

Mapping Renewables for Nature: A roadmap for our energy future

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AUSTRALIAN
CONSERVATION
FOUNDATION

Nature
needs us,
now

**We acknowledge the
Traditional Owners of
Country** and their continuing
connection to land, waters
and community. We pay
respect to their Elders past
and present and to the pivotal
role that First Nations Peoples
continue to play in caring for
Country across Australia.

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Cover. Albany Wind Farm *Photo:* pixdeluxe / iStock Libin Thoman Olaprath

Right. Adventurous, active women exploring the wild beauty of Tasmania, Australia *Photo:* iStock-pixdeluxe

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Executive summary

Australia is making good progress toward a clean and affordable energy future, but we must plan and build renewable projects in places that work for people and nature. Poorly located renewable projects risk damaging the places and wildlife we love and eroding public trust in the energy shift we need.

Working with leading experts from the University of Melbourne, this groundbreaking report puts nature at the heart of renewable energy development by mapping where renewables can be built with minimal impact on Australia's threatened plants and animals.

Working with the experts, the Australian Conservation Foundation (ACF) has highlighted three case studies: Gippsland in Victoria, Central West Orana in New South Wales and the Banana Shire in Central Queensland to show the benefits renewables can deliver for regional Australians while protecting threatened plants and animals.

Here is what we found:

- Most threatened plants and animals live close together. This makes it easier to plan around them.
- We can protect threatened species and still have an abundance of land where we can value add with renewables — delivering clean, affordable energy and a huge economic boost to regional Australians.
- By avoiding 30% of land most needed by at risk plants and animals we can safeguard up to 90% of the highest value habitat for these threatened species (Rogers et al 2025a).

Here is how the community benefits:

- Setting aside these valuable natural areas would result in huge cost savings from faster planning approvals and stronger community support.
- This would boost productivity, grow jobs and speed up the shift to a clean, affordable, renewable future.

What now and who has the power to act?

The Albanese Government must deliver on their promise to fix broken environment laws to better protect nature. Fixing broken laws and investing in smart mapping and planning will unlock faster project assessments and decisions.

Industry needs to invest in smart mapping to make sure their projects and operations are contributing to a world where people and nature thrive. A good place to start is with strong nature protection and restoration goals aligned with Australia's 30 by 30 target and the Global Biodiversity Framework.

Communities can bring their lived experience and knowledge to the table, show support for projects in the right places and call out and correct harmful misinformation.

With smart mapping, strong nature laws, industry action and community leadership we can build renewables in the right places, for a future that is good for people and nature.



Introduction

Key takeaways

- Renewables are Australia's fastest tool for cutting climate pollution and we are almost halfway to powering our electricity grid with renewables.
- Choosing the right locations for renewables protects threatened plants and wildlife and delivers long-term benefits for regional communities – it's a win-win.
- Good siting is the foundation of an energy system that is good for people and nature. We found that by safeguarding 30% of land for nature we protect up to 90% of the highest value habitat for threatened species in the study areas.
- First Nations, farmer and landholder choice is at the heart of a fast, fair and sustainable energy transition. Empowering landholders opens up new income streams for Traditional Owners, farms, communities and conservation, strengthening local economies and ensuring the renewable rollout respects those who know the land best.

Renewables like solar, wind, hydro and storage are the fastest way to cut climate pollution and protect nature for future generations.

If we act wisely, renewables can cut emissions, halt and reverse nature destruction, and deliver lasting benefits for communities across the country. Renewables already supply almost half of Australia's electricity (Climate Council 2025a).

We can build renewable energy and protect communities and threatened plants and wildlife at the same time. This report draws from a study led by the Melbourne Biodiversity Institute, the Melbourne Energy Institute and Net Zero Australia, backed by the ACF (Rogers et al 2025a). It uses **ground-breaking mapping** to show where and how to build renewables for a fast, fair and sustainable shift toward the world we want to live in. While projects built in the wrong places risk harm and delay, building renewables in the right places protects threatened plants and wildlife and delivers

long-term benefits for people in regional Australia.

But time is of the essence. Climate pollution is fuelling more frequent and intense unnatural disasters like floods, bushfires, droughts, heatwaves and more.

These unnatural disasters threaten the plants, animals, people and places we love and depend on. Our already dire extinction crisis is worsening and we're losing the nature and places that shape our Australian identities.

We know what needs to happen and now we need urgent action. This report shows a pathway forward.

We have the solutions and we know where to build them. Now we need renewable energy developers to consider project locations wisely, governments to enact new nature laws, and integrated regional planning aligned with Australia's 30 by 30 target and the Global Biodiversity Framework (GBF).

What is "siting"?

Siting is the process of selecting and planning the location for renewable energy projects such as solar and wind farms. Siting renewables in low biodiversity areas is the best way to reduce potential environmental impact.

What is 30 by 30 and the GBF?

The Australian Government has set a national target to protect and conserve 30% of Australia's landmass and 30% of Australia's marine areas by 2030 (the '30 by 30' target).

30 by 30 aligns with Target 3 of the GBF, an international agreement adopted under the Convention of Biological Diversity to halt and reverse nature loss.

Left. Kangaroo and joey who survived the forest fires in Mallacoota. Climate fuelled fires are a major threat to nature.

Photo: Jo-Anne McArthur / We Animals Media

Mapping a transition that is good for nature

Key takeaways

- Australia is stepping up on climate with net zero targets and global leadership, but nature must not be left behind.
- Renewables continue to gain momentum, supplying 43% of the grid in early 2025. Still, nature is in crisis and needs to be a key consideration in the energy transition.
- Poorly located projects risk harming the precious places and wildlife we love and depend on – as well as eroding public trust.
- Smart mapping and strong nature laws are essential to an energy future that works for people and nature.

Australia is making progress on climate. With net zero targets, growing public support and major investment in clean energy, we're accelerating towards a cleaner future, but we need to make sure nature is not left behind. This section explores why now is the time to act and why ACF backed the groundbreaking mapping research and analysis led by the Melbourne Biodiversity Institute, the Melbourne Energy Institute and Net Zero Australia.

With a re-elected federal government, new funding pathways and rising public support, we have a real opportunity to shape a clean energy future that benefits people and nature (Newell and Morgan 2025). The Future Made in Australia Act is unlocking investment in renewables and clean industries (Dhanji 2025), and Australia's bid to host COP31 is placing us firmly on the global stage (Hare 2025).

But to lead on climate, we must also lead on protecting nature.

Australia is stepping up on climate, but nature must not be left behind

Australia is committed to net zero by 2050 with every state and territory on board. Tasmania has already achieved net zero, while Victoria and the ACT are aiming for 2045 (Perlesz, Lyon, and Horngren 2024). South Australia leads the way in integrating renewables with wind and solar supplying above 74% of its grid (Parkinson 2025). But while the energy shift is underway, nature is in crisis.

Australia has the highest mammal extinction rate in the world. Over 2,200 species are now listed as threatened including koalas, wombats, parrots, cockatoos, gliders, wallabies, frogs and fish. Without urgent action, our children may see a future without these incredible animals (Department of Climate Change 2021).

