# Wind energy offers many advantages, which explains why it's one of the fastest-growing energy sources in the world. Research efforts are aimed at addressing the challenges to greater use of wind energy. Read on to learn more about the [benefits of wind power](https://windexchange.energy.gov/slideshows) and some of the challenges it is working to overcome.

Advantages of Wind Power

* Wind power is cost-effective. Land-based utility-scale wind is one of the lowest-priced energy sources available today, costing between two and six cents per kilowatt-hour, depending on the wind resource and the particular project’s financing. Because the electricity from wind farms is sold at a fixed price over a long period of time (e.g. 20+ years) and its fuel is free, wind energy mitigates the price uncertainty that fuel costs add to traditional sources of energy.
* Wind creates jobs. The U.S. wind sector employed more than [100,000 workers in 2016](https://www.energy.gov/sites/prod/files/2017/01/f34/2017%20US%20Energy%20and%20Jobs%20Report_0.pdf), and wind turbine technician is one of the [fastest-growing American jobs](https://www.bls.gov/ooh/fastest-growing.htm) of the decade. According to the [Wind Vision Report](https://www.energy.gov/eere/wind/wind-vision), wind has the potential to support more than 600,000 jobs in manufacturing, installation, maintenance, and supporting services by 2050.
* Wind enables U.S. industry growth and U.S. competitiveness. Wind has an [annual economic impact of about $20 billion](http://awea.files.cms-plus.com/Economic%20Development%20Impacts%20of%20Wind%20Projects%202017%20FINAL.pdf) on the U.S. economy, The United States has a vast domestic resources and a highly-skilled workforce, and can compete globally in the clean energy economy.
* It's a clean fuel source. Wind energy doesn't pollute the air like power plants that rely on combustion of fossil fuels, such as coal or natural gas, which emit particulate matter, nitrogen oxides, and sulfur dioxide—causing human health problems and economic damages. Wind turbines don't produce atmospheric emissions that cause acid rain, smog, or greenhouse gases.
* Wind is a domestic source of energy. The nation's wind supply is abundant and inexhaustible. Over the past 10 years, cumulative wind power capacity in the United States increased an average of 30% per year, and wind now has the [largest renewable generation capacity](https://www.energy.gov/sites/prod/files/2017/04/f34/GR1702_WWPTO_WindNumberOne.pdf) of all renewables in the United States.
* It's sustainable. Wind is actually a form of solar energy. Winds are caused by the heating of the atmosphere by the sun, the rotation of the Earth, and the Earth's surface irregularities. For as long as the sun shines and the wind blows, the [energy produced can be harnessed](https://www.energy.gov/eere/wind/how-do-wind-turbines-work) to send power across the grid.
* Wind turbines can be built on existing farms or ranches. This greatly benefits the economy in rural areas, where most of the [best wind sites](https://www.energy.gov/eere/wind/wind-resource-assessment-and-characterization) are found. Farmers and ranchers can continue to work the land because the wind turbines use only a fraction of the land. Wind power plant owners make rent payments to the farmer or rancher for the use of the land, providing landowners with additional income.

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## Various Advantages of Wind Energy

The potential of wind energy is enormous. In fact, scientists say that wind power is capable of supplying over [20% of world electricity](https://energy.gov/eere/wind/20-wind-energy-2030-increasing-wind-energys-contribution-us-electricity-supply) if the necessary technologies are in place. The advantages and [disadvantages of wind energy](https://www.conserve-energy-future.com/disadvantages_windenergy.php) are in depth. However, the advantages far outweigh the disadvantages, which is why it’s rapidly being developed to provide clean source of energy. That said, here are the advantages accrued from embracing wind energy.

**It’s a renewable energy source**

By definition, renewable energy is energy generated from [natural resources](https://www.conserve-energy-future.com/terrific-ways-to-conserve-natural-resources.php) and is naturally replenished. Wind is a natural resource because it’s constantly replenished by the sun. This means that as long as the sun is available, winds will always blow. Scientists project that the sun will continue to shine for the next 6-7 billion years, which is a bright prospect for wind energy investors. Renewable energy is sometimes known as clean energy or green energy because it doesn’t emit [greenhouse gasses](https://www.conserve-energy-future.com/greenhouse-gases.php) to the atmosphere and doesn’t pollute water resources.

[Fossil fuels](https://www.conserve-energy-future.com/pros-and-cons-of-fossil-fuels.php) (coal, oil, natural), on the other hand, are nonrenewable sources of energy because they are projected to deplete in the next 50 years or so. On top of that, they cause a whole lot of pollution by emitting a wide array of greenhouse gasses.

**Eco-friendly**

Wind energy is classified as a green source of energy since its production does not involve emission of dangerous fumes like fossil fuels. Although the manufacturing, transportation, and installation of wind turbines contribute to global warming gradually, the generation of electricity itself doesn’t contribute to the emission of greenhouse gasses in any way. This makes it a perfect energy source for the environment and humans.

**Low operational costs**

It’s perfectly true that initial installation of wind power technologies requires high capital outlay, more so installing a commercial wind turbine. It all boils down to the number of turbines to be installed, the date the turbine purchase agreement was activated, cost of financing, location of the turbine installation project, construction contracts and much more. However, once these systems are up and running, the operational costs will significantly come down. Only routine maintenance will be required to ensure the turbines are operating seamlessly.

**Minimizes overdependence on traditional sources of electricity**

Over the years, households have entirely depended on traditional forms of electricity powered by fossil fuels. Investments in wind energy have helped bridge the power gap and helped dialed back on use of fossil fuels, which emit dangerous greenhouse gasses and cause global warming.

It could be an answer to the ever increasing demand for petroleum and gas products and would help us to reduce our reliance on fossil fuels from other countries. Apart from this, it can also help to curb harmful greenhouse gas emissions which are the major source of [global warming](https://www.conserve-energy-future.com/GlobalWarming.php).

**Doesn’t take up much land**

Generally, wind energy is space efficient. The largest wind turbines capable of catering to the electricity needs of about 600 homes can be situated close together and the land in-between utilized for agricultural purposes. This is the real reason numerous farms stand to benefit a great deal from installation of wind turbines rather than solar panels.

Land owners can look for additional cash by installing wind turbines on land that can even be used for agricultural purposes. The electricity generated by wind power can be used for your own purpose which will reduce your monthly electricity bill and the surplus power can be sent back to the local grid which will result in more savings. Moreover, you can check if your state government offers interest free loans or incentives on installation of wind turbines that will reduce the extra burden of initial investment on you.

**Exponential growth**

Although wind energy attributes to 2.5% of entire global electricity production, the capacity is developing at a remarkable [rate of 25%](http://energyinformative.org/wind-energy-pros-and-cons/) each year since 2010. Apart from this exponential growth rate lowering the potential of global warming, it helps bring down the cost of electricity. Since the 1980’s, the prices of electricity have significantly gone down, thanks to the development of wind energy systems.

**Incredible domestic potential**

Individuals are able to generate their own electricity by harnessing the wind power the same way people use [solar panels](https://www.conserve-energy-future.com/surprising-signs-solar-panels-are-right-for-you.php) to generate their own energy. Most countries even allow their citizens to sell their own electricity to electricity companies. Residential wind turbines can also help bring down your household energy bills. Perhaps the most attractive benefit of wind energy is protecting you from blackouts and fluctuating energy costs.

**Massive potential**

The potential of wind energy is totally incredible. Multiple research studies have converged to this conclusion. The global potential of wind energy is more than 400 TW (terawatts). This is because wind is almost everywhere and can be harvested anywhere. The only stumbling block will be your financial capability to harness it.

**Revitalizes rural economies**

Since wind turbines are mostly installed in rural areas, the nearby towns get electricity, and economic activities spring up including small and large businesses. Small industries may also come up, thereby diversifying rural economies, and increasing the government’s tax base.

**Creation of green jobs**

Wind energy development projects bring about new short-term and long-term green jobs. Related jobs include meteorologists, structural engineers, surveyors, technicians, bankers, and assembly workers. Statistically, wind energy brings about more jobs than coal plants and [66% more employment opportunities](http://windcoalition.org/wind-coalition-urges-state-regulators-promote-home-grown-energy-options/) than nuclear power plants per unit of energy produced.

**Modern wind turbines**

Today’s wind turbines are classy, attractive and modern looking. They don’t look like old plain clunky windmills that become an eyesore on your land. Wind turbines are available in various sizes and vast range of people can use it for their own use or sell power to local grid to reap some profits.

Development of wind energy has greatly reduced over-exploitation of minerals such as oil and coal. Destructive mining has since gone down. Also, some fuels like oil need to be transported to the refinery, and this is very dangerous since they are highly flammable. Wind energy development has reduced the rate of oil transportation over long distances.

For the sake of our planet, resource preservation, rural economic uplift, and national security, everyone must get on board to boost a sustainable renewable energy economy. Wind energy offers the greatest possibilities for [sustainable energy](https://www.conserve-energy-future.com/innovative-ways-to-build-sustainable-house.php) future since it’s relatively cheap, creates green jobs, offers substantial and fairly distributed revenue and its easy on Mother Nature since it doesn’t cause any pollution, doesn’t produce any waste and doesn’t exhaust natural resources. Using wind energy to the full today will lay the cornerstone for a healthy future.

## **Advantages of Wind Energy**

Wind energy has numerous benefits. It has helped to provide a source of clean and renewable electricity for countries all over the world. This section takes a look at the different advantages of wind energy.

### **Renewable & Sustainable**

Wind energy itself is both renewable and sustainable. The wind will never run out, unlike reserves of fossil fuels (such as coal, oil, and gas.) This makes it a good choice of energy for a sustainable power supply.

### **Environmentally Friendly**

Wind energy is one of the most environmentally friendly energy sources available today. This is based on the simple reason that wind turbines don’t create pollution when generating electricity.

Most non-renewable energy sources need to be burnt. This process releases gases such as carbon dioxide (CO2) and methane (CH4) into the atmosphere. These gases are known to contribute to climate change. In contrast, wind turbines produce no greenhouse gases when generating electricity.

We should note that both noise and visual pollution are environmental disadvantages of wind turbines. However, these factors don’t have a negative impact on the earth, water table or the quality of the air we breathe.

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### **Reduces Fossil Fuel Consumption**

Generating electricity from wind energy reduces the need to burn fossil fuel alternatives such as coal, oil, and gas. This can help to conserve dwindling supplies of the earth’s natural resources. As a result, they will last longer and help to support future generations.

### **Wind Energy is Free**

Unlike most non-renewable energy sources, wind energy is completely free. Anyone can make use of the wind and it will never run out. This makes wind energy a viable option for generating cheap electricity.

### **Small Footprint**

Wind turbines have a relatively small land footprint. Although they can tower high above the ground, the impact on the land at the base is minimal. Wind turbines are often constructed in fields, on hills or out at sea. At these locations, they pose hardly any inconvenience to the surrounding land. Farmers can still farm their fields, livestock can still graze the hills and fishermen can still fish the sea.

Land surrounding wind turbines can be used for other purposes such as agriculture.

### **Industrial & Domestic Installations**

Wind turbines aren’t just limited to industrial-scale installations (such as wind farms.) They can also be installed on a domestic scale. As a result, many landowners opt to install smaller, less powerful wind turbines. This can help to provide a portion of a domestic electricity supply. Domestic wind turbines are often coupled with other renewable energy technologies. You can often find them installed alongside solar panels and geothermal heating systems.

### **Remote Power Solution**

Wind turbines can play a key role in helping to bring power to remote locations. This can help to benefit everything from small off-grid villages to remote research facilities. It might be impractical or too expensive to hook such locations up to traditional electricity supplies. In these cases, wind turbines could have the answer.

Wind turbines can be used to generate power in remote locations.

### **Wind Technology is Becoming Cheaper**

The first-ever wind turbine started generating electricity in 1888. Since then, they have become more efficient and have come down in price. As a result of this, wind power is becoming much more accessible.

Government subsidies are also helping to reduce the cost of wind technologies. Many countries across the world now provide incentives for the construction of wind turbines. In addition, incentives are sometimes available for domestic users to supply electricity back to the grid.

### **Low Maintenance**

Wind turbines are fairly low in maintenance. A new wind turbine can last a long time prior to it requiring any maintenance. Although older turbines can come up against reliability issues, technological advancements are helping to improve overall reliability.

### **Low Running Costs**

As wind energy is free, running costs are often low. The only ongoing cost of wind energy is for the maintenance of wind turbines, but they are low maintenance in nature anyway.

### **Huge Potential**

Wind energy has huge potential. It’s both renewable and sustainable and is present in a wide variety of places. Although wind turbines aren’t cost-effective at every location, the technology isn’t limited to just a handful of locations. This is an issue that can affect other renewable energy technologies – such as geothermal power stations.

### **Increases Energy Security**

By using wind energy to generate electricity, we are helping to reduce our dependency on fossil fuel alternatives. In many cases, a country will source some or all of its fossil fuels from another country. War, politics and overall demand often dictate the price of these natural resources. This can sometimes cause serious economic problems or supply shortages.

By using local renewable energy sources, a country can reduce its dependency on external supplies of natural resources. As a direct result of this, the country can increase its energy security.

### **Job Creation**

The wind energy industry has boomed since wind turbines became commercially available. As a result of this, the industry has created jobs all over the world. Jobs now exist for the manufacturing, installation, and maintenance of wind turbines. You can even find jobs in wind energy consulting. This is a job where specialist consultants determine whether a wind turbine installation is going to be profitable.

According to [recent data](http://irena.org/publications/2018/May/Renewable-Energy-and-Jobs-Annual-Review-2018) released by the International Renewable Energy Agency (IRENA), the renewable energy industry employed over 10 million people worldwide in 2017. Of these jobs, 1.15 million were in the wind power industry.