Wind energy & birdlife

- Wind power can save wildlife and birds as it displaces environment-damaging fossil fuels from the energy grid.
- Replacing all fossil fuel energy with wind power would save 70 million birds per year worldwide
- We have until 2030 to limit climate catastrophe which would devastate bird species - wind energy is a key solution to climate change
- Up to half of all bird species are threatened by climate change
- Wind energy is estimated to be 35 times safer for birdlife than fossil fuel energy
- For every 1 bird killed by a wind turbine, nuclear and fossil fuel-powered plants kill 2,118 birds
- Fossil fuels, cars, cats and even windows prove to be of far more concern for bird populations than wind turbines
- Stringent approvals processes apply to wind projects, including bird and bat management plans, prior to construction and during operation of a wind farm.

Energy source comparisons

The impact of human activities on wildlife is widespread, especially from energy production. Wind power can save wildlife and birds as it displaces environment-damaging fossil fuels from the energy grid.

A 2013 study estimated that the full life cycle of fossil fuel energy production - from resource extraction, plant operation, acid rain, mercury pollution, and climate change - resulted in an average of 9.36 avian fatalities per GWh (Gigawatt hour).[1]

Wind energy is estimated to be 35 times safer for birdlife than fossil fuel energy, at only 0.27 avian fatalities per GWh - through avian collisions with turbines.[1] Another earlier study in 2009 estimated wind energy to be 15 times safer than fossil fuels.[2] Both studies found wind energy to be safer than nuclear.[1, 2]

For every 1 bird killed by a wind turbine, nuclear and fossil fuel-powered plants killed 2,118 birds, it was found in this study.[2]

Extrapolating from these numbers, **replacing all fossil fuel energy with wind power would save 70 million birds per year worldwide.**[3] The large amount of fatalities from fossil fuels is mostly from climate change which alters weather patterns and destroys habitats which birds rely on.[1]

Climate change

Many animals and plants, including birds, are at risk from climate change. A 2018 UN Intergovernmental Panel on Climate Change (IPCC) report concluded that **we have just 12 years to limit climate catastrophe** - otherwise we risk extreme heat, drought, floods & poverty.[4]

There are now one million of the world's species at risk of extinction due to the global ecological crisis.[5]

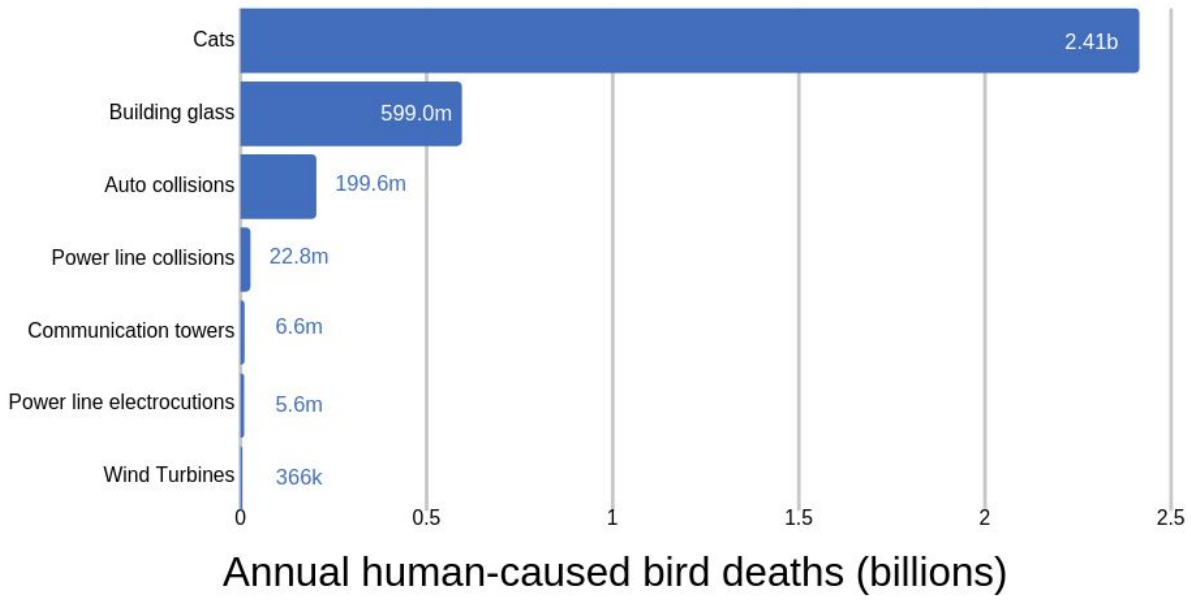
A 2013 study in the UK found that **up to half of all birds are threatened by climate change**. "Species were classed as highly vulnerable if their local climate is changing rapidly, they are sensitive to these changes, and have little ability to adapt or relocate." The results placed 24 to 50 per cent of species as highly vulnerable to climate change.[6]

