Friday, 30 October 2026

Matthew Allen
Senior Manager Specialist Risk and Fire Safety
Fire Risk, Research and Community Preparedness
Country Fire Authority
8 Lakeside Drive, Burwood East,
VIC Australia 3151

Dear Mr Allen

Re: CEC submission regarding version 5, CFA Design Guidelines for Renewable Energy Facilities

The Clean Energy Council (***CEC***) is the peak body for the clean energy industry in Australia, representing nearly 1,000 businesses operating across renewable energy generation, energy storage and the broader clean energy supply chain. Our members include developers, owners, operators and investors in wind energy facilities, solar energy facilities, battery energy storage systems and associated infrastructure across Victoria and nationally.

This submission responds to the draft CFA Design Guidelines and Model Requirements for Renewable Energy Facilities Version 5, Review Draft, September 2026 (***Draft v5 CFA Guidelines***). It reflects feedback received through targeted consultation with CEC members.

The CEC and its members are committed to the highest standards of fire safety in the design, construction and operation of renewable energy facilities. We support the objectives of the Draft v5 CFA Guidelines and recognise CFA's vital role in protecting the community, emergency responders and critical infrastructure. We value our constructive, ongoing relationship with CFA's Specialist Risk and Fire Safety Unit (***SRFSU***).

The CFA Design Guidelines and Model Requirements for Renewable Energy Facilities are used as a template in other states, so their influence on how renewable energy facilities are designed and assessed extends nationally. That makes it all the more important to get them right. To achieve this, fire safety requirements should be proportionate to the actual, quantified risk presented, supported by transparent evidence, and consistent with how comparable risks are managed across other industries and land uses.

Many of our recommendations therefore seek to shift the Draft v5 CFA Guidelines away from prescriptive requirements and towards a risk-based approach tailored to each site, while ensuring that requirements remain robust where high-risk situations arise. In particular, we are concerned about the stronger position on avoiding high-risk environments and the potential challenges for proponents developing within the Bushfire Management Overlay (***BMO***).

The CEC welcomes the opportunity to keep working collaboratively with CFA as the guidelines are finalised. We see considerable value in a genuine two-way dialogue: one in which CFA can help

industry understand the technical basis for some of the new requirements, and industry can share practical insights on where requirements may not be technically feasible or may have unintended consequences. We would welcome the opportunity to meet with the SRFSU to discuss this submission and would be pleased to facilitate further engagement with members on specific technical issues.

Summary of recommendations

Status and approach of the Guidelines

Recommendation 1: CFA should clarify the status and intended operation of Draft v5, including how it is to be applied in planning processes and to projects already in development.

Recommendation 2: Where requirements in Draft v5 are intended to be mandatory, these should be clearly identified and supported by a clear rationale and a transparent evidence base.

Recommendation 3: Where possible, the Draft v5 CFA Guidelines should set risk-based outcomes rather than prescriptive requirements. Where prescriptive requirements are retained (such as fixed separation distances or static water volumes), the Guidelines should expressly allow these to be reduced where a facility demonstrates a lower level of fire risk through performance testing, thermal modelling or a fire safety study, with clear criteria for how that evidence will be assessed.

Siting and high-risk environments

Recommendation 4: CFA should replace the potential presumption against locating renewable energy facilities in or near the BMO with a performance-based, site-specific assessment pathway.

Recommendation 5: CFA should align the siting requirements for solar and BESS projects with the wind section, which more expressly anticipates development in high-risk environments, or explain the basis for the difference in wording.

Recommendation 6: CFA should amend the definition of 'high-risk environments' in section 12.2 to incorporate a risk assessment, so that sites that do not meet every low-risk attribute are not automatically classified as high-risk.

Recommendation 7: CFA should publish a comparative risk analysis showing how the fire risk profile of renewable energy facilities in BMO environments differs from that of other infrastructure and land uses in the same environments.

BMO mapping and site-specific evidence

Recommendation 8: The Draft v5 CFA Guidelines should allow project-specific risk assessments to inform CFA's advice on planning applications, rather than treating BMO designation as determinative.

Recommendation 9: CFA should expressly confirm that it will consider and accept site-specific evidence demonstrating that BMO mapping does not reflect current on-ground conditions, or that actual fire risk is lower than the mapping indicates.

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Recommendation 10: The Draft v5 CFA Guidelines should reference the criteria and methodology used by DTP for BMO mapping, so that proponents can assess site constraints early and engage more effectively with CFA and affected landowners on site-specific fire risk.

Transitional arrangements

Recommendation 11: CFA should confirm that version 4.4 will continue to apply as of right, rather than at CFA's discretion, to projects that have obtained a planning permit or secondary consent before the Draft v5 CFA Guidelines take effect.

Recommendation 12: Transitional treatment should also extend to projects that have reached another significant milestone (such as an EES referral) or have effectively consulted with CFA, with 'effectively consulted' defined by clear, objective milestones. Version 5 should apply only prospectively, unless a proponent elects to adopt it or a project-specific change creates a demonstrable new fire safety risk.

Recommendation 13: CFA should delete the requirement that projects applying version 4.4 should apply version 5 requirements 'wherever possible'.

Arc flash

Recommendation 14: CFA should clarify the purpose and scope of Section 17, confirming that it is directed at emergency responder safety and does not duplicate or alter electrical safety obligations administered by Energy Safe Victoria and WorkSafe Victoria.

Recommendation 15: CFA should define the circumstances and thresholds that trigger an arc flash assessment, the level of detail expected, how outcomes will be used in CFA's advice on planning applications, and what constitutes an acceptable risk outcome. CFA should also confirm which edition of the ESV guideline applies.

Recommendation 16: CFA should replace the requirement to show arc flash exclusion zones on emergency plans with a requirement to identify electrical hazard areas, isolation points and no-entry conditions that apply until access is released.

Wind energy facilities

Recommendation 17: CFA should publish the technical basis for the consultation requirement in WEF02 applying only to wind energy facilities, or remove it. If retained, consultation should be required only once the site and turbine layout are sufficiently defined for meaningful consultation, and should not prevent the initial landowner engagement needed to assess feasibility.

Recommendation 18: Amend WEF03 so that internal road requirements are determined through a risk-based, site-specific assessment in consultation with CFA. Clarify the technical basis for requiring 30 tonnes loading, and clarify that 'all-weather' refers to the surface specification in section 13 rather than guaranteed trafficability.

Recommendation 19: Amend WEF04 to allow risk-based, whole-of-site firefighting water arrangements (including consolidated, shared or strategically located tanks) as an alternative to a tank at every entrance, and publish the technical basis for the triggers for additional tanks.

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Recommendation 20: Replace the prescriptive automatic nacelle fire suppression requirement with a performance-based requirement that permits alternative controls achieving equivalent fire safety without creating occupational or confined-space hazards, with any mandatory requirement limited to high bushfire risk areas.

Recommendation 21: Clarify what 'wherever possible' requires under WEF06; publish the products and specifications that CFA considers compliant, and expressly allow performance-equivalent alternatives such as enhanced containment, bunding and fire suppression systems.

Recommendation 22: Amend WEF07 so that the need for and extent of any fuel-reduced zone is determined through a risk-based, site-specific assessment that minimises native vegetation clearance. Clarify how the zone is measured, and limit zones extending to the rotor diameter to high-risk sites where no native vegetation clearance is required. We recommend considering a requirement instead that grass or crops are to be maintained in accordance with typical farming best practice.

Solar energy facilities

Recommendation 23: Amend SEF02 to expressly allow solar energy facilities in high-risk areas, including within the BMO, where a site-specific assessment demonstrates that fire risks can be adequately managed to CFA's satisfaction, acting reasonably.

Recommendation 24: Reinstate the version 4.4 approach in SEF04, so that the number and location of access points are determined through a risk-based, site-specific assessment in consultation with CFA. CFA should also clarify what constitutes a separate 'section' of a facility divided by roads, powerlines or watercourses, and remove the phrase 'preferably more'.

