated with renewable energy. The purpose of the study is to assist researchers, engineers, economists, manufacturers, organisations, and societies in staying ahead of new advancements in their respective sectors and in implementing alternative energy solutions into existing practises.

Key words: renewable energy, technology, applications

---

### ***Introduction***

There are currently more renewable energy sources accessible for use, such as solar, wind, and liquid power. Ironically, most of the energy we use comes from fossil fuels, which are nonrenewable sources. Although solar energy is one of the most widespread renewable energy sources, it currently ranks third in terms of global renewable energy output. We may utilise solar energy on a national or commercial basis. Solar panels are a frequent sight on the roofs of many homes throughout the world. They contribute to the creation of the house's vitality. Solar farms are one example of industrial-scale solar energy utilisation. Solar energy is one of the most frequent forms of renewable energy. Sunlight is the source of solar energy, which provides our whole world with the power it needs to function. Using solar panels, we can directly turn solar energy into electricity to power our homes and businesses. Additionally, solar energy may be used to reheat food and charge batteries.

Renewable energy initiatives in several developing nations have demonstrated that renewable energy will now help poverty reduction by supplying the electricity necessary for employment and company creation. Renewable energy technology may also contribute indirectly to poverty alleviation by supplying food, space heating, and illumination. Renewable energy will also contribute to education by providing schools with energy. The circular system is developed and implemented as part of a sustainable solution to renewable energy waste. With technology such as waste-to-energy facilities, it is possible to reanimate renewable energy sources. To manage renewable resources well, we would need to improve technology and change policies that make it easier to reuse these materials.

---

### ***The Global Renewable Energy Market***

Renewable energy currently accounts for more than 20% of the energy supply in at least thirty countries around the world. It is anticipated that the domestic renewable energy markets will continue to expand substantially throughout the next decade and beyond. Some municipalities and at least two countries, Iceland and Norway, currently generate all of their energy from renewable sources, and several governments have set the goal of achieving 100 percent renewable energy in the future. At least 47 nations currently derive almost half of their energy from renewable sources. Life usage Nonrenewable energy sources are scarce and growing in price. Renewable energy consumption consumes fewer resources and will be cost-effective. Increasing the use of renewable energy sources lessens the nation's reliance on foreign energy supplies that are susceptible to disruption, pollution, and greenhouse gas emissions. Material decrease Reducing waste through better efficiency, reuse, and use lowers the need for raw materials and energy, cuts down on pollution, and keeps free energy from landfills. It also provides the opportunity to cut expenses related to waste collection, transportation, and management.

Renewable energy sources are those that are perpetually renewed by physical processes. These resources are also sometimes referred to as alternative or renewable energy, largely because they will replace traditional nonrenewable fossil fuels. Fossil fuels, such as petroleum and coal, provide life when they are burned, but their supply is limited since they do not replenish naturally in a short enough timeframe for human usage. For the great majority of the world, fossil fuels continue to be the primary energy source. Renewable technologies, such as solar energy, are becoming increasingly competitive with traditional fossil fuels. In this section, we will discuss the downsides of fossil fuels and why this generation will not rely on these energy sources.

Fossil fuels (coal, natural gas, and petroleum), nuclear energy, and renewable energy sources are the three primary sources of energy for electricity generation. Using fossil fuels, nuclear power, biomass, geothermal, and solar thermal energy, steam turbines provide the majority of the power. Gas

turbines, hydro turbines, wind turbines, and solar photovoltaics are all important ways to make electricity. Hydro turbines, wind turbines, and solar photovoltaics are also important ways to make electricity. The term "renewable energy source" connotes something that can never die, or is endless, such as the sun. When the term "alternative life" is used, it is frequently in conjunction with renewable energy sources. It suggests that there are other ways to get energy besides coal and other nonrenewable sources. While some renewable energy projects are large-scale, renewable technologies are also well-suited for agricultural and distant regions as well as emerging nations, where human life and development are of paramount importance. As the majority of renewable energy technologies provide energy, renewable energy preparation is typically combined with greater electrification, which has the following advantages: Energy can be exchanged for heat (where necessary, creating higher temperatures than fossil fuels), can be transformed into mechanical life with greater efficiency, and is clean at this end of the demand spectrum.

---

### **Renewable Energy Technologies**

Renewable energy sources include technologies such as solar and wind power, which are becoming increasingly prevalent around the world. There are several methods to generate energy from renewable sources. These alternatives to fossil fuels may become an even greater proportion of our energy production mix in the next decades. Renewable energy sources are those that are perpetually renewed by physical processes. Some people also call these sources of energy "alternative" or "renewable" because they will replace fossil fuels, which can't be replaced. The legislative need for large energy consumers (those consuming 300 kW or more) to adhere to the law's renewable energy objectives on an individual basis is another significant aspect of this statute. It forces them to get some of their energy from sources that can be used again and again.

Wind power is utilised to generate electricity that may be used to enhance or replace the federal grid's strength for a particular location. The plug-in component receives electricity from one or more wind sources and supplies the necessary alternating current to the mains. Multiple wind turbines may be installed on the roof of the building. Multiple rows of turbines may reach several altitudes. The wind turbine (s) may have a spring-loaded rear fin for optimum orientation. D. H. Gordon (2005). According to this wwf's emerging life setting, which suggests that it is probable to attain 100 percent renewable supply by 2050, bioenergy not only meets the residual energy demand after other renewable choices have been utilised, but also cuts greenhouse gas emissions by 85 percent. (M. Simon, October 2014).

Pattern Energy Group's (PEGL-0.49%) 200 megawatt Logan's Break wind farm in Comanche County, Texas (150 miles southwest of Dallas) can supply 58 percent of the world's largest firm's output. The amount of energy sourced through this service could account for roughly one-fifth of Walmart's U.S. contribution, its largest so far, to the company's goal of acquiring 7 billion kilowatt-hours of renewable energy by 2020 (Fortune.com). (Wahba, P., Sep. 2015).