Our broken nature laws need to be fixed. After years of backtracking and broken promises, the government is finally rewriting Australia's national environmental law, the Environment Protection and Biodiversity Conservation (EPBC) Act. Uncertain and unpredictable assessment and decision-making under the Act has failed nature and slowed the shift to renewable energy.

As Dr Ken Henry told the National Press Club in July 2025, "...the EPBC Act has patently failed to halt the degradation of Australia's natural environment," (Hutchens 2025).

The environment sector and the renewable energy industry stand united in calling for urgent reform of our nature laws.

The Albanese government has a once-in-a-generation opportunity to fix our nature laws and tackle Australia's joint climate and nature crises. Better data and smart mapping combined with clear environmental standards, integrated regional planning and independent decision-making will accelerate the rollout of renewables in the right places. The urgency of the climate crisis means renewable projects should jump to the front of the assessment queue, but they must meet the same nature protection standards as all other industries.

Why smart mapping for renewables is key to the energy transition

Renewable energy is powering ahead, but poor placement is slowing it down and eroding public trust. Well-placed projects build trust, reduce delays and deliver lasting benefits for nature and people. This is where mapping comes in. Mapping helps steer development away from the highest biodiversity value areas and toward already cleared land. It helps us protect endangered species like koalas and greater gliders, respect migratory pathways and avoid the critical habitats of our threatened plants, animals and ecosystems.

Without smart mapping, we risk poorly located projects that harm nature. For example, some renewable projects in Queensland are being proposed in areas that put nature at risk (Rogers et al 2024). See breakout box page 11. These places are rich in biodiversity, cultural heritage, important to their communities and home to some of our most loved but endangered wildlife, including koalas and greater gliders. When development overlaps with these places, it can destroy habitat, divide communities and erode public trust – leading to delays and disputes (Rogers et al 2025a).

Evidence shows we can build renewables in ways that work for people and nature. International efforts show that nearly every country can build energy systems that are low carbon, low cost and low conflict – known as the ‘LowCx3’ approach (The Biodiversity Consultancy and WWF 2023). Put simply, there’s enough land available to meet global energy targets **without harming nature**.

Smart mapping must be ground-truthed and backed by strong laws. Mapping is essential and a key tool to protecting nature in our energy transition, but it is not enough on its own. It must be ground-truthed with local knowledge and expert input. A slight overlap with a koala habitat doesn’t always mean harm, but it does mean we need careful assessment. Integrated regional planning and strong nature laws are needed to prioritise already cleared areas for development whilst safeguarding the homes of threatened plants and animals.

Right. Habitat for the endangered Greater glider is threatened by inappropriately located renewable projects. *Photo:* Matt Wright



“The EPBC Act has patently failed to halt the degradation of Australia’s natural environment.”

- Dr Ken Henry

Farming the sun and wind

Integrating solar and wind into grazing lands can expand renewable energy while supporting willing farmers with new income streams. It's more than a climate solution – it's a regional development strategy. Landholders play an important role in Australia's energy shift, partnering on solar, wind and battery systems to cut emissions and boost local economies. Agrivoltaics – combining solar with agriculture – is showing promising results, like increased wool yield from sheep grazing on the lush grass under solar panels (Clean Energy Council and Farmers for Climate Action 2024).

The potential to support farmers is huge. Research estimates more than \$8 billion in indirect payments to landholders between 2024 and 2050, offering drought-proof income and long-term financial stability (Clean Energy Council and Farmers for Climate Action 2024). More than 70% of regional Australians back renewables on local farms, especially when they're involved in genuine consultation (Clean Energy Council and Farmers for Climate Action 2024). Building renewables in the right place, with transparency, consent and shared benefits, is key to building trust and ensuring a successful energy shift.

Tony Inder, a sixth-generation wool grower who farms in the Central West Orana Renewable Energy Zone, is one farmer already benefiting from integrating solar and agriculture. What started as a casual pub conversation with a solar site manager grew into a major solar grazing partnership. After noticing green grass

thriving under neighbouring solar panels while his own paddocks remained dry, Tony proposed using sheep to manage vegetation instead of costly mowing.

The solar operator now saves around \$450,000 a year in mowing costs by introducing 5,000 grazing Merino sheep across two solar farms. The sheep benefit from constant shade and shelter, while Tony gains a reliable income stream and maintains agricultural productivity on land co-used for energy generation. Tony estimates wool cut from sheep under the panels has increased up to 20% (RE-Alliance b).



Resources

- [States of the Transition](#), Common Capital with Nature Conservation Council of NSW, Environment Victoria, Queensland Conservation Council, Environment Tasmania, Conservation Council of Western Australia, Environment Centre Northern Territory.
- For more on the benefits of renewables for farmers check out Farmers for Climate Action's [Billions in the Bush Report: Landholder and Community Benefits from Renewable Energy Projects](#) RE-Alliance's [Local Energy Hub videos](#).
- [Watch Tony Inder](#) talk about his experiences running sheep under solar panels
- To read more about the 'LowCx3' approach see the Biodiversity Consultancy and WWF's [Nature-Safe Energy: Linking Energy and Nature to Tackle the Climate and Biodiversity Crises](#). Catch up on the joint plan for people and nature we launched with WWF earlier this year, go to [Our Renewable Future](#).

What the mapping shows – the big picture

Key takeaways

- Some of eastern Australia's most iconic threatened species live in areas that overlap with renewable energy zones. However, most precious habitats for plants and animals are clustered together making them easy to avoid with good planning, government and industry leadership and smart maps.
- Small increases in land protection can deliver big nature and biodiversity gains. At the state level, protecting 30% of land with high biodiversity value can safeguard up to 90% of habitat for all species mapped (Rogers, 2025a).

ACF backed the Melbourne Biodiversity Institute, the Melbourne Energy Institute and their collaborators on the Net Zero Australia Project to map biodiversity data, energy potential, transmission costs and protected areas to explore where solar panels, wind farms and power lines can be built with minimal impact to budgets and nature (Rogers et al 2025a).

Here's how they went about it and what they found.



Left. Tony Inder Wellington sheep and solar farmer Photo: Courtesy Re-Alliance
Above. Pink Cockatoo Photo: Rixipix / iStock

The research method

The researchers mapped biodiversity data, renewable energy potential, transmission routes, geography and protected areas on mainland Australia's east coast to identify locations where renewable energy projects could be developed cost effectively and with minimal impact on nature. This included the amount of time the wind blows, and the sun shines known as "the capacity factor".

In a unique approach, they identified which areas had the highest number of threatened species with the least protected habitat. This meant they could rank the biodiversity value of an area on a scale of 0 to 100; where 0 is no habitat for threatened species and no protected areas, or data showing natural values of significance and 100 is habitat for many highly-threatened species, and high-level land protection (national park, RAMSAR sites or World Heritage Area).

The studies then tested setting aside the highest biodiversity value areas at the landscape and state level, to work out how many threatened species would have their homes protected and whether safeguarding land would affect Australia's ability to make enough clean, affordable energy from renewables.

When estimating the amount of electricity produced from study areas, the main limiting factor was powerlines, not the availability of land. Our researchers consulted with industry and used industry standards and plans for existing and planned upgrades to powerlines, and the final land area used by wind and solar farms.