Battery energy storage systems

Recommendation 25: Amend BESS02 to expressly allow BESS in high-risk areas, including within the BMO, where a site-specific assessment demonstrates that fire risks can be adequately managed to CFA's satisfaction, acting reasonably.

Recommendation 26: Define 'turbine collapse zone' in BESS05 and allow BESS units within the zone, or a reduced buffer, where a site-specific risk assessment or operational controls (such as isolating turbines and BESS units during lightning events) demonstrate equivalent fire safety outcomes.

Recommendation 27: Publish the evidence supporting CFA's treatment of decentralised BESS or, absent such evidence, recognise the lower risk of fire propagation between dispersed units. CFA should also engage with operators of existing decentralised installations, before version 5 is finalised.

Recommendation 28: Replace the fixed 45,000L tank within 120m of each BESS unit (BESS14) with a technology-specific, risk-based requirement that allows shared or consolidated supplies, and clarify whether fire water runoff containment (BESS21) applies to decentralised BESS. If it does, its need and scale should reflect unit separation, the emergency response strategy and credible water volumes.

Recommendation 29: Clarify what is meant by each 'part' of the facility in BESS09 and how it interacts with BESS10, and clarify that 'all-weather' refers to the surface specification in section 13 rather than guaranteed trafficability (consistent with Recommendation 18).

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Recommendation 30: Confirm that separation distances derived from OEM large-scale burn tests will be accepted as an alternative to the 3m requirement in BESS11 where equivalent fire containment is demonstrated.

Recommendation 31: Work with EPA to develop coordinated guidance on acoustic barriers (BESS18) so that noise and fire safety objectives can both be met without duplicative or conflicting infrastructure.

Recommendation 32: Amend BESS22 to permit above-ground cabling, busways and cable trays where required by the OEM design and the associated risks are managed through the Risk Management Plan, and to list other acceptable non-combustible surfaces, such as bare soil, limestone and blue metal, as examples alongside concrete.

Substations and transmission

Recommendation 33: Apply Recommendations 18 and 21 to substations: clarify that 'all-weather' in SUB02 refers to the surface specification in section 13, and, for SUB07, clarify what 'wherever possible' requires, publish compliant transformer specifications, and allow performance-equivalent alternatives such as enhanced containment, bunding and fire suppression.

Recommendation 34: Replace the ESV consultation requirement in SUB03 with a requirement for evidence of compliance with AS 2067-2016 and applicable electrical safety duties or, if retained, clarify its timing, form and how ESV input interacts with CFA's advice on planning applications.

Recommendation 35: Clarify how SUB04 is to be met, publish the risk justification for requiring water infrastructure outside the substation compound, allow performance-based alternatives (such as existing site water supplies or tanker access), and confirm that any response within energised switchyards remains conditional on safe electrical isolation and authorised access.

Recommendation 36: Identify the specific fire risk scenario that ELC01 addresses, demonstrate that undergrounding justifies the additional cost, and define the circumstances in which above-ground lines will be accepted.

General comments

Status and approach of the Guidelines

We consider that the current Draft v5 CFA Guidelines shifts towards prescriptive standards and away from a more risk-based approach. For example, we note that proposed modifications to all Model Requirements are now 'subject to approval by CFA', rather than developed 'in consultation with CFA' as in v4.4,[1] and that the Model Requirements are described as incorporating a 'non-negotiable factor of safety'.[2] A number of sections also introduce new fixed minimum distances, such as a 10m minimum

[1] Draft v5 CFA Guidelines, throughout eg. BESS11.
[2] Draft v5 CFA Guidelines, section 3.5.1.

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separation between BESS and site boundaries, vegetation, substations and buildings, where v4.4 relied on a radiant heat assessment,[3] and a 90m fuel-reduced zone around wind turbines, compared with 20m in v4.4.[4] The 6m solar bank separation now also applies to smaller facilities that were previously exempt.[5] We note that a blanket approach may penalise lower risk technologies and inversely not adequately address risk in other cases.

This is an issue, particularly given the potentially mandatory status of the Guidelines and the role of the CFA in the planning process. To this end we note:

- Although a guideline, Draft v5 CFA Guidelines describes itself as providing 'CFA's minimum requirements',[6] and states that any proposed modification 'must be justified and supported by alternative risk controls with a demonstrable equivalent (or greater) level of fire safety' and is 'subject to approval by CFA'.[7]
- The CFA has significant influence in the planning process for renewable energy projects. For example, for projects subject to statutory planning under the *Planning and Environment Act 1987* (***PE Act***), the responsible authority may refer an application to CFA under section 52 of the PE Act. In addition, where the Minister for Planning requires an Environment Effects Statement (***EES***), CFA's Specialist Risk and Fire Safety Unit may also participate in that assessment through the Technical Reference Group and any subsequent inquiry.

Given the prescriptive nature of the Draft v5 CFA Guidelines and the regulatory sway of the CFA, the detailed and prescriptive requirements in Draft v5 CFA Guidelines risk operating as mandatory standards in practice, despite being presented as guidance.

We make a number of recommendations. The CFA should clarify the status of the Draft v5 CFA Guidelines and in particular where requirements are mandatory there should be clearly identified and the supporting rationale and evidence provided. To avoid prescriptive requirements being applied overly conservatively we also recommend that prescriptive matters (such as fixed separations or fixed static water requirements) be caveated. While we note that Draft v5 allows equivalency to be demonstrated through a Fire Safety Study,[8] the Guidelines should expressly recognise that these requirements can be reduced where facilities demonstrate lower levels of fire risk through performance testing, thermal modelling and fire safety studies, with clear criteria for how such evidence will be assessed.

Recommendation 1: CFA should clarify the status and intended operation of Draft v5, including how it is to be applied in planning processes and to projects already in development.

Recommendation 2: Where requirements in Draft v5 are intended to be mandatory, these should be clearly identified and supported by a clear rationale and a transparent evidence base.

[3] Draft v5 CFA Guidelines, section 4.2.6.2 cf. v4, s4.2.6, Battery Energy Storage Systems, page 29.
[4] Draft v5 CFA Guidelines, WEF07; cf. v4, s4.2.4, page 24.
[5] Draft v5 CFA Guidelines, SEF03; cf. v4, s4.2.6.2, page 27.
[6] Draft v5 CFA Guidelines, s1.1, page 8.
[7] Draft v5 CFA Guidelines, s1.2.3, page 9.
[8] Draft v5 CFA Guidelines, s1.2.3, page 9.

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Recommendation 3: Where possible, the Draft v5 CFA Guidelines should set risk-based outcomes rather than prescriptive requirements. Where prescriptive requirements are retained (such as fixed separation distances or static water volumes), the Guidelines should expressly allow these to be reduced where a facility demonstrates a lower level of fire risk through performance testing, thermal modelling or a fire safety study, with clear criteria for how that evidence will be assessed.

