



Nature
Conservation
Council

Nature and Renewables FAQs

Nature & Renewables Toolkit

Part 2



Acknowledgement

The Nature Conservation Council NSW acknowledges that we live and work on the land of First Nations people. This land has been cared for since time immemorial by Traditional Owners, whose sovereignty was never ceded. We pay our respects to the Traditional Owners past and present of the many Countries within so-called New South Wales.

We respect the leadership of Traditional Owners in caring for Country, and support the development of treaties that meaningfully empower them to do so. We acknowledge the dispossession of First Nations People and the harm inflicted on people and Country since colonisation began. We acknowledge that colonisation is an unjust and brutal process that continues to impact First Nations people today. As people living and working on First Nations Country it is incumbent on us to play our part in righting the historical and ongoing wrongs of colonisation. Indeed, our vision of a society in which nature and communities thrive together depends upon it.

The Nature Conservation Council of NSW (NCC) respects and supports all First Nations people's right to self-determination as outlined by the UN Declaration of the Rights of Indigenous Peoples (UNDRIP), which extends to recognising the many different First Nations within Australia and the Torres Strait Islands. NCC commits to maintain open lines of communication and to build respectful mutual relationships with First Nations people in all the work we do and wherever possible, seek aligned outcomes with and support the goals of First Nations groups.

We commit, as an organisation, to empower and work together with First Nations people to protect, conserve and restore the land, waters, air, wildlife, climate and culture of the many First Nations people in NSW.

About this toolkit

The purpose of this toolkit is to work through answers to some frequently asked questions regarding the transition to renewables and its impacts from a trusted source. Please use it to learn more yourself or share with friends, community members, or decision makers who have asked these questions.

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About NCC

The Nature Conservation Council of New South Wales (NCC) is the state's peak environment organisation. We represent over 200 environment groups across NSW. Together we are dedicated to protecting and conserving the wildlife, landscapes and natural resources of NSW.



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Why are we transitioning to renewable energy?

To act swiftly on climate change, it is essential that we significantly reduce our greenhouse gas emissions. New South Wales (NSW) has legislated emissions reduction targets (based on 2005 levels): a 50% reduction by 2030, 70% by 2035, and achieving net zero emissions by 2050. The most impactful way to meet these targets is by transitioning our energy generation away from polluting coal-fired power stations to clean, renewable energy sources. Currently, NSW still depends on four coal-fired power stations, and any extensions to their operational lifespans could jeopardise the state's ability to meet its legally binding emissions reduction commitments. The timely rollout of renewable energy generation, transmission and storage projects is critical to ensure these coal-fired power stations close as soon as possible.



How far along is NSW in the transition to renewable energy?

NSW is already more than halfway to our renewable energy generation capacity (currently at 53%). Under the Electricity Infrastructure Investment Act, NSW has legislated a goal of delivering 12 gigawatts (GW) of renewable energy generation and 2GW of storage by 2030, as well as a non-legislated target of 12GWh of long duration storage by 2034. This transition in NSW will be largely driven through the rollout of Renewable Energy Zones.

What are Renewable Energy Zones (REZs)?

The NSW Government has established five Renewable Energy Zones (REZs) to deliver the large-scale renewable energy generation needed to meet the state's clean energy targets. These REZs function as energy hubs, where renewable energy infrastructure, power generation, and high-voltage transmission lines are co-located to maximise efficiency. The locations for these zones were selected based on several key factors, including strong renewable energy potential – areas with abundant sunlight and/or wind – and proximity to the existing electricity network.

While REZs act as a vehicle to coordinate large amounts of renewable energy in NSW, renewable energy development will continue to be built outside of the REZs to ensure the state has enough energy to meet consumer needs and stick to timelines.

