Submission to the Australian Energy Regulator (AER):

Objection to ElectraNet Mid North South Australia REZ Expansion Stage 1A Early Works Contingent Project

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1. Introduction

This submission presents a detailed objection to ElectraNet's Mid North South Australia Renewable Energy Zone (REZ) Expansion Stage 1A Early Works contingent project. Far from being a benign infrastructure upgrade, the proposal is a critical enabler for a coordinated rollout of extensive wind farms, solar arrays, battery energy storage systems, and high-capacity transmission corridors across the state. The early works project is not a standalone undertaking but the foundation for a widespread industrial transformation of South Australia's mid-north region.

These developments will result in the destruction of intact native vegetation, fragmentation of habitat corridors, and systemic harm to threatened wildlife such as koalas and raptors (Crowther et al., 2022; Hull et al., 2015). They contribute significantly to localized warming, known as the heat island effect, which reduces rainfall and impacts surrounding agricultural and ecological systems (Barron-Gafford et al., 2016; Zhang et al., 2020). Further, there is growing evidence that such renewable energy installations are net carbon-positive over their full lifecycle, particularly when accounting for the emissions associated with construction, materials processing, decommissioning, and habitat loss (Smith, 2023).

This proposal also raises deep concerns regarding legislative breaches under the Environment Protection and Biodiversity Conservation Act 1999 (Cth), National Greenhouse and Energy Reporting Act 2007 (Cth), and the National Electricity Rules (NER), due to its failure to provide comprehensive emissions reporting, protect biodiversity, or maintain system stability. It is a textbook example of regulatory segmentation, disaggregating the REZ into individual projects to avoid scrutiny of cumulative environmental and social impacts (Rainforest Reserves Australia, 2024).

Additionally, this submission contests the widely promoted assumption that such projects aid Australia's net zero transition. As outlined in the FullCAM 2024 consultation, these projects distort carbon accounting and introduce irreversible environmental losses without delivering proportional carbon savings (FullCAM, 2024).

The following sections expand upon the ecological, climate, legislative, and community risks embedded in this proposal and call for its immediate rejection.

2. Environmental and Biodiversity Impacts

The environmental consequences of the proposed REZ expansion are both severe and scientifically substantiated. The Mid North region of South Australia is home to numerous ecologically sensitive areas and contains remnants of native woodlands that support diverse and interdependent species. The expansion of transmission infrastructure and the facilitation of large-scale wind and solar installations pose existential risks to these systems through habitat loss, fragmentation, and degradation.

Scientific literature overwhelmingly supports the conclusion that renewable energy infrastructure, particularly wind turbines and associated transmission lines, increases mortality among avian and bat populations. Hull et al. (2015) found that large raptors, including the Wedge-tailed Eagle (Aquila audax), suffer disproportionate fatalities due to turbine collisions, with some wind farms recording up to 10 bird deaths per turbine per year. These losses are not merely incidental, they affect apex predators whose removal can destabilise ecosystems.

In the case of bat populations, Arnett and Baerwald (2013) documented that migratory species are particularly susceptible to pressure changes and blade collisions, with wind farms across the globe associated with regional declines in bat abundance. The indirect consequences include reduced pollination, pest control, and trophic imbalances.

Additionally, the koala (Phascolarctos cinereus), already listed as endangered in many jurisdictions, is highly vulnerable to habitat fragmentation and chronic stress from increased noise, vibration, and human activity. Crowther et al. (2022) reported that koala populations decline sharply when exposed to infrastructure development, due to stress-induced immunosuppression and increased risk of dehydration and vehicle collisions.

Further evidence from the Lotus Creek Wind Farm project in Queensland illustrates the gravity of these threats. The project resulted in the death and displacement of multiple koalas, with the remaining populations showing elevated cortisol levels and signs of malnutrition due to canopy disruption (Rainforest Reserves Australia, 2023). In that case, mitigation strategies such as forced relocation and blunt force euthanasia were used practices that raise serious ethical and legal questions under Australia’s animal welfare legislation.

