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Pros and Cons of Solar Energy

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Countries all over the world are using solar energy in order to generate electricity, but why is the use of this energy source so popular? What is it that makes solar power one of the most used renewable energy technologies available today? In this article we will be taking a look at the many different pros and cons of solar energy in order to answer this question.

Pros of Solar Energy

1. Renewable

Solar energy is a renewable energy source and is something we will never run out of as opposed to non-renewable energy sources such as coal, oil and gas. The sun will be around for billions of years to come, making it one of the most sustainable energy sources available to mankind. The fact that solar energy is renewable makes it one of the most important factors in our list of pros and cons.

2. Environmentally Friendly

Solar panels give off no pollution making them an environmentally friendly option for producing electricity.

Although pollution is produced during the manufacturing and transportation of solar panels, once they are up and running they will help to offset these effects by providing a source of clean electricity that might otherwise have been produced using less environmentally friendly options.

3. Wide Availability

A large proportion of the earth receives enough sunlight to make solar panels a viable option for generating electricity. You will find this technology being used everywhere from Alaska to Australia. Even the South Pole is investing in solar energy technologies!

4. Versatile

Not only can solar energy be used to generate electricity, it also has a number of other uses. By using a different design of solar panel, solar energy can be used to help heat a buildings water supply. This can help to reduce the energy needed from other sources, such as a buildings gas or electricity supply.

A more basic use of solar energy is how owners of outdoor swimming pools often install solar covers that help to increase the water temperature of the pool. Solar pool covers can also help to keep this heat inside the pool.

5. Low Noise

Once solar panels are installed and producing electricity, there is little noise associated with the technology. Whilst you might hear a slight hum if you get close to the inverters or transformers used in these systems, this is generally unnoticeable from a short distance away.

Other renewable energy technologies are considerable louder than those that make use of solar energy. Wind turbines for example are notorious for the noise pollution they create, which can be measured at significant distances away from the turbines themselves.

6. Low Maintenance

Another advantage of solar panels is that they are low maintenance. Once installed, a solar panel can happily sit there for years generating power without any problems. With no moving parts in a residential solar energy system, maintenance is decreased significantly.

Although solar panels do need cleaning at regular intervals to ensure peak efficiency, they are generally considered very low maintenance when compared with rival technologies.

7. Remote & Portable Power Option

A major advantage of solar panels is their ability to provide power in the most remote locations. Areas where it might be impossible or expensive to run power cables to can benefit from investing in solar energy technologies.

Solar energy is also advantageous when portable power sources are required. Devices that can charge your smartphone from solar energy are readily available and used across the globe. The recent Solar Impulse venture (where a solar powered plane flew 40,000km around the world) is helping to pave the way for a new generation of portable solar powered applications.

8. Return on Investment (ROI)

A well designed solar energy system installed under the correct conditions should provide a return on investment (ROI) over the lifetime of the system. If you are able to benefit from government or state grants for the installation of solar energy technologies, then this could help to speed up ROI and eventually turn a profit.

Some governments may offer a 'feed-in tariff' whereby any excess electricity generated would be sold back to the grid. Depending on the rate of each kWh you sell back to the grid, this could also help to accelerate ROI whilst bringing in a steady income.

9. Increased Energy Security

Using solar or other renewable energy sources to produce your own electricity reduces your dependency on external energy supplies of which you have no control over. This helps to increase your 'energy security', a term that is used to describe the association between national security and the availability of natural resources for energy consumption.

War, sanctions and other political issues can all have an effect over the energy supply of any given country. If your country buys electricity or natural resources (such as coal, oil or gas) from another, have you ever thought what could happen to your energy supply if this flow of electricity or resources were to stop? By producing your own energy, you are less reliant on such issues and would be better placed than most in this scenario.

10. Evolving Technology

Technological advancements in the solar energy industry are helping to drive the efficiency of solar panels. Modern solar cells are much more efficient than those produced only five or ten years ago and solar cells are on track to get even more efficient over the coming years.

Cons of Solar Energy

1. Expensive

The initial cost of installing a residential solar energy system can run into the tens of thousands of dollars. This upfront capital is hard for many homeowners to find, with some choosing to take out loans to fund their project, a process that would add cost to the overall project and slow any return on investment.

Whilst return on investment can be achieved under the right conditions, the initial cost of purchasing a solar energy system is considered the most significant disadvantages of solar energy and one of the most important factors in our list of pros and cons of solar energy.

2. Daylight-Only Solution

Another key disadvantage of solar energy is that it is only present during daylight hours. Solar panels can't generate electricity during the night, making them in effect useless when it's dark. To combat this, battery storage units are often combined into the design of a solar energy system for use at night, however these units are often expensive, take up lots of space and don't have enough capacity to provide a household's energy supply all through the night.

This disadvantage is further influenced by seasonal fluctuations in daylight hours. A solar energy system won't produce as much electricity when the nights are long as it would when the nights are short.

3. Vulnerable to Atmospheric Conditions

Solar panels are affected by certain atmospheric conditions. Long-lasting periods of significant heat and humidity can affect the performance of solar cells, with delamination of the cells occurring in some cases.

Pollution also decreases the efficiency of solar panels, making them a less attractive option for those living in highly-populated towns and cities, or those situated close to heavy industries. Cloud cover and fog will also reduce a solar panels efficiency.

4. Large Footprint

Solar energy systems often require a large footprint in order to provide an adequate source of power to a home or business. Compared with other renewable energy technologies, solar energy systems have the largest footprint for the power that is generated. A large footprint will be of concern to most, especially those where real estate is at a premium.

5. Manufacturing Pollution

Although solar panels will generally provide a source of clean and environmentally friendly energy for years to come, pollution is still generated during the manufacturing of solar cells. Solar cells contain silicon, an element that is extracted from raw materials in a blast furnace, a process that produces significant quantities of greenhouse gases.



Clean Energy Ideas is home to a wide variety of information covering topics related to renewable energy and the environment.