To: The Department of Planning, Housing and Infrastructure (DPHI)
Date: 5 June 2025
Subject: Formal Objection to the Wattle Creek Solar Farm (SSD-63344210) Environmental Impact Statement
This submission constitutes a formal objection to the proposed Wattle Creek Solar Farm (SSD-63344210), a project comprising a 265 MW solar facility and an integrated 100 MW Battery Energy Storage System (BESS).

A thorough review of the Environmental Impact Statement (EIS) and its supporting specialist assessments reveals a project proposal that is fundamentally flawed, fails to meet requisite environmental and safety standards, and presents an unacceptable risk to the community and the environment. The EIS, in many instances, also fails to adequately address the specific Secretary's Environmental Assessment Requirements (SEARs) set for this project, despite the proponent's claims in their SEARs Checklist (EIS Appendix 1).

The documentation, rather than providing a rigorous and objective assessment of potential impacts, appears to be an exercise in justification. It is characterised by a pattern of downplaying significant risks, deferring critical planning and mitigation details to post-approval stages (a systemic issue evidenced throughout the proponent's own "Summary of Management and Mitigation Measures," Appendix 4), presenting conclusions that are directly contradicted by the proponent's own data, and proposing solutions that are demonstrably inadequate for the scale of the identified problems. The EIS also suffers from significant omissions, such as the failure to assess localized "Heat Island" effects (an omission extending even to the Agricultural Impact Assessment), and underestimation of impacts on agricultural resources. Furthermore, potential procedural issues like project splitting obscure the true cumulative impacts of the broader Wattle Creek Energy Hub – a concern underscored by the proponent's own "Cumulative Impact Scoping Summary" (Appendix 18 of the Solar Farm EIS) which identifies high potential for substantial cumulative impacts from co-located and nearby developments.

This objection will demonstrate that the EIS, in its current form, is not fit for purpose and that the project, as presented, should be refused. The core grounds for this objection are:

**An Unacceptable Threat to Public Safety and Emergency Response Capability:**

The proposal places a major hazardous industrial facility—specifically the integrated 100 MW BESS—in a high bushfire risk area. The EIS and its supporting documents, including the Preliminary Hazard Analysis (PHA, Appendix 15) and Bushfire Threat Assessment (BTA,

Appendix 12), fail to demonstrate a credible, adequately resourced, or proven emergency management strategy, falling short of SEARs requirements for hazard and risk assessment (see EIS Appendix 1, SEARs Checklist). Critically:

- The Preliminary Hazard Analysis (PHA, Appendix 15, Table A1, p. 37/28 ) indicates a ">20,000 L" water supply for emergency activities, while the Bushfire Threat Assessment (BTA, Appendix 12, Section 4.5, p.21) proposes a "dedicated minimum 100,000 litre firefighting water supply". Alarmingly, the proponent's "Summary of Management and Mitigation Measures" (Appendix 4, Measure BF-02, p.15) further muddies this critical safety provision by stating a "minimum 40,000 L water supply." This gross inconsistency across key safety documents for a vital firefighting resource is unacceptable and highlights a profound lack of coordinated and reliable safety planning. The 20,000L and 40,000L figures are indefensibly insufficient, being orders of magnitude below FRNSW Safety Bulletin SB2202 guidelines for a BESS of this scale, rendering any emergency plan for a BESS fire ineffective.
- The PHA's assertion that there would be "no observed offsite impacts" from a BESS fire or major transformer incident (PHA, Appendix 15, Executive Summary, p.i of PDF & Section 5.1 Conclusions, p.25) is not substantiated by quantitative modelling within the PHA and is challenged by established knowledge of such events.
- The EIS documentation lacks critical quantitative risk modelling, such as Failure Modes and Effects Criticality Analysis (FMECA) or plume dispersion modelling for toxic gas releases (e.g., Hydrogen Fluoride) from a BESS fire (PHA, Appendix 15, generally, see e.g. Section 4.7.3, p.19, where HF plume analysis is dismissed), which are essential for understanding true off-site risks and are implicitly required by guidance like FRNSW SB2202, best practice hazardous industry assessment, and the SEARs requirement for a PHA for the BESS (EIS Appendix 1, SEARs Checklist).
- Fundamental Deficiencies in Traffic and Road Safety Assessment: The Traffic and Transport Assessment (TTA, Appendix 10) presents conclusions that impacts can be managed with mitigation (TTA, p. 1-2, 100), yet this is undermined by its own data and inadequate planning, failing to meet SEARs for transport impact assessment (EIS Appendix 1, SEARs Checklist):
- The TTA acknowledges Canyonleigh Road requires "resurfacing works" to provide adequate capacity (TTA, Section 3.4.2, p. 38). However, the "Summary of Management and Mitigation Measures" (Appendix 4, Measure TT-06, p.11) confirms that "The design of these resurfacing works developed in consultation with Goulburn Mulwaree Council as part of the future detailed design phase..." Thus, the actual standard and adequacy of these crucial upgrades remain deferred and unassessed. This severe impact on Canyonleigh Road is further compounded when considering the cumulative traffic from the proponent's adjacent, separately lodged Wattle Creek BESS project (SSD-63345458), which forecasts an 843.3% cumulative daily traffic increase (BESS TTA, Appendix 10, Table 19, p.68).
- The assessment relies on a single 12-hour traffic count (TTA, p. 23), potentially not meeting SEARs requirements (advice from TfNSW cited in TTA, p. 10, Table 3, and reflected in EIS Appendix 1, SEARs Checklist) for adherence to guidelines preferring

7-day counts.
- Critical safety audits and specific management plans (e.g., OSOM loads, school bus interactions) are deferred to post-approval stages (TTA, p. 93, 38; Appendix 4, Measure TT-01, p.9), contrary to the SEARs' expectation that mitigation measures be detailed (EIS Appendix 1, SEARs Checklist).

**Significant and Unresolved Environmental Impacts:**

- The Biodiversity Development Assessment Report (BDAR, Appendix 7) documents the clearing of 3.30 ha of Box Gum Woodland CEEC (BDAR, ES p.v & Table 10.2), an impact requiring rigorous assessment under SEARs (EIS Appendix 1, SEARs Checklist).
- The project's own Water Resources Impact Assessment (Solar Farm WRIA, Appendix 11) admits a failure to meet mandatory Neutral or Beneficial Effect (NorBE) water quality criteria for mean annual Total Nitrogen (TN) loads and TN concentrations, with a solution deferred to the "detailed design phase" (Solar Farm WRIA, Appendix 11, p.71-72). This directly contravenes the SEARs requirement to demonstrate NorBE for the Sydney drinking water catchment (EIS Appendix 1, SEARs Checklist).
- The EIS documentation completely omits assessment of localized "Heat Island" effects from the extensive solar panel array, a failure to assess all likely environmental impacts as generally required by the SEARs (EIS Appendix 1, SEARs Checklist).
- Potential impacts on Groundwater Dependent Ecosystems (GDEs) are dismissed based on an assumption of no groundwater table interception, rather than detailed drawdown modelling (BDAR, Appendix E, Section 3.3).

**Systemic Methodological Flaws Undermining Key Assessments:**

- The Noise Assessment (Appendix 6) relies on assumed NPfI default minimum background noise levels instead of site-specific LA90 measurements (NVA, Section 5.2), contrary to the SEARs requirement for "details of noise monitoring survey, background noise levels and amenity noise levels at the most-affected residential receivers" (EIS Appendix 1, SEARs Checklist). It also uses unverified "library data" or "assumed flat spectrums" for key equipment (NVA, Section 6.3, Table 10), failing the SEARs requirement for "details of manufacturer specifications for plant and equipment" (EIS Appendix 1, SEARs Checklist).
- The Landscape and Visual Impact Assessment (LVIA, Appendix 5) bases its photomontages on "leaf-on" conditions and over-relies on non-guaranteed existing vegetation for screening (LVIA Main Text, Executive Summary, PDF p. 4).

## Improper Assessment of Cumulative Impacts via Project Splitting:

- This application is explicitly linked to a separate application for a co-located 350 MW BESS (SSD-63345458). The EIS fails to adequately quantify the true overall combined impacts of the entire Wattle Creek Energy Hub, a direct oversight of the SEARs' requirement for a cumulative impact assessment in line

with relevant guidelines (EIS Appendix 1, SEARs Checklist).

The cumulative effect of these deficiencies demonstrates a failure to adequately assess the Wattle Creek Solar Farm's impacts. This submission will now detail these failings with specific references to the proponent's documentation.

**Detailed Assessment Critiques**

1. Bushfire Threat Assessment (BTA, Appendix 12) & Preliminary Hazard Analysis (PHA, Appendix 15)
The safety assessments for the Solar Farm and its integrated 100 MW BESS are critically flawed and present an unacceptable risk to public safety and emergency responder capability.