Siting and high-risk environments

The Draft v5 CFA Guidelines state that '[w]ind turbines should be sited in low-risk environments' and that '[d]evelopers should take all reasonable steps to locate wind turbines outside of high-risk locations'.[9] High-risk environments include land within the Bushfire Management Overlay (***BMO***) and areas with peat.[10] Version 4.4 provided that renewable energy facilities were 'to be located in low-risk environments wherever possible'.[11] Draft v5 goes further. It states that CFA expects 'all possible low-risk options are fully exhausted before a high-risk environment is considered', requires proponents to 'demonstrate that alternative locations have been appropriately considered', and states that 'the CFA Model Requirements of this guideline may not be sufficient for high-risk environments'.[12] It also states that '[w]here developments are proposed within the BMO, risk may not be able to be mitigated to the satisfaction of CFA'.[13] Together, these amount to a presumption against development in the BMO. We note the following issues:

- **Practical challenges of avoiding the BMO:** Parts of Victoria's Renewable Energy Zones (REZs), and a number of existing wind, solar and BESS projects, overlap with or adjoin BMO areas. Transmission network access, wind and solar resource, land tenure, environmental constraints and existing connection infrastructure often leave limited scope to avoid BMO-affected land entirely. Given the limited geographical area of the REZs and the need to balance resource quality, network access and landholder participation, further restrictions on BMO land will narrow the pool of suitable development sites.
- **Inconsistent siting wording across technologies:** The wind section acknowledges that turbines may be located in high-risk environments where 'all reasonable steps' have been taken to avoid them. The solar (SEF02) and BESS (BESS02) sections state only that facilities 'should be located in low-risk environments', without equivalent wording.[14] This inconsistency creates uncertainty as to whether CFA will support solar and BESS projects in high-risk environments, and risks the BMO operating as a de facto exclusion zone for these technologies.

[9] Draft v5 CFA Guidelines, WEF02, page 31.
[10] Draft v5 CFA Guidelines, s12.2, page 73.
[11] CFA Guidelines v4.4, s4.1, page 14.
[12] Draft v5 CFA Guidelines, ss12.1–12.2 (including FSL02), page 73.
[13] Draft v5 CFA Guidelines, s12.3.1, page 74.
[14] Draft v5 CFA Guidelines, s7.3 (SEF02), page 38; s8.3 (BESS02), page 48.

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- **Definition of high-risk environments:** Section 12.2 defines high-risk environments broadly, as areas where 'landscape hazards or fire risk indicators are present'.[15] Read together with the requirement to identify whether a facility is 'in a low-risk environment',[16] this could mean that any site not meeting every low-risk attribute (for example, a slope of more than 5 degrees) is treated as high-risk. This is unnecessarily broad and risks excluding projects that would, on a holistic assessment, present a low fire risk.
- **Inconsistent treatment compared with other land uses:** The BMO covers significant parts of regional Victoria and accommodates a wide range of land uses, including agriculture, grain handling and storage, fuel and chemical storage, residential development and industry. Many of these involve known ignition sources or flammable materials. The CEC has not identified equivalent guidance or restrictions on development in the BMO applying to these other sectors.

The CEC supports the early identification and management of bushfire risk, but does not support treating location in the BMO as a near-absolute constraint, particularly for solar and BESS projects. The CEC recommends a risk-based approach, under which renewable energy projects may be located in or near the BMO where a site-specific risk assessment demonstrates that risks can be avoided, mitigated or managed to CFA's satisfaction. The CEC also considers that the definitions of low-risk and high-risk environments should be clarified, so that minor departures from the low-risk attributes do not automatically result in a site being classified as high-risk.

Recommendation 4: CFA should replace the potential presumption against locating renewable energy facilities in or near the BMO with a performance-based, site-specific assessment pathway.

Recommendation 5: CFA should align the siting requirements for solar and BESS projects with the wind section, which more expressly anticipates development in high-risk environments, or explain the basis for the difference in wording.

Recommendation 6: CFA should amend the definition of 'high-risk environments' in section 12.2 to incorporate a risk assessment, so that sites that do not meet every low-risk attribute are not automatically classified as high-risk.

Recommendation 7: CFA should publish a comparative risk analysis showing how the fire risk profile of renewable energy facilities in BMO environments differs from that of other infrastructure and land uses in the same environments.

BMO mapping and site specific evidence

Because the Draft v5 CFA Guidelines treat all land within the BMO as a high-risk environment,[17] and states that within the BMO 'risk may not be able to be mitigated to the satisfaction of CFA',[18] it is critical

[15] Draft v5 CFA Guidelines, s12.2, page 73.
[16] Draft v5 CFA Guidelines, s12.1 (FSL01), page 73.
[17] Draft v5 CFA Guidelines, s12.2, page 73.
[18] Draft v5 CFA Guidelines, s12.3.1, page 74.

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that BMO mapping accurately identifies land that is genuinely high-risk, so that development is not unnecessarily precluded.

The CEC understands that BMO mapping is undertaken at a landscape scale. Applying it to individual sites can produce outcomes that do not reflect the vegetation, topography and fire behaviour of a particular location. Given the broad extent of the BMO and the limitations of low-resolution and potentially outdated mapping, 'ground-truthing' may be needed before site constraints can be reliably assessed.

Vegetation conditions may also have changed since the overlay was applied. For example, vegetation may have been cleared or died, or may no longer present the risk that originally justified the overlay. Planning scheme amendments are time-consuming and poorly suited to minor updates reflecting changed site conditions.

Draft v5 already requires planning applications to include a site-specific bushfire assessment under section 13.02,[19] and requires Risk Management Plans to be reviewed when BMO mapping is updated.[20] However, it does not indicate that site-specific evidence can inform whether a site is treated as high-risk. A site-specific, on-ground risk assessment provides a more reliable basis than BMO designation alone for determining whether hard constraints are warranted. The Guidelines should acknowledge this and confirm that CFA will consider and accept site-specific evidence demonstrating a lower fire risk.

Recommendation 8: The Draft v5 CFA Guidelines should allow project-specific risk assessments to inform CFA's advice on planning applications, rather than treating BMO designation as determinative.

Recommendation 9: CFA should expressly confirm that it will consider and accept site-specific evidence demonstrating that BMO mapping does not reflect current on-ground conditions, or that actual fire risk is lower than the mapping indicates.

Recommendation 10: The Draft v5 CFA Guidelines should reference the criteria and methodology used by DTP for BMO mapping, so that proponents can assess site constraints early and engage more effectively with CFA and affected landowners on site-specific fire risk.

Transitional arrangements

The Draft v5 CFA Guidelines provide that, for projects in development that have 'effectively consulted' with CFA's Specialist Risk and Fire Safety Unit, the version 4.4 Model Requirements for facility design 'may be applied where agreed in writing by CFA'.[21] This includes projects that have obtained a planning permit or secondary consent and are in detailed design. Version 4.4 continues to apply as of

[19] Draft v5 CFA Guidelines, s2.3.2, page 12.
[20] Draft v5 CFA Guidelines, s3.4 (RMP02), page 17.
[21] Draft v5 CFA Guidelines, s2.3.8, page 14.

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right only to operating facilities whose planning permit references it, and even then only 'unless advised otherwise by a regulatory authority'.[22]

The CEC does not support leaving the application of version 4.4 to CFA's discretion for projects that have already secured a planning permit or secondary consent. Applying Draft v5 to approved projects could require them to revisit settled design parameters, permit conditions and commercial commitments, creating unnecessary cost, delay and regulatory uncertainty. This is particularly so where a permit already references version 4.4. Transitional arrangements should protect projects that have materially progressed in reliance on the requirements that applied at the time. We also note that the transitional provision extends only to facility design requirements, so version 5 requirements for construction, commissioning and operation would still apply.

In addition, 'effectively consulted' is not defined. Without objective criteria, proponents may be uncertain whether their project qualifies for transitional treatment, leading to inconsistent outcomes between projects. We recommend defining 'effectively consulted' by reference to clear, objective milestones, such as completion of an initial project meeting with CFA, submission of a Risk Management Plan, or receipt of written CFA feedback.

Finally, the Draft v5 CFA Guidelines state that projects under the transitional provisions should apply version 5 requirements 'wherever possible in consultation with CFA'.[23] This wording is subjective and creates uncertainty. For well-advanced projects, redesigning layouts, access arrangements, transmission infrastructure, vegetation management or setbacks may introduce significant cost, delay and planning risk. We recommend that this wording be removed.

Recommendation 11: CFA should confirm that version 4.4 will continue to apply as of right, rather than at CFA's discretion, to projects that have obtained a planning permit or secondary consent before the Draft v5 CFA Guidelines take effect.