Habitat degradation is also compounded by vegetation clearing and soil disruption, which reduces biodiversity and ecosystem resilience. According to Brodie et al. (2017), sediment runoff from cleared lands can infiltrate aquatic systems, affecting freshwater species and contributing to water quality decline in downstream environments. The absence of robust vegetation buffers, hydrological assessments, or fauna corridor integration plans in the ElectraNet proposal signals regulatory failure.

From a legislative perspective, these impacts contravene the Environment Protection and Biodiversity Conservation Act 1999 (Cth), which mandates the protection of matters of national environmental significance—including listed threatened species and ecological communities.

In summary, the environmental and biodiversity impacts of this project are not theoretical. They are empirically observed, scientifically validated, and, in some cases, historically recorded. The continuation of such expansion under the guise of green energy is not only ecologically reckless but legally negligent.

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3. Heat Island Effect and Microclimate Disruption

One of the most underacknowledged yet critical impacts of renewable energy infrastructure, particularly when deployed at scale, is the creation of cumulative heat islands and disruption of regional microclimates. The combination of wind farms, solar farms, battery installations, and transmission corridors over extensive landscapes results in measurable changes in surface temperatures, wind flows, evapotranspiration, and rainfall distribution.

The heat island effect refers to localized warming caused by the replacement of natural, vegetated surfaces with artificial infrastructure that absorbs and radiates heat. Barron-Gafford et al. (2016) showed that solar farms in arid and semi-arid environments can increase local ambient temperatures by up to 4°C, particularly at night, due to altered heat absorption and delayed radiative cooling. These effects are magnified when vegetation is removed, soil is compacted, and reflective surfaces are introduced.

Wind farms disrupt natural wind currents and atmospheric mixing, leading to changes in vertical air movement and moisture distribution. Zhou et al. (2012) found that large-scale wind energy developments in the central U.S. altered nighttime surface temperatures and humidity profiles, effects that were observable via satellite. In Australia, with our unique dependency on localised rainfall systems and thin ecological margins, these disruptions pose real risks to water retention, soil moisture, and agricultural viability.

Cumulative impacts are even more serious. As South Australia develops overlapping renewable zones across the Mid North, Eyre Peninsula, and beyond, the creation of an extended thermal belt is likely. This phenomenon, where multiple heat islands link across a broad corridor can result in continuous warming along the Great Dividing Range, interfering with orographic cloud formation, weakening local rainfall systems, and accelerating drought conditions (Zhang et al., 2020).

Vegetation loss further compounds these effects. Trees and deep-rooted native flora cool the atmosphere through evapotranspiration, a process by which plants release moisture into the air, reducing local temperature and facilitating precipitation. The large-scale removal of vegetation to accommodate infrastructure interrupts this natural cooling function. As forests are replaced by turbines, battery facilities, and cleared buffer zones, the capacity of the landscape to regulate heat and water declines.

These microclimate shifts are not just theoretical. Anecdotal reports from Queensland and New South Wales already indicate increased temperatures, altered wind directions, and precipitation shifts in heavily industrialised energy zones (Rainforest Reserves Australia, 2024). Farmers report longer dry periods, higher fire risk, and unexpected seasonal anomalies none of which are considered in the existing Environmental Impact Statements or planning frameworks.

Despite mounting evidence, ElectraNet’s proposal does not include any heat or climate modelling, cumulative impact assessments, or mitigation strategies to account for these thermal shifts. It is entirely silent on whether FullCAM or any other emissions reporting tool incorporates the measurable warming effect of cleared land and energy infrastructure. As a result, the project is based on flawed assumptions about net climate benefit and grossly underestimates its ecological footprint.

The failure to address these impacts represents a serious shortfall in environmental governance and stands in contradiction to the precautionary principle enshrined in both national and international environmental law.

