



Energy is one of the major inputs for the economic development of the country. Any sustainable energy source that comes from the natural environment is a renewable energy source. Renewable energy is inexhaustible and a clean alternative to fossil fuels. In this article, we will learn about the types and sources of renewable energy.



The COP28 climate talks called for a tripling of renewable energy capacity and doubling energy efficiency improvements by 2030. The World Economic Forum's Better Community Engagement for a Just Energy Transition: A C-Suite Guide, highlights the need to ensure a people-positive approach to deploying renewable energy.



As the third decade of the 21 st century unfolds, the world finds itself at a critical juncture in the realm of energy [1].The growing urgency of climate change challenges, combined with the simultaneous need for energy security and economic stability, has sparked a heightened global conversation about the future of our energy sources.

# WHY IS THERE A DEMAND FOR RENEWABLE SOURCES OF ENERGY



There are four key ways of measuring energy. These metrics capture the transformations and losses that occur across the energy chain. The differences between the first stage ("primary energy") and the last ("useful energy") can be very large.



Not only have new sources of energy been unlocked ??? first fossil fuels, followed by diversification to nuclear, hydropower, and now other renewable technologies ??? but also in the quantity we can produce and consume. Demand for energy is growing across many countries in the world, as people get richer and populations increase.



Renewable energy sources accounted for 9% of Australian energy consumption in 2022-23. Renewable electricity generation has more than doubled over the last decade, but combustion of biomass such as firewood and bagasse (the remnant sugar cane pulp left after crushing) still constitutes about a third of all renewable energy consumption in Australia.

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The first energy problem of the world is the problem of energy poverty ??? those that do not have sufficient access to modern energy sources suffer poor living conditions as a result. The second energy problem: those that have access to energy produce greenhouse gas emissions that are too high



Today, there are four main renewable energy sources used to power the UK: wind, solar, hydroelectric and bioenergy. They harness the natural power of the sun, our weather, our waterways and tides, and organic materials to generate electricity. Today, renewable energy sources make up a significant proportion of the electricity mix that



by Kevin Stark There are two major categories of energy: renewable and non-renewable. Non-renewable energy resources are available in limited supplies, usually because they take a long time to replenish. The advantage of these non-renewable resources is that power plants that use them are able to produce more power on demand. The non-renewable energy ???

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Also, biomass fuels can be found everywhere. There are sources of biomass energy practically everywhere on earth. A considerable advantage is that unlike other types of renewable energy ??? and indeed, non-renewable energy ??? the costs involved in collecting biomass fuels are extremely low.



Examples of renewable energy sources. The main types of renewable energy are wind, solar, hydroelectric, tidal, geothermal and biomass. Read on to discover the pros and cons of each of these renewable energy sources. One of the main benefits of most renewable energy sources is that they don't release carbon dioxide or pollute the air when they



Yet despite record growth, renewable energy installations need to ramp up even faster. Analyses of achieving 100% carbon-free electricity by 2035, what's needed to achieve U.S. greenhouse gas reduction targets, indicate that annual installation rates of renewables in coming years need to nearly double the rates seen in 2023.. Electric vehicle sales set new records in ???



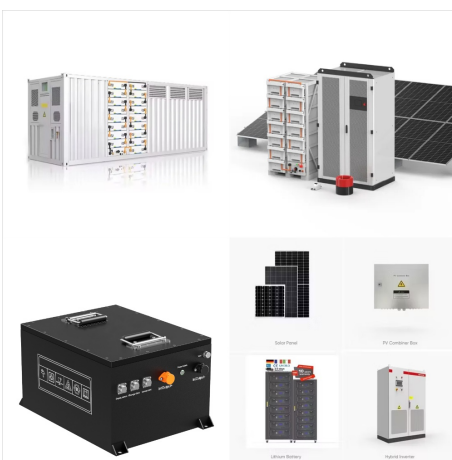
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Since these fuels remain more expensive than their fossil counterparts, their share in global energy is set to remain below 6% in 2030. The report also looks at the state of manufacturing for renewable technologies. Global solar manufacturing capacity is expected to surpass 1 100 GW by the end of 2024, more than double projected demand.