A word of caution: mapping natural values relies on assumptions that need to be tested on the ground on a project-by-project basis. The same goes for trying to estimate wind speeds and sunshine; these are estimates and they always need to be ground-truthed for each project.

The findings

- **Nature hotspots are clustered and avoidable.**
The mapping shows that of the 546 possible threatened plants and animals in the study, most tend to live close together. This makes it easier to plan around them. The researchers found that as a general rule, by safeguarding 30% of land we protect up to 90% of the highest value habitat for threatened species in the study areas (Rogers et al 2025b, Rogers 2025b).

- **More protection means more wildlife saved.**
For example, 8.7% of Queensland's land area is protected by national parks and World Heritage. These areas already shelter 46% of habitat for threatened species. If we increase that protection to 30% of land with the highest natural values, the amount of habitat safeguarded for threatened species jumps up to 90% (Rogers et al 2025a). For 70% of species, their ranges are completely protected. This is great bang for buck.

ACF's insights

There's space for renewables that don't harm nature.
The mapping shows that eastern Australia has ample land suitable for solar and wind that also has few threatened plants and animals. (Rogers et al 2025b). About one-third of high wind regions and over 40% of solar-suitable areas are places where threatened species are less abundant. Australia's current and future power needs could easily be met from these areas whilst providing jobs and ongoing income to local communities.

Planning wisely keeps costs low. Planning renewables that protect nature doesn't need to be expensive. Protecting 30% of Australia's most valuable nature would result in huge cost savings from faster planning approvals and stronger community support. This would boost productivity, grow jobs and speed up the shift to a clean, affordable, resilient future.

We know how to get this right. This research shows that we can build clean energy that protects nature at a low cost. The more we do now to protect wildlife and ecosystems, the less we'll need to rely on flawed and costly offsets later which have systematically failed to protect nature (Maron et al. 2016).

How much land is needed for renewable generation?

In Gippsland, only 1.5% of land in the renewable energy zone is needed to power up to 2.3 million homes.

**Graph is not to scale*

- Gippsland Renewable Energy Zone: 1200km²
- Renewables construction footprint: 1.5% of the zone (18km²)



Small increases, big benefits in Queensland

Queensland is home to some of Australia's most beloved and iconic natural places and animals. From the Great Barrier Reef to the Daintree Rainforest, it is home to 85% of our native mammals and 72% of our native birds. Some of these animals include the northern hairy-nosed wombat, southern cassowary and loggerhead turtle (Queensland Government n.d.).

Queensland is moving quickly to cut climate pollution. The state has committed to strong carbon reduction goals and is expanding renewable energy. But some projects are causing concern. The research found that some renewable energy projects are planned for areas of high biodiversity value and that a small handful of

projects are planned for areas of very high biodiversity value (Rogers et al 2025b). There is also a lot of misinformation out there being spread by fossil fuel interests opposed to the shift to clean energy. This is a problem, but we have the solution.

Small increases in land protection in Queensland deliver big benefits for nature. By protecting 30% of high-value land, we can safeguard up to 90% of habitat for threatened species mapped. The mapping shows that Queensland has an abundance of land suitable for solar and wind and we've highlighted a key example in the Banana shire near Gladstone on page 14 and 15.

An equal seat at the table for nature

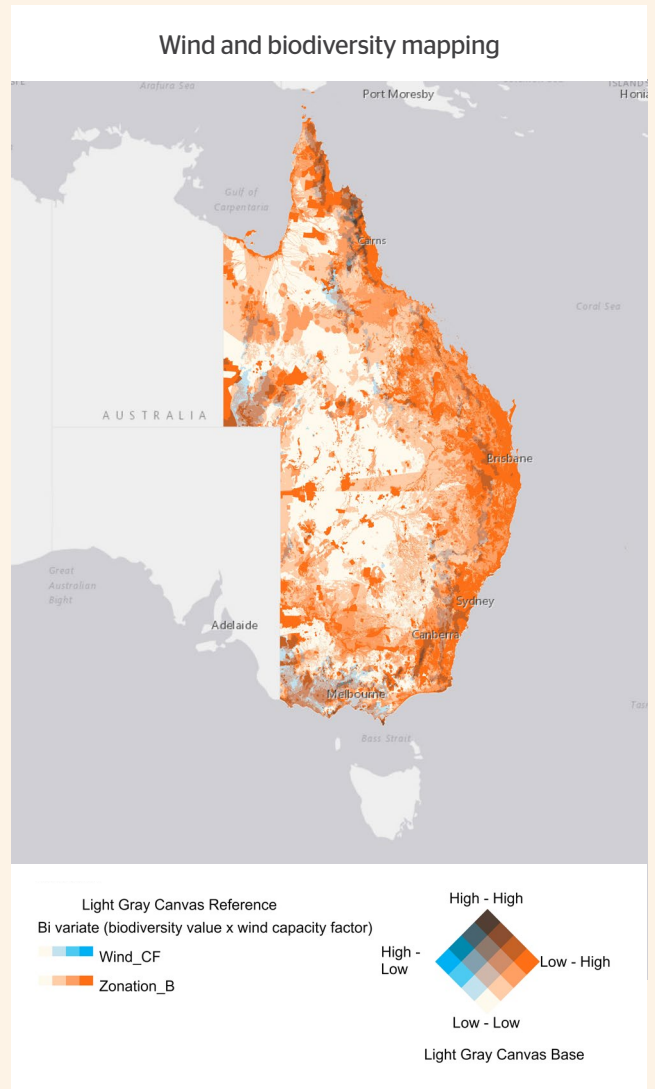
This is one of the first mapping studies to give nature an equal seat at the table and the findings are clear

With smart planning, we don't have to choose between protecting nature and powering communities. Land availability is not a barrier. In fact, the research shows land availability is a major opportunity.

These maps identify how and where Australia can build renewable energy while protecting biodiversity. The analysis found areas of highest biodiversity value need not constrain renewable energy development. They show that there is an abundance of low biodiversity value land that is in reach of the transmission network where large amounts of wind and solar energy can be generated.

Queensland and New South Wales have abundant low-biodiversity land that could be used to meet 2050 renewable energy targets and beyond. Even in Victoria, the required footprint is less than half a per cent of available land.

With robust mapping and thoughtful planning, we can cut emissions, protect nature and create community benefits and jobs in regional Australia.



By avoiding 30% of land with the highest biodiversity, up to 90% of the habitat for threatened plant and animal species can be safeguarded.

What the mapping shows – up close

Key takeaways

- Gippsland’s proposed renewable energy zone builds on its energy-producing legacy, reducing the need for new infrastructure and supporting workforce transition.
- Well-located solar and wind projects - like agrisolar in Central West Orana – are growing farm productivity without impacting nature.
- In central and western Queensland, local councils and regional communities have collaboratively identified a 930km renewable energy corridor designed to foster trust, job creation, and industry.

Renewable energy is expanding quickly across Australia, and it can be rolled out in ways that support nature, farming, and local communities. In Central West Orana (NSW), Central Queensland, and Gippsland (VIC), we’re already seeing how this can work on the ground.