- **Grossly Inadequate Water Supply:**
  - Evidence: The Bushfire Threat Assessment (BTA, Appendix 12, Section 4.5, p.21 of PDF) states "a dedicated minimum 100,000 litre firefighting water supply will be provided on site". In contrast, the Preliminary Hazard Analysis (PHA, Appendix 15, Table A1, p.37/28 of PDF) indicates "Water supply (>20,000 L) is provided for emergency activities". Alarmingly, the proponent's "Summary of Management and Mitigation Measures" (Appendix 4, Measure BF-02, p.15) further muddies this critical safety provision by stating a "minimum 40,000 L water supply." This gross inconsistency across key safety documents for a vital firefighting resource is unacceptable and highlights a profound lack of coordinated and reliable safety planning.
  - Critique: The 20,000L and 40,000L figures mentioned in the PHA and Appendix 4 respectively are indefensibly insufficient for a facility of this nature, particularly one incorporating a 100 MW BESS. FRNSW Safety Bulletin SB2202 (addressing BESS safety) indicates a need for substantially greater water supplies (potentially ≥200,000L plus significant ongoing hydrant flow) for effective cooling and fire suppression during a BESS thermal runaway event. Fires in large-scale BESS units are major hazardous materials incidents requiring potentially millions of litres of water over extended periods (hours, if not days) to prevent thermal runaway and reignition. A 20,000L or 40,000L supply would be exhausted in minutes by a single firefighting appliance, rendering it virtually useless for a sustained BESS fire and grossly inadequate for any significant grass or structural fire across the extensive site. While the BTA proposes a 100,000L supply, the discrepancy with the PHA and Appendix 4 is deeply concerning, and even 100,000L may be insufficient based on FRNSW guidance for a BESS of this scale. This creates an unacceptable risk for emergency responders and the community.

    - Statement: The proponent fails to demonstrate how bushfire risk, especially concerning the 100 MW BESS, can be "appropriately managed" (BTA, Appendix 12, Section 5.0, p.24 of PDF) with a water supply that is inconsistently documented and, even at the BTA's proposed 100,000L, may be undersized according to expert guidance. A compliant and realistically scaled water supply, specifically justified for BESS emergencies, must be detailed and committed to, in line with SEARs requirements for demonstrating compliance with *Planning for Bush Fire Protection 2019* (EIS Appendix 1, SEARs Checklist).
- **Underestimation of Ember Attack & Asset Protection Zones (APZs):**
    - Evidence: The BTA (Appendix 12, Section 4.2, p.20 of PDF) states "At a minimum, a 10 m Asset Protection Zone (APZ) will be applied to all proposed infrastructure (with the APZ being maintained to the standard of an Inner Protection Area (IPA))".
    - Critique: This 10m APZ for parts of the Solar Array Area appears inconsistent with the prescriptive measures of PBP 2019 Table A2.5, which typically requires ≥25-50m for infrastructure bordering Category 1 forest (as shown in BTA, Appendix 12, Figure 1.2, p.3 of PDF, which maps Category 1 vegetation adjacent to project areas). The BTA does not provide a specific performance-based justification for this potentially reduced APZ distance in such areas. Catastrophic ember attack, a primary bushfire threat in this landscape, can easily breach inadequately sized APZs. The BTA does not present any specific modelling for mass ember attack or ember penetration into the site. If APZs are not consistent with PBP 2019 prescriptive measures, their effectiveness against all forms of bushfire attack, including ember attack, is compromised. Furthermore, the clearing required for genuinely compliant APZs may be understated in the BDAR if it relies on these potentially reduced APZ dimensions.
    - Statement: The proponent must demonstrate, through robust modelling, how the proposed APZs will defend against catastrophic ember attack. All APZs must be fully compliant with PBP 2019 prescriptive measures, or a rigorously justified and peer-reviewed performance-based solution must be provided with the EIS if deviations are proposed. The BDAR must accurately reflect the clearing footprint required for fully compliant APZs.
- **Unrealistic Ignition Risk Assessment, Deferred Emergency Planning & Missing Performance Solution:**
    - Evidence: The BTA (Appendix 12, Section 3.7, p.17 of PDF) identifies potential ignition sources including construction activities and operational phase issues. Both the BTA (Appendix 12, Section 4.1, p.20 of PDF) and the PHA

(Appendix 15, Section 4.12.2, p.21 of PDF, referencing the BTA's plan) indicate an Emergency Response Plan "will be developed". The BTA (Appendix 12, Section 3.7, p.18 of PDF) identifies an un-mitigated bushfire risk profile for the project as "moderate to high". The BTA does not present a specific PBP 2019 performance-based justification or peer review for achieving a lower residual risk or for the proposed 10m APZ in areas potentially requiring greater distances under prescriptive measures. Risks from PV arc-flash and grass ignition under panels are acknowledged as potential ignition sources (BTA, Appendix 12, Section 3.7, p.17 of PDF) but are addressed through proposed management and mitigation rather than detailed upfront risk assessment of these specific scenarios in the BTA.

  - Critique: High-voltage infrastructure inherently carries ignition risks. Deferring detailed, peer-reviewed emergency plans – including critical elements like evacuation strategies for a peak construction workforce of 111 personnel from a site with potentially limited egress – prevents any meaningful scrutiny of their feasibility, resourcing, or effectiveness. This deferral is confirmed in the "Summary of Management and Mitigation Measures" (Appendix 4, Measure BF-01, p.14) which states an Emergency Response Plan "will be developed prior to the commencement of construction". This deferral directly contradicts the SEARs' requirement for a "Bush Fire Emergency Management and Operations Plan" to be incorporated in the EIS (EIS Appendix 1, SEARs Checklist, RFS requirements).
  - Statement: The comprehensive Emergency Plan is a critical safety document and must be provided and assessed prior to any determination, not deferred as proposed. Why is this vital SEARs-mandated plan not included for review? Where is the PBP 2019 performance-based solution for managing the identified "moderate to high" unmitigated risks to an acceptable level, particularly if APZs do not meet prescriptive measures in all locations? What specific, confirmed commitments have been secured from emergency services (FRNSW, RFS) for managing BESS-specific hazards, given their unique challenges?

- **Failure to Integrate BESS Hazards, Missing FMECA & Plume Modelling:**
  - Evidence: The PHA (Appendix 15, Executive Summary, p.i of PDF & Section 5.1 Conclusions, p.25 of PDF) asserts "No offsite consequences" for BESS fire/explosion. Neither the BTA (Appendix 12) nor the PHA (Appendix 15) provide a Failure Modes and Effects Criticality Analysis (FMECA) or atmospheric plume dispersion modelling for toxic gases (e.g., Hydrogen Fluoride, Carbon Monoxide) from a BESS fire, despite FRNSW SB2202 highlighting the hazardous materials risks. The PHA (Appendix 15, Section

4.7.3, p.19 of PDF) dismisses further analysis of Hydrogen Fluoride plumes based on the assertion that the initiating BESS fire is unlikely, rather than through specific modelling. The PHA does not appear to quantitatively model the scenario of an external bushfire impacting the BESS and potentially initiating thermal runaway, though the BTA (Appendix 12) addresses general bushfire protection for site assets.
    - Critique: This is a critical oversight. A 100 MW BESS fire is a significant hazardous materials (Hazmat) incident. The claim of "no offsite consequences" in the PHA is unsubstantiated by detailed modelling within that document and is contrary to the known risks of toxic smoke and contaminated firewater runoff. Without FMECA and plume dispersion modelling (e.g., using AERMOD or similar), the potential downwind reach of toxic gases and adherence to Emergency Response Planning Guideline levels (ERPGs) cannot be assessed. This omission is particularly concerning given the SEARs (EIS Appendix 1, SEARs Checklist) specifically require a PHA for the BESS considering all recent standards and codes.
    - Statement: The PHA must be revised to remove the unsubstantiated assertion of "no offsite consequences" from a 100 MW BESS fire. It must include a FMECA and appropriate plume dispersion modelling, compliant with FRNSW guidance, HIPAP 4, and the explicit SEARs for this project, to accurately assess off-site risks.
- **Quantitative Risk Assessment (QRA) Deficiencies & SEPP (Resilience and Hazards) 2021:**
    - Evidence: The PHA (Appendix 15) is explicitly "preliminary" and does not constitute a full QRA with event frequencies or consequence contours as per HIPAP No. 4. The PHA (Appendix 15, Table 3-3, p.11 of PDF) lists "Approx. 1,525 tonnes" of Lithium-ion batteries (Class 9 DG) and a total of "Approx. 56,500 L (Approx. 49 tonnes)" of Transformer Oil (sum of PCU and Substation oils). Despite these quantities, the PHA (Appendix 15, Executive Summary, p.i of PDF & Section 5.1 Conclusions, p.25 of PDF) concludes the project "would only be classified as potentially hazardous". The SEPP-RH screening presented (PHA, Appendix 15, Table 3-3, p.11 of PDF) lists 'N/A' for the SEPP threshold for these dangerous goods, and a detailed justification against specific HIPAP quantity triggers (such as the 10-tonne trigger for Class 9 DGs) appears insufficient. UL 9540A test data for the BESS is stated to be completed but is not provided (PHA, Appendix 15, Section 4.4, p.15 of PDF and confirmed as deferred in Appendix 4, Measure H-03, p.15).
    - Critique: The proponent's SEPP (Resilience and Hazards) 2021 and HIPAP screening threshold application appears insufficiently justified given the

significant quantities of Class 9 DGs (BESS), failing to meet the SEARs requirement for a PHA prepared in accordance with HIPAP No. 6 and Multi-Level Risk Assessment, verifying compliance with HIPAP No. 4 (EIS Appendix 1, SEARs Checklist). The lack of a detailed QRA (potentially a Level 3 QRA if triggered under HIPAP) means risks are not properly quantified or assessed against established criteria. Claims about BESS safety are unverifiable without UL 9540A test data. The potential consequences of a 56,500L transformer oil fire are not quantitatively modelled in the PHA (Appendix 15, Section 4.10, p.20 of PDF).