Over the past two years, clean energy jobs have grown 10%, at a faster pace than overall US employment. 100 There are currently 3.3 million clean energy jobs, the majority of which are in energy efficiency (68%), followed by renewable generation (16%), clean vehicles (11%), and storage and grid (5%). 101 Looking ahead, wind turbine service

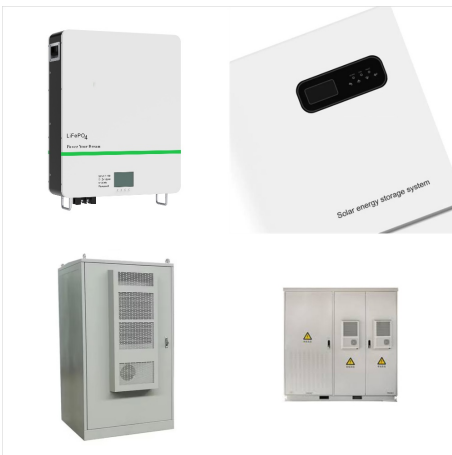


Notwithstanding, renewable energy sources are the most outstanding alternative and the only solution to the growing challenges (Tiwari & Mishra, Citation 2011). In 2012, renewable energy sources supplied 22% of the total world energy generation (U.S. Energy Information Administration, Citation 2012) which was not possible a decade ago.

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Renewable energy generation does not pose risks for people or the environment, which is an advantage with respect to the doubts expressed over the safety of nuclear energy or the concern for pollution associated with fossil fuel use. AVAILABLE EVERYWHERE. Water, wind and the sun are energy sources that are available the world over.



Renewable Supply and Demand. Renewable energy is the fastest-growing energy source globally and in the United States. Globally: About 11.2 percent of the energy consumed globally for heating, power, and transportation came from modern renewables in 2019 (i.e., biomass, geothermal, solar, hydro, wind, and biofuels), up from 8.7 percent a decade prior (see figure ???)



Renewable energy's share of total global energy consumption was just 19.1% in 2020, according to the latest UN tracking report, but one-third of that came from burning resources such as wood.

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The reason is that the same absolute amount of renewable energy yields a higher renewable energy share, if energy demand growth is diminished because of energy efficiency. As for energy intensity, the annual gain has jumped from an average of 1.3% between 1990 and 2010 to 2.2% for the period 2014-2016, while falling to 1.7% in 2017 [ 12 ].

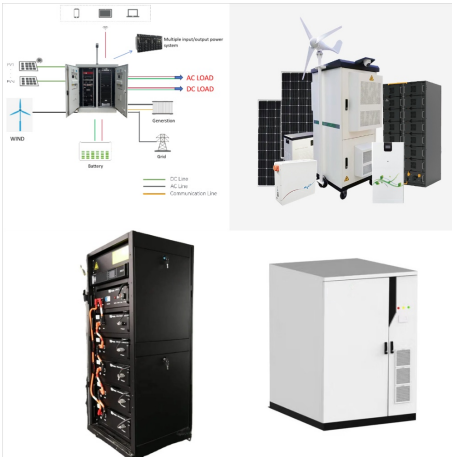


What are the safest and cleanest sources of energy? Fossil fuels are the dirtiest and most dangerous energy sources, while nuclear and modern renewable energy sources are vastly safer and cleaner. Hannah Ritchie. Why did renewables become so cheap so fast? In most places power from new renewables is now cheaper than new fossil fuels. Max Roser



The U.S. clean energy sector received massive legislative wins in recent years, particularly with the Inflation Reduction Act, Bipartisan Infrastructure Law and CHIPS Act. But are these laws and the investments that come with them resulting in enough carbon-free power?

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In any discussion about climate change, renewable energy usually tops the list of changes the world can implement to stave off the worst effects of rising temperatures. That's because renewable energy sources, such as solar and wind, don't emit carbon dioxide and other greenhouse gases that contribute to global warming. Clean energy has far more to ???



The data in these Fast Facts do not reflect two important renewable energy resources: traditional biomass, which is widespread but difficult to measure; and energy efficiency, a critical strategy for reducing energy consumption while maintaining the same energy services and quality of life.



The latest insights from IRENA's World Energy Transitions Outlook were released on 16 March at the Berlin Energy Transitions Dialogue. It provides in-depth analysis of what these effects will look like, starting from the Paris Climate agreement objective of limiting climate change to well below 2??C and with an effort for 1.5??C by the end of this century.



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Renewable energy comes from unlimited, naturally replenished resources, such as the sun, tides, and wind. Renewable energy can be used for electricity generation, space and water heating and cooling, and transportation. Non-renewable energy, in contrast, comes from finite sources, such as coal, natural gas, and oil.