Each region offers valuable lessons and when we apply the mapping to these areas, the path forward becomes clear. Careful placement of renewable projects and transmission lines can protect sensitive

ecosystems while still allowing large-scale clean energy development. The mapping also shows which areas need stronger protection to help safeguard threatened species and their homes.

We don’t have to choose between climate action and nature protection. In fact, the mapping shows what we’ve always known: building renewables well is best for nature. It’s a practical approach to conservation that serves present and future generations. Below are a few case studies where renewable energy projects could be built and benefit both nature and community.

Resources

Some of the researchers in our study are also involved in a joint project with Princeton University. Check out their recent publication [Collaboration can unlock Australia’s energy transition without sacrificing natural capital](#)

Below. Koala Climbing a Tree in Raymond Island, Photo: Bosco Yip



Proposed renewables zone in Gippsland builds on energy-producing past



Geographic region

- South-eastern Victoria, between Morwell and Sale
- 120,362 hectares
- Includes Latrobe Valley, parts of south and west Gippsland, and the Macalister Irrigation District.

Threatened species in the area include:

- Gippsland Red Gums
- Curlew sandpipers
- Gang-gang cockatoos

Major industries

- Dairy and horticulture farming
- Coal-fired power generation and mining (historically)
- Emerging offshore and onshore wind energy sector

Lessons on renewables placement and local buy in

By locating new wind generation near existing powerlines, planners reduce the need for new lines and repurpose legacy coal assets for clean energy (VicGrid 2025). The zone already avoids high-value farmland, biodiversity hotspots, and densely populated areas, reflecting community feedback and ecological priorities. Offshore wind cables are routed through a shoreline renewable energy zone, preserving sensitive coastal ecosystems. The placement also means many energy workers from the region's coal fired power stations can find new jobs in renewable energy (Community Power Agency 2023).

What the research shows

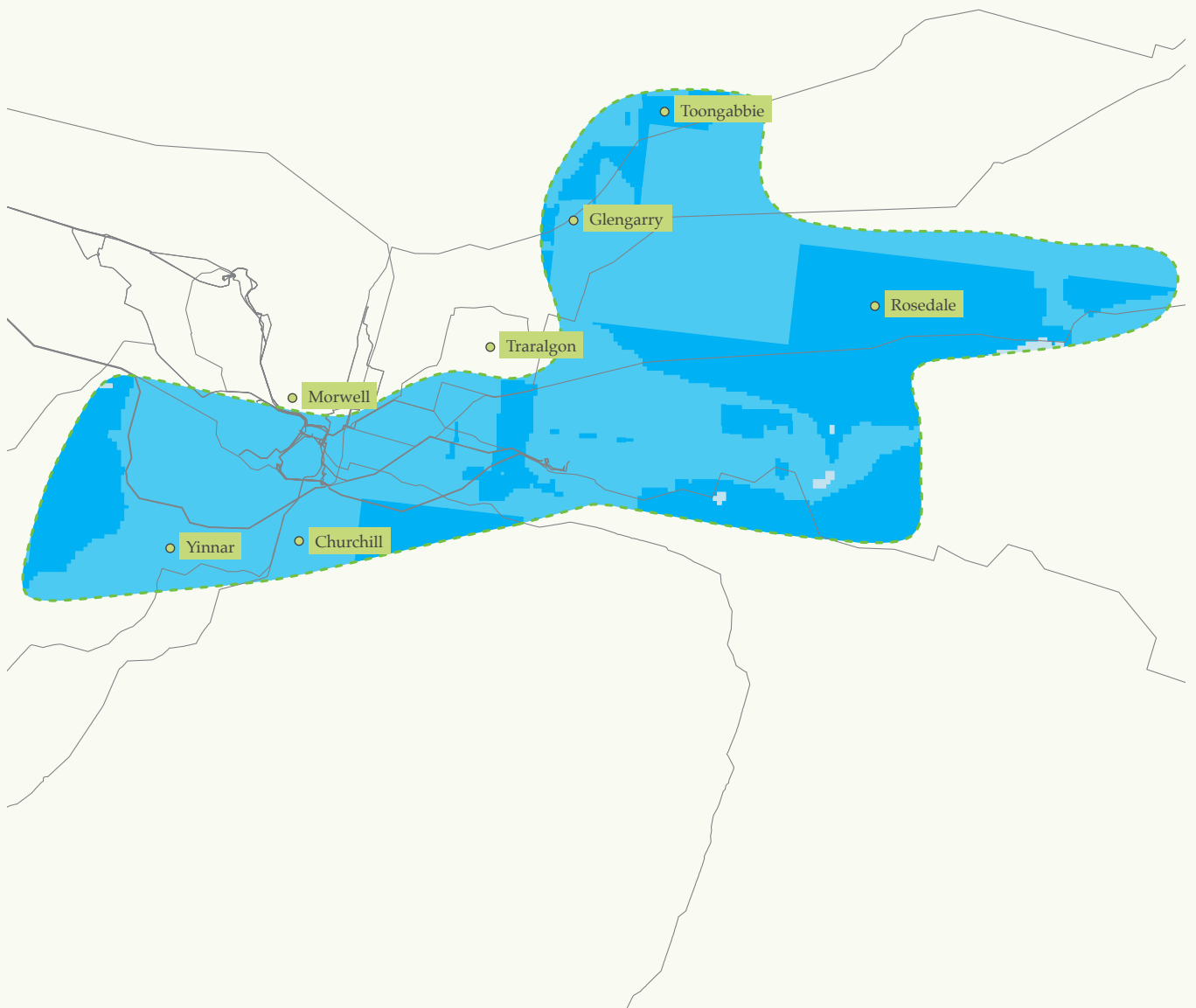
Our mapping shows that careful site selection in Gippsland allows for renewable energy expansion while safeguarding critical habitats for threatened species.

- The draft Gippsland onshore zone has less land and less threatened plants and animals than our other study areas. There is still plenty of suitable land for solar and wind that avoids impacts to people and nature.
- By avoiding 30% of land with the highest biodiversity in the study area, an average of 73% of the habitat for threatened plant and animal species can be safeguarded. Careful micro-siting and appropriate mitigation would help to reduce any remaining impacts.

Energy Potential

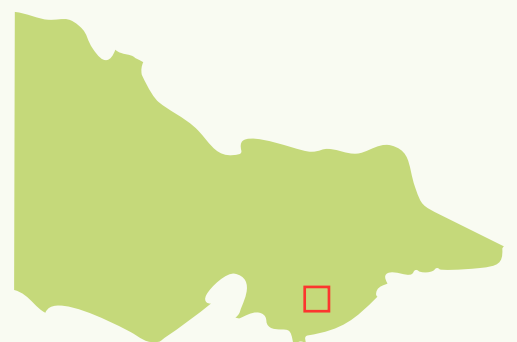
By value adding with renewables to 1.5% of the available land within the zone, the Gippsland region can produce 13,000 GWh of electricity every year, powering 2.3 million homes. There is even more potential in this zone with existing planned grid upgrades (Vic Grid, CZI, 2025).

In these maps (page 15, 17 and 19) the goal is to find the win-win spots with the highest wind and least biodiversity.