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4. Inadequate Carbon Lifecycle Accounting

Perhaps the most glaring deception underpinning the push for renewable energy is the myth that it is carbon-neutral, or that it significantly contributes to reaching net-zero targets. The reality is far more complex and damning. When the full carbon lifecycle of wind, solar, and battery technologies is analysed, the illusion of “green energy” collapses.

Lifecycle accounting is meant to measure all emissions associated with a project, from raw material extraction through to manufacturing, transport, construction, operation, maintenance, and finally decommissioning. However, this is almost never applied rigorously in regulatory frameworks. As a result, policymakers and proponents present misleading data that excludes the largest sources of emissions tied to these technologies.

For example, wind turbines are often marketed as zero-emissions once operational. Yet the construction of each turbine involves over a thousand tonnes of concrete and steel, both of which are among the most carbon-intensive materials on Earth. The steel industry alone contributes over 8% of global CO_2 emissions, and cement is responsible for an additional 7% (IEA, 2023). Blades made of composite plastics are rarely recyclable and are now accumulating in landfills globally (Crawford & Bannon, 2022).

Solar panels pose equally severe lifecycle issues. The mining of rare earth metals and silicon, mostly carried out in China and Africa under low environmental and human rights conditions, produces high levels of pollution and CO_2. Refining these materials, often with coal-fired energy, adds yet more emissions. Then, at end-of-life, the panels pose a growing toxic waste crisis with little infrastructure available to manage the disposal (IRENA, 2020).

Battery energy storage systems (BESS), heralded as the solution to renewable intermittency, further compound the problem. The lithium mining process is ecologically devastating, requiring massive water use and resulting in contamination of groundwater and soil. The energy required to produce, transport, and manage these batteries often outweighs the supposed carbon savings during operation, especially when battery degradation and eventual disposal are factored in (Gaines, 2014).

The Australian Government’s FullCAM model, which is used for national carbon accounting, has also been shown to omit many of these lifecycle components. As Rainforest Reserves Australia (2024) has documented, FullCAM focuses narrowly on vegetation changes and fails to include emissions from imported technology, infrastructure construction, or degradation of land and biodiversity through energy projects.

This selective accounting has created the greatest climate deception of our time: the belief that industrial renewable infrastructure, deployed en masse across natural and agricultural landscapes, is a climate solution. In truth, it often replaces carbon-absorbing ecosystems with carbon-emitting industrial sites. The claim of net-zero is therefore a political narrative—not a scientific reality.

Without independent verification and robust, internationally harmonised carbon lifecycle standards, Australia's renewable projects risk worsening climate outcomes under the guise of progress. Proceeding with the ElectraNet REZ expansion without correcting this systemic flaw will only perpetuate a costly and dangerous myth.

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5. Hydrological and Soil Impacts

Large-scale renewable energy infrastructure has substantial and often irreversible effects on hydrological systems and soil health. The construction of wind farms, solar arrays, transmission lines, and substations necessitates widespread land clearing, earthmoving, compaction, and rerouting of natural drainage lines—all of which degrade the land's natural capacity to absorb, filter, and retain water.

Soil compaction caused by heavy machinery during site preparation and construction reduces infiltration and increases surface runoff. This leads to erosion, topsoil loss, and a higher incidence of flash flooding. According to Lal (2003), soil compaction alone can reduce infiltration capacity by over 50%, which not only impacts vegetation and agriculture but also undermines aquifer recharge and local water table stability.

Solar farms often cover vast tracts of land with panels mounted on metal frames, typically surrounded by gravel or compacted soil. This transformation from porous vegetated land to heat-absorbing, impermeable surfaces alters the thermal and moisture balance of the ground, exacerbating evaporation and reducing soil microbiota diversity (Armstrong et al., 2016). These conditions make soil more vulnerable to wind erosion and nutrient depletion, leading to desertification in marginal environments.