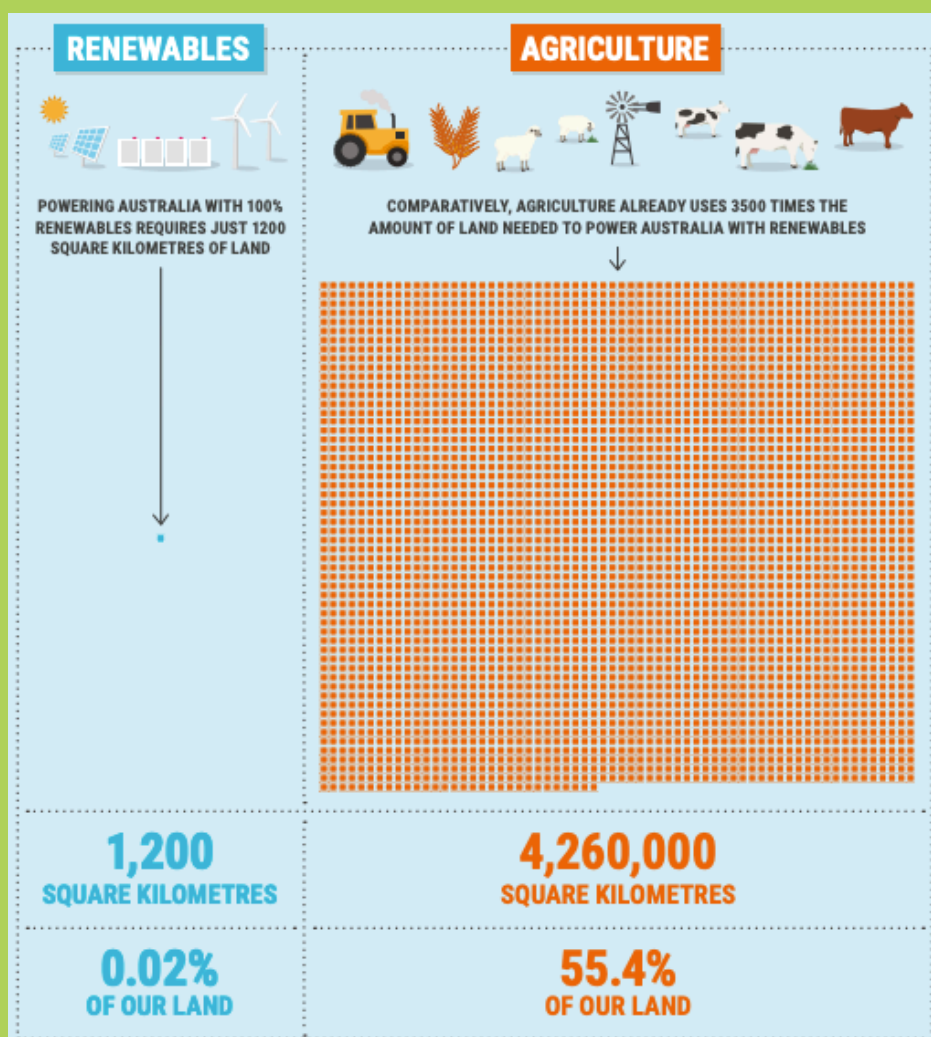


Map of NSW Renewable Energy Zones. Source: [EnergyCo](#)

How much land will renewable energy use?

The land required for renewable energy infrastructure in Australia is relatively small, especially when compared to other industries. Research indicates that powering the nation with renewable energy could require up to just 1,200 square kilometres of land, only about 0.02% of Australia's total land area. In contrast, agriculture occupies around 4.2 million square kilometres, or roughly 55% of the country.

Australia has some of the best solar and wind resources in the world, which means we have the capacity to produce some of the cheapest electricity through wind and solar technology. Importantly, renewable energy projects also create opportunities for dual land use. For example, sheep and other livestock can graze beneath solar panels, allowing agricultural activities to continue alongside energy generation. This co-use model enables farmers to diversify their income, build resilience against drought, and strengthen the long-term sustainability of their farms.



Source: Climate Council: Electric Shock! Australia's Light-Bulb Moment

What are the environmental impacts of renewable energy?

Climate change is one of the greatest threats to nature, impacting ecosystems, species, and habitats across the planet. Transitioning to renewable energy allows us to stop our reliance on fossil fuels and mitigate the long-term impacts of climate change. When planned and implemented responsibly, renewable energy developments can play a significant role in protecting nature.

Like all forms of development, renewable energy infrastructure can have some impact on the environment. It's important that we make sure our planning and environment laws are strong to ensure the impact on the environment is minimal, that threatened and endangered species are protected, and developers are actively incorporating additional nature protection and restoration measures into their projects.

Why do we need different types of renewable energy generation and storage?

Having a mix of different types of renewables – rooftop solar, household batteries, large scale solar, wind farms, and large scale storage – is important for energy reliability and maximising energy output. Each type of renewables complements each other to make sure that there is energy available 24/7.