- Statement: A detailed justification for the application of SEPP (Resilience and Hazards) 2021 is required, directly addressing the quantities of DGs against HIPAP criteria and demonstrating why a more detailed QRA may not be warranted, as per SEARs (EIS Appendix 1, SEARs Checklist). Why has a full QRA, compliant with HIPAP 4, not been conducted if screening thresholds are potentially met? When will verifiable UL 9540A test data be provided to substantiate BESS safety claims, rather than being deferred?

2. Traffic and Transport Assessment (TTA, Appendix 10)

The TTA contains fundamental contradictions, methodological flaws, and proposes traffic management strategies that appear inadequate for the scale of impact, particularly on Canyonleigh Road.

- **Contradictory and Unsafe Conclusions Regarding Canyonleigh Road:**
  - Evidence: The TTA concludes that, conditional to mitigation measures, potential traffic impacts can be appropriately managed (TTA, p. 1-2, 100). However, the TTA acknowledges Canyonleigh Road requires "resurfacing works" to provide adequate capacity (TTA, Section 3.4.2, p. 38), and its Pavement Impact Assessment (TTA, Section 5.6.1, p. 89) indicates construction traffic will result in an increase in pavement loading (ESAs), with details in Appendix K. Canyonleigh Road is described as having a "varying road width of 5-6m" for sealed sections and "5-7m" for unsealed sections (TTA, p. 19), which is substandard for the projected significant increase in total vehicles, including a peak construction workforce of 111 staff (TTA, Appendix H) and associated heavy vehicle movements.
  - Critique: The conclusion that Canyonleigh Road's impacts can be managed is questionable when considering the project's impacts. The road's existing condition necessitates resurfacing, and it is narrow in sections to safely accommodate the massive increase in construction traffic, especially heavy vehicles. Relying on pre/post condition surveys and subsequent "rehabilitation" (TTA, p. 97, 98-99) is reactive and fails to ensure road safety and serviceability during the construction period. This severe impact on

Canyonleigh Road is further compounded when considering the cumulative traffic from the proponent's adjacent, separately lodged Wattle Creek BESS project (SSD-63345458). The Traffic and Transport Assessment for the BESS project (BESS TTA, Appendix 10, Table 19, p.68) forecasts a staggering cumulative daily traffic increase on Canyonleigh Road (Gravel Road to Site Access, Bi-Dir) from a 2026 Background of 120 vehicles to a Cumulative Construction 2026 volume of 1,132 vehicles, representing an 843.3% increase. While this specific figure is from the BESS TTA, it underscores the total unmanageable burden placed on this substandard road by the proponent's entire Wattle Creek Energy Hub, an issue inadequately addressed in either separate EIS. The "Summary of Management and Mitigation Measures" (Appendix 4, Measure TT-06, p.11) confirms the design of these resurfacing works is deferred, falling short of the SEARs requirement to provide details of measures to mitigate impacts, including a schedule of road upgrades (EIS Appendix 1, SEARs Checklist).

- Statement: The proponent fails to justify how Canyonleigh Road, in its current state, can safely accommodate the projected construction traffic. Pre-emptive, proponent-funded upgrades – including full-width sealing to an appropriate standard (e.g., meeting Austroads rural access minimums for two-way traffic), structural improvements, shoulder widening, and provision of passing bays – are essential before construction commences, not as a reactive measure whose design is deferred. Why are these SEARs-indicated necessary upgrades not detailed and committed to in the EIS?

- **Flawed Data Collection & Modelling:**
  - Evidence: The TTA (Section 2.3.2, p. 23) confirms reliance on a single 12-hour traffic count undertaken on Wednesday, 7th August 2024 for key intersections. The SEARs (advice from TfNSW cited in TTA, p. 10, Table 3 and reflected in EIS Appendix 1, SEARs Checklist) require the TIA to be prepared in accordance with relevant Austroads and TfNSW guidelines, which express a preference for 7-day counts for improved accuracy of data. The TTA (Appendix H) assumes 1 person per light vehicle for the construction workforce without detailing a structured carpooling or shuttle bus program. A background traffic growth rate of 2.0% per annum is used (TTA, Section 2.3.1, p. 22), but it's unclear if this adequately accounts for specific approved expansions of nearby major traffic generators like quarries (acknowledged in TTA, Section 2.1.1, p. 15).
  - Critique: A single 12-hour count, even if recent, may not be fully representative of weekly variations for a project of this magnitude, potentially underestimating existing traffic and thus the project's relative impact, and

failing to meet the spirit of the SEARs regarding robust data collection. Additionally, the single-occupancy vehicle assumption for workers appears optimistic without committed mitigation measures. The background growth rate may not capture the full impact of other known developments.
    - Statement: The traffic impact assessment must be based on current and comprehensive traffic data (e.g., recent 7-day counts as preferred by TfNSW guidelines and implied by the SEARs). The basis for vehicle occupancy rates needs justification with committed programs, and the background growth rate must demonstrably incorporate known cumulative traffic from other approved developments. Will the proponent commit to more comprehensive traffic counts and remodelling to meet SEARs expectations?
- **Deferral of Critical Safety Measures & Audits:**
    - Evidence: The TTA defers specific management measures for Over-Sized Over-Mass (OSOM) vehicles (detailed OSOM TMP to be prepared, TTA, p. 93, Section 6.2) and school bus interactions (treatments to be addressed through detailed design and TMP, TTA, p. 38) to a future Construction Traffic Management Plan (CTP) or detailed design. This deferral is reiterated in Appendix 4 (Measure TT-01, p.9). Structural assessments of bridges and culverts on Canyonleigh Road are also noted as requiring detailed survey (TTA, p. 41, Table 10; TTA, p. 43, Table 11). While a "preliminary road safety review" is mentioned (TTA, p. 1), the SEARs advice (TTA, p. 11, Table 3 and reflected in EIS Appendix 1, SEARs Checklist) suggests a "targeted Road Safety Audit" where road safety concerns are identified, which is not presented as completed for all relevant routes and stages.
    - Critique: Deferring these critical safety planning elements prevents their assessment as part of the EIS process, contrary to the SEARs which require an assessment of transport impacts and details of mitigation measures (EIS Appendix 1, SEARs Checklist). This is unacceptable for issues that directly impact public safety.
    - Statement: Why are detailed designs and strategies for OSOM vehicle management, school bus safety, and sightline hazard mitigation, along with a formal, detailed Road Safety Audit (as per SEARs guidance) and completed structural bridge/culvert capacity assessments for Canyonleigh Road, not completed and submitted with the EIS for proper scrutiny as required by the SEARs?
- **Inadequate Cumulative Impact and Heavy Vehicle Management:**
    - Evidence: The TTA (Section 2.1.1, p. 15 and Section 4.5, Table 16 & 17) acknowledges and includes the Marulan Gas Fired Power Station (MGFPS) in its cumulative assessment. However, the full elaboration of its traffic impact

and the combined effect with other projects like quarries may still understate the true burden on local roads. The TTA generally concludes cumulative impacts can be managed (TTA, Section 5.0 and Conclusions). A specific, detailed Heavy Vehicle Management Plan coordinating with existing quarry operations on shared routes like Brayton Road is not provided, with reliance on the future CTP (TTA, p. 93-94; Appendix 4, Measure TT-01, p.9). The TTA focuses on sealed public roads and does not appear to assess dust impacts from any significant unsealed haul routes within the site on adjacent properties or road visibility.

- Critique: The assessment of potential MGFPS traffic and the broad conclusion of manageable cumulative impacts may understate the true combined effect on the local road network. Existing heavy vehicle traffic from quarries already impacts local roads, and specific coordination plans are needed, not just a general CTP. This cursory approach falls short of the SEARs demand for a "cumulative impact assessment of traffic from nearby developments" (EIS Appendix 1, SEARs Checklist).
- Statement: A more robust cumulative traffic impact assessment is required, including realistic scenarios for the MGFPS and detailed analysis of combined quarry and project traffic, to meet SEARs. What specific measures beyond a general CTP will be implemented to coordinate with existing heavy vehicle operators and manage dust from any unsealed site haul routes?

3. Biodiversity Development Assessment Report (BDAR, Appendix 7)
The BDAR exhibits deficiencies in impact calculation, SAII assessment, survey adequacy, and potentially the resulting offset strategy, indicating a failure to meet specific SEARs for biodiversity assessment (EIS Appendix 1, SEARs Checklist).

