

## A Critical Examination of Australia's Energy Transition: Prioritising Ecological Integrity and Intergenerational Responsibility

The Australian Productivity Commission's interim report, "Investing in Cheaper, Cleaner Energy and the Net-Zero Transformation," presents a vision for a rapid energy transition that warrants a closer and more critical examination. While the urgency of addressing climate change is undeniable, the report's approach, which heavily favours industrial renewable energy through expedited approvals and simplified accounting, risks creating unintended and potentially catastrophic consequences for Australia's long-term environmental and economic health. This article argues that a sustainable and just transition must be underpinned by a **holistic perspective**, robust environmental protections, and **transparent lifecycle analysis**, rather than a narrow focus that risks undermining national resilience and ecological integrity.

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### The Problem of False Carbon Accounting

The notion of "cleaner energy" is often misrepresented by an incomplete accounting of its full environmental footprint. The current policy discourse frequently excludes the **lifecycle emissions** associated with industrial renewable energy projects. This includes emissions from the mining of raw materials like lithium and cobalt, the manufacturing and global transport of components (e.g., wind turbine blades and solar panels), the extensive land clearing required for installation, and the complex process of decommissioning and waste disposal.

Peer-reviewed studies have highlighted that when these factors are included, the carbon footprint of renewable energy projects can be significantly higher than commonly reported. For instance, a **2024 study published in the journal *Frontiers in Energy Research*** compared the lifecycle greenhouse gas (GHG) emissions of solar photovoltaic (PV) and coal power. It found that while a 1kWp solar module emits 1,601.18 kg of GHGs over its lifespan (1.35 kg/kWh), this is substantially lower than coal's 4.81 kg/kWh [1]. However, this and other studies emphasise that the full environmental impact of renewables includes significant issues such as biodiversity disruption, land use changes, and material recycling challenges.

The **World Economic Forum's Global Risks Report 2024** identifies "Mis- and Disinformation" as a top global risk, emphasising that an international community built on misinformation is dangerously unprepared for significant challenges [2]. This principle applies directly to the energy debate; if policy and investment decisions are based on a distorted view of environmental costs and benefits, the resulting governance is fundamentally flawed and lacks legitimacy.

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### Erosion of Environmental Protections and Legal Risks

The Productivity Commission's recommendations to amend the **Environment Protection and Biodiversity Conservation (EPBC) Act** to fast-track renewable energy projects are particularly concerning. This would set a dangerous precedent, as it would be the first time in Australia's legislative

history that an entire industry is exempted from full federal environmental oversight. The proposed changes, which include reducing assessment timelines, reclassifying land for industrial use, and delegating approvals to state authorities, represent a structural dismantling of the EPBC Act's core purpose: to safeguard national environmental assets.

Such reforms are not only environmentally reckless but also legally fraught. They could place Australia in breach of its international obligations under treaties such as the **World Heritage Convention** and the **Ramsar Convention**, which are the very basis of the Commonwealth's power to legislate on environmental matters. Attempts to bypass independent judicial review could be challenged on the grounds of procedural fairness. Furthermore, the reclassification of agricultural land for industrial use without adequate compensation could violate the "**just terms**" provision of the Australian Constitution, which protects against the compulsory acquisition of property. Global legal precedents, such as the *Urgenda Foundation v. State of the Netherlands* case, confirm that governments can be held accountable for failing to act in line with their treaty obligations and for disregarding ecological impacts.

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## A Threat to Land and Water Resources

The most immediate and tangible risk of a poorly regulated energy transition is the potential for **ecological degradation and large-scale pollution**. Rushed approvals have already led to significant habitat destruction and irreversible landscape changes. Evidence from documented cases globally highlights the risk of **water contamination** from substances used in renewable energy technologies. According to the **UNEP Human Rights Toolkit for Renewables**, the disposal of decommissioned solar and wind technology waste, particularly in landfills, releases toxins that can lead to air, soil, and water contamination, affecting the health of nearby communities [3]. The **World Health Organisation (WHO)** has also conducted extensive work on the human health risks posed by heavy metals like cadmium and lead, which are used in solar panels, as well as **PFAS** (per- and polyfluoroalkyl substances) contamination from various industrial sources, including some manufacturing processes in the renewable sector [4, 5].

The **UN Global Risks Report 2024** consistently identifies "Natural Resource Shortages" and "Large-Scale Pollution" as among the most pressing global concerns [2]. This report's findings underscore a critical paradox: in the name of addressing climate change, policies are being proposed that could exacerbate other top-tier global risks by compromising the very natural resources—land and water—that are fundamental to both environmental and economic stability. A truly credible and just transition must embed rigorous environmental assessments and require comprehensive lifecycle carbon accounting to ensure that the pursuit of one environmental goal does not come at the expense of others. Australia's long-term productivity and prosperity depend on the health of its ecosystems, and we have an **intergenerational responsibility** to protect them.

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## References

[1] Zhang, S., et al. (2024). "A comparative study on the combination of life cycle assessment and

ecological footprints: solar photovoltaic power generation vs. coal power generation in Ningxia." *Frontiers in Energy Research*.

[2] World Economic Forum. (2024). *The Global Risks Report 2024*.

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[4] World Health Organization (WHO). (2022). "PFOS and PFOA in Drinking-water - Background document for development of WHO Guidelines for Drinking-water Quality."

[5] World Health Organization (WHO). (2007). "Health risks of heavy metals from long-range transboundary air pollution."