Recommendation 12: Transitional treatment should also extend to projects that have reached another significant milestone (such as an EES referral) or have effectively consulted with CFA, with 'effectively consulted' defined by clear, objective milestones. Version 5 should apply only prospectively, unless a proponent elects to adopt it or a project-specific change creates a demonstrable new fire safety risk.

Recommendation 13: CFA should delete the requirement that projects applying version 4.4 should apply version 5 requirements 'wherever possible'.

Arc flash

Section 17 of the Draft v5 CFA Guidelines expands the arc flash requirements. Version 4.4 required that arc flash hazards be identified and managed, and that arc boundaries be demarcated to at least

[22] Draft v5 CFA Guidelines, s2.3.8, page 14.
[23] Draft v5 CFA Guidelines, s2.3.8, page 14.

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10m from power conversion unit blow-out panels.[24] Draft v5 retains the demarcation requirement and adds requirements to assess arc flash risk:

- in accordance with Energy Safe Victoria's (***ESV***) Arc Flash Hazard Management Guideline;
- to include ESV and WorkSafe Victoria Arc Flash Self-Audit Tool findings in the Risk Management Plan; and
- to show arc flash exclusion zones on emergency services site plans and on Emergency Plans for solar energy facilities, BESS and substations.[25]

The CEC acknowledges that arc flash hazards are not limited to enclosed switchboards. However, a fixed, mapped exclusion zone is of limited value in open-air switchyards, because incident energy depends on the equipment, fault level, clearing time, working distance and operating state. Showing generic arc flash boundaries on emergency plans risks implying that emergency responders can rely on them to determine safe approach distances. Emergency plans would be more useful if they identified electrical hazard areas, isolation points and no-entry conditions that apply until access is released.

The arc flash assessment requirement also needs further definition. While Draft v5 references the ESV guideline, it does not specify the thresholds that trigger an assessment, the level of detail expected, or how the outcomes will be used by CFA in reviewing Risk Management Plans or providing advice on planning applications.

Finally, the purpose of Section 17 should be clarified. Arc flash risk management and worker safety are regulated by ESV and WorkSafe Victoria. Requiring compliance material such as self-audit findings to be included in a CFA Risk Management Plan risks drawing CFA into reviewing matters that sit with those regulators. If Section 17 is intended to protect emergency responders, it should focus on communicating electrical status, exclusion and isolation arrangements, authorised-person control and equipment-specific hazards.

Recommendation 14: CFA should clarify the purpose and scope of Section 17, confirming that it is directed at emergency responder safety and does not duplicate or alter electrical safety obligations administered by Energy Safe Victoria and WorkSafe Victoria.

Recommendation 15: CFA should define the circumstances and thresholds that trigger an arc flash assessment, the level of detail expected, how outcomes will be used in CFA's advice on planning applications, and what constitutes an acceptable risk outcome. CFA should also confirm which edition of the ESV guideline applies.

Recommendation 16: CFA should replace the requirement to show arc flash exclusion zones on emergency plans with a requirement to identify electrical hazard areas, isolation points and no-entry conditions that apply until access is released.

[24] CFA Guidelines v4.4, s6.2.3, page 35.
[25] Draft v5 CFA Guidelines, s17 (ARC01–ARC02), page 81; s7.14 (SEF16), page 44; s8.19 (BESS30), page 60; s10.11 (SUB10), page 68.

Wind Energy Facility Comments

Annexure A sets out the CEC's detailed comments on the wind energy facility requirements. Three themes run across them: requirements are applied as fixed, blanket standards rather than tailored to site-specific risk; several lack a published technical basis; and some conflict with work health and safety, biodiversity or agricultural coexistence objectives, or cannot readily be met with available equipment. The key issues are:

- **BMO consultation (WEF02):** The requirement to consult CFA where turbines are proposed within 500m of the BMO, and to do so 'before seeking consent from landowners', applies only to wind energy facilities and has no stated technical basis.[26] Consultation before landowner engagement is impractical at the feasibility stage, when the site and layout are not yet defined.
- **Internal roads (WEF03 and EVA02):** All-weather internal roads must be provided to each turbine, substation, building and fire service asset, regardless of site constraints or the emergency response strategy. The Guidelines do not set out the justification for increasing the hardstand loading from 15 to 30 tonnes, and the 'all-weather' label implies a level of trafficability that the specified surface does not guarantee.[27]
- **Fire water storage (WEF04):** Requiring a 45,000L tank at every site vehicle entrance ties water infrastructure to the road network rather than to facility risk. Draft v5 sets triggers for additional tanks at CFA's discretion, but does not explain their technical basis.[28]
- **Nacelle fire suppression (WEF04):** Mandatory automatic suppression may create confined-space hazards for technicians. Compliant turbines can be difficult to source without after-market systems that may void manufacturer warranties.
- **Turbine oils and lubricants (WEF06):** It is unclear what 'wherever possible' requires in practice. CFA has not identified which products comply, and such products may not be commercially viable as a standard specification.[29]
- **Fuel-reduced zone (WEF07):** The discretionary zone extends to 'the rotor diameter or 90m (whichever is greater)' around each turbine.[30] At a minimum this is around 2.5 hectares per turbine. For modern turbines it could be significantly more, with significant biodiversity, land use and hardstand design implications. How the zone is measured is also unclear.

Recommendation 17: CFA should publish the technical basis for the consultation requirement in WEF02 applying only to wind energy facilities, or remove it. If retained, consultation should be required only once the site and turbine layout are sufficiently defined for meaningful consultation, and should not prevent the initial landowner engagement needed to assess feasibility.

[26] Draft v5 CFA Guidelines, s6.3 (WEF02), page 31; cf. s12.2 (FSL02), page 73.
[27] Draft v5 CFA Guidelines, s6.4 (WEF03), page 31; s13.3 (EVA02), page 75; cf. CFA Guidelines v4.4, s4.2.1, page 16.
[28] Draft v5 CFA Guidelines, s6.5 (WEF04), page 32.
[29] Draft v5 CFA Guidelines, s6.6 (WEF06), page 32.
[30] Draft v5 CFA Guidelines, s6.7 (WEF07), page 33.

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Recommendation 18: Amend WEF03 so that internal road requirements are determined through a risk-based, site-specific assessment in consultation with CFA. Clarify the technical basis for requiring 30 tonnes loading, and clarify that 'all-weather' refers to the surface specification in section 13 rather than guaranteed trafficability.

Recommendation 19: Amend WEF04 to allow risk-based, whole-of-site firefighting water arrangements (including consolidated, shared or strategically located tanks) as an alternative to a tank at every entrance, and publish the technical basis for the triggers for additional tanks.

Recommendation 20: Replace the prescriptive automatic nacelle fire suppression requirement with a performance-based requirement that permits alternative controls achieving equivalent fire safety without creating occupational or confined-space hazards, with any mandatory requirement limited to high bushfire risk areas.

Recommendation 21: Clarify what 'wherever possible' requires under WEF06; publish the products and specifications that CFA considers compliant, and expressly allow performance-equivalent alternatives such as enhanced containment, bunding and fire suppression systems.

Recommendation 22: Amend WEF07 so that the need for and extent of any fuel-reduced zone is determined through a risk-based, site-specific assessment that minimises native vegetation clearance. Clarify how the zone is measured, and limit zones extending to the rotor diameter to high-risk sites where no native vegetation clearance is required. We recommend considering a requirement instead that grass or crops are to be maintained in accordance with typical farming best practice.

The CEC's detailed comments on each requirement, including the supporting rationale and proposed amendments, are set out in **Annexure A**.