For example, solar panels can't generate electricity at night when the sun isn't shining, and they produce less on cloudy days. Having wind to generate electricity during such conditions and batteries to store excess electricity also ensures energy reliability and security.



Do wind turbines harm birds and bats?

The relationship between wind turbines and bird or bat deaths is complex and often misunderstood. Wind turbines can have a negative impact on birds and bats by increasing the risk of collisions, which can lead to bird and bat deaths. Our environmental and planning laws need be strengthened to ensure that wind turbines are built in the right places and with proper mitigation strategies in place to reduce the risk.

It's also important to consider the broader context:

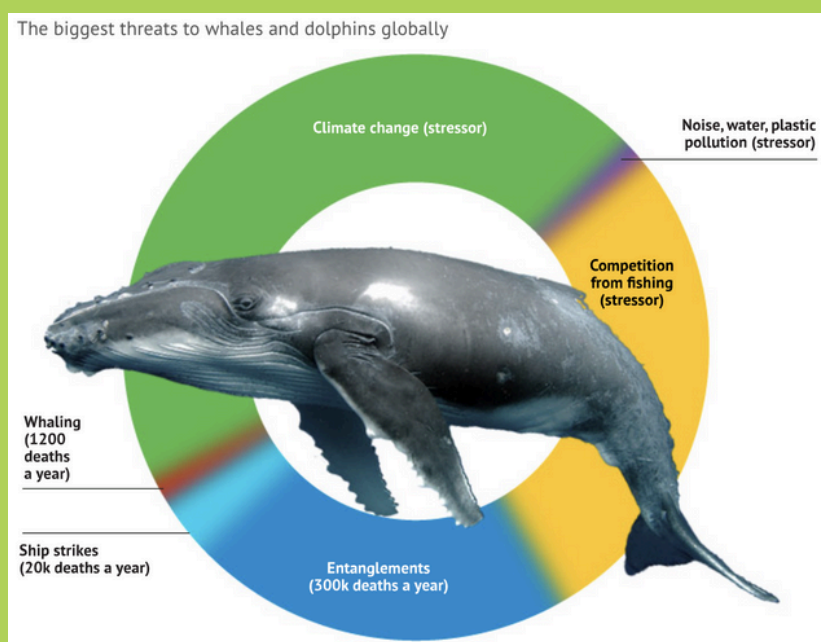
1. Mitigation strategies are working: Smart planning and new technologies can greatly reduce the risks. Strategies that can be used to minimise collisions include incorporating visual or audible signals that deter birds and bats as they're approaching turbines, curtailing (shutting down) turbines when species are detected or during known times of heightened risk, and adjusting the height of turbines. [The Cattle Hill Wind Farm in Tasmania](#), for instance, uses Identiflight AI technology to monitor and protect eagles from turbine collisions. Since this system was installed, there have been no recorded impacts involving endangered eagles, even though eagle activity has increased.
2. Climate change is the bigger threat: The most significant threat to birds, bats, and other wildlife is climate change itself. Rising temperatures, more frequent extreme weather events, and ocean acidification make it harder for many species to survive. Moving to renewable energy helps limit these threats.
3. Turbine collisions represent a small fraction of bird deaths: While wind turbines can cause bird and bat deaths through collisions, these numbers are incredibly small compared to other human-related threats. For example, fossil fuel power generation causes over [700 times more bird deaths](#), and [domestic cats kill more birds in a single year than wind turbines do in a decade](#).

With the right environmental regulations, we can ensure wind farms are located and managed in ways that minimise their impact on wildlife. It's crucial we continue working to strengthen these regulations to achieve the best outcomes for nature. For more info, [see the Australasian Bat Society's policy statement on wind farms](#).

Do offshore wind farms harm whales?

No, there is no evidence that offshore wind farms harm whales. Offshore wind has been operating for years in regions like the UK, Europe, and the US, and extensive research has found no negative impacts on whales. The major threats to whales include climate change, entanglement in fishing gear, ship strikes, plastic pollution, and whaling. Addressing these issues is critical to protecting whale populations globally.

That said, offshore wind projects can affect some wildlife, particularly seabirds. However, as with onshore wind, these risks can be greatly reduced through careful siting and effective mitigation strategies. Whales and dolphins are not considered at risk from offshore wind turbines.