Transmission line construction requires the excavation of trenches, pylons, and access tracks across sensitive terrain. Where this occurs on sloped or riparian areas, the erosion potential is extreme. Water channels may become blocked or redirected, resulting in downstream sedimentation that impacts freshwater systems, aquatic biodiversity, and estuarine health (Brodie et al., 2017).

Additionally, the removal of vegetation removes root structures that stabilise soil and reduce the kinetic energy of rainfall. Combined with increased runoff, this accelerates the transport of sediment and contaminants. Once exposed, disturbed soils can leach heavy metals, diesel residues, and construction chemicals into nearby waterways, posing risks to both ecosystems and agricultural operations that depend on clean water (DEHP QLD, 2015).

The impacts are intensified in cumulative REZ developments, where hundreds of kilometres of land are simultaneously disturbed. In South Australia's Mid North, known for its erosion-prone soils and variable rainfall, these disruptions are particularly dangerous. Farmers in nearby regions already report changes in groundwater flow, increased flooding in low-lying paddocks, and crop loss due to elevated sediment loads (Rainforest Reserves Australia, 2024).

Despite these known risks, ElectraNet's REZ expansion application contains no comprehensive hydrological or soil stability modelling. Nor does it provide any binding erosion mitigation strategy, sediment control measures, or post-construction rehabilitation plan. This omission directly violates principles under the Protection of the Environment Operations Act and the Soil Conservation and Land Rehabilitation legislation in multiple Australian jurisdictions.

Such negligence is not only environmentally irresponsible, it is legally questionable and demonstrates a profound disregard for the land, communities, and ecological systems on which the project will be imposed.

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6. PFAS, Toxins, Blade Shedding and Disposal Failures

The deployment of large-scale renewable energy infrastructure introduces a range of toxicological hazards that are poorly understood, inadequately regulated, and often concealed from public scrutiny. Chief among these are PFAS (per- and polyfluoroalkyl substances), fibre-shedding from turbine blades, and the leaching of chemicals from solar panels and battery storage systems all of which pose severe long-term risks to ecosystems, livestock, and human health.

Wind turbine blades are made from composite materials including glass fibre, epoxy resins, and thermoset plastics. Over time, through wear, stress and extreme weather exposure, these blades shed microfibres and particulates into the surrounding soil and air. Studies have shown that a single turbine can lose huge amounts of toxic material per year, much of which settles in nearby waterways or pasturelands (Andersen et al., 2020). These materials are not biodegradable and can accumulate in food chains or leach into water systems.

Moreover, turbine fires a growing concern with aging infrastructure release dioxins, PFAS and other toxins into the environment. These fires are extremely difficult to contain and the firefighting foams used often contain PFAS compounds, which are classified as persistent organic pollutants with serious health consequences, including hormone disruption, immune suppression, and cancer (Rotander et al., 2015).

Solar panels contain cadmium, lead, and other toxic metals. When damaged, degraded or improperly disposed of, these elements can leach into the soil and groundwater. The International Renewable Energy Agency (IRENA, 2020) has acknowledged the looming waste crisis from decommissioned solar modules, estimating that global PV waste could reach 78 million tonnes by 2050. In Australia, there are currently no mandated national strategies for safe collection, recycling or disposal.

Battery Energy Storage Systems (BESS), especially lithium-ion variants, carry additional risks. Battery degradation produces toxic gases and particulate discharge. Improper disposal or mechanical damage can cause fires, which release hydrogen fluoride, a highly corrosive gas with immediate risks to respiratory health. Residual electrolytes and breakdown products seep into groundwater systems, particularly in flood-prone areas.

Agricultural communities stand to suffer the most. PFAS accumulation in soil affects livestock and contaminates water troughs, boreholes, and surface water. Contaminated sites can be rendered unsuitable for grazing or crop production for decades. Farmers face not only economic ruin but the stigma and legal battles associated with land contamination.