Solar Energy Facility Comments

Annexure B sets out the CEC's detailed comments on the solar energy facility requirements. The overarching concern is that the solar requirements rely on fixed design rules rather than site-specific risk, and are in some respects more restrictive than the equivalent wind requirements. The key issues are:

- **Siting (SEF02):** SEF02 omits the 'all reasonable steps' wording that applies to wind energy facilities.[31] Although Section 12 contemplates facilities in high-risk environments, this inconsistency creates uncertainty as to whether CFA will support solar facilities in high-risk areas, including the BMO, even where risks can be managed (see Recommendation 5).
- **Emergency vehicle access (SEF04):** Version 4.4 required at least two access points to each part of a facility, with the number 'informed through a risk management process, in consultation with CFA'. Where a site was divided by roads, powerlines or watercourses, the

[31] Draft v5 CFA Guidelines, s7.3 (SEF02), page 38; cf. s6.3 (WEF02), page 31.

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number and location of entrances into each section was to be 'determined in consultation with CFA'.[32] Draft v5 removes this risk-based approach and instead requires 'at least two vehicle entrances… into each section, to the satisfaction of CFA'.[33] By contrast, wind energy facilities have no minimum number of access points.[34] A fixed minimum of two entrances per section may be impractical for sites with limited road frontage. It is also unclear whether every road, powerline or watercourse creates a separate section, and the phrase 'preferably more' creates further uncertainty.

Recommendation 23: Amend SEF02 to expressly allow solar energy facilities in high-risk areas, including within the BMO, where a site-specific assessment demonstrates that fire risks can be adequately managed to CFA's satisfaction, acting reasonably.

Recommendation 24: Reinstate the version 4.4 approach in SEF04, so that the number and location of access points are determined through a risk-based, site-specific assessment in consultation with CFA. CFA should also clarify what constitutes a separate 'section' of a facility divided by roads, powerlines or watercourses, and remove the phrase 'preferably more'.

The CEC's detailed comments on each requirement, including the supporting rationale and proposed amendments, are set out in **Annexure B**.

Battery Energy Storage Systems Comments

Annexure C sets out the CEC's detailed comments on the BESS requirements. Three themes emerge: blanket requirements are applied without regard to battery technology, OEM test evidence or site layout; decentralised BESS are treated as presenting no lower risk than centralised facilities, without supporting evidence; and some requirements overlap or conflict with other regulatory frameworks. The key issues are:

- **Siting (BESS02):** As for solar, the absence of the 'all reasonable steps' wording creates uncertainty as to whether BESS will be supported in the BMO,[35] even though existing projects in or near the BMO are managing fire risk through site-specific design and mitigation (see Recommendation 5).
- **Decentralised BESS (BESS05, BESS14 and BESS21):** Draft v5 states that CFA 'does not consider that fire risk is reduced' where BESS are decentralised,[36] without recognising the lower risk of fire propagation between dispersed units. The 'turbine collapse zone' in BESS05 is undefined and may extend beyond lease boundaries.[37] The requirement for a 45,000L tank

[32] CFA Guidelines v4.4, s4.2.1, pages 16 and 18.
[33] Draft v5 CFA Guidelines, s7.5 (SEF04), page 39.
[34] Draft v5 CFA Guidelines, s6.4 (WEF03), page 31.
[35] Draft v5 CFA Guidelines, s8.3 (BESS02), page 48.
[36] Draft v5 CFA Guidelines, s8.4.2, page 48.
[37] Draft v5 CFA Guidelines, s8.4.3 (BESS05), page 49.

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within 120m of each BESS unit (BESS14) could require dozens of tanks across a wind farm.[38] It is also unclear whether, and how, the fire water runoff containment requirements (BESS21) apply to dispersed units.[39]

- **Access (BESS09 and BESS10):** 'Each part of the facility' is undefined, its interaction with BESS10 is unclear, and 'all-weather' implies a level of trafficability that the road specification does not guarantee.[40]
- **Unit separation (BESS11):** A fixed 3m separation on the door side of adjacent units does not reflect OEM large-scale burn test evidence.[41]
- **Acoustic barriers (BESS18):** Where barriers cannot be left open on two adjoining sides, the required radiant heat and gas dispersion modelling may create a complex and costly interaction between EPA noise requirements and CFA fire safety requirements.[42]
- **Cabling (BESS22):** The exception to buried cabling, limited to grid connection, is too narrow to accommodate OEM-certified above-ground arrangements.[43]

Recommendation 25: Amend BESS02 to expressly allow BESS in high-risk areas, including within the BMO, where a site-specific assessment demonstrates that fire risks can be adequately managed to CFA's satisfaction, acting reasonably.

Recommendation 26: Define 'turbine collapse zone' in BESS05 and allow BESS units within the zone, or a reduced buffer, where a site-specific risk assessment or operational controls (such as isolating turbines and BESS units during lightning events) demonstrate equivalent fire safety outcomes.

Recommendation 27: Publish the evidence supporting CFA's treatment of decentralised BESS or, absent such evidence, recognise the lower risk of fire propagation between dispersed units. CFA should also engage with operators of existing decentralised installations, before version 5 is finalised.

Recommendation 28: Replace the fixed 45,000L tank within 120m of each BESS unit (BESS14) with a technology-specific, risk-based requirement that allows shared or consolidated supplies, and clarify whether fire water runoff containment (BESS21) applies to decentralised BESS. If it does, its need and scale should reflect unit separation, the emergency response strategy and credible water volumes.

Recommendation 29: Clarify what is meant by each 'part' of the facility in BESS09 and how it interacts with BESS10, and clarify that 'all-weather' refers to the surface specification in section 13 rather than guaranteed trafficability (consistent with Recommendation 18).

Recommendation 30: Confirm that separation distances derived from OEM large-scale burn tests will be accepted as an alternative to the 3m requirement in BESS11 where equivalent fire containment is demonstrated.

[38] Draft v5 CFA Guidelines, s8.7.2 (BESS14), page 52; cf. CFA Guidelines v4.4, s4.2.2, page 20.
[39] Draft v5 CFA Guidelines, s8.10 (BESS21) and s8.11 (BESS22), page 56.
[40] Draft v5 CFA Guidelines, s8.5 (BESS09–BESS10) and s8.6 (BESS11), page 50.
[41] Draft v5 CFA Guidelines, s8.5 (BESS09–BESS10) and s8.6 (BESS11), page 50.
[42] Draft v5 CFA Guidelines, s8.8 (BESS18), page 54.
[43] Draft v5 CFA Guidelines, s8.10 (BESS21) and s8.11 (BESS22), page 56.

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Recommendation 31: Work with EPA to develop coordinated guidance on acoustic barriers (BESS18) so that noise and fire safety objectives can both be met without duplicative or conflicting infrastructure.

Recommendation 32: Amend BESS22 to permit above-ground cabling, busways and cable trays where required by the OEM design and the associated risks are managed through the Risk Management Plan, and to list other acceptable non-combustible surfaces, such as bare soil, limestone and blue metal, as examples alongside concrete.

The CEC's detailed comments on each requirement, including the supporting rationale and proposed amendments, are set out in **Annexure C**.

Substation and Transmission Comments

Annexure D sets out the CEC's detailed comments on the substation and transmission requirements. The overarching concern is that several requirements would introduce significant new infrastructure, cost or regulatory steps without a published risk justification or a clearly defined scope. The key issues are:

- **Access roads (SUB02):** The 'all-weather' terminology raises the same concerns as for wind energy facilities.[44]
- **ESV consultation (SUB03):** Separation of substation infrastructure from buildings and oil storage is to be determined under AS 2067-2016 'in consultation with [ESV]'.[45] This is not currently a regulatory requirement, and the timing, form and outcome of the consultation are undefined, adding complexity and potential delay.
- **Fire water infrastructure (SUB04):** Fire water supplies, pumps and hydrants must be located at least 10m outside the substation compound while providing coverage to the substation.[46] This may require additional hydrant runs or tanks, increasing capital and maintenance costs without a published risk basis. Any coverage requirement should not imply active firefighting within energised switchyards.
- **Transformers (SUB07):** The preference for dry transformers and non- or low-combustibility oils raises the same concerns as WEF06. Dry-type transformers may also not be available at the voltages and ratings required for grid connection.[47]
- **Undergrounding electric lines (ELC01):** The new requirement to underground electric lines 'wherever possible' would add substantial cost across extensive internal networks, without an identified fire risk scenario or clear criteria for when above-ground lines will be accepted.[48]

[44] Draft v5 CFA Guidelines, s10.3–10.5 (SUB02–SUB04), page 67.
[45] Draft v5 CFA Guidelines, s10.3–10.5 (SUB02–SUB04), page 67.
[46] Draft v5 CFA Guidelines, s10.3–10.5 (SUB02–SUB04), page 67.
[47] Draft v5 CFA Guidelines, s10.8 (SUB07), page 68.
[48] Draft v5 CFA Guidelines, s11.3 (ELC01), page 70.