Mapping the best wind and biodiversity in the Gippsland Renewable Energy Zone

- Best for wind and biodiversity
- Good for wind and biodiversity
- Ok for wind and biodiversity
- Worst for wind and biodiversity
- Existing Transmission Lines
- Gippsland Renewable Energy Zone



Central West Orana Renewable Energy Zone - energy that works for farmers



Geographic region

- Inland New South Wales
- More than 2 million hectares
- Includes towns like Dubbo, Wellington, and Mudgee
- Characterised by open plains, dry woodlands, and farming landscapes

Threatened species in the area include:

- Regent honeyeaters
- Swift parrots
- Koalas
- Brush-tailed rock-wallabies

Major industries

- Sheep grazing and wool production
- Cropping and broadacre agriculture
- Emerging renewable energy sector (solar, wind, battery projects) with transmission line upgrades underway to connect the zone to the grid

Lessons on renewables placement and local buy in

Central West Orana is already showing the power of agrisolar - where farming and solar energy can complement one another. Farmer Tony Inder's solar grazing model has reduced mowing costs and increased wool yields by 20%, showing how renewables can enhance agricultural productivity (RE-Alliance, 2025b).

What the research shows

With careful planning, we can protect sensitive ecosystems while still enabling large-scale clean energy development in the Central West Orana Renewable Energy Zone.

- About 70% of the zone has relatively low conflict with important habitat for threatened species, making it well suited for renewable energy. About 10% is already protected by parks and reserves.
- By avoiding 30% of land with the highest biodiversity in the study area, an average of 93% of the habitat for threatened plant and animal species can be safeguarded. Careful micro-siting and appropriate mitigation would help to reduce any remaining impacts.

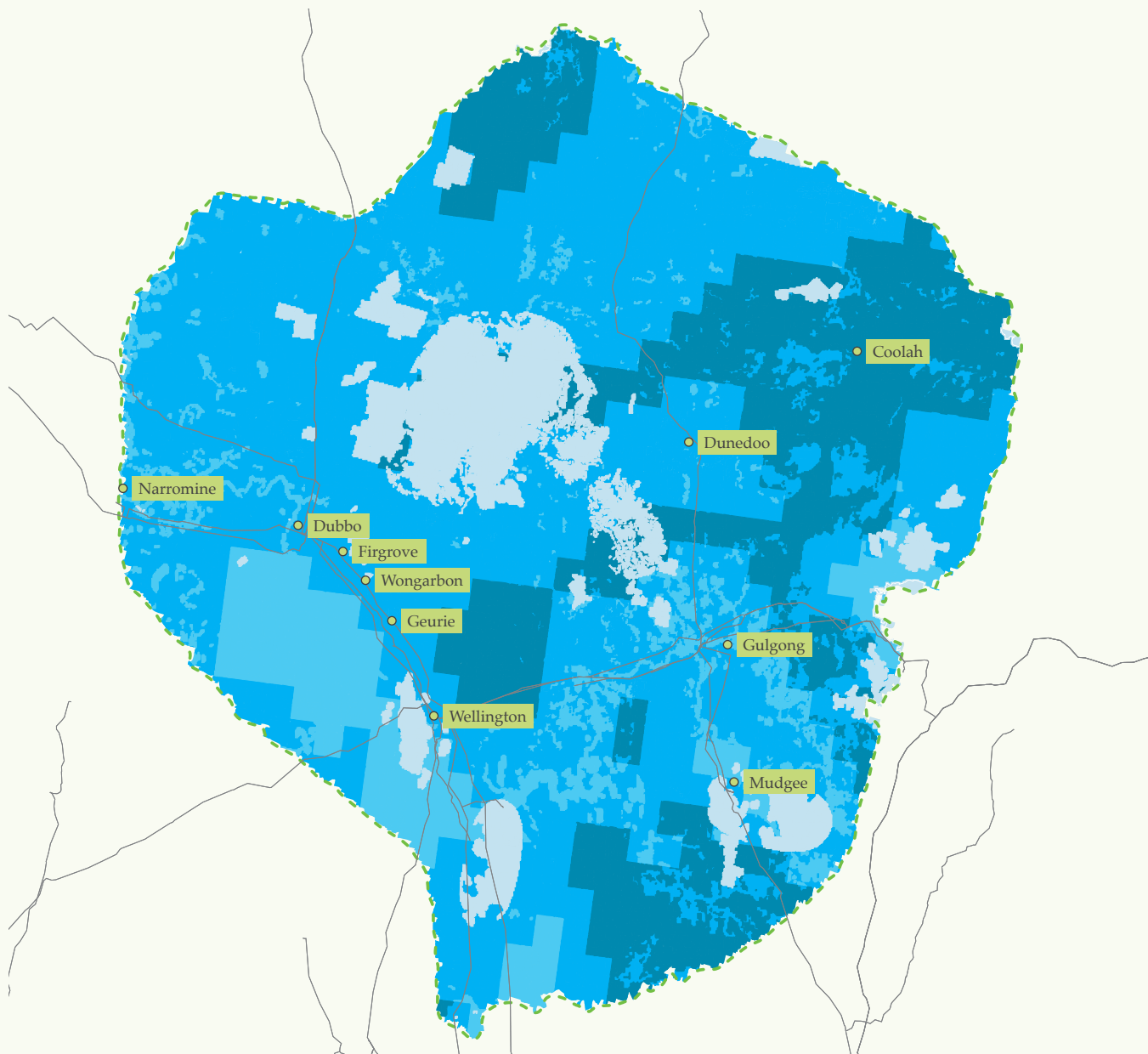
Energy potential, landholder and community benefits

By value adding with renewables to a small area of farmland (0.003% - three thousandths of one percent of the zone) the Central West Orana region can produce 17,000 GWh of electricity every year - powering 3 million homes. There is also more potential in this zone with further grid upgrades (Energy Co., CZI, 2025).

Farmers and landholders could benefit by approximately \$24 million in direct payments each year (Clean Energy Council and Farmers for Climate Action 2024), with community-facing funds receiving a minimum of \$130 million by 2030. (Energy Co. 2025).

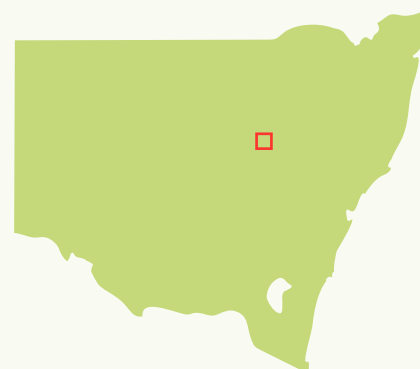
Resources

- For more detailed information on the maps presented in this report including solar and biodiversity mapping, please contact the Australian Conservation Foundation via acf.org.au/contact
- Read [Community Power Agency's recently released Guide to Regional Benefit Sharing](#) as well as its [Building Better Biodiversity on Solar Farms](#).
- For more on planning the energy shift check out work by state and local conservation councils as well as Next Economy, the Industrial Regions Network and RAPAD and it's seven local government members



Mapping the best wind and biodiversity in the Central West Orana Renewable Energy Zone

- Best for wind and biodiversity
- Good for wind and biodiversity
- Ok for wind and biodiversity
- Worst for wind and biodiversity
- Existing Transmission Lines
- Central West Orana Renewable Energy Zone



Powering industry and protecting nature in central Queensland



Geographic region

- In the Banana Shire, inland west of Gladstone.
- Up to 6 million hectares
- Includes industry, grazing, agriculture, and vast natural landscapes.
- No formal renewable energy zone here, but plenty of potential.