- **Potential Understatement of Clearing Footprint & Offset Liability:**
  - Evidence: The BDAR Executive Summary (ES, p.i) and Section 1.1 (p.1) state a Development Footprint of approximately 580.62 ha, with the "solar farm area" component being 518.34 ha (BDAR, ES p.i & Section 1.1, p.1). The BDAR also states a direct native vegetation impact (requiring offsets) of 264.92 ha (BDAR, Section 10.0, p.225). However, summing the area of all native vegetation zones (including those not requiring offsets) across all separately assessed components listed in Table 4.11 (i.e., Solar Farm area, Common Ancillary Features, Transmission Line Option 1, and Transmission Line Option 2, if these were hypothetically additive) results in a considerably higher total figure of 572.62 ha of native vegetation within these combined footprints. The BDAR (Section 1.1, p.1) notes the duplication of ancillary features and transmission lines for assessment purposes, clarifying that only one transmission line option will be constructed.

    - Critique: While assessing both transmission lines is necessary for flexibility, the presentation of a summary impact figure for offset calculation (264.92 ha) compared to the sum of all potentially impacted native vegetation areas (572.62 ha including both TX lines and all native vegetation condition classes within the combined component footprints) could lead to an underestimation of the maximum potential offset liability if the final design necessitates the worst-case clearing scenario or if APZ clearing is not fully captured within the offset-generating figure.
    - Statement: The proponent must provide a clear, reconciled calculation of the maximum potential native vegetation clearing footprint, ensuring all components, including the full extent of necessary APZs and the chosen transmission line, are accurately reflected in the final BAM calculator inputs and offset determination.
- **Serious and Irreversible Impacts (SAII) on Box Gum Woodland CEEC:**
    - Evidence: The BDAR (ES, p.v) confirms the Project will impact 3.30 ha of White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland CEEC, including 1.46 ha of woodland structure (of which 0.89 ha is "Good/Moderate" condition – derived from Table 10.2). The SAII Assessment (Table 9.2) argues against an SAII by stating the impact is approximately 0.0013% of the CEEC's geographic extent in NSW.
    - Critique: While the assessment is made at a regional scale, the critical question is whether any further loss of a Critically Endangered Ecological Community, particularly areas in "Good/Moderate" condition, can be justified, and whether the application of SAII principles (Principles 1 & 2 cited in BDAR Table 9.1) adequately considers the ongoing decline and small population size aspects for this specific occurrence, as required by the SEARs' mandate for "an assessment for SAII in accordance with Section 9.1 of the BAM" (EIS Appendix 1, SEARs Checklist). Simply stating a small percentage of total NSW extent does not automatically negate a serious and irreversible impact on the local and regional viability of the CEEC.
    - Statement: How does the proponent justify that the removal of 3.30 ha of this CEEC, including 0.89 ha of "Good/Moderate" condition woodland, does not constitute a Serious and Irreversible Impact, particularly considering the principles of ongoing decline and the importance of retaining higher-quality remnants, in line with SEARs requirements?
- **Adequacy of Survey Effort & Species Assessment:**
    - Evidence: The BDAR (Section 2.3.4, p.43) states that Vegetation Zone 6 (PCT 3374 DNG exotic dominated, Category 1 land) was considered "too degraded to provide habitat for threatened flora species and no survey were undertaken

within this vegetation zone." Table 5.5 (p.130) indicates Striped Legless Lizard tile surveys were due for completion in November 2024, for a BDAR dated March 2025. For the Large-eared Pied Bat, 168 Anabat detection nights are reported (Table 5.5, p.130). A Glossy Black-Cockatoo was recorded in Feb 2023 (Section 5.4.2.3, p.146).
    - Critique: Excluding Category 1 land from threatened flora surveys based on a visual assessment of degradation may miss resilient species or those occupying microhabitats within these areas. Finalising a BDAR before all targeted threatened species surveys (like for the Striped Legless Lizard) are completed and fully analysed is problematic. While 168 Anabat nights were conducted, its sufficiency against guidelines for a site of this size and complexity for all relevant bat species (including winter surveys or roost searches for some species) could be questioned. A more recent (June 2024) Glossy Black-Cockatoo sighting near the site may not have been incorporated into the current impact assessment or habitat modelling.
    - Statement: Were all flora surveys conducted in accordance with guidelines, including within areas of Category 1 land that might still offer habitat niches? Are the Striped Legless Lizard surveys now complete, and have these final results been fully integrated and assessed? Is the microbat survey effort, including seasonal coverage and specific roost searches, considered fully compliant with relevant NSW and Commonwealth guidelines for all potential species, as expected under the SEARs (EIS Appendix 1, SEARs Checklist)? How has any recent Glossy Black-Cockatoo data been addressed?
- **Assessment of Impacts to Threatened Species (e.g., Koala):**
    - Evidence: The BDAR (Section 5.7, p.159-160; Appendix A, Table A4.1) confirms the removal of 14.64 ha of potential Koala habitat containing eight koala feed tree species, despite no direct Koala sightings during surveys.
    - Critique: The removal of a notable area of potential habitat, even without current Koala presence, contributes to cumulative habitat loss and fragmentation in the region. The assessment of this cumulative impact needs to be robust.
    - Statement: What is the proponent's detailed assessment of the cumulative impact of removing 14.64 ha of potential Koala habitat, considering regional habitat loss, fragmentation, and the long-term viability of Koala populations in the broader landscape?
- **Zero-Credit Zones & Vegetation Integrity (VI) Scores:**
    - Evidence: Table 10.1 (p.225) and 10.2 (p.226-228) show that "PCT 3374 - DNG-low condition" (49.66 ha total, VI score 2.7) and "PCT 3374 - DNG-exotic dominated" (258.04 ha total, VI score 1.0) receive zero ecosystem credits. For

PCT 3376 (Box-Gum CEEC), the "Good/Moderate" condition zone has a VI score of 76.9 (Table 4.12, p.102).
    - Critique: While BAM allows for low VI score areas not to require offsets, the justification for these low scores, particularly whether native perennial cover thresholds (BAM s10.3) were rigorously applied for DNG, needs scrutiny. For the Box-Gum CEEC VI scores, the description for PCT 3376 (Table 4.6, p.87-88) notes the mid-stratum "generally has minimal cover," which could influence VI scores if benchmarks require a more developed shrub layer for higher scores.
    - Statement: Can the proponent provide detailed plot data (Appendix C) to transparently justify the VI scores, particularly for the zero-credit DNG zones (against BAM s10.3 criteria) and the high VI score for the Box-Gum CEEC "Good/Moderate" zone, specifically addressing shrub layer composition against benchmark data?
- **Unassessed or Inadequately Assessed Indirect and Prescribed Impacts:**
    - Evidence: Construction dust, night lighting, and general traffic impacts on fauna are considered in the general indirect impacts risk assessment (Table 8.5, p.186-189) but not detailed under prescribed impacts for offsetting (Table 6.1, p.161-162). The BDAR (Appendix E, Section 3.3, p.E-24 to E-25) and main text (Section 8.4.5, p.192) discuss GDEs, noting high potential aquatic GDEs along Wollondilly River, but dismisses significant impacts based on the unlikelihood of groundwater table interception rather than specific drawdown modelling. Riparian vegetation clearing is quantified and offset (Table 4.2, p.74; Table 10.2, p.226-228).
    - Critique: The assessment of indirect impacts from dust, light, and traffic on fauna behaviour and habitat quality may be cursory. Dismissing GDE impacts without specific hydrogeological modelling demonstrating no adverse change to groundwater regimes supporting these ecosystems is insufficient. The SEARs (EIS Appendix 1, SEARs Checklist) require assessment of impacts on listed aquatic threatened species and measures to minimise impacts, and this dismissal seems to sidestep that full assessment. The potential for heavy metal or PFAS leachate from solar panels and BESS components into waterways and GDEs is not explicitly modelled or addressed beyond general spill management.
    - Statement: How will ongoing indirect impacts from dust, light, and traffic on adjacent biodiversity values be monitored and adaptively managed? What specific hydrogeological studies confirm that there will be no adverse impact on GDEs from altered surface flows or potential groundwater interaction? What assessment has been done regarding potential long-term leachate of

contaminants from project infrastructure into the surrounding environment?

4. Failure to Assess Localized Warming ("Heat Island") Effects

The EIS documentation provides no assessment of the potential for the extensive solar panel array (approximately 518 ha of panels) to cause localized warming or "Heat Island" effects, and the consequential impacts on local microclimate, biodiversity, and surrounding land uses.

- Evidence: A comprehensive review of the EIS and its supporting documents, including the BDAR and general environmental risk assessments, reveals no specific analysis, modelling, or dedicated discussion of this phenomenon. This is a notable omission, given that the NSW Large-Scale Solar Energy Guideline (FAQ §3.5) acknowledges that PV arrays can raise night-time air temperature by 1-3°C. Such an increase can lead to measurable alterations in localized air temperatures, humidity, soil moisture, and consequently impact local flora (e.g., heat stress, altered growth patterns) and fauna (e.g., changes in activity patterns, habitat suitability). Critically, this omission extends to the proponent's own "Agricultural Impact Assessment" (SLAIA, Appendix 13), which fails to consider the potential impacts of such localized warming on agricultural productivity, soil moisture retention, or heat stress on crops and livestock on Arthursleigh Farm or neighbouring properties (SLAIA, Appendix 13, generally).
- Critique: Large-scale solar farms are known to alter local ambient temperatures and microclimates. The complete omission of this potential impact, including its potential interaction with factors like regional fire weather (e.g., contributing to an increase in Fire Danger Index) or heat stress on adjacent agricultural land and native ecosystems, represents a significant gap in the environmental assessment. This fails to consider all relevant environmental factors as required under the Environmental Planning and Assessment Act 1979 and the general SEARs requirement to assess "likely impacts of the development on the environment" (EIS Appendix 1, SEARs Checklist).
- Statement: Why has the EIS failed to assess "Heat Island" effects as indicated by the NSW Large-Scale Solar Guideline, particularly within its own Agricultural Impact Assessment, thereby failing to meet the general SEARs requirements for a comprehensive environmental impact assessment? The proponent must undertake and provide specific modelling to quantify this potential impact on the local microclimate, biodiversity (including heat stress on native vegetation and impacts on fauna), agricultural productivity on adjoining lands, and local fire weather conditions. Furthermore, what mitigation measures, if any, are proposed if significant localized warming is predicted?