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Recommendation 33: Apply Recommendations 18 and 21 to substations: clarify that 'all-weather' in SUB02 refers to the surface specification in section 13, and, for SUB07, clarify what 'wherever possible' requires, publish compliant transformer specifications, and allow performance-equivalent alternatives such as enhanced containment, bunding and fire suppression.

Recommendation 34: Replace the ESV consultation requirement in SUB03 with a requirement for evidence of compliance with AS 2067-2016 and applicable electrical safety duties or, if retained, clarify its timing, form and how ESV input interacts with CFA's advice on planning applications.

Recommendation 35: Clarify how SUB04 is to be met, publish the risk justification for requiring water infrastructure outside the substation compound, allow performance-based alternatives (such as existing site water supplies or tanker access), and confirm that any response within energised switchyards remains conditional on safe electrical isolation and authorised access.

Recommendation 36: Identify the specific fire risk scenario that ELC01 addresses, demonstrate that undergrounding justifies the additional cost, and define the circumstances in which above-ground lines will be accepted.

The CEC's detailed comments on each requirement, including the supporting rationale and proposed amendments, are set out in **Annexure D**.

The CEC looks forward to continuing to work with the CFA in relation to this submission. If you have any queries or would like to discuss our comments in more detail, please contact the CEC on erutherfurd@cleanenergycouncil.org.au or tmacleod@cleanenergycouncil.org.au.

Kind regards,

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General Manager, Environment and Planning

Tiana MacLeod

Senior Policy Officer, Environment and Planning

Annexure A: Wind Energy Facility (WEF) Requirements

We provide further detail regarding specific WEF requirements.

Item	Reference	Issue	Recommendation
BMO Consultation Requirement	**WEF02**	WEF02 requires that developers 'considering siting wind turbines within the Bushfire Management Overlay or within 500m of the Bushfire Management Overlay must consult with CFA's Specialist Risk and Fire Safety Unit *before seeking consent from landowners*' [emphasis added] (***BMO Consultation Requirement***). We note two issues with this requirement. First, while FSL02 requires early consultation with CFA for any facility proposed in a high-risk environment, the 500m buffer and the requirement to consult before seeking landowner consent apply only to wind energy facilities. They do not apply to solar, BESS, waste-to-energy, substations or transmission lines. No technical basis is provided for this distinction. Many of these other technologies are deployed in rural landscapes that may intersect with the BMO, so the need for this additional WEF requirement is unclear. Second, the Draft v5 CFA Guidelines do not clearly define when the BMO Consultation Requirement applies. Landowner engagement progresses from expressions of interest and feasibility access licences, to option	The CEC recommends that CFA: • publish the technical basis for applying the BMO Consultation Requirement only to wind energy facilities, or remove it; • if the requirement is retained, clearly define the stage of landowner engagement at which CFA consultation is required; and • clarify that the requirement applies only once the site and turbine layout are sufficiently defined for meaningful consultation, and does not prevent the initial landowner engagement needed to assess feasibility.

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Item	Reference	Issue	Recommendation
		agreements for planning applications, to leases or development agreements for construction. Each stage involves differing levels of commitment, project definition and commercial exposure. Requiring CFA consultation before any landowner engagement creates a sequencing problem. Meaningful consultation requires landowner interest and a sufficiently defined site and turbine layout, and that effort may be wasted if landowners decline to participate. Consulting on all prospective sites could also strain CFA's finite specialist capacity and delay viable projects without corresponding fire safety benefits, as many investigations do not progress because of ecological, cultural heritage, aviation or grid connection constraints. Early disclosure to a third-party agency may also lead to premature public disclosure before feasibility is confirmed or community engagement is planned.	
Internal roads and site access	**WEF03**	WEF03 requires all-weather internal access roads to each turbine, substation, building and fire service asset. The number and location of vehicle access points are to be determined in consultation with CFA. The CEC supports consultation with CFA and the provision of adequate emergency access, and welcomes the consultative approach to access points. However, the design and extent of internal roads should also be determined through a risk-based, site-specific assessment, proportionate to the facility's size, hazards and emergency response needs.	The CEC recommends that CFA amend WEF03 to: • require internal roads to be determined through a risk-based, site-specific assessment undertaken in consultation with CFA; • clarify the technical basis for requiring hardstand capacity of 30 tonnes, and if there are circumstances where a lower capacity is acceptable; and • clarify that 'all-weather' refers to the surface specification in section 13 rather than guaranteed trafficability in all weather conditions.

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Item	Reference	Issue	Recommendation
		We make three points. First, the assessment should consider: • site size, layout and occupancy; • the emergency response strategy; • vegetation hazards; • alternative access; • appliance types; • safe standoff distances; • de-energisation requirements; • whether vehicles need to circulate around the entire facility. The internal road network should support the emergency response strategy, rather than require that strategy to accommodate a predetermined road layout. Second, EVA02 doubles the required load capacity of roads and hardstands from 15 to 30 tonnes across all facility types. This is likely to materially increase costs for large wind and solar projects with extensive internal road networks. Wider, heavier-duty roads may also conflict with biodiversity objectives to minimise vegetation disturbance, limit progressive rehabilitation, increase landowner lease impacts and reduce agricultural coexistence. Third, the term 'all-weather' may imply a level of trafficability that the specified construction standard does not guarantee. Section 13 defines all-weather roads as	

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Item	Reference	Issue	Recommendation
		those with 'a sealed or unsealed surface of at least 150mm depth bitumen, asphalt or concrete, or compacted crushed rock'. However, internal wind farm tracks may be designed for specified rainfall events, such as a 20% annual exceedance probability (AEP) event, and may not remain trafficable in more severe events.	
Static fire water storage	**WEF04**	WEF04 requires wind energy facilities to have 'at least one static fire water storage tank of at least 45,000L effective capacity at *each site vehicle entrance*' [emphasis added]. This requirement is carried over from version 4.4. Additional 45,000L tanks may be required at CFA's discretion where more than three turbines are accessed from a single access point from a public road, or where turbines are more than 500m from access points on public roads. We make two points. First, requiring a tank at every entrance may produce disproportionate outcomes, because tank numbers are driven by the surrounding road network rather than the facility's scale, risk profile or emergency response needs. A smaller facility with numerous entrances could require substantially more water infrastructure than a larger facility with a single entrance, without a corresponding improvement in fire safety. The CEC supports flexibility in the location of tanks. This should reflect the layout and risk of the site, and should also allow for concerns about water theft and for strategic placement, such as where fast-flow pumps are used.	The CEC recommends that CFA amend WEF04 to allow risk-based, whole-of-site firefighting water arrangements as an alternative to a tank at every entrance, including consolidated supplies, tanks located away from entrances, and shared tanks serving nearby entrances. CFA should publish the technical basis for the triggers for additional tanks. This should cover how facility hazards, response strategy, travel distances, existing supplies and delivery capability are taken into account.

