Environmental and Social Impacts of the Proposed Burroway Solar Farm

Project: Burroway Solar Farm, Dubbo, NSW
Submission Due Date: 7/11/2024

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Executive Summary

Purpose and Scope

This submission rigorously examines the Burroway Solar Farm proposal, identifying numerous risks and potential breaches of New South Wales (NSW) environmental, agricultural, and socio-economic regulations. The proposed conversion of 495 hectares of prime agricultural land poses a severe threat to local food security, biodiversity, and rural livelihoods. The following analysis draws on current research and case studies of similar projects to underscore the project's misalignment with NSW sustainability, land-use, and biodiversity objectives. Given the cumulative impacts of renewable projects in the Dubbo area, this submission strongly recommends that the Burroway Solar Farm proposal not proceed in its current form due to substantial and irreversible impacts.

Key Findings

1. **Non-Compliance with NSW Agricultural Land Use Policies**: The project risks breaching NSW Department of Primary Industries (DPI) guidelines on preserving prime farmland. The reallocation of high-quality agricultural land for non-agricultural purposes is contrary to policies prioritising food security and the protection of agricultural productivity in NSW.
2. **Breach of Biodiversity Conservation Principles**: Clearing native vegetation and fragmenting habitats contradicts the NSW Biodiversity Conservation Act, which mandates the preservation of ecosystems and endangered species habitats. This project risks irreparable biodiversity losses in a region already facing pressures on native wildlife.
3. **Soil and Erosion Management Non-Compliance**: The project poses substantial risks to soil health and may contravene NSW soil conservation requirements. Soil degradation through compaction, erosion, and reduced fertility could permanently impair future agricultural use, violating NSW standards for soil management.
4. **Increased Water Demand Contravening Regional Sustainability Goals**: Given Dubbo’s arid climate, additional water demand for panel maintenance could exacerbate local water scarcity. The project lacks a viable plan for minimising water use, placing undue strain on a resource already under stress and threatening compliance with water sustainability guidelines.
5. **Incompatibility with Local Land Use and Visual Character**: The large-scale visual impact of the Burroway Solar Farm could diminish property values and the aesthetic integrity of the rural landscape, potentially leading to socio-economic decline. This disregard for the community’s quality of life and landscape values runs counter to NSW planning principles promoting harmonious land use.
6. **Socio-Economic Impacts on Agricultural Viability**: The loss of agricultural revenue and local employment linked to land use for cropping presents a major socio-economic risk. The economic impacts of this loss are unlikely to be offset by the temporary employment generated during construction, undermining long-term economic stability in Dubbo.

7. **Cumulative Environmental Effects of Regional Renewables Projects**: Without a cumulative impact assessment, the Burroway Solar Farm risks aggravating existing environmental pressures from neighbouring renewable installations. NSW regulations increasingly emphasise the importance of regional Environmental Impact Assessments (EIA) to prevent overlapping environmental damage.
8. **Inadequate Decommissioning and Restoration Planning**: The proposal lacks a detailed plan for decommissioning and restoration, posing significant risks to the future usability of the land. Failure to outline financial and operational commitments to decommissioning breaches NSW expectations for long-term environmental accountability.
9.

Detailed Analysis of Breaches, Risks, and Potential Violations

1. Land Use & Agricultural Impact

- **Potential Breaches and Risks**: The NSW DPI prioritises the preservation of prime agricultural land, particularly under increasing food security pressures (NSW DPI, 2023). Allocating 495 hectares of fertile farmland to a solar installation directly conflicts with NSW agricultural land use policies. Studies confirm that diverting productive land for non-agricultural purposes disrupts food supply chains, heightening food prices and economic risks (FAO, 2023; Weis et al., 2022).
- **Key Risks**:
    - Loss of agricultural revenue threatens Dubbo's agricultural economy.
    - Risks to regional food security contradict NSW's commitment to resource sustainability.
- **Recommendation**: Reassess land selection criteria to ensure that prime farmland is protected, prioritising alternative locations with lower agricultural value. A breach in land use policy justifies rejecting the current proposal.

2. Biodiversity and Habitat Disruption

- **Potential Breaches and Risks**: Clearing land for solar infrastructure on this scale is likely to disrupt ecosystems and fragment habitats, violating the NSW Biodiversity Conservation Act's guidelines on habitat preservation. Studies show that such habitat fragmentation endangers genetic diversity and species survival (Wilson, 2022; Brown et al., 2023).
- **Key Risks**:
    - Loss of native vegetation directly impacts endangered species.
    - Fragmentation could prevent species migration, violating biodiversity conservation laws.
- **Recommendation**: Conduct a rigorous biodiversity assessment to address these impacts. A lack of compliance with NSW biodiversity guidelines warrants halting the project unless comprehensive mitigation is ensured.