5. Noise and Vibration Assessment (NVA, Appendix 6)

The Noise Assessment is fundamentally flawed, relying on assumed background data instead of required site-specific measurements, using unverified equipment noise data, and ignoring

or inadequately assessing key noise characteristics like tonality, thereby likely underestimating the true noise impact on nearby residents.

- **Use of Assumed Background Noise Levels (Not Site-Specific LA90):**
    - Evidence: The NVA (Section 5.2, p. 17) explicitly states: "In the absence of measured RBLs, these minimums [NPfI default minimum RBLs of 35 dBA day / 30 dBA night] have been adopted...". It is widely recognized in acoustic assessments that actual rural LA90 background levels can be significantly lower (e.g., 20-25 dBA) than these assumed minimums, a factor not explored with site-specific data in the NVA.
    - Critique: This is a critical methodological failure. The NPfI prioritises measured background noise levels. Using assumed minimums when actual levels are likely lower means the derived Project Noise Trigger Levels (PNTLs) are artificially inflated. For instance, if the true night-time RBL at a residence is 25 dBA, the intrusiveness criterion would be 30 dBA (RBL+5). The NVA predicts a maximum operational noise of 32 dBA (p. 22, Table 11, R001), which would be a 2dB exceedance in this scenario, not compliant as claimed. The NVA's claim of a "minimum margin of 3 dB" (NVA, Executive Summary, p.3 & Section 6.5, p.22) to the PNTL of 35 dBA is therefore potentially meaningless. This approach directly contravenes the SEARs' requirement for "details of noise monitoring survey, background noise levels and amenity noise levels at the most-affected residential receivers" (EIS Appendix 1, SEARs Checklist).
    - Statement: The proponent must conduct site-specific, 14-day attended and/or unattended LA90 noise monitoring at the nearest potentially affected sensitive receivers, as is standard practice and explicitly required by the NPfI and the SEARs for a robust assessment. All impact predictions and PNTLs must be recalculated based on actual measured background noise levels. Why was this fundamental, SEARs-mandated step not undertaken?
- **Unverified Equipment Data, Ignored/Underestimated Tonality, Invented Spectrums & Timing Issues:**
    - Evidence: The NVA (Section 6.3, Table 10) states that sound power level data for inverters and tracker motors was sourced from "MDA library data" for "comparable" equipment, not manufacturer-certified data for the specific models to be used. For tracker motors, it explicitly states, "MDA has assumed a flat spectrum" due to lack of data. For HV transformers, third-octave data for tonality assessment was "not available" (NVA, Section 6.6, p. 23), and tonality was dismissed based on low predicted overall levels. The NVA (Section 6.6, p. 23) claims a modifying factor for tonality for inverters was "not found to be applicable" based on predictions using third-octave library data, yet inverters and transformers are known potentially tonal sources. Pre-dawn

solar farm ramp-up (potentially before 0700 hrs) is acknowledged (NVA, Section 6.1, p. 18) but its specific noise profile against night criteria is not distinctly assessed beyond applying the general night PNTL.
    - Critique: The operational noise assessment is speculative and lacks robustness. Using "library data" and "assumed flat spectrums" instead of certified data for the actual equipment to be installed undermines the model's accuracy, failing to meet the SEARs requirement for "details of manufacturer specifications for plant and equipment and noise source inventory (demonstrating worst-case modelling...)" (EIS Appendix 1, SEARs Checklist). The NPfI (Fact Sheet C) requires a +5dB penalty if tonality is present. Dismissing tonality for transformers based on low overall predicted levels without spectral analysis is insufficient, as tonality can cause annoyance even at low overall levels. The method for assessing inverter tonality pre-construction is also questionable if based on generic data.
    - Statement: How can the operational noise assessment be considered valid and SEARs-compliant without manufacturer-certified, model-specific sound power level data, including full spectral information for all significant noise-generating equipment (inverters, transformers, tracker motors)? A rigorous tonality assessment based on actual equipment data must be performed, and appropriate penalties applied if tonality is likely. The specific noise impact of pre-dawn operations needs clear assessment against night-time limits.
- **Gross Underestimation of Construction Impacts & Deferral of Mitigation:**
    - Evidence: The NVA (Table 13, p. 31) predicts construction noise levels exceeding the 'noise affected' management level by 15-20 dBA for civil works and 20-25 dBA for piling at the nearest non-host landowner receivers. Mitigation measures are deferred to a CEMP (NVA, Executive Summary, p.3; Section 8.7, p. 37; Appendix 4, Measure NV-01, p.3). Noise from public road resurfacing on Canyonleigh Road is predicted to affect 18 receivers (NVA, Table 17, p. 34; Section 8.4).
    - Critique: These are severe predicted exceedances. Deferring all specific mitigation measures to a post-approval CEMP is unacceptable and prevents assessment of their feasibility or effectiveness, contrary to the SEARs' requirement for "details and analysis of the effectiveness of proposed management and mitigation measures" (EIS Appendix 1, SEARs Checklist). The ICNG applies to public roadworks, and offering "disruption payments" (NVA, p. 4) is not a substitute for robust, pre-defined mitigation for significant noise impacts on residents along Canyonleigh Road from resurfacing works.
    - Statement: The proponent must provide a detailed Construction Noise and

Vibration Management Plan with the EIS, including for haul route works and Canyonleigh Road resurfacing, as implicitly required by SEARs. This plan must detail specific, enforceable mitigation measures, identify respite periods for highly affected residents, commit to real-time noise monitoring, and outline procedures for addressing complaints and non-compliance.

6. Landscape and Visual Impact Assessment (LVIA, Appendix 5)
The LVIA likely underestimates visual impacts due to the use of potentially misleading photomontages, over-reliance on non-guaranteed existing vegetation screening, and questionable application of assessment methodologies.

- **Misleading Photomontages & Over-reliance on Existing Vegetation Screening:**
  - Evidence: The LVIA Main Text (Executive Summary, PDF p. 4) states photomontages were based on site visits in February 2023 and March 2024 (late summer/early autumn), confirming "leaf-on" conditions. The LVIA (Executive Summary, PDF p. 4) also states that the 'low' visual impact ratings were "achieved primarily due to intervening vegetation". Wireframe analysis (bare earth, Appendix B; LVIA Main Text, Table 15, PDF p. 53) for key receptors R008, R270, R271, and R283 initially resulted in a "Moderate" visual impact rating, which was then reduced to "Low" in the photomontage analysis (Appendix C; LVIA Main Text, Table 16, PDF p. 55) after factoring in existing vegetation.
  - Critique: "Leaf-on" photomontages do not represent the worst-case winter views when deciduous vegetation offers minimal screening. The LVIA's conclusion of 'low' impact heavily relies on this existing vegetation, the permanence of which is not guaranteed (e.g., it could be affected by APZ requirements, road upgrades, disease, or landowner decisions), particularly as the LVIA states no specific mitigation is required for these 'low' impacts (LVIA Main Text, Section 13.1, PDF p. 73) and recommends retention of existing vegetation (LVIA Main Text, Section 13.1.1, PDF p. 73; Appendix 4, Measure LV-01, p.2) rather than mandating it.
  - Statement: The proponent must supply photomontages accurately representing "leaf-off" winter conditions from key viewpoints. What binding mechanisms will ensure the long-term retention and health of the existing vegetation relied upon for screening? The visual impact assessment should be revised to consider scenarios with reduced or no existing screening vegetation to present a true worst-case, as per the SEARs' requirement for a "detailed assessment of the likely visual impacts" (EIS Appendix 1, SEARs Checklist).
- **Subjectivity & Potential Misapplication of Visual Impact Matrix:**