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Item	Reference	Issue	Recommendation
		These arrangements should be assessed against their ability to provide equivalent or improved emergency response capability. Second, while Draft v5 sets out triggers for additional tanks, it does not explain the emergency response scenarios or technical basis for them. The Guidelines should distinguish between protecting turbines from bushfire, protecting substations and operations buildings, and preventing fire spread from a turbine incident. They should also explain how travel distances affect response capability, rather than assume that turbines beyond a set distance require a dedicated nearby supply.	
Fire Protection for Nacelles	**WEF04 and WEF06**	WEF04 requires nacelles to be equipped with automatic fire detection, alarm and fire suppression systems. While this requirement was included in version 4.4, mandatory automatic suppression may conflict with occupational health and safety obligations. Systems that displace oxygen can create confined-space hazards for technicians working in nacelles during maintenance and normal operations. This risk differs materially from BESS containers, which are generally designed for external access and intervention. The Guidelines should therefore distinguish between occupied and unoccupied infrastructure, and assess nacelle fire protection requirements against applicable WHS and confined-space obligations. Some CEC members have also had difficulty sourcing wind turbines with automatic fire suppression systems. This	The CEC recommends that CFA replace the prescriptive requirement for automatic nacelle fire suppression with a performance-based requirement. Proponents should be able to use detection, alarms, early-warning systems, portable suppression equipment or other controls where they demonstrate equivalent fire safety outcomes without creating occupational or confined-space hazards. Any mandatory requirement should be limited to high bushfire risk areas.

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Item	Reference	Issue	Recommendation
		means installing after-market systems that may void turbine warranties.	
Non- or Low-combustible transformer oil	**WEF06**	WEF06(2) requires non- or low-combustibility/fire resistant oils and lubricants to be used in wind turbines 'wherever possible'. It is unclear what 'wherever possible' requires in practice, or how CFA will assess whether it has been met. Dry-type transformers are common in turbines up to approximately 6MW, but oil-cooled transformers are standard in newer, larger turbine models and cannot readily be substituted with non- or low-combustibility/fire resistant alternatives. Compliant products may therefore not be commercially viable as a standard specification. The Guidelines should set out performance-based equivalent options for meeting this requirement, such as enhanced containment, bunding and fire suppression systems.	The CEC recommends that CFA: • clarify what 'wherever possible' requires under WEF06; • identify and publish the products and specifications it considers compliant; and • expressly allow proponents to meet this requirement through performance-equivalent alternatives, such as enhanced containment, bunding and fire suppression systems.
Wind turbine ground clearing	**WEF07**	Both version 4.4 and Draft v5 require a fire break of at least 10m around each wind turbine. Version 4.4 also suggested an optional reduced-fuel zone of 'no less than 20m, or to the envelope of the wind turbine blades'. Draft v5 replaces this with a fuel-reduced zone that may be required at CFA's discretion. The zone extends from the fire break 'to the rotor diameter or 90m (whichever is greater)' around the base of the turbine. It must be cleared of trees and scrub (where permitted), with grass	The CEC recommends that CFA amend WEF07 so that the need for and extent of any fuel-reduced zone are determined through a risk-based, site-specific assessment that minimises native vegetation clearance while achieving acceptable fire safety outcomes. CFA should clarify how the zone is measured. We recommend considering a requirement instead that grass or crops are to be maintained in accordance with typical farming best practice.

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Item	Reference	Issue	Recommendation
		maintained at no more than 100mm during the Fire Danger Period. We make three points. First, the CEC supports clearing the minimum amount of native vegetation needed to achieve acceptable fire prevention outcomes. A 90m radius equates to around 2.5 hectares per turbine. For modern turbines with rotor diameters of around 160–170m, a zone extending to the rotor diameter could equate to around 8–9 hectares per turbine. It is also unclear how the zone is to be measured. Given the biodiversity value of native vegetation and the limited evidence identified on turbine-related bushfire risk, this is disproportionate without a demonstrated risk-based justification. Second, the zone may be impractical where engineering, environmental or land constraints prevent turbines from being centrally located within hardstands. Extending vegetation management beyond the hardstand would increase land disturbance, and may conflict with biodiversity avoidance and minimisation principles and agricultural coexistence objectives. Third, this requirement does not consider whether crops can be farmed in these areas. Further we are not aware of any evidence that wind turbine equipment poses any additional bushfire risk beyond normal farming machinery and operations and therefore query whether this specific requirement is appropriate. We recommend considering a requirement instead that grass or crops are to be	Zones extending to the rotor diameter should be limited to high-risk sites where no native vegetation clearance is required. The assessment should account for: • turbine and hardstand design; • engineering and land constraints; • biodiversity avoidance and minimisation principles; and • agricultural coexistence objectives.

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Item	Reference	Issue	Recommendation
		maintained in accordance with typical farming best practice.	

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Annexure B: Solar Energy Facility (SEF) Requirements

We provide further detail regarding specific SEF requirements.

Item	Reference	Issue	Recommendation
Requirement to locate in low-risk environment	**SEF02**	SEF02 states that 'solar energy facilities should be located in low-risk environments'. Unlike the WEF section, SEF02 does not include the qualification that developers should take 'all reasonable steps' to avoid high-risk locations. Although Section 12 contemplates facilities in high-risk environments, this inconsistency creates uncertainty as to whether CFA will support solar energy facilities in high-risk areas, including within the BMO, even where site-specific risks can be adequately managed.	The CEC recommends that CFA amend SEF02 to expressly allow solar energy facilities in high-risk areas, including within the BMO, where a site-specific assessment demonstrates that fire risks can be adequately managed to CFA's satisfaction, acting reasonably (see also Recommendation 5).
Emergency vehicle access	**SEF04**	SEF04 requires 'at least two (2) but preferably more access points' into each part of a solar energy facility. Where a facility spans parcels separated by roads, overhead powerlines or watercourses, 'at least two vehicle entrances are to be provided into each section, to the satisfaction of CFA'. This removes the risk-based approach in version 4.4. Under version 4.4, the number of access points was to be 'informed through a risk management process, in consultation with CFA'. For divided sites, the number and location of entrances into each section was to be 'determined in consultation with CFA'. By contrast, Draft v5 sets no minimum number of access points for wind energy facilities. We make three points. First, a minimum of two access points may be impractical for sites with limited road frontage or a single battle-axe-style entry. A risk-based pathway should allow a single access point where site-specific assessment	The CEC recommends that CFA: • reinstate the version 4.4 approach, so that the number and location of access points are determined through a risk-based, site-specific assessment in consultation with CFA; • clarify what constitutes a separate 'section' of a facility divided by roads, powerlines or watercourses; and • remove the phrase 'preferably more' from SEF04.

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Item	Reference	Issue	Recommendation
		and mitigation demonstrate safe emergency access and equivalent fire safety outcomes. The assessment should consider: • site size and layout; • occupancy; • responder strategy; • vegetation hazards; • alternative access; • appliance requirements; • safe standoff distances; • de-energisation; and • whether full vehicle circulation is necessary. Access and internal roads should support the emergency response strategy, rather than dictate it. Second, it is unclear whether every road, powerline or watercourse dividing a facility creates a separate section requiring two additional entrances. This could impose substantial infrastructure and land impacts without regard to site-specific risk. Third, the phrase 'preferably more' creates further uncertainty and is inappropriate in guidance intended to establish clear design requirements.	

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Annexure C: Battery Energy Storage Systems (BESS) Requirements

We provide further detail regarding specific BESS requirements.