Despite these severe risks, ElectraNet's REZ documentation makes no mention of PFAS, blade shedding, or panel and battery disposal. There is no lifecycle waste plan, no mitigation strategy for fire or flood events, and no monitoring framework for chemical leachate. This omission amounts to gross negligence and poses a major biosecurity and food sovereignty risk.

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7. Water Contamination from PFAS and Microplastics

One of the most devastating and under-acknowledged consequences of industrial renewable infrastructure is its role in long-term water contamination—particularly through PFAS compounds and microplastics. These substances are introduced into the environment through routine blade wear, panel degradation, battery failure, and emergency firefighting protocols. Once released, they infiltrate groundwater, creeks, catchments, and aquifers, and are virtually impossible to remove.

PFAS, known as "forever chemicals," are used in turbine blade coatings, electrical insulation, and firefighting foams. These compounds are water-soluble, highly mobile in the environment, and do not degrade naturally. They accumulate in soil, bioaccumulate in livestock, and contaminate human water supplies. A single exposure event can render a water source unsuitable for consumption or agriculture for decades. Studies have linked PFAS exposure to increased cancer risk, thyroid disruption, immune system damage, and developmental issues in children (Rotander et al., 2015).

Microplastic contamination is equally insidious. Fibreglass turbine blades and solar panel coatings degrade under UV exposure and weathering, releasing micro- and nano-plastics that disperse into soils and aquatic systems. Once in waterways, they are ingested by aquatic organisms, bioaccumulate up the food chain, and pose endocrine disruption and reproductive impacts across species (Andersen et al., 2020). In livestock and humans, microplastics are now detected in blood, lung tissue, and placental fluid (Smith et al., 2021).

Solar panels leach lead, cadmium, and plasticisers into surrounding soils and water, especially following hail events, thermal cracking, or disposal mishandling. Lithium-ion batteries are vulnerable to thermal runaway, which, when coupled with water exposure, creates leachate rich in heavy metals and acid compounds that move rapidly into water tables.

In flood-prone regions like parts of South Australia's Mid North, any chemical stored or embedded in infrastructure is at risk of dispersal into vital rural catchments. Many farms rely on shallow bore water or unlined dams; once contaminated by PFAS or microplastics, these sources are not easily remediated.

Despite the extensive body of international research on these risks, the ElectraNet REZ documentation includes no environmental safeguards against chemical leaching, no PFAS testing protocols, and no monitoring of particulate migration from turbine or panel infrastructure. The failure to model long-term water contamination reflects an unacceptable disregard for agricultural safety, food integrity, and public health.

This section must be urgently investigated at the regulatory level and should, on its own, constitute grounds for halting further REZ expansion pending comprehensive hydrological and toxicological impact studies.

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8. Aerial Impact and the Collapse of Avian Migration Pathways

The cumulative aerial footprint of wind farms, transmission towers, and high-voltage lines associated with the REZ expansion represents one of the most devastating but poorly accounted threats to migratory and resident bird species in Australia. These industrial energy corridors dissect historically unbroken flight paths, disrupt aerial thermals, and introduce lethal hazards across thousands of kilometres.

Wind turbines in particular are known to cause high mortality rates among large soaring birds, raptors, and migratory species. The blades, often rotating at over 300 km/h at the tips, are nearly invisible during flight. Hull et al. (2015) reported that Australia's raptor species, such as the Wedge-tailed Eagle and the White-bellied Sea Eagle, experience significant fatality rates in turbine-heavy zones. For species with low reproductive rates and large territorial ranges, even small annual mortality increases can lead to population collapse.

Transmission towers and lines exacerbate these risks. Electrocution, collision, and disruption of flight patterns are well-documented outcomes. Studies have shown that birds avoid nesting and foraging within a broad perimeter of transmission corridors, fragmenting their ecological range and leading to territory compression, especially during breeding seasons (Loss et al., 2014).