    - Evidence: The LVIA (LVIA Main Text, Table 06, PDF p. 36) rates Landscape Character Zone LCZ03 ("Grazing, Pastures & Rural Properties") as having "Low" scenic quality. This contrasts sharply with community consultation feedback (LVIA Main Text, Section 5.2.1, PDF p. 19 & Section 5.2.3, PDF p. 20; SIA Appendix 16, p.46) describing the area with terms like "magnificent views," "beautiful rolling countryside," and "panoramic view towards escarpment."
    - Critique: There is a significant disconnect between the LVIA's "Low" scenic quality rating for much of the surrounding private and public landscape and the value placed on these views by the community. This subjective downplaying of scenic quality influences the overall visual sensitivity assessment.
    - Statement: How was the "Low" scenic quality rating for LCZ03 justified in light of contrary community feedback? The assessment must give greater weight to local community values regarding scenic quality.
- **Night-lighting and Glint & Glare Underassessment:**
    - Evidence: Night lighting impacts are only "qualitatively described" (LVIA Main Text, Section 11.0, PDF p. 70) with general principles for mitigation (LVIA Main Text, Section 11.2, PDF p. 70; Appendix 4, Measure LV-03, p.2), but no specific lux contour modelling or spill assessment is provided to demonstrate compliance with standards (e.g., AS 4282). The Glint & Glare Assessment (LVIA Appendix D, Section 2.1 'Assessment Methodology', PDF p. 6 of Appendix D) states it uses a "worst-case scenario assuming clear weather all year round" and models backtracking with a "night time stowing angle of 0°" (LVIA Appendix D, Section 2.3 'Backtracking Operations', PDF p. 8 of Appendix D). However, the assessment concludes "no instances of 'yellow' glare" for any receptors (LVIA Appendix D, Section 9.0 'Conclusion', PDF p. 24 of Appendix D).
    - Critique: A qualitative description of night lighting is insufficient, failing to meet the spirit of the SEARs' requirement for a detailed assessment of visual impacts (EIS Appendix 1, SEARs Checklist). Without quantitative modelling, the true extent of light spill and potential nuisance cannot be assessed. For glint and glare, while year-round sun angles are considered, the specific panel angles during critical dawn/dusk periods with backtracking need to ensure worst-case reflections towards motorists (including at driver eye-level) and residences are captured.
    - Statement: The proponent must provide quantitative night lighting modelling, including lux contours and spill diagrams, demonstrating compliance with relevant Australian Standards (e.g., a 0.5 lux boundary cap at sensitive receptors). The Glint & Glare assessment should explicitly confirm that

worst-case scenarios for drivers (correct eye heights, full panel tilt range during tracking and backtracking at low sun angles) and residential receptors have been robustly modelled.

7. Water Quality Impacts (Solar Farm Water Resources Impact Assessment, Appendix 11)
The proponent's own Water Resources Impact Assessment (Solar Farm WRIA, Appendix 11) for this Solar Farm project documents a failure to meet critical water quality standards for the Sydney Drinking Water Catchment, deferring the solution amidst significant modelling uncertainties and concerns about mitigation feasibility.

- **Failure to Meet NorBE Criteria for Total Nitrogen (Loads and Concentrations):**
  - Evidence: The Solar Farm WRIA (Appendix 11, Table 5.9, p.71) clearly shows that post-development, mean annual Total Nitrogen (TN) loads are predicted to increase from 112 kg/year (pre-development) to 137 kg/year. The NorBE assessment for TN loads is explicitly marked "False". Furthermore, the Solar Farm WRIA (Appendix 11, Section 5.5.2, p.72 & Figure 5-9) states: "Post-development TN concentrations do not achieve the NorBE criteria of being better than the pre-development scenario between the 50th and 98th percentiles. TN concentrations are better for the post-development scenario above the 75th percentile result." This indicates a failure to meet NorBE for TN concentrations across a significant operational range.
  - Critique: It is a significant oversight and unacceptable to present an EIS for approval that documents a failure to meet a mandatory environmental standard for the Sydney drinking water catchment for a key pollutant. This is exacerbated by the proponent's own WRIA (Solar Farm WRIA, Appendix 11, p.71) which identifies a potential "anomaly" in its TN modelling, suggesting that "TN predicted by the MUSIC model's parameter set appears to be demonstrating an overly low pre-development quantity, and possibly an over-estimated TN load for post-development conditions." The WRIA (Solar Farm WRIA, Appendix 11, p.71) also casts doubt on the feasibility of standard tertiary treatment measures, noting: "Bio-retention basin are indicated to be unsuitable due to the scale of this Project." and while "constructed wetlands are suitable... the use of such measures is not feasible given that the Project Area does not possess large and level expanses for its construction" and the need to locate them outside the 2% AEP flood envelope. Despite these documented failures and uncertainties, the solution is deferred, with the WRIA (Solar Farm WRIA, Appendix 11, p.71 & 72) recommending that "Project stormwater treatment measures be considered during the detailed design phase with a refined MUSIC model". This deferral and documented failure directly contravene the SEARs requirement for an "assessment of the

potential impacts of the development on the Sydney drinking water catchment... and whether the development can be constructed and operated to have a neutral or beneficial effect on water quality" (EIS Appendix 1, SEARs Checklist).

- Statement: Why is project approval being sought before a design and water quality management plan are presented that verifiably meet all NorBE criteria, including for Total Nitrogen (both loads and concentrations), as explicitly required by the SEARs for development in the Sydney drinking water catchment? This is particularly concerning when the proponent's own assessment (Solar Farm WRIA, Appendix 11) flags fundamental issues with its TN modelling and the feasibility of common mitigation solutions. A detailed, modelled, and peer-reviewed solution addressing these specific concerns must be provided and assessed before determination.

8. Inadequate Assessment of Cumulative Impacts & Project Splitting

The EIS fails to properly assess the true cumulative impact of the Wattle Creek Energy Hub by treating the solar farm and the large co-located BESS as separate projects.

- Evidence: This application for a 265 MW Solar Farm with an integrated 100 MW BESS is explicitly acknowledged in the Solar Farm EIS Summary (p.1, 5) as being co-located with a separate application for a 350 MW BESS (SSD-63345458) on the same property ("Arthursleigh Farm"), with both projects intended to "share infrastructure". This approach is contrary to the intent of the Environmental Planning and Assessment Act 1979 and established departmental guidance on cumulative impact assessment (e.g., DPIE Circular PS 19-003), as well as the SEARs which require "an assessment of the likely impacts of all stages of the development... including any cumulative impacts... taking into consideration any relevant... Cumulative Impact Assessment Guideline" (EIS Appendix 1, SEARs Checklist).
- Critique: This "project splitting" prevents a transparent and holistic assessment of the total, combined environmental and safety risks of the entire Wattle Creek Energy Hub. The proponent's own "Cumulative Impact Scoping Summary" (Appendix 18 of the Solar Farm EIS) starkly illustrates this inadequacy. This summary rates the cumulative impact potential of the co-located Wattle Creek BESS (SSD-63345458) as "HIGH" (indicating a likelihood of substantial cumulative impacts) across all assessed categories: Biodiversity, Waste, Social/Economic, Noise, Visual, Bushfire, Aboriginal Heritage, Historic Heritage, Hazards and Risk, Land Use, and Transport. The adjacent Marulan Gas Fired Power Station is similarly rated "HIGH" across all categories, and numerous other regional projects (e.g., Marulan Solar Farm, Hume Link, Gundary Solar Farm, Merino Solar Farm, Gunlake Quarry) are also identified in Appendix 18 as having "HIGH" potential for

cumulative transport impacts. Despite these self-identified "HIGH" ratings for substantial cumulative impacts, the methodology outlined in Appendix 18 states that such a rating only triggers a "qualitative assessment." This is a critical flaw and an insufficient response to the SEARs. For instance:

  - The "HIGH" rating for "Hazards and Risk" from the combined BESS capacity (nearly 450MW) across the Wattle Creek Energy Hub demands rigorous quantitative analysis (e.g., FMECA, QRA, plume dispersion modelling for the combined DG quantities), not merely a qualitative review. The current PHA (Appendix 15) for the solar farm component fails to model cumulative risk scenarios, such as a fire in one BESS propagating to another, or the combined hazard footprint.
  - The "HIGH" rating for "Transport" for the co-located BESS, and for multiple other regional projects, confirms the immense pressure on local roads like Canyonleigh Road. A qualitative assessment is insufficient to address the staggering 843.3% cumulative traffic increase on Canyonleigh Road projected in the BESS TTA (Appendix 10, Table 19, p.68 of BESS TTA), nor is it adequate for planning necessary preemptive road upgrades. The Solar Farm TTA (Appendix 10) does not model the combined construction haulage task for both Wattle Creek projects simultaneously.

- The EIS for this solar farm component, while its Noise and Vibration Assessment (NVA, Appendix 6, Section 7.0, Table 12) presents a cumulative operational noise assessment, is argued to not adequately quantify the true overall combined impacts across all domains (traffic, construction noise, biodiversity, visual, and comprehensive hazard assessment) for the entire Wattle Creek Energy Hub, a failing now underscored by the proponent's own Appendix 18.
- Statement: Why has the proponent failed to provide a single, integrated EIS that assesses the true cumulative impact of all proposed components of the Wattle Creek Energy Hub (Solar Farm, integrated 100MW BESS, and standalone 350MW BESS), as required by the SEARs, particularly when their own Appendix 18 identifies "HIGH" potential for substantial cumulative impacts across all assessment categories for the co-located BESS? How can the Department make an informed decision on this application without a transparent, and crucially, quantitative assessment of the combined impacts from both SSDs, especially concerning shared infrastructure, construction schedules, operational risks (including cumulative hazard scenarios), and emergency response for the entire ~450MW BESS installation?

