



The Environmental Damage Caused by Green Power

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Solar Power

- Spain's Solnova Solar Power Station. Retrieved from https://en.wikipedia.org/wiki/Solar_power



Solar power

- Solar power is the conversion of energy from sunlight into electricity, either directly using photovoltaics (PV), indirectly using concentrated solar power, or a combination.
- Concentrated solar power systems use lenses or mirrors and solar tracking systems to focus a large area of sunlight into a small beam.
- Photovoltaic cells convert light into an electric current using the photovoltaic effect.
- A solar photovoltaic system array on a rooftop in Hong Kong. Retrieved from https://en.wikipedia.org/wiki/Solar_power



Damage to the desert habitat of tortoises

Photo by Dana Wilson/BLM.
Retrieved from
<https://www.earthisland.org/journal/index.php/articles/entry/massive-solar-farm-clears-a-path-through-the-mojave-desert/>



Damage to the desert habitat of tortoises

- The construction of a huge solar farm took away the habitat of the desert tortoises and made them homeless.
- Desert tortoises thermoregulate, balancing their time in and out of their burrows. The shadow of the solar panel will affect the turtle's judgment on the temperature.
- Solar farms also affect the growth of desert plants. The decline in the number of plants will make it difficult for tortoises to forage.



Damage to other animals and plants

Photo by USFWS. Retrieved from <https://www.pv-magazine.com/2020/01/15/desert-solar-farm-can-actually-improve-desert-tortoise-habitat/>

Damage to other animals and plants

- The development of desert energy projects will lead to a decrease in biodiversity.
- The development of human desert land will change the density of the soil and affect the humidity of plant growth.
- Desert animals that feed on plants will be caught in competition for food, which will affect their reproduction rate.
- Solar panels will reduce the photosynthesis of plants.
- The construction of solar energy projects will affect the overall adaptability of animals and plants.

Ways to improve the desert habitat

- Help tortoises build temporary habitats during energy construction.
- Adjust the height and angle of the solar panels to maximize the growth of plants.
- Spend money to invest in desert plant cultivation to maintain ecological diversity.
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Wind power



Wind power or wind energy is the use of wind to provide mechanical power through wind turbines to turn electric generators for electrical power.

Wind power is a popular sustainable, renewable source of power that has a much smaller impact on the environment compared to burning fossil fuels.

Wind farms consist of many individual wind turbines, which are connected to the electric power transmission network.

Wind farms





Damage to endangered bird species

Retrieved from <https://theconversation.com/wind-farms-are-hardly-the-bird-slayers-theyre-made-out-to-be-heres-why-79567>



Damage to endangered bird species

A 2013 study predicted that the expansion of wind turbines in Canada over the next 10-15 years could lead to the killing of approximately 233,000 birds and displacement of 57,000 pairs annually. Another study found wind turbines kill an estimated 140,000 to 328,000 birds each year in the US.

It is worth noting that data from 2014 revealed that bird deaths from collisions with power lines in the US numbered 12 to 64 million, but the latter are more prevalent than wind turbines so it is a tricky comparison.

Photo retrieved from
<https://zhuanlan.zhihu.com/p/363309786>

Damage to bird species

Wind turbine blades do indeed kill birds and bats, but their contribution to total bird deaths is extremely low.

Wind farms killed approximately seven thousand birds in the United States in 2006 but nuclear plants killed about 327,000 and fossil-fuelled power plants 14.5 million.

The biggest cause of death of birds is attributed to the impact of tall buildings and the hunting and killing of natural enemies such as humans.

But for endangered bird species, this is still not a good result.

A photograph of several white offshore wind turbines against a clear blue sky with a few wispy clouds. The turbines are positioned in a line, with the one in the foreground being the most prominent. The overall scene is bright and clean, representing renewable energy.

Offshore wind power

Electrical energy that do less environmental damage.



Offshore wind power

- Offshore wind power or offshore wind energy is the use of wind farms constructed in bodies of water, usually in the ocean, to harvest wind energy to generate electricity.
- Higher wind speeds are available offshore compared to on land, so offshore wind power's electricity generation is higher per amount of capacity installed.
- Offshore wind power includes inshore water areas such as lakes, fjords and sheltered coastal areas as well as deeper-water areas.
- Photo retrieved from https://en.wikipedia.org/wiki/Offshore_wind_power#Capacity

The advantages of offshore wind power

- Offshore wind farms have very low global warming potential per unit of electricity generated, comparable to that of onshore wind farms.
- Offshore installations also have the advantage of limited impact of noise and on the landscape compared to land-based projects.
- The Organization for Economic Co-operation and Development (OECD) predicted in 2016 that offshore wind power will grow to 8% of ocean economy by 2030, and that its industry will employ 435,000 people, adding \$230 billion of value.
- Higher wind speeds are available offshore compared to on land, so offshore wind power's electricity generation is higher per amount of capacity installed.

Future development

- Human beings continue to research and explore green power. At present, it is not possible to create new energy sources that absolute have no impact on the environment, and can only continue to improve.
- Global warming is gradually intensifying, and the ecological environment is constantly being destroyed. Humans need to take practical actions to protect the only home on earth.
- In the field of green energy, efforts are still needed to develop.

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