Wind, geothermal, solar, hydro, and other renewable technologies are a widely popular source of energy throughout the world today. Countries, corporations, and individuals are adopting renewables for a number of great benefits. In this article, we’ll dive into some of the advantages and disadvantages of renewable energy.

Renewable power is [booming](https://www.nrdc.org/revolution-now), as innovation brings down costs and starts to deliver on the promise of a [clean energy future](https://www.nrdc.org/issues/clean-energy). American solar and wind generation are breaking records and [being integrated into the national electricity grid](https://www.nrdc.org/resources/nrdcs-annual-energy-reports) without compromising reliability.

This means that renewables are increasingly displacing “[dirty](https://www.nrdc.org/issues/dirty-energy)” fossil fuels in the power sector, offering the benefit of [lower emissions of carbon and other types of pollution](https://www.nrdc.org/issues/increase-renewable-energy). But not all sources of energy marketed as “renewable” are beneficial to the environment. [Biomass](https://www.nrdc.org/resources/our-forests-arent-fuel) and [large hydroelectric dams](https://www.eia.gov/energyexplained/index.php?page=hydropower_environment) create difficult tradeoffs when considering the impact on wildlife, climate change, and other issues. Here’s what you should know about the different types of renewable energy sources—and how you can use these emerging technologies at your own home.

## Advantages of renewable energy

Using renewable energy over fossil fuels has a number of advantages. Here are some of the top benefits to going green:

### Renewable energy won’t run out

Renewable energy technologies use resources straight from the environment to generate power. These energy sources include sunshine, wind, tides, and biomass, to name some of the more popular options. Renewable resources won’t run out, which cannot be said for many types of fossil fuels – as we use fossil fuel resources, they will be increasingly difficult to obtain, likely driving up both the cost and environmental impact of extraction.

### Maintenance requirements are lower

In most cases, renewable energy technologies require less overall maintenance than generators that use traditional fuel sources. This is because generating technology like solar panels and wind turbines either have few or no moving parts and don’t rely on flammable, combustible fuel sources to operate. Fewer maintenance requirements translate to more time and money saved.

### Renewables save money

Using renewable energy can help you save money long term. Not only will you save on maintenance costs, but on operating costs as well. When you’re using a technology that generates power from the sun, wind, steam, or natural processes, you don’t have to pay to refuel. The amount of money you will save using renewable energy can vary depending on a number of factors, including the technology itself. In most cases, transitioning to renewable energy means anywhere from hundreds to thousands of dollars in savings.

### Renewable energy has numerous health and environmental benefits

Renewable energy generation sources emit little to no greenhouse gases or pollutants into the air. This means a smaller carbon footprint and an overall [positive impact on the natural environment](https://www.energysage.com/solar/why-go-solar/protect-the-environment/). During the combustion process, fossil fuels emit high amounts of greenhouse gases, which have been proven to exacerbate the rise of global temperatures and frequency of extreme weather events.

The use of fossil fuels not only emits greenhouse gases but other harmful pollutants as well that lead to [respiratory and cardiac health issues](https://news.energysage.com/health-environmental-benefits-of-solar-energy/). With renewable energy, you’re helping decrease the prevalence of these pollutants and contributing to an overall healthier atmosphere.

### Renewables lower reliance on foreign energy sources

With renewable energy technologies, you can produce energy locally. The more renewable energy you’re using for your power needs, the less you’ll rely on imported energy, and the more you’ll contribute to U.S. energy independence as a whole.

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#### Renewable energy is eco-friendly

It is a clean source of energy, meaning, it has low or zero carbon and greenhouse emission. Fossil fuels emit high levels of [greenhouse gas](https://www.conserve-energy-future.com/15-wonderful-ways-reduce-greenhouse-gases.php) and carbon dioxide, which are greatly responsible for global warming, climate change, and [degradation of air quality](https://www.conserve-energy-future.com/best-houseplants-to-improve-indoor-air-quality.php). Fossil fuels also contribute to sulfur emission to the atmosphere leading to acid rains. [Acid rains](https://www.conserve-energy-future.com/causes-and-effects-of-acid-rain.php) can cause damage to buildings. Solar and wind power are considered eco-friendly because they emit zero toxic gases to the environment. The use of renewable energy dramatically reduces the dependence on fossil fuel as a source of energy, hence, [cutting back on air pollution](https://www.conserve-energy-future.com/41-super-easy-ways-to-stop-air-pollution.php).

#### It’s a renewable resource

This implies that they do not deplete over a lifetime and there is zero possibility that they will run out (sustainable source of energy). Sources of energy like [fossil fuels](https://www.conserve-energy-future.com/fossilfuels.php) (oil, gas, and coal) are considered limited resources and there is strong possibility that they will run out in the future. Renewable energy can help developing countries from over-reliance on fossil fuels. Powerful winds, heat emanating from beneath the earth, sunshine and moving water can guarantee a huge and steady energy supply to a nation for many years.

#### Renewable energy is a reliable source of energy

In the previous few decades, the use of fossil fuel has sharply increased. This over-reliance on fossil fuels has led to our security being threatened. Fossils fuels are prone to trade disputes, political instabilities, spike in energy prices and unnecessary wars. These variables affect a lot more than a nation’s energy policies; they can significantly drain a county’s economy.

Although most argue that solar and wind energy are unreliable, a solid infrastructure puts this argument to rest. If solar and wind plants are distributed over a large geographical location, there can be minimal electricity generation interruption because weather disruptions in one location cannot be the same in other locations.