Item	Reference	Issue	Recommendation
Requirement to locate in low-risk environment	**BESS02**	BESS02 states that 'battery energy storage facilities/systems should be located in low-risk environments'. Unlike the WEF section, BESS02 does not include the qualification that developers should take 'all reasonable steps' to avoid high-risk locations. Although Section 12 contemplates facilities in high-risk environments, this inconsistency creates uncertainty as to whether CFA will support BESS in high-risk areas, including within the BMO, even where site-specific risks can be adequately managed. In our view, precluding BESS from these areas would not be an appropriate outcome. We understand that some existing projects are already located within or near the BMO, and that fire risk is being appropriately managed through site-specific design and mitigation measures.	The CEC recommends that CFA amend BESS02 to expressly allow BESS in high-risk areas, including within the BMO, where a site-specific assessment demonstrates that fire risks can be adequately managed to CFA's satisfaction, acting reasonably (see also Recommendation 5).
Decentralised BESS	**BESS05**	Draft v5 sets separate requirements for decentralised BESS, that is, BESS proposed in multiple locations across a site. BESS05 provides that BESS units 'should be located outside of the wind turbine collapse zone'. BESS15 applies the same expectation to fire water supplies, pumps and hydrants for BESS at wind turbines. 'Turbine collapse zone' is not defined. The CEC understands that the collapse zone requirement was introduced following the lightning-related turbine failure at Berrybank Wind Farm. While the CEC acknowledges this incident, a fixed buffer may not be necessary in all circumstances. For example, operational controls that isolate turbines and BESS units during lightning events may justify a reduced buffer.	The CEC recommends that CFA: • define 'turbine collapse zone' in BESS05; • allow BESS units to be located within the turbine collapse zone, or a reduced buffer to apply, where a site-specific risk assessment or operational controls (such as isolating turbines and BESS units during lightning events)

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Item	Reference	Issue	Recommendation
		A collapse zone based on turbine height would typically extend well beyond established lease boundaries and approved disturbance footprints. This constrains the integration of complementary infrastructure, and limits the ability of existing wind farms to respond to changing market and grid stability requirements. These implications are illustrated by a pilot decoupled BESS at a wind farm south-east of Ballarat. The installation was developed in consultation with CFA, approved under a planning permit and has a safe operating history, yet would not satisfy BESS05. It is unclear whether operational learnings from this installation have informed the Draft v5 CFA Guidelines. More broadly, Draft v5 states that 'CFA does not consider that fire risk is reduced' where BESS are decentralised. The CEC is not aware of evidence supporting this position. The principal fire risk for BESS is typically propagation between units, which is inherently lower where units are dispersed.	demonstrate equivalent fire safety outcomes; • engage with the operators of existing decentralised BESS installations, including the pilot facility south-east of Ballarat, and consider their operational learnings before version 5 is finalised; and • publish the evidence supporting its treatment of decentralised BESS or, in the absence of such evidence, recognise the lower risk of fire propagation between dispersed units.
Emergency vehicle access	**BESS09 and BESS10**	BESS09 requires that 'at least two (2) vehicle access points must be provided into each part of the facility where BESS units are located'. This requirement is unclear, because 'part' is not defined. It is also unclear how it interacts with BESS10, which requires vehicle entrances into each section where solar energy facilities with ancillary BESS are separated by roads, overhead powerlines and/or watercourses. (We note that BESS10 is mislabelled 'BESS010' in Draft v5.) BESS09 also requires 'all-weather' access roads. Section 13 defines all-weather roads as those with 'a sealed or unsealed surface of at least 150mm depth bitumen, asphalt or concrete, or compacted crushed rock'. Roads meeting this specification may not be trafficable in certain rainfall events, so the term 'all-weather' could be misleading.	The CEC recommends that CFA: • clarify what is meant by each 'part' of the facility in BESS09, and how it interacts with the separate vehicle entrance requirements in BESS10; and • clarify that 'all-weather' refers to the surface specification in section 13 rather than guaranteed trafficability

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Item	Reference	Issue	Recommendation
			(consistent with Recommendation 18).
BESS unit separation distance	**BESS11**	BESS11 requires a separation of no less than 3m between adjacent BESS units on the side(s) with battery module access doors or panels. We consider that this distance is overly conservative and not aligned with a technology-specific, risk-based approach. OEM large-scale burn tests are specifically designed to establish the separation distances required to prevent fire propagation between units. A blanket 3m requirement applied regardless of OEM test data does not reflect this evidence base.	The CEC recommends that CFA confirm that separation distances derived from OEM large-scale burn test configurations will be accepted as an alternative to the 3m requirement, where proponents demonstrate that the tested configuration achieves equivalent fire containment outcomes.
Per-unit fire water requirement for decentralised BESS	**BESS14**	Where reticulated water is not available or adequate, BESS14 requires 'a minimum 45,000L static water tank provided within 120m of each BESS unit, to the satisfaction of CFA'. While this requirement is carried over from version 4.4, for a large wind farm with battery units at each turbine it could translate to dozens of individual water tanks across the site. The CEC considers this requirement overly onerous for modern BESS using lithium iron phosphate (LFP) chemistry, which has a materially different thermal runaway profile from earlier nickel-based chemistries. LFP cells are significantly less sensitive to heat, which reduces the likelihood that a failure in one cell will spread to adjacent cells, modules or units. This lower propagation risk is reinforced in decentralised BESS, where units are physically separated across the site. Emergency response for BESS generally involves applying water to protect adjacent exposures, rather than to a unit already in thermal runaway. As a result, the credible firefighting water demand at any single location is limited, and a 45,000L tank within 120m of every unit is likely to exceed it.	The CEC recommends that CFA replace the fixed requirement for a 45,000L tank within 120m of each BESS unit with a technology-specific, risk-based requirement that considers battery chemistry, unit separation and the emergency response strategy. CFA should allow shared or consolidated supplies where equivalent emergency response capability is demonstrated. If CFA retains a per-unit requirement, it should publish the technical basis and the emergency response scenarios it is intended to address.

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Item	Reference	Issue	Recommendation
Acoustic barrier modelling obligations	**BESS18**	Where acoustic barriers are required, BESS18 provides that they should be 'fully open (absent) on at least two adjoining sides'. Where this cannot be achieved (for example, where barriers are required on three sides), radiant heat and gas dispersion modelling must be provided to determine the thermal radiation consequences inside the barriers. Many projects near rural residences will face EPA-mandated noise barriers. This modelling requirement may create a complex and potentially costly interaction between EPA noise requirements and CFA fire safety requirements.	The CEC recommends that CFA work with EPA to develop coordinated guidance that allows both noise and fire safety objectives to be met without duplicative or conflicting infrastructure.
Fire Water Runoff Management	**BESS21**	BESS21 requires systems for the containment, management and disposal of potentially contaminated fire water runoff from BESS, with capacity equivalent to the on-site fire protection system plus an additional 10%. It is unclear whether this requirement applies to decentralised BESS. If it does, the CEC considers the requirement disproportionate. The emergency response approach for BESS is generally to apply water only to units at risk of thermal runaway propagation, being units in close proximity to a unit already in thermal runaway. In a decentralised configuration, where units are physically separated across the site, this scenario is much less likely and, in some designs, will not arise at all. The volume of potentially contaminated runoff is therefore likely to be minimal, and may not warrant dedicated containment infrastructure at each unit.	The CEC recommends that CFA clarify whether BESS21 applies to decentralised BESS. If it does, the requirement should be risk-based, so that the need for and scale of runoff containment reflect unit separation, the emergency response strategy and the credible volume of water likely to be applied.
Enclosed wiring and buried cabling	**BESS22**	BESS22 requires enclosed wiring and buried cabling, with an exception only where above-ground cabling is required for grid connection. This requirement is carried over from version 4.4. BESS22	The CEC recommends that CFA amend BESS22 to: • permit above-ground cabling, busways and cable trays

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Item	Reference	Issue	Recommendation
		also requires BESS to be installed on 'a non-combustible surface such as concrete'. We make two points. First, the grid connection exception is too narrow. Some containerised BESS solutions use above-ground interconnecting cables, busways or cable trays as part of the OEM-certified arrangement. Requiring these to be buried may conflict with the OEM design without improving fire safety outcomes, where the relevant risks can be managed above ground. Second, while the reference to concrete is an example, it is the only one given. Listing other non-combustible surfaces, such as bare soil, limestone and blue metