# 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.

CHALLENGES OF WIND POWER

* Wind power must still compete with conventional generation sources on a cost basis. Depending on how energetic a wind site is, the wind farm might not be cost competitive. Even though the cost of wind power has decreased dramatically in the past 10 years, the technology requires a higher initial investment than fossil-fueled generators.
* Good wind sites are often located in remote locations, far from cities where the electricity is needed. Transmission lines must be built to bring the electricity from the wind farm to the city. However, building just a [few already-proposed transmission lines](https://www.energy.gov/eere/articles/report-shows-new-transmission-can-help-wind-energy-supply-third-us-electricity) could significantly reduce the costs of expanding wind energy.
* Wind resource development might not be the most profitable use of the land. Land suitable for wind-turbine installation must compete with alternative uses for the land, which might be more highly valued than electricity generation.
* Turbines might cause noise and aesthetic pollution. Although wind power plants have relatively little impact on the environment compared to conventional power plants, concern exists over the [noise](https://www.energy.gov/eere/wind/frequently-asked-questions-about-wind-energy#WindTurbineSound) produced by the turbine blades and visual impacts to the landscape.
* Turbine blades could damage local wildlife. [Birds](https://www.energy.gov/eere/wind/frequently-asked-questions-about-wind-energy#BirdsandBats) have been killed by flying into spinning turbine blades. Most of these problems have been resolved or greatly reduced through technological development or by [properly siting wind plants](https://www.energy.gov/eere/wind/environmental-impacts-and-siting-wind-projects).

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## Various Disadvantages of Wind Energy

Wind energy, without any doubt, offers the best advantages in regard to the environment and cost. However, it harbors some disadvantages worth putting into perspective if you intend to invest in wind energy. Here are a few:

#### **Wind is inconsistent**

Wind energy has a lot in common with [solar energy](https://www.conserve-energy-future.com/solar-energy-infographic.php) in terms of consistency. Although wind energy qualifies as a renewable resource, wind speeds fluctuate each day. This can be a big disappointment to wind turbine developers who will commit every penny and every ounce of energy in the project only to end up with fluctuating wind patterns.

This is why developers must do their research first to pinpoint the best location for setting up turbines before actual installation. The best location must have sufficient supply of wind. This explains why you’ll almost always see wind turbines installed on top of high elevations like hills and mountains or off shores where there are minimal obstacles that could potentially slow down the speed of wind. Higher elevations are preferred since the higher up you go, the stronger the winds.

#### **Involves high upfront capital investment**

A lot has been done to bring down the cost of installing turbines; the overall costs, however, remain on the higher side. The first step to installing a turbine is usually to do a rigorous survey to determine the winds speed of the location. This involves erecting a sample turbine to gauge the wind speeds over a stipulated period. If the location is found to be ideal, the wind turbine will be manufactured and transported to the site and set up on a strong foundation. The entire process adds up to the cost of setting up a wind turbine.

When talking about offshore wind turbines, the cost becomes more pronounced. This is because it’s a daunting task to install wind turbines offshore than onshore. Some firms even go to the extent of commissioning bespoke ships with the ability to transport and install wind turbines at sea.

#### **Visual impact**

Although wind turbines come with eye-catching designs, they impact the natural beauty of the landscape. When a lot more wind turbines are set up, the area becomes unsightly. The local community starts to sound alarm bells, and this can escalate to a conflict.

Though many people believe that wind turbines actually look nice but majority of them disagree. People consider wind turbines to have an undesirable experience. Petitions usually come in court before any proposed wind farm development but few people think otherwise and feel they should be kept in tact for everyone to enjoy its beauty.

#### **Can reduce the local bird population**

Wind turbines are particularly disadvantageous to the local bird species. A lot of bird death as a result of collision with turbine blades has been reported in these areas. This can wipe out the population of certain bird species. Also, [wind turbines](https://www.conserve-energy-future.com/verticalaxiswindturbines.php) require them to be dig deep into the earth which could have negative effect on the [underground habitats](https://www.conserve-energy-future.com/causes-effects-solutions-for-habitat-loss-and-destruction.php). However, there has been an influx of bladeless wind turbines in the marketplace designed to reduce bird deaths. This could be a game changer for turbine manufacturers.