Migratory species face the most severe disruptions. Birds following altitudinal and latitudinal migratory routes—such as the Eastern Curlew, Latham's Snipe, and various swifts—are dependent on unbroken airspace and undisturbed stopover habitats. The Mid North region and its adjoining valleys serve as key flyways for these species. With multiple wind zones now forming near-continuous turbine walls, these corridors are becoming impassable. Night-time migrants are especially at risk due to reduced visibility and disorientation from light pollution and electromagnetic interference.

Cumulative aerial clutter from overlapping REZs across NSW, Victoria, and South Australia has not been assessed for its regional impact. There is no strategic bird corridor mapping, no cumulative flight safety modelling, and no federal oversight of turbine spacing in known migration routes. This omission is staggering given Australia's obligations under the EPBC Act and international agreements such as the Convention on Migratory Species.

Furthermore, blade strikes do not always result in immediate mortality. Many birds suffer partial wing amputations, concussions, or internal injuries, dying slowly after escaping initial impact. These incidents are underreported due to carcass scavenging and the vast area over which bodies can fall. True fatality rates are often 5–10 times higher than documented (Smallwood, 2013).

The failure to include aerial impact assessments in the ElectraNet REZ proposal demonstrates either a lack of scientific understanding or a wilful neglect of one of the most foreseeable ecological catastrophes tied to large-scale wind and transmission infrastructure. Without urgent reform, these cumulative aerial hazards will push several species beyond recovery.

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9. Cumulative Impact and Legislative Failures

The expansion of renewable energy zones (REZs) such as the Mid North South Australia project is proceeding without adequate consideration of cumulative environmental, ecological, and systemic impacts. This failure to account for the aggregate consequences of multiple interconnected energy projects represents a critical gap in national and state-level planning. It also reflects a breach of legislative obligations under the Environment Protection and Biodiversity Conservation Act 1999 (Cth), the Planning, Development and Infrastructure Act 2016 (SA), and Australia's commitments under various international treaties.

Cumulative impacts arise when multiple projects, each considered in isolation, collectively impose far greater pressure on ecosystems, wildlife populations, airspace, and regional hydrology than any one project alone. These impacts may include successive clearing of habitat corridors, overlapping aerial obstructions, combined noise pollution, landscape fragmentation, regional heating, sediment build-up in water systems, and chemical accumulation from dispersed industrial infrastructure.

The planning framework underpinning REZ developments is fragmented. Project proponents submit Environmental Impact Statements (EIS) that consider only their immediate development footprint. Governments approve infrastructure components individually, without mandating a whole-of-region environmental model. This piecemeal approach allows devastating accumulations of damage that would not pass scrutiny if assessed in total.

An example is the progressive loss of intact habitat across the REZ zones in NSW, Victoria, and South Australia, now spanning hundreds of thousands of hectares. Species like the greater glider, koala, and multiple migratory birds are simultaneously losing breeding grounds, travel corridors, and food sources across entire bioregions—yet no single EIS acknowledges this national-scale extinction risk.

The legislative frameworks purportedly requiring cumulative assessment are routinely bypassed. The EPBC Act includes provisions for assessing "cumulative significant impact" but lacks enforcement mechanisms or cross-jurisdictional coordination. Similarly, state planning legislation rarely mandates the use of regional scenario modelling or baseline cumulative environmental data.

This planning failure is not only administrative it is ecological malpractice. It prioritises development timelines over ecosystem integrity, and industrial lobbying over scientific rigour. In doing so, it undermines public confidence in environmental governance and exposes Australia to legal, ethical, and ecological liabilities.

REZ projects such as ElectraNet's must not be assessed as standalone ventures. A moratorium on further approvals is necessary until a National Cumulative Impact Framework is legislated, and all existing and proposed REZs are reviewed in that context.

10. Systemic Risk and NEM Instability

As the integration of large-scale wind, solar, and battery systems expands across the National Electricity Market (NEM), systemic risks to grid stability, reliability, and security are mounting. These risks are not hypothetical. They are substantiated by domestic operational failures, international case studies, and the growing evidence base from grid operators, including AEMO.

The core vulnerability arises from the replacement of synchronous, inertia-providing generators (such as coal and gas) with asynchronous inverter-based resources (IBRs). These IBRs, which dominate renewable installations, do not inherently contribute to grid inertia or frequency control. Without inertia, the system becomes more sensitive to disturbances, with higher rates of frequency deviation and reduced capacity to absorb shocks (Elliston et al., 2019).

As traditional baseload generators are retired prematurely, the NEM's ability to remain stable under high-renewable scenarios is eroded. IBRs can respond quickly to changes in frequency but often overreact, triggering oscillations and cascading failures. During low-demand periods, these responses can exceed line capacities and amplify instability. This scenario unfolded in California in August 2020, when renewable over-generation, heatwave-driven demand, and inverter faults culminated in blackouts (CAISO, 2021).

Australia's own history of systemic instability is well-documented. The 2016 South Australian "black system" event was precipitated by a combination of transmission line faults and an excessive trip of wind generators, leading to a total system shutdown. Post-event investigations exposed gaps in system protection settings, inverter coordination, and grid forecasting. Yet despite these lessons, there is no evidence that ElectraNet's REZ proposal incorporates improved coordination protocols, system-wide contingency strategies, or sufficient grid-forming technology deployment.

Minimum system load events represent another critical vulnerability. When rooftop solar and grid-scale renewables saturate supply during periods of low consumption, grid voltage can spike. This creates safety risks, forces involuntary curtailment, and can destroy customer and utility equipment. Victoria and South Australia have already recorded multiple such events, yet no credible mitigation plan has been provided in the current REZ infrastructure rollout.

The increasing reliance on BESS as a stability solution also introduces risk. Battery systems are vulnerable to fire, chemical failure, and rapid degradation, particularly under high-cycle load conditions. They do not replace the system-wide benefits of rotational inertia, governor response, or dispatchable baseload backup.

From a legislative standpoint, the National Electricity Rules (NER) mandate grid security under Clauses 4.2.2, 4.3.4 and S5.1a.4. ElectraNet's REZ facilitation without updated inertia strategies, EFCS coordination, or islanding protections likely places it in breach of these standards. Moreover, the absence of integrated system modelling across all REZ developments ensures that even well-intended solutions may compound instability if deployed without coordination.

Australia is moving into uncharted territory with a high-penetration renewables grid. Without careful system design, rigorous oversight, and legislative enforcement of stability protocols, we risk replicating—and exceeding—the failures witnessed in other jurisdictions. The REZ expansion under ElectraNet must be halted until a full risk management framework is independently reviewed and publicly released.

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11. Legislative Breaches and Policy Misalignment

The ElectraNet Mid North REZ Expansion project illustrates a profound disconnect between government policy, legislative obligations, and the practical execution of renewable energy infrastructure. At every level federal, state, and regional there is a failure to uphold the legislative and ethical frameworks intended to protect environmental values, ensure transparency, and safeguard community interests.

First, the **Environment Protection and Biodiversity Conservation Act 1999 (Cth)** mandates assessment and protection of Matters of National Environmental Significance, including threatened species, migratory birds, and listed ecological communities. However, the REZ projects are regularly approved through piecemeal environmental assessments that isolate each component and obscure the cumulative harm. No comprehensive environmental impact statement has evaluated the full REZ corridor as an integrated whole, despite growing evidence of region-wide ecosystem decline (Lindenmayer et al., 2008).

Second, the **Planning, Development and Infrastructure Act 2016 (SA)** obliges infrastructure planners to incorporate ecological sustainability, community consultation, and social equity. Yet local landholders report minimal engagement, constrained feedback mechanisms, and outcomes that consistently favour corporate interests over agricultural resilience and conservation.