#### Leads to job creation

Renewable energy makes real economic sense because it is a cheaper alternative to most traditional sources of energy. Since the inception of renewable energy, new and stable jobs have been added to most world economies. For, instance, in Germany and UK, many jobs have already been created thanks to their relentless efforts to develop and encourage the use of [renewable forms of energy](https://www.conserve-energy-future.com/what-is-renewable-energy.php). Experts project that with the ongoing rigorous campaigns to embrace renewable energy, thousands of stable jobs will be created.

#### Renewable energy has stabilized global energy prices

Change up to renewable sources of energy means stability of energy prices across the globe. This is because the cost of renewable energy depends on the initial cost of installation of renewable energy technologies as [opposed to fossil fuels](https://www.conserve-energy-future.com/disadvantages_fossilfuels.php), which increase and decrease depending on the current inflation and availability of the resource. Respective governments would only need to cater to the initial costs and that’s it.

#### Less maintenance of facilities

Once infrastructure for the harnessing of the renewable resource is laid down, there is low to zero maintenance required. This means that the owners of the facilities will reap big profits while providing cheap electricity to the [population](https://www.conserve-energy-future.com/causes-effects-solutions-of-overpopulation.php).

#### Boosts public health

This is a no-brainer. If governments took upon themselves to build more renewable energy facilities, the population would enjoy the health benefits. According to a study by the U.S. Environmental Protection Agency, Americans spend approximately $361.7 to $886.5 billion every year on overall health of the population. A big chunk of this budget goes to mitigate and cure diseases related to fossils fuel use like heart diseases, cancer, and neurological disorders.

Greenhouse, carbon and sulfur compounds emitted by fossils fuels are risky to our health if inhaled over time. This is reason enough to consider renewable energy moving forward.

#### Empowering of people in the countryside

Renewable energy generation mainly takes place in remote settings. This means that local towns would get a fair share of power generated, ultimately, catalyzing the regeneration of those depressed areas both socially and economically. Electrification of those areas will open up untapped opportunities for development through the advancement of greenhouses using [geothermal power](https://www.conserve-energy-future.com/geothermalpowerplanttypes.php), district heating of towns and communities through hot water generated by the energy exploitation of forestry and agricultural biomass.

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## Disadvantages of renewable energy

Renewable energy has many benefits, but it’s not always sunny when it comes to renewable energy. Here are some disadvantages to using renewables over traditional fuel sources.

### Higher upfront cost

While you can save money by using renewable energy, the technologies are typically more expensive upfront than traditional energy generators. To combat this, there are often [financial incentives](https://www.energysage.com/solar/cost-benefit/solar-incentives-and-rebates/), such as tax credits and rebates, available to help alleviate your initial costs of renewable technology.

### Intermittency

Though renewable energy resources are available around the world, many of these resources aren’t available 24/7, year-round. Some days may be windier than others, the sun doesn’t shine at night, and droughts may occur for periods of time. There can be unpredictable weather events that disrupt these technologies. Fossil fuels are not intermittent and can be turned on or off at any given time.

### Storage capabilities

Because of the intermittency of some renewable energy sources, there’s a high need for energy storage. While there are [storage technologies available today](https://www.energysage.com/solar/solar-energy-storage/), they can be expensive, especially for large-scale renewable energy plants. It’s worth noting that energy storage capacity is growing as the technology progresses, and batteries are becoming more affordable as time goes on.

### Geographic limitations

The United States has a diverse geography with varying climates, topographies, vegetation, and more. This creates a beautiful melting pot of landscapes but also means that there are some geographies that are more suitable for renewable technologies than others. For example, a large farm with open space may be a great place for a residential wind turbine or a solar energy system, while a townhome in a city covered in shade from taller buildings wouldn’t be able to reap the benefits of either technology on their property. If your property isn’t suitable for a personal renewable energy technology, there are other options. If you’re interested in solar but don’t have a sunny property, you can often still benefit from renewable energy by purchasing green power or enrolling in a [community solar option](https://www.energysage.com/solar/community-solar/community-solar-power-explained/).

## Disadvantages of Renewable Energy

#### The electricity generation capacity is still not large enough

There are still challenges to generation of large quantities of power in renewable energy technology compared to traditional forms of energy generation like fossil fuel. Fossil fuel still produces large quantities of electricity today, by far. This, essentially, means that it can’t be solely relied upon to power the whole nation.

This means that either we need to set up more such facilities to match up with the growing demand or look out for ways to reduce our [energy consumption](https://www.conserve-energy-future.com/simple-ways-to-reduce-energy-consumption-at-home.php). This phenomenon indicates that a balance of different energy sources will still prevail for some years to come.

#### Renewable energy can be unreliable

Renewable energy technologies totally depend on the weather (for e.g.: sun and wind) to be able to harness any energy. In case atmospheric conditions are not good enough, renewable energy technologies would lack the ability to generate any electricity. This might instigate campaigns by the authorities to reduce energy usage in order to [serve the population](https://www.conserve-energy-future.com/causes-effects-solutions-of-overpopulation.php) for a longer period.

#### Low-efficiency levels

Renewable energy technologies are still significantly new to the market, meaning, they still lack the much-needed efficiency. This poses forecast problems and investors may shy away from investing their money for fear of not getting returns pretty quick.

#### Requires a huge upfront capital outlay

Setting up renewable energy generation facilities requires a huge financial outlay. Installation of wind turbine, [solar panels](https://www.conserve-energy-future.com/what-is-solar-energy.php), and [hydroelectricity plants](https://www.conserve-energy-future.com/howhydropowerplantsworks.php) are relatively expensive. These plants require upfront investments to build, have high maintenance expenses and require careful planning and implementation. Also, the electricity generated needs to be delivered to towns and cities, which means additional cost of installing power lines.