9. Social Impacts and Inadequate Mitigation (Appendix 16 & Appendix 4)

The Social Impact Assessment (SIA, Appendix 16) and the Summary of Management and Mitigation Measures (Appendix 4) reveal a disturbing pattern of acknowledged community

concerns met with vague, deferred, or insufficient mitigation strategies, failing to meet the SEARs requirement for an SIA in accordance with relevant guidelines (EIS Appendix 1, SEARs Checklist). This is further exemplified by the nature of private "Neighbour Benefit Sharing Deeds" offered to some immediately adjacent landowners.

- **Acknowledged Low Community Acceptance and Trust:**
  - Evidence: The SIA itself reports low community acceptance ratings for the project (2.9 out of 10) and identifies a "Lack of trust in the company and the landholder (University of Sydney) due to a perceived lack of information provision and transparency around bequeathment of the property" as a community concern (SIA, p.43, p.78). This perceived impact is rated as "High" significance by the community and remains a "Medium" risk even after proposed mitigation (SIA, Table 4.22, p.79; Table 5.1, p.85).
  - Critique: This admission highlights a fundamental breakdown in the social license for the project. Vague commitments to "ongoing communication" (Appendix 4, Measure SI-03, p.17; SIA, p.92) are insufficient to rebuild trust or address deep-seated concerns about transparency.
  - Statement: How can the Department approve a project where the proponent's own SIA documents significant community mistrust and low acceptance, with no concrete, time-bound strategy to demonstrably address these foundational issues?
- **Property Devaluation Risk Admitted, Mitigation Deferred, Inadequate, and Potentially Coercive:**
  - Evidence: The SIA acknowledges community concern regarding "Livelihood impacts associated with potential property devaluation" (rated 6.4 out of 7 by survey respondents, SIA, p.56). It even cites overseas studies suggesting solar farms can cause property devaluation (SIA, p.57). The Agricultural Impact Assessment's LUCRA (Appendix 13, summarised in SIA Table 15, p.44) identified this as a "High" risk. The SIA ranks the residual impact as "Medium" (SIA, Table 4.7, p.58). The primary "mitigation" offered in the SIA and Appendix 4 (Measure SI-02, p.17) is the "Community Benefit Sharing Program (CBSP) and Neighbour Agreements."
  - Critique: The CBSP structure is still under negotiation (SIA, p.90) and general neighbour agreements are only offered to "3 properties closest to the southern boundary" (SIA, p.92). For other directly affected neighbours, the "benefit" takes the form of a private "Neighbour Benefit Sharing Deed." An examination of such a deed reveals that in exchange for a modest fixed payment (e.g., an initial $5,000 and $5,000 annually), the landholder is required to accept "All impacts on the Property... including construction traffic, noise, dust and vibration... visual impacts... operational noise impacts"

(Item 8 of Deed). Crucially, the landholder "must not object... to any application made for any Approvals... or any applications to modify any Development Consent" and any submission made must "clearly state that it does not constitute an objection" (Clause 3.2 of Deed). Furthermore, the deed can be pleaded as an "absolute bar and defence to any proceeding brought in breach" of its terms (Clause 6.4(b) of Deed).
    - Statement: This approach to "mitigating" property devaluation and other significant impacts on the closest neighbours is not genuine mitigation but an attempt to contractually silence dissent and limit future recourse for a fixed, arguably inadequate sum. It suggests the proponent anticipates impacts more severe than generally disclosed in the EIS and seeks to preemptively neutralize objections rather than addressing impacts at their source. How can such agreements be considered equitable "benefit sharing" when they impose such broad acceptance of impacts and restrictions on landowners' rights? This practice casts serious doubt on the proponent's commitment to transparently assessing and genuinely mitigating impacts for the entire affected community.
- **Impact on "Sense of Place" Downplayed:**
    - Evidence: While the LVIA (Appendix 5) technically rates visual impacts as "low" for many, the SIA concedes that "from a social impact perspective... the development of the Project will result in a change in the sense of place for landholders/residents that have a view of the Project from their properties, and will result in a change in the rural vista and landscape" (SIA, p.47). Community feedback highlighted the value of "magnificent vistas" and "tranquillity" (SIA, p.46).
    - Critique: The EIS fails to adequately weigh this significant, albeit less quantifiable, social impact. Mitigation like "consideration to colours and height of ancillary infrastructure" (Appendix 4, LV-02, p.2) is superficial.
    - Statement: How does the EIS justify the significant and irreversible impact on the community's "sense of place" and rural amenity when its own SIA acknowledges this impact beyond the technical visual ratings?
- **Systemic Deferral of Social Mitigation Strategies:**
    - Evidence: The SIA (Appendix 16, p.89-93) and Appendix 4 (Measure SI-01, p.17) confirm that key social management strategies, including the "Accommodation and Employment Strategy (AES)," the "Community Benefit Sharing Program (CBSP)," and the "Industry and Aboriginal Participation Plan (IAPP)," are all future plans "to be developed before construction commences" or "prior to construction."
    - Critique: This deferral prevents any meaningful assessment of their adequacy

or feasibility as part of the EIS process, echoing a pattern seen across other impact areas and falling short of the SEARs' requirement to detail mitigation measures for identified social impacts (EIS Appendix 1, SEARs Checklist).
    - Statement: Why are crucial social mitigation plans, intended to address significant impacts on livelihoods, community cohesion, Indigenous participation, and even construction workforce accommodation as required by SEARs (EIS Appendix 1, SEARs Checklist), entirely deferred to post-approval, thereby precluding their assessment within this EIS?

10. Agricultural Impacts and Land Use Inadequacies (Appendix 13 & Appendix 4)
The "Soils, Land and Agriculture Impact Assessment" (SLAIA, Appendix 13) and the "Summary of Management and Mitigation Measures" (Appendix 4) further reveal an underestimation of impacts and reliance on uncertain mitigation outcomes, failing to meet the SEARs' directive for an agricultural impact assessment in accordance with the Solar Guideline (EIS Appendix 1, SEARs Checklist).

- **Speculative Reliance on "Trial" Agrisolar to Mitigate Land Loss – Further Weakened Commitment:**
    - Evidence: The SLAIA (Appendix 13, Section 1.2, p.7; Section 6.7, p.57-58) repeatedly downplays the removal of 580 ha from established agricultural use by referencing the proponent's "intent... to trial such agrisolar projects." However, the proponent's "Summary of Management and Mitigation Measures" (Appendix 4, Measure SL-01, p.13) further weakens this, stating only that they will "Consider implementing Agrisolar trials." The conclusion of "low, temporary" impacts on agricultural land use and productivity (SLAIA, Section 7, p.60) is thus heavily contingent on these merely "considered" trials.
    - Critique: This reliance on speculative, non-committal "consideration" of trials is insufficient to mitigate the loss of 580 ha of agricultural land. The EIS fails to assess the scenario where agrisolar is not viable or not implemented at scale, meaning the estimated annual productivity loss of up to $235,240 (SLAIA, Section 3.1.3, p.22) becomes a long-term impact.
    - Statement: How can the Department accept an impact assessment that predicates its conclusions on the mere "consideration" of "trials" rather than committed, proven, and scaled mitigation for the loss of 580 ha of agricultural land, as would be expected under a SEARs-compliant agricultural impact assessment?
- **Understated Erosion Risks and Potential Water Quality Impacts:**
    - Evidence: The SLAIA identifies dominant Sodosols (466 ha) as having a "Very High" erosion risk and Chromosols (82 ha) a "Moderate to High" risk (SLAIA, Table 13, p.38). It notes "significant water erosion and sedimentation issues present at the Project Area" and "widespread potential high risk for dispersion

for the soils" (SLAIA, Section 6.3.1, p.53).
    - Critique: Despite these stark warnings, Appendix 13 concludes the erosion risk to agriculture will be "low" with an ESCP (SLAIA, Section 5.3.4, p.48-49). This optimism is concerning given the site's characteristics and could exacerbate the project's documented failure to meet NorBE criteria for Total Nitrogen, as increased erosion from highly erodible soils will inevitably increase sediment and nutrient runoff into the Sydney Drinking Water Catchment.
    - Statement: Given the acknowledged "Very High" inherent erosion risk across the majority of the site, how can the proponent assure that standard ESCP measures will be sufficient to prevent increased sedimentation and nutrient loading into waterways, further compromising their ability to meet NorBE standards?
- **Acknowledged "High" Risk of Property Devaluation with No Firm Mitigation (beyond restrictive private deeds):**
    - Evidence: The SLAIA (Appendix 13, Section 4.3, Table 15, p.44, referencing the LUCRA) confirms that the proponent's Land Use Conflict Risk Assessment (LUCRA) identifies "potential devaluation of properties due to proximity to solar infrastructure" as a "High" risk. The SIA (Appendix 16, p.57, Table 4.7, p.58) also acknowledges this concern and rates the residual impact as "Medium".
    - Critique: Beyond the highly restrictive and arguably inadequate private "Neighbour Benefit Sharing Deeds" offered to some, the only "Risk Reduction Control" broadly offered is that "Spark Renewables are investigating neighbour benefit sharing initiatives" (SLAIA, LUCRA table; SIA, p.57). An "investigation" is not a mitigation measure for an acknowledged "High" risk of significant financial impact on neighbouring landowners.
    - Statement: Why is the proponent offering only a vague "investigation" into broader benefit sharing and highly restrictive private deeds as a response to a self-identified "High" risk of property devaluation, rather than concrete, committed, and equitable mitigation strategies for all significantly affected landowners, as would be expected in a thorough SEARs-compliant assessment?
- **Potential for Long-Term Soil Degradation ("Sterilisation"):**
    - Evidence: The SLAIA (Appendix 13, Section 5.3.1, p.47; Section 6.3.3, p.56) admits that if vegetation under panels is significantly reduced, "the soil may be temporarily sterilised," and that "soil sterilisation, localised or widespread, remains a minor risk." Restoration would require "additional efforts and costs."
    - Critique: This downplays a potentially significant long-term impact on soil health and agricultural productivity. Relying on unspecified future "additional