Threatened species and ecosystems include:

- Koalas
- Southern snapping turtles
- Painted honeyeaters
- Northern grasslands
- Black box woodlands
- Brigalow forests

Major industries

- Coal mining and power generation, linked to heavy industry (aluminium, cement, ammonia) by power lines.
- Grazing for livestock and agriculture.
- Emerging clean energy sector (wind, solar, green hydrogen). Existing and planned transmission upgrades run to the edge of the study area (Callide / Biloela). The Queensland Government's "Super Grid" initiative runs through the study area.

Lessons on renewables placement and local buy in

In central and western Queensland, local councils and regional communities have collaboratively identified a 930km renewable energy corridor co-designed to foster trust, job creation, and industry. Led by the seven Remote Areas Planning Development Board (RAPAD) Councils in collaboration with VisIR, the initiative, which runs through the study area, shows how regional communities can shape renewable energy infrastructure placement to suit local needs and ensure benefits are demonstrated and delivered for people and nature.

What the research shows

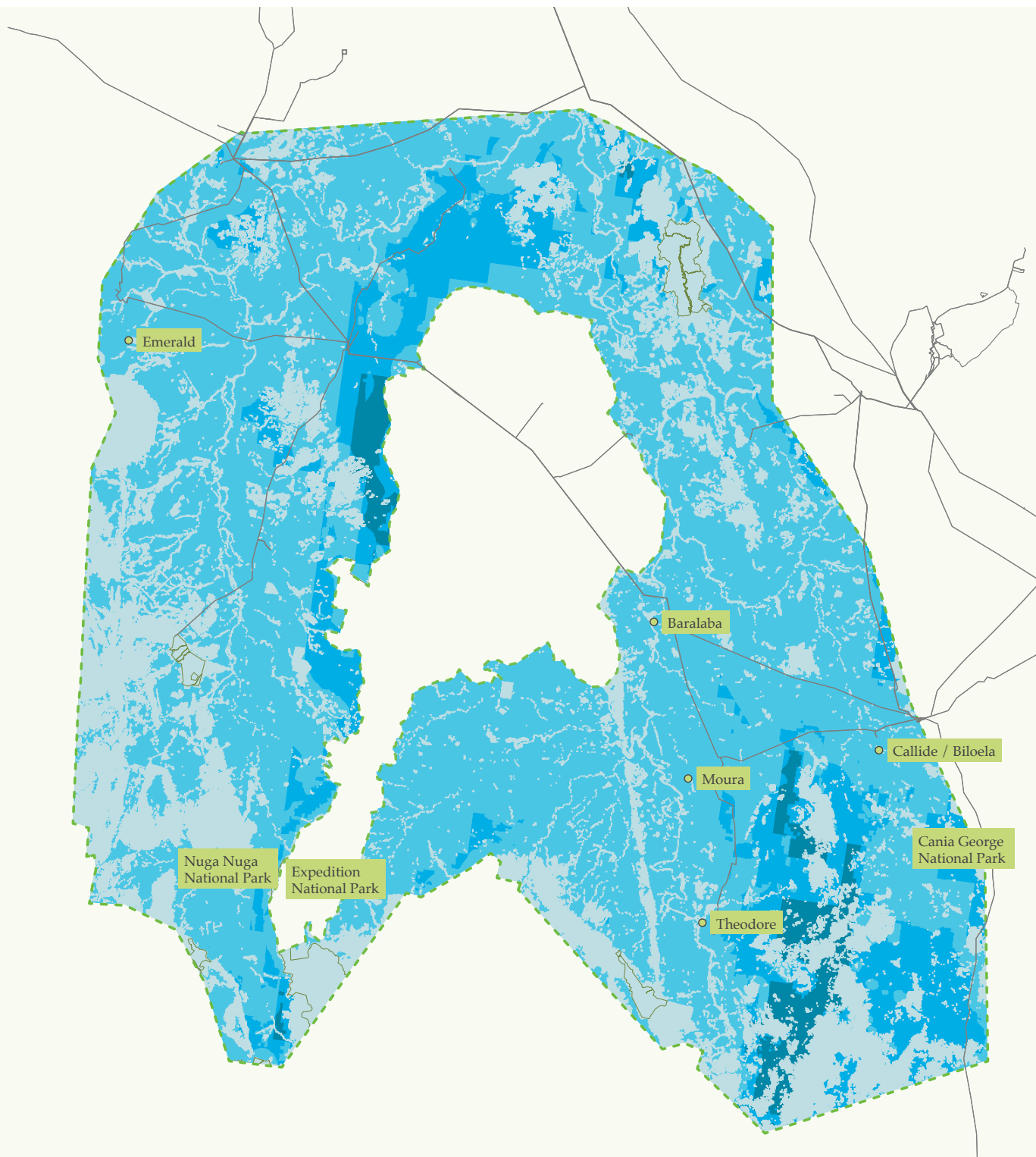
ACF identified a study area in central Queensland based on its potential to build renewable energy projects whilst avoiding the homes of threatened plants and animals. The area has good wind, sun and geography, access to existing powerlines and is in line for potential further upgrades via the Super Grid and the RAPAD Power Grid project. The mapping shows we can protect threatened species and sensitive ecosystems while still enabling large-scale renewable energy development in the area. In particular it shows:

- About 60% of the study area is well suited for renewable energy development, with some of the remaining 40% already protected by parks and reserves.
- By avoiding 30% of land with the highest biodiversity in the study area, an average of 90% of the habitat for threatened plant and animal species can be safeguarded. Careful micro-siting and appropriate mitigation would help to reduce any remaining impacts.

Energy potential, landholder and community benefits

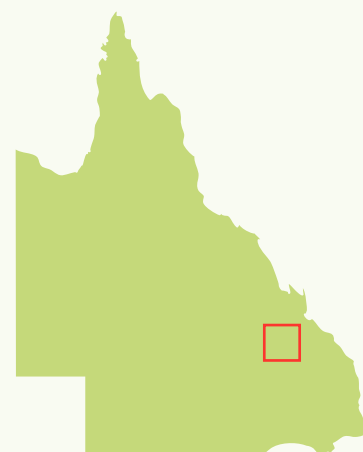
By value adding with renewables to a small area of grazing land (0.004% the study area) the Banana Shire case study area can produce 15,600 GWh of electricity every year - powering 2.74 million homes. There is more potential in this zone with further grid upgrades, including the Super Grid and the RAPAD Power Grid (Powerlink, RAPAD, VisIR, CZI, 2025).

In this example, farmers and landholders could benefit by approximately \$28 million in direct payments each year, with local investment including to community funds of \$150 million by 2035 (FCA, 2024; RAPAD and VisIR, 2023).