Further, the **National Electricity Rules (NER)** require transmission network service providers like ElectraNet to maintain power system security (Clauses 4.2.2, 4.3.4, and S5.1a.4). ElectraNet's own documents fail to demonstrate how the REZ expansion will address the loss of synchronous inertia, risk of minimum system load events, and vulnerability to climate-related disasters—thus placing them in potential breach of their NER obligations (AEMO, 2017).

The misalignment is not merely technical—it is ideological. Policy agendas driving "net zero" by 2050 rely on flawed assumptions of renewables' environmental neutrality and carbon efficiency. These assumptions ignore full lifecycle emissions, toxic waste, water consumption, and the social displacement associated with utility-scale renewable rollouts. As such, climate policy and biodiversity law are now on a collision course.

Moreover, international obligations under the **Convention on Biological Diversity** and the **Convention on the Conservation of Migratory Species of Wild Animals** (Bonn Convention) are being compromised. Australia has committed to halting biodiversity loss and ensuring the integrity of migratory pathways—both of which are jeopardised by uncoordinated REZ expansion.

Without legislative reform to enforce cumulative impact assessment, regional biodiversity accounting, and transparency in grid design, REZ development will continue to proceed in violation of environmental and planning laws. This undermines public trust, threatens legal challenges, and ensures that any environmental benefit claimed by these projects remains both unproven and unearned.

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12. Conclusion and Recommendation

The ElectraNet Mid North South Australia REZ Expansion project represents one of the most comprehensive failures of environmental, legislative, and systemic responsibility in Australia's recent infrastructure planning history. As the preceding sections demonstrate, the project is riddled with unaddressed ecological threats, foundational flaws in carbon lifecycle accounting, and blatant legislative inconsistencies. Far from representing a solution to climate change, the REZ expansion facilitates widespread destruction under a false green veneer.

The promise of "net zero" is unravelling as one of the most dangerous global myths of the 21st century. Renewable infrastructure when built at industrial scales, across intact ecosystems, with toxic and non-recyclable materials produces more carbon, displaces more wildlife, and causes more irreversible damage than it saves. When lifecycle emissions, habitat loss, thermal effects, PFAS contamination, soil disruption, and cumulative aerial impact are all considered, it becomes clear that this model of energy transformation is fundamentally unsustainable.

The legislative and planning systems meant to protect communities, ecosystems, and national interests have failed. From the neglect of cumulative impact assessment under the EPBC Act, to the absence of PFAS and microplastic protocols, to the total lack of coordinated grid stability assurance under the NER, every safeguard has been bypassed. Projects are being approved in fragments, with no whole-of-landscape analysis, and no honest accounting for the carbon, chemical, and ecological debts we are incurring.

Given the scale and seriousness of these concerns, we issue the following urgent recommendations:

1. That the ElectraNet Mid North SA REZ Expansion Stage 1A Early Works contingent project be rejected outright;
2. That no further REZ development proceed without a national, independently conducted cumulative impact assessment and hydrological model;
3. That FullCAM and related carbon tools be reformed to include infrastructure lifecycle emissions, toxic runoff, vegetation loss, and heating impacts;
4. That a national PFAS and renewable waste register be created, with publicly reported monitoring and remediation plans;
5. That migratory and endangered species pathways be formally mapped and legislatively protected against wind and transmission infrastructure;
6. That an immediate moratorium be placed on utility-scale solar, wind, battery and transmission projects until compliance with biodiversity, planning, and electricity law is independently verified.

Australia has a critical opportunity to reverse course to restore truth, science, and integrity to our energy future. We must abandon blind allegiance to industrial "green" infrastructure and return to principles of ecological stewardship, localised resilience, and intergenerational responsibility.

Only then can we claim to be acting on climate change, not worsening it under a new name.

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