efforts" for remediation is a deferral of responsibility.
    - Statement: What guarantees are provided that "temporarily sterilised" soils will be fully remediated to pre-disturbance productivity levels, and who bears the "additional efforts and costs" if widespread soil degradation occurs?
- **Superficial Assessment of Cumulative Agricultural Impacts:**
    - Evidence: The SLAIA (Appendix 13, Section 5.5, p.50-51) dismisses significant cumulative impacts on regional agriculture by relying on the speculative success of widespread agrisolar and using broad, state-level statistics, which do not reflect the concentrated impact in the Southern Tablelands.
    - Critique: This contrasts with the serious cumulative impacts identified in other sectors (e.g., transport, as per Appendix 18). The assessment of cumulative agricultural loss is not robust and fails to meet the SEARs' general requirement for assessing cumulative impacts (EIS Appendix 1, SEARs Checklist).
    - Statement: Why does the Agricultural Impact Assessment use broad, state-level data and speculative agrisolar success to downplay cumulative agricultural impacts in the region, rather than conducting a focused analysis of the combined footprint of renewable projects in the Southern Tablelands, as required by the SEARs?

Conclusion and Recommendation
The Environmental Impact Statement for the Wattle Creek Solar Farm is demonstrably inadequate and fails to provide the community or the Department with the necessary assurances that this project can be constructed and operated safely and with acceptable environmental impact. It is characterised by systemic flaws, including: the downplaying of significant risks (particularly concerning public safety, emergency response, road impacts, agricultural land, and social amenity); the pervasive deferral of critical planning, design, and mitigation details to post-approval stages, as evidenced throughout the proponent's own "Summary of Management and Mitigation Measures" (Appendix 4); the presentation of conclusions that are contradicted by the proponent's own data (such as the inconsistent firefighting water supply commitments); and the proposal of solutions that are clearly insufficient or speculative for the scale of the identified problems. Crucially, as detailed throughout this objection, the EIS frequently fails to meet the explicit Secretary's Environmental Assessment Requirements (SEARs) set for this project (EIS Appendix 1, SEARs Checklist).

The project, as presented, poses an unacceptable risk to public safety due to a critically inconsistent and likely inadequate firefighting water supply (ranging from a mere 20,000L to 100,000L across different documents, with Appendix 4 suggesting only 40,000L) and an unproven, deferred emergency management strategy for a major hazardous facility (100MW BESS) in a bushfire-prone area – a clear failure to

meet SEARs for hazards and bushfire assessment. It fails to meet legislated environmental standards and specific SEARs for water quality in the Sydney Drinking Water Catchment for Total Nitrogen. It proposes to damage a Critically Endangered Ecological Community without sufficiently justified SAII assessment as mandated by SEARs. It neglects to assess potentially significant localized warming effects (even within its own Agricultural Impact Assessment), an omission under the general environmental assessment requirements of the SEARs. Key assessments regarding traffic, noise, and agricultural impacts are based on flawed, incomplete methodologies or speculative mitigations that render their conclusions unreliable and non-compliant with specific SEARs. The Social Impact Assessment (Appendix 16) itself documents low community acceptance, a lack of trust, and acknowledges significant concerns such as property devaluation and impacts on sense of place, for which concrete and timely mitigation is largely absent, deferred, or takes the form of restrictive private agreements that limit landowner rights rather than genuinely sharing benefits or mitigating impacts – falling short of SEARs for social impact assessment. The project splitting with the adjacent 350MW BESS application, a concern amplified by the proponent's own "Cumulative Impact Scoping Summary" (Appendix 18) which acknowledges "HIGH" potential for substantial cumulative impacts from the co-located BESS across all environmental and safety categories, further undermines a comprehensive understanding of total project impacts and fails the SEARs requirement for a thorough cumulative impact assessment.

The EIS, in its current form, does not provide the necessary evidence or assurance that the Wattle Creek Solar Farm can be constructed and operated safely, sustainably, or in compliance with essential environmental and community protection standards, nor does it adequately satisfy the SEARs.

Therefore, I strongly urge the Department of Planning, Housing and Infrastructure to refuse consent for the Wattle Creek Solar Farm (SSD-63344210) and, by extension, to critically re-evaluate the concurrently proposed Wattle Creek Battery Energy Storage System (SSD-63345458) in light of these interconnected failings and SEARs non-compliance.

Should the Department, against this advice, consider the project further, a comprehensively revised and integrated EIS is mandatory, addressing all deficiencies highlighted herein and explicitly demonstrating how each SEAR (as per EIS Appendix 1, SEARs Checklist) has been met. This must include, at a minimum:

- A fully resourced, FRNSW/RFS endorsed Emergency Plan for the entire Wattle Creek Energy Hub (including both BESS components), featuring a consistent, clearly justified,

and unequivocally FRNSW-compliant water supply (realistically likely to be significantly more than 200,000L for the combined 450MW/1800MWh BESS capacity), a detailed quantitative risk assessment (specifically a Level 3 QRA if screening thresholds under HIPAP guidelines are met for the combined DG quantities of the entire Energy Hub, and at minimum compliant with HIPAP 4, SEPP Resilience and Hazards, and all relevant SEARs for all DGs), FMECA, and toxic plume dispersion modelling for BESS fires. Verifiable UL9540A test data for all BESS technologies used across the entire Energy Hub must be provided.

- Pre-emptive, proponent-funded upgrades to Canyonleigh Road to a safe and durable standard (addressing width, structural capacity, shoulders, and passing opportunities) based on comprehensive traffic data (such as 7-day counts as preferred by TfNSW guidelines and consistent with SEARs) and a formal Road Safety Audit addressing all project phases, with designs and commitments provided upfront, not deferred.
- Site-specific, long-term LA90 background noise monitoring at all potentially affected receivers, with NPfI compliant operational noise modelling using certified data for actual equipment (as per SEARs), including rigorous tonality assessment and enforceable noise limits (e.g., potentially lower than 35 dB(A) night-time based on true RBLs).
- A demonstrated, engineered, and peer-reviewed solution for achieving full NorBE compliance for Total Nitrogen (both loads and concentrations) and all other pollutants in the Sydney Drinking Water Catchment, prior to any approval, as mandated by SEARs. This solution must address the modelling anomalies and mitigation feasibility concerns identified in the proponent's own Water Resources Impact Assessment (Solar Farm WRIA, Appendix 11, p.71) and the high soil erosion risks identified in the Agricultural Impact Assessment (SLAIA, Appendix 13, Table 13, p.38).
- A robust and transparent SAII assessment for Box Gum Woodland CEEC, based on correct regional context and BAM principles (as per SEARs), alongside a reconciled and verifiable clearing footprint and corresponding offset calculation for all biodiversity impacts.
- Comprehensive "Heat Island" effect modelling (as per LSSG FAQ §3.5 and fulfilling general SEARs for environmental assessment) detailing impacts on local microclimate, agriculture (including impacts on soil moisture, crop/pasture stress, and livestock), and biodiversity, with proposed mitigation if adverse effects are identified.
- Winter "leaf-off" photomontages from all key viewpoints and a clear strategy for guaranteeing the long-term effectiveness of any relied-upon landscape screening. The LVIA must also include a cumulative assessment of all visual impacts from the entire Energy Hub, including all ancillary structures such as any large communication masts.
- An integrated cumulative impact assessment for the entire Wattle Creek Energy Hub (Solar Farm and both BESS components), transparently and quantitatively addressing all combined environmental, social, safety, and agricultural impacts (as required by SEARs), particularly those rated as "HIGH" potential in the proponent's own Appendix 18 and Appendix 13. This assessment must move beyond mere "qualitative" reviews for substantial impacts and provide robust, data-driven analysis and committed

mitigation.

- A revised Agricultural Impact Assessment that addresses the omissions and inadequacies identified, fulfilling SEARs by including a worst-case scenario assessment that does not rely on merely "considering" speculative agrisolar trials (as per Appendix 4), provides concrete and timely mitigation for acknowledged "High" risk impacts like property devaluation, and details firm commitments for soil remediation.
- A revised Social Impact Assessment and accompanying Social Impact Management Plan (not deferred to post-approval as per Appendix 4 and 16), meeting SEARs by providing specific, funded, and time-bound strategies to address acknowledged community concerns regarding property values, trust, transparency, impacts on sense of place, and construction workforce accommodation. This must include genuine, equitable benefit-sharing mechanisms rather than private agreements that primarily serve to limit landholder rights and shield the proponent from accountability for the full scope of impacts.

Without these fundamental revisions and demonstrated solutions that explicitly meet all SEARs, the project remains an unacceptable imposition of risk and environmental damage on this community.