Mapping the best wind and biodiversity in the Banana Shire Region

- Best for wind and biodiversity
- Good for wind and biodiversity
- Ok for wind and biodiversity
- Worst for wind and biodiversity
- Existing Transmission Lines
- Banana Shire region area of interest





The plan: what needs to happen

Key takeaways

- The Albanese Government must deliver strengthened nature protection rules, regional planning and an independent national Environmental Protection Agency. It should also commit funding to expand this ground-breaking smart mapping nation-wide.
- Industry should use smart biodiversity mapping tools like the one in this report to identify locations for renewable energy that avoid the critical habitat of threatened species. They should also set nature protection and restoration goals and targets that align with Australia's 30 by 30 plan and the Global Biodiversity Framework.
- Communities can advocate for renewable energy projects that use smart mapping to avoid sensitive ecosystems and habitats, and work to combat mis and disinformation about renewable energy.

Australia can lead by example – showing how climate action, nature protection, and community empowerment can go hand in hand. But how do we make it happen?

Here we break down what we can all do – governments, industry and communities – to make sure we get this next critical stage of the renewables shift right.

Government

Despite stronger targets, the Australian government's response to the climate and nature crises still falls short. With less than one cent in every federal dollar allocated to climate and environment initiatives, the need for national leadership and serious investment is urgent.

Mapping is a critical tool governments can use to lead an energy shift that is good for people and nature.

In order to boost productivity, grow jobs and speed up the shift to a clean, affordable, renewable future, the Albanese Government must:

- Reform national nature laws to deliver stronger upfront nature protections and rules and an independent Environment Protection Agency (EPA) to ensure the rules are followed. Strong standards, smart mapping and an independent EPA are key to developing regional plans which can guide siting decisions, identify and protect nature and support efficient assessments. Reforms can deliver faster assessments for renewable energy projects, while ensuring that these projects meet the same environmental conditions and standards as other industries and projects.
- **Commit funding to a nation-wide biodiversity prioritisation smart mapping initiative** based on critical habitat analysis expanding beyond the current limited coverage for birds and mammals in south-east Queensland.
- **Undertake a national-scale expert consultation to identify irreplaceable habitats** for all 'Matters of National Environmental Significance', ensuring mapping reflects ecological priorities across Australia.



Industry

A renewable energy transition that's good for nature and people is also good for business. With the potential to generate \$89 billion and create nearly 400,000 jobs by 2040, Australia's green energy export industry is a major economic opportunity.

But expectations are rising. Investors, communities, and customers now demand projects that deliver environmental and social value. Smart mapping and nature protection and restoration targets play a critical role in meeting these expectations.

Industry actions that can guide renewables to the right places:

- **Use smart biodiversity prioritisation mapping tools like this one** to identify suitable locations for renewable energy that avoid critical threatened species habitat, national parks, World Heritage Areas, Ramsar wetlands and other key biodiversity areas.
- Collaborate with local communities, businesses, and governments to co-create mapping frameworks that reflect shared priorities.
- Set best practice nature protection and restoration goals and targets at an organisation and project level that align with Australia's 30 by 30 plan and the Global Biodiversity Framework.

Communities

Communities across Australia have long been at the forefront of energy transitions from early electrification to the rooftop solar revolution. Their lived experience, local knowledge, and advocacy are essential to ensuring the renewable rollout is done right.

Community actions that can guide renewables to the right places:

- Show support for appropriately sited projects that are good for nature and people.
- Challenge misinformation campaigns targeting climate action and renewables.
- Demand that benefits like jobs, health and education services, and infrastructure upgrades are delivered to local communities and people.

Conclusion

Australia's clean energy future is well underway and powering almost half our electricity grid. But this moment is about more than just powering our homes and businesses. It's about restoring and repairing the nature we love, strengthening communities, and building a future that reflects our shared values.

We know the challenges: burning fossil fuels and bulldozing the bush are driving the climate and nature crises. We also know the solutions. We have the tools, the knowledge, and the community spirit to turn things around. Smart mapping shows us how. It helps us place renewable projects in locations that avoid critical habitats, protect threatened species, meet our 30 by 30 target and deliver benefits to people and nature.

ACF's plan lays out a clear path: power everything with renewables, including solar, wind, hydro and storage, and not only protect but restore and repair nature while we do it. The evidence is strong. By avoiding just 30% of land with the highest biodiversity value, we can safeguard up to 90% of habitat for threatened species. These nature-rich areas are often clustered together and easily avoidable, making smart siting for projects possible and practical.

Across Australia, we're already seeing that the shift to renewables is delivering major benefits:

- Agrisolar projects are boosting farm profitability.
- Community-led energy corridors are building trust and promising local benefits.
- Gippsland's proposed renewable energy zone is supporting workforce transition and building on its energy legacy.

These examples show that when we plan wisely, we create win-win situations for nature, climate and communities. To make this vision real, we all have a role to play.

The Albanese Government must lead with ambition and action. This means fixing national nature laws to deliver stronger protections and establishing an independent Environment Protection Agency to enforce them. It also means funding a nation-wide biodiversity smart mapping initiative and consulting experts to identify irreplaceable habitats across Australia. With these steps, governments can guide renewable development to the right places and ensure faster, fairer assessments.

Industry can drive an energy shift that works for people and nature alongside their bottom line. By using smart biodiversity mapping tools, companies can avoid critical habitats and important natural areas. They can collaborate with communities and governments to co-design mapping frameworks that reflect shared priorities. And they can set nature protection and restoration goals that align with Australia's 30 by 30 target and the Global Biodiversity Framework — because investors, customers and communities expect it them to meet these minimum standards.

Communities are the heart of Australia's energy story. Their lived experience, local knowledge and advocacy are essential. Communities can support well-placed renewable projects that protect nature and deliver local benefits. They can challenge misinformation and share accurate information about renewables, and they can demand that the benefits of the energy shift — jobs, services and infrastructure — flow directly to the people who live and work in regional Australia.

We know how to get this right. With smart tools, strong laws, industry action and community leadership, we can build an energy future that restores, retains and repairs what we love most. Australia can lead the world in showing how climate action, nature protection and community empowerment go hand in hand.

Let's map a better future, together.