#### **Noise disturbances**

The most hated disadvantage to wind turbines is the noise they produce. The sound produced by one turbine can be perceived from far distances. Combine many turbines, and the noise becomes unbearable. Many homeowners’ lives have been turned upside down due to the [noise pollution](https://www.conserve-energy-future.com/easy-and-practical-ways-to-reduce-noise-pollution.php) from turbines. Although the emphasis is to site wind turbines away from the local community, most companies disregard this rule. This explains the strong public objections to wind turbine installations in most areas. The visual pollution is another reason why people do not find it attractive to install it in their backyard.

#### **Takes up significant portion of land**

The best location of wind turbines can be the most fertile land where farming is practiced. Installation of wind turbines would take away land that has been the bedrock of agricultural activities for many years.

#### **Safety Concerns**

In the last couple of decades, the frequency of tornadoes, hurricanes and cyclones have increased considerably. Now these severe storms can cause extensive damage to the wind turbines and can be a safety hazard to the people working in these wind farms. The damage may cause huge damage to [wind turbines](https://www.conserve-energy-future.com/homewindturbines.php).

#### **Suited To Particular Region**

[Wind turbines](https://www.conserve-energy-future.com/WindTurbines.php) are suited to the coastal regions which receive wind throughout the year to generate power. Therefore, countries that do not have any coastal or hilly areas may not be able to take any [advantage of wind power](https://www.conserve-energy-future.com/advantages_windenergy.php). The location of a wind power system is crucial, and one should determine the best possible location for wind turbine in order to capture as much wind as possible. Just like solar energy which relies heavily on sun to produce power, wind energy needs high speed winds to produce power on constant basis.

## **Disadvantages of Wind Energy**

We’ve had a look at the advantages, so now let’s take a look at the disadvantages of wind energy. Wind energy has a number of drawbacks, with the NIMBY (not in my backyard) factor playing a large role.

### **The Wind Fluctuates**

Wind energy has a similar drawback to solar energy in that it is not constant. Although wind energy is sustainable and will never run out, the wind isn’t always blowing. This can cause serious problems for wind farm developers. They will often spend a significant amount of time and money investigating whether a particular site is suitable for wind power.

For a wind turbine to be efficient, it needs to have an adequate supply of wind energy. For this reason, we often find wind turbines on top of hills or out at sea. In these locations, there are fewer land obstacles to reduce the force of the wind.

### **Installation is Expensive**

Although costs are reducing over time, wind turbines are still expensive. First, an engineer must carry out a site survey. This may involve having to erect a sample turbine to measure wind speeds over a period of time. If deemed adequate, a wind turbine then needs to be manufactured, transported and erected on top of a pre-built foundation. All of these processes contribute to the overall cost of installing wind turbines.

When we take the above into account for offshore wind farms, the costs become much greater. Installing structures out at sea is far more complex than on land. Some companies have even commissioned bespoke ships capable of transporting and installing [wind turbines at sea](https://www.clean-energy-ideas.com/wind/wind-turbines/wind-turbines-at-sea).

Installing wind turbines is an expensive process.

### **Threat to Wildlife**

We often hear that wind turbines pose a threat to wildlife – primarily birds and bats. However, researchers now believe that they pose less of a threat to wildlife than other manmade structures. Installations such as cell phone masts and radio towers are far more dangerous to birds than wind turbines. Nevertheless, wind turbines still contribute to mortality rates among bird and bat populations.

### **Noise Pollution**

One of the most common disadvantages of wind turbines is the noise pollution they generate. You can often hear a single wind turbine from hundreds of meters away. Combine multiple wind turbines with the right wind direction and the audible effects can be much greater.

Noise pollution from wind turbines has ruined the lives of many homeowners. Although steps are often taken to install them away from dwellings, they do sometimes get built too close to where people live. This is why new wind farms often come up against strong public objection.

### **Visual Pollution**

Another common drawback of wind turbines is the visual pollution they create. Although many people actually like the look of wind turbines, others don’t. These people see them as a blot on the landscape. This, however, tends to come down to personal opinion. As we build more wind farms, public acceptance is becoming more common.