Source: International Whaling Commission, Friend of the Sea
Graphic: Matt Davidson

Do we need both onshore and offshore wind?

It's important to have a mix of renewable energy generation to ensure energy reliability and security. Winds that blow across the ocean (offshore) are more consistent and stronger than winds that blow on land (onshore). So wind turbines that are built offshore, in the ocean, are able to generate far greater amounts of energy.

However, onshore wind cost less to build and has shorter construction periods. So while offshore wind is more powerful, we still need onshore in the mix to keep prices down and roll out renewables in a timely manner.

Can materials for wind and solar be recycled?

Solar panels typically have a lifespan of 25 to 30 years, while wind farms generally last around 20 to 30 years. As these systems reach the end of their operational life, it's important to ensure their materials are responsibly managed. Fortunately, most components used in solar panels and wind turbines are recyclable. In fact, up to 95% of a solar panel's materials can be recovered and reused, while approximately 85–94% of a wind turbine's mass is also recyclable.

Emerging technologies and innovative recycling solutions are continuing to improve how we recover and reuse materials from renewable energy systems. The NSW Government is supporting this transition to a more circular economy through the [NSW Circular Economy Policy Statement](#), which includes:

- A scoping study for photovoltaic panel and battery system reuse and recycling to assist organisations in the development of end-of-life solar programs
- \$10 million through a circular grants program to support collaborative projects that trial better reuse and recycling of solar panels with a circular economy framework

- \$13 million to a Circular Innovation Fund to support research into new recycling technologies and material uses, and opportunities to pilot them in government projects.

These efforts are an important step toward reducing waste and making the most of renewable energy materials, but more work is needed to scale up recycling solutions and ensure they're widely accessible and effective.

To learn more about what happens to renewables at the end of their life, [you can read this toolkit by RE-Alliance](#).





Do renewable energy projects pose any health risks?

No. There is no evidence that renewable energy projects – such as wind farms and solar panels – have negative impacts on human health. In fact, by reducing reliance on fossil fuels and mitigating climate change, renewable energy helps improve air quality and public health.

Are solar panels safe?

Yes. Solar panels are safe and pose no risk to human or environmental health. The [International Energy Agency](#) has conducted extensive research into the safety of solar panels and found no significant health concerns. The only potential issue identified was the use of very small amounts of lead, about 0.1% of the panel, for soldering. Many manufacturers are now using lead-free alternatives to eliminate this minimal risk.

Is noise from wind turbines harmful to human health?

Extensive studies have shown that wind turbines do not pose a health risk. The [Australian Medical Association](#) has found no direct link between wind turbines and adverse health effects. While wind turbines do produce a gentle “whooshing” sound that can be heard at the base of the turbine, it is not loud enough to disrupt normal conversation or daily activities.

Wind farms in Australia are subject to noise regulations and undergo thorough environmental assessments before approval. Once operational, they are regularly monitored to ensure compliance with these standards. Research by the [Australian National Health and Medical Research Council](#) has also confirmed that wind turbines do not produce harmful low-frequency noise.



What's the environmental impact of critical minerals needed for building renewable energy technology ?

Critical minerals – such as copper, lithium, nickel and cobalt – are essential to building renewable energy technologies. Like all mining, the mining of critical minerals (also called rare earth minerals) has an impact on the environment. The reality is that without a substantial increase in critical minerals to supply parts to power renewable technologies, we won't be able to decarbonise the energy system to move away from fossil fuels and combat climate change.

Unlike other industries, the minerals used in renewable energy technology can be reused and recycled. For coal, it is mined to be burned once. Renewables, therefore, require substantially less mining overall. An economy based on fossil fuels requires 535 times more mining than a clean energy economy.

This isn't to say that the increased demand for critical minerals isn't without real threats to the natural world. It is critical that we demand stronger environmental regulations to ensure that the mining of critical minerals has a minimal impact on the environment.

Sustainable and ethical sourcing practices, alongside improved recycling and circular economy practices, can significantly reduce the demand for critical minerals while protecting nature and labour rights throughout the supply chain.



For more info, check out:

- [NCC: What does an energy transition that restores nature look like?](#)
- [NCC: Climate & Energy Campaign](#)
- [Climate Council: Electric Shock! Australia's Light-Bulb Moment](#)
- [NSW Government Renewable Energy Planning Framework FAQs](#)



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