References

- Australian Conservation Foundation and WWF-Australia. 2024. *Our Renewable Future: A Plan for People and Nature*. <https://www.acf.org.au/our-work/climate/our-renewable-future>
- The Biodiversity Consultancy and WWF. 2023. "Nature-Safe Energy: Linking Energy and Nature to Tackle the Climate and Biodiversity Crises." https://wwfint.awsassets.panda.org/downloads/cleanaction_nature_safe_energy_report.pdf
- Carbon Zero Initiative, Mapping select Renewable Energy Zone Capacity, July 2025
- Clean Energy Council and Farmers for Climate Action. 2024. "Billions in the Bush Report: Landholder and Community Benefits from Renewable Energy Projects." <https://cleanenergycouncil.org.au/news-resources/billions-in-the-bush-landholder-benefits>
- Climate Council. 2025a. "Power Surge: Renewable Energy Hits Record High as Coal Splutters." *Climate Council* (blog). May 7, 2025. <https://www.climatecouncil.org.au/resources/power-surge-renewable-energy-hits-record-high-as-coal-splutters>
- Climate Council. 2025b. "Central-West Orana Renewable Energy Zone Set to Send Cheap, Reliable Clean Energy to 2.7 Million Homes." *Climate Council*, May 8. <https://www.climatecouncil.org.au/resources/central-west-orana-renewable-energy-zone-cheap-reliable-clean-energy>
- Community Power Agency. 2025. *Guide to Regional Benefit Sharing*. <https://www.cpagency.org.au/resource/guide-to-regional-benefit-sharing>
- Community Power Agency. 2023. *Empowering Tomorrow's Workforce: Learnings from Gippsland and Victoria*. September 19. <https://cpagency.org.au/empowering-tomorrows-workforce-learnings-from-gippsland-and-victoria/>
- Department of Climate Change, Energy, the Environment and Water. 2021. *Biodiversity: State of the Environment* 2021. <https://soe.dcccew.gov.au/overview/environment/biodiversity>
- Dhanji, Krishani. 2025. "'Billions of Dollars': Australia Hopes to Lure Renewable Energy Investment from US after Trump's Election." *The Guardian*, January 30, 2025, sec. Business. <https://www.theguardian.com/business/2025/jan/30/billions-of-dollars-australia-hopes-to-lure-renewable-energy-investment-from-us-after-trumps-election>
- Energy Co, Central-West Orana Renewable Energy Zone: Headroom Assessment – Final Decision, January 2025
- Evans, Jake, and Isobel Roe. 2025. "Seeking a Reset on the Environment Debate, Murray Watt Gathers Business and Conservation Groups in Search of a Deal." *ABC News*, June 19, 2025. <https://www.abc.net.au/news/2025-06-19/murray-watt-environment-reforms-epbc-meeting-compromise/105431502>
- Hare, Bill. 2025. "As Australia Campaigns for COP 31 Hosting Rights, It's Time to Stop Talking and Start Doing." *The Guardian*, June 12, 2025, sec. Opinion. <https://www.theguardian.com/commentisfree/2025/jun/12/as-australia-campaigns-for-cop31-hosting-rights-its-time-to-stop-talking-and-start-doing>
- Hutchens, Gareth. 2025. "Ken Henry Calls for Urgent Environmental Protection Overhaul." *ABC News*, July 16. <https://www.abc.net.au/news/2025-07-16/fmr-treasury-secretary-ken-henry-urgent-environmental-reform/105536744>
- Local Energy Hubs. 2024. Renewables Done Right Series, https://www.localenergyhubs.org.au/renewables_done_right
- Maron, Martine, et al. 2016. *BioScience*, Volume 66, Issue 6, 1 June 2016, Pages 489–498, <https://doi.org/10.1093/biosci/biw038>
- Morton, Adam. 2025a. "Australia Is in an Extinction Crisis – Why Isn't It an Issue at This Election?" *Australia News. The Guardian*, April 6. <https://www.theguardian.com/australia-news/2025/apr/07/australia-is-in-an-extinction-crisis-why-isnt-it-an-issue-at-this-election>
- Morton, Adam. 2025b. "More than 40% of Electricity Used in Australia's Main Power Grid at Start of Year Was Renewable." *Australia News. The Guardian*, May 7. <https://www.theguardian.com/australia-news/2025/may/07/more-than-40-of-electricity-used-in-australias-main-power-grid-at-start-of-year-was-renewable>
- Newell, Ben, and Wesley Morgan. 2025. "Australia Is Set to Be a Renewables Nation. After Labor's Win, There's No Turning Back." *The Conversation*. May 7, 2025. <http://theconversation.com/australia-is-set-to-be-a-renewables-nation-after-labors-win-theres-no-turning-back-256081>
- NSW Government. 2025. *Central West Orana Conservation Investment Strategy*. <https://www.environment.nsw.gov.au/sites/default/files/2025-07/central-west-orana-conservation-investment-strategy-250161.pdf>
- Parkinson, Giles. 2025. "'Unimaginable a Few Years Ago:' It Seems Everyone Wants to Plug in to Australia's Most Renewable Grid." *Renew Economy*, June 3, 2025. <https://reneweconomy.com.au/unimaginable-a-few-years-ago-it-seems-everyone-wants-to-plug-in-to-australias-most-renewable-grid>
- Perlesz, Lani, Matt Lyon, and Dr Tyra Horngren. 2024. "What Every Australian State and Territory Can Still Do on Climate: Summary Report." *Climateworks Centre*. <https://www.climateworkscentre.org/news/what-every-australian-state-and-territory-can-do-on-climate>
- Powerlink, 2025, *Central Queensland Transmission Update*, July 2025
- Queensland Government. n.d. "Threatened Species | Wildlife Conservation and Recovery." Collection. Accessed July 30, 2025. <https://www.qld.gov.au/environment/plants-animals/conservation/threatened-species>
- RAPAD Power Grid. 2023. "Councils Partner on 900km Western Power Grid to Secure Clean Energy Jobs and Growth." Accessed August 4, 2025. <https://www.rapadpowergrid.com.au/news/councils-partner-on-900km-western-power-grid-to-secure-clean-energy-jobs-and-growth>
- RE-Alliance. a. "Renewables Done Right - Local Energy Hubs." Accessed July 7, 2025. https://www.localenergyhubs.org.au/renewables_done_right
- RE-Alliance. b. "Sheep under Solar – Tony Inder." RE-Alliance. Accessed July 30, 2025. https://www.re-alliance.org.au/tony_inder
- Rogers, Andrew, Brendan Wintle, James Watson, Michelle Ward, and Sarah Bekessy. "A Renewable Energy Transition That Doesn't Harm Nature? It's Not Just Possible, It's Essential." *The Conversation*, June 7, 2024. <http://theconversation.com/a-renewable-energy-transition-that-doesnt-harm-nature-its-not-just-possible-its-essential-229605>
- Rogers, Andrew, Yimin Zhang, Andrew Pascal, Rachel Morgain, James E.M. Watson, Michelle Ward, Chris Greig, Michael Brear, and Brendan A Wintle. 2025a. "Joint Infrastructure and Biodiversity Optimisation Reveals Favourable Cost-Protection Trade-Offs in a Carefully Planned Renewable Energy Transition." https://www.researchgate.net/publication/393544183_Joint_infrastructure_and_biodiversity_optimisation_reveals_favourable_cost-protection_trade-offs_in_a_carefully_planned_renewable_energy_transition
- Rogers, Andrew, and Brendan Wintle. 2025b. "Renewable Energy and Biodiversity in Queensland: Mapping the Co-Occurrence of Energy Generation, Energy Density, and Threatened Species (Draft report available on request)." Melbourne Biodiversity Institute.
- VicGrid. 2025. *Renewable Energy Zones and Transmission Projects Proposed in Gippsland*. <https://engage.vic.gov.au/download/document/40366>
- Willis, James. 2025. "Cost of Flagship Net Zero Project Central West Orana Renewable Energy Zone Tipped to Rise Again." *Daily Telegraph*, July 3. <https://www.dailytelegraph.com.au/news/nsw/cost-of-flagship-net-zero-project-central-west-orana-renewable-energy-zone-tipped-to-rise-again/news-story/04f040259d752f5a0dfb9a4d1a7dc736>

Left. Seeding Natives plantings beneath SA Water solar farm in South Australia
Photo: Seeding Natives

Back. Eucalyptus leaves Photo: Ammak

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