CohnReznick Nick Knapp, a specialist in designing utility-scale weather and solar assets, said that the United States has crossed the turning point for renewable energy. Its status as a dependable and long-term energy-generating solution is no longer contested. (J. Conca, September 2017). The Financial Times published an article headlined "This Big Green Blow: How Renewable Life Becomes Unstoppable" that has been widely mentioned on the Internet, particularly by enthusiasts of "green" energy, of whom there are some, but others as well. One notable article was headlined "Futurist Ray Kurzweil Predicts Solar Business Dominance in 12 Years – Trajectories Represent Function," which observed rising rates and the long-term compounding effect on market dominance. (Lynch, M., Jun. 2017).

Kaiserwetter Energy Asset Management, based in Hamburg, Germany, published in a new note to its clients that its "internal investigation" – utilising data from Bloomberg, The Frankfurt School, Renewable Value Information of the International Business for Renewable Energy (IRENA), and UN situation – places fossil fuels yielded life prices between \$ 49 and \$ 174 per MWh (Megawatt hours) in G20 energy markets in 2017. (Sharma, G., 2018-04).

Mark Z. Jacobson, a Stanford University professor of national and environmental technology, and Mark Delucchi published this energy policy paper on a 100 percent renewable global energy provision in 2011. They believed it was feasible to create all new life from wind, solar, and hydropower by 2030, and that present life supply agreements would be replaced by 2050. The primary obstacles to executing this renewable energy scheme are cultural and political, not technical or economic. In addition, they discovered that life prices for the wind, solar, and water systems should be comparable to current life prices. (symbol A. Delucchi, 2011; sign Z. Jacobson).

Crayola, a renowned American crayon manufacturer, was commissioned to examine the sustainability credentials of their supply chain over a decade ago. The highlight of the planned green marketing campaign for the upcoming back-to-school period was the new solar installation that was being developed on Crayola property and was closely tied to the crayon production plant. The corporation had to ensure that its promises could withstand any examination from consumers. (O'Marah, K., June 2018) "S" refers to energy sources that are almost endless within the reach of the cause or that replenish themselves quite quickly. They distinguish themselves from fossil-based sources of life, whose regeneration takes billions of years. Renewable energies consist of hydropower, wind energy, solar energy, energy storage, and non-depletable natural resources. It is conceivable that the ewability of these sources would drive their costs to soar, so they are no longer economically feasible.

---

### **Conclusions**

The term "renewable energy source" connotes something that can never die, or is endless, such as the sun. When the term "alternative life" is used, it is frequently in conjunction with renewable energy sources. It suggests the existence of alternatives to the most prevalent non-renewable energy sources, such as coal. The Sun is one of the most abundant and easily available energy sources for our spacecraft. The quantity of solar energy that strikes the world's boundaries in a single moment exceeds the planet's annual energy needs. Inexhaustible energy sources are those that are perpetually renewed by physical processes. These resources are also commonly referred to as unconventional or renewable energy, partly because they will replace traditional non-renewable fossil fuels. Fossil fuels, such as petroleum and coal, provide life when they are burned, but their supply is limited since they do not replenish naturally in a short enough timeframe for human usage. There are currently more renewable energy sources accessible for use, such as solar, wind, and liquid power. Ironically, most of the energy we use comes from non-renewable sources, which are also called fossil fuels.

---

**References**

---

- (Nov. 2015). Argentina to generate 8% of electricity from renewable sources by 2017. *The Guardian*. Retrieved from <https://www.theguardian.com/environment/2015/nov/02/argentina-to-generate-8-of-energy-from-renewable-sources-by-2017>
- Gordon, D. H. (2005). *Renewable Energy Resources*.
- Simon, M. (Oct. 2014). Can coffee stimulate renewable energy in Central America? *The Guardian*. Retrieved from <https://www.theguardian.com/global-development-professionals-network/2014/oct/08/can-coffee-stimulate-renewable-energy-in-central-america>
- Wahba, P. (Sep. 2015). Walmart doubles down on renewable energy with wind deal. *Fortune*. Retrieved from <http://fortune.com/2015/09/28/walmart-renewable-energy/>
- <http://fortune.com/2015/09/24/sustainability-practices-in-business-intel-unilever-wal-mart-dupont/>
- Conca, J. (Sep. 2017). Renewable Energy Tax Credits - Forever? *Forbes*. Retrieved from <https://www.forbes.com/sites/jamesconca/2017/09/26/how-long-will-renewable-tax-credits-be-around/>
- Lynch, M. (Jun. 2017). The "Unstoppable" Renewable Energy Revolution Keeps Faltering. *Forbes*. Retrieved from <https://www.forbes.com/sites/michaelylynch/2017/06/29/the-unstoppable-renewable-energy-revolution-keeps-faltering/>
- Sharma, G. (Apr. 2018). Production Cost Of Renewable Energy Now 'Lower' Than Fossil Fuels. *Forbes*. Retrieved from <https://www.forbes.com/sites/gauravsharma/2018/04/24/production-cost-of-renewable-energy-now-lower-than-fossil-fuels/>
- Mark A. Delucchi & Mark Z. Jacobson (2011). "Providing all global energy with wind, water, and solar power, Part II: Reliability, system and transmission costs, and policies" (PDF). *Energy Policy*. Elsevier Ltd. pp. 1170–1190.
- O'Marah, K. (Jun. 2018). What's New About Renewable Energy? *Forbes*. Retrieved from <https://www.forbes.com/sites/kevinomarah/2018/06/14/whats-new-about-renewable-energy/>