These alarming studies show the urgent need to shift our energy reliance from fossil fuels which damage our climate and harm birdlife, to low-carbon alternatives like wind energy.

Other impacts on bird populations

The scrutiny placed upon wind projects and their impacts on bird populations is important but must be considered in the context of other human activities and their impacts on birdlife.

Fossil fuels, cars, cats and even windows prove to be of far more concern for bird populations.[2, 7] Below is a broad set of data from America, where cats and windows completely dwarf the impact of wind turbines. For everyone 1 avian death from wind turbines, cats kill 6,600.[8]



Similar to the American figures, fatalities by cats are the largest problem for bird populations. In Australia cats kill 316 million birds a year - 61 million of those are killed by pet cats.[10]

Bird conservation group perspectives

Bird conservation groups around the world recognise the pressing threat of climate change to birds, and the need to pursue renewable energy alternatives like wind energy.

The UK's Royal Society for the Protection of Birds (RSPB) has recognised the impact of climate change on birds. They have built a wind turbine at their headquarters and acknowledge the significant role wind power has to play in the fight against climate change.[2]

The American Bird Conservancy similarly support wind energy over fossil fuels: **"Properly sited wind turbines are relatively bird-friendly, especially when compared to fossil fuels."** [7]

In Australia, Birdlife Australia has a similar policy and has committed to zero emissions. All of these groups acknowledge the need to assess any significant risk to birds and wildlife in the placement of wind farms.

Mitigation and legislation to protect birds & bats

In Australia there are stringent processes to address and nullify risks to birds & bats, mandated by multiple pieces of legislation and several government bodies. Many wind turbine projects take several years to complete the gamut of approval processes.

At a state level there is the:

- Flora and Fauna Guarantee Act 1988, and the
- Environment Effects Act 1978.

At a federal level, projects must pass through the:

- Environment Protection and Biodiversity Conservation Act 1999 (the EPBC Act).

Scientists and consultants spend countless hours assessing proposed turbine sites, identifying the species and their flight paths within risk zones.

Planning approval is subject to the number and species of birds/bats at risk. Once operating, wind energy companies must demonstrate that their predictive models demonstrate the real impact, and continue managing and monitoring the impact on birds and bats.

For a wind project, before a shovel can hit the ground, companies need a bird and bat management plan approved by the planning minister. This might contain conditions such as a threshold of what is an acceptable number of bird or bat deaths. Flora and fauna surveys conducted before and after construction independently monitor any impacts on birds and bats.

This process works effectively to protect important populations of birds and bats. For example, the Yaloak south wind farm in Victoria was forced to change their original plans and build fewer wind turbines to reduce their impact on Wedge Tailed Eagles.

Alongside this monitoring and mitigation, the wind industry is planning other conservation efforts to ensure the wind industry has a net positive impact on avian populations.

Technological solutions

There are many ways to improve safety for birds & bats when building wind turbines, but the main decider is where wind turbines are built, and ensuring that they are outside of important migratory routes and flight paths of birds.

Outside of better siting, different companies are working on interesting technological solutions. Birds of prey (raptors) and bats are low reproductive species, so finding ways to protect them from wind turbines is important.

Research is also being done into changing the colour of turbines and designing new turbine shapes. Earlier designs use to attract roosting birds to roost in their structures, but newer designs discourage this dangerous roosting.[10]

Goldwind Australia have piloted using optical technology to detect different birds - endangered species, raptors and bats - and shutting down specific turbines until they pass.

Some wind companies have been using ultrasonic acoustics - which emits high-frequency sounds

in-audible to humans, but confusing enough for bats' echolocation to the point they avoid the area entirely.[10]

Sources:
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[2] Wind farms are hardly the bird slayers they're made out to be. Here's why, The Conversation, 16 June 2017
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