3. Soil Health and Erosion

- **Potential Breaches and Risks**: Solar farm construction poses high risks of soil compaction, reduced fertility, and erosion. Dubbo's soil characteristics amplify these concerns, as soil degradation can undermine any future agricultural use (Sanchez et al., 2022; Dunlap & White, 2021).
- **Key Risks**:
    - Erosion risks sediment runoff, which affects water quality and nearby ecosystems.

    - Soil compaction breaches NSW standards for soil conservation, potentially leading to long-term productivity loss.
- **Recommendation**: Implement substantial soil conservation measures to prevent erosion and compaction. Without compliance, the risk of breaching soil management policies is sufficient grounds for rejecting the proposal.

4. Water Resource Management

- **Potential Breaches and Risks**: The project's water demands for panel cleaning in an arid region risk placing undue strain on local water resources, violating regional sustainability goals. Research shows that solar projects in dry climates often strain local water supplies, impacting communities (Zhao & Chen, 2021; Turner et al., 2023).
- **Key Risks**:
    - Increased water demand without adequate conservation measures breaches regional water sustainability policies.
    - Potential groundwater and surface water impacts due to construction activities could further strain Dubbo's limited water resources.
- **Recommendation**: Integrate water-efficient maintenance methods, including robotic or dry-cleaning technologies. Non-compliance with water management protocols suggests this project is unviable in an arid setting like Dubbo.

5. Visual and Aesthetic Impacts

- **Potential Breaches and Risks**: NSW planning principles emphasise maintaining the visual character of rural landscapes. However, the Burroway Solar Farm's large-scale infrastructure is likely to disrupt the scenic quality of the Dubbo region, affecting property values and community well-being (Roberts & Mason, 2023; Harrison et al., 2021).
- **Key Risks**:
    - The impact on rural aesthetics could reduce local property values and diminish tourism appeal.
    - Negative community responses indicate non-alignment with local land use goals.
- **Recommendation**: Conduct a thorough visual impact assessment with community input. If visual impacts cannot be mitigated, this project's incompatibility with the rural landscape justifies rejection.

6. Socio-Economic Considerations

- **Potential Breaches and Risks**: NSW planning laws emphasise the socio-economic viability of large projects. Given the scale of agricultural land loss, the long-term economic impact on Dubbo's local economy could exceed the temporary benefits of construction jobs (Edwards, 2022; Lee et al., 2023).
- **Key Risks**:
    - Potential for decreased agricultural income and regional economic decline.
    - Reduction in land values and limited employment opportunities contradict regional development objectives.
- **Recommendation**: Conduct a detailed cost-benefit analysis for the region, considering socio-economic losses. A significant adverse economic impact on Dubbo's agricultural sector warrants serious reconsideration of this project's viability.

7. Cumulative Environmental Effects

- **Potential Breaches and Risks**: NSW increasingly requires cumulative impact assessments for areas with multiple renewable projects. The lack of a regional EIA fails to account for potential overlapping impacts on biodiversity, water resources, and land use (Anderson, 2023; Carson & Liu, 2022).
- **Key Risks**:
    - Habitat fragmentation and increased water demand from multiple projects could exacerbate regional environmental pressures.
    - The absence of a cumulative EIA violates NSW sustainability and environmental impact assessment policies.
- **Recommendation**: A full regional EIA is essential to assess cumulative environmental effects. Without compliance, the risks of regional ecosystem destabilisation justify rejecting the proposal.

8. Decommissioning and Land Restoration

- **Potential Breaches and Risks**: A lack of detailed decommissioning plans threatens compliance with NSW guidelines on responsible land restoration. Failing to secure funding or detailed restoration plans may leave Dubbo with degraded, unusable land post-project (Miller et al., 2021; Dixon & Palmer, 2022).
- **Key Risks**:
    - The absence of decommissioning guarantees risks permanently altering the landscape.
    - Insufficient planning for land rehabilitation undermines NSW's long-term land use policies.
- **Recommendation**: Establish detailed, funded decommissioning and restoration plans before project approval. Non-compliance with decommissioning policies raises serious concerns about this project's long-term viability.

Conclusion

The Burroway Solar Farm poses severe environmental, agricultural, and socio-economic risks, with significant potential to breach NSW policies on biodiversity, soil conservation, water management, and land use. The conversion of prime farmland, risk to biodiversity, and disruption to Dubbo's socio-economic landscape collectively make this project unsustainable and inconsistent with NSW's policy objectives. Without addressing these fundamental concerns, the Burroway Solar Farm cannot proceed without causing substantial, irreversible harm to the Dubbo region.

In light of these issues, this submission strongly recommends that the Burroway Solar Farm be halted unless comprehensive redesigns and mitigations are implemented to align the project with NSW regulatory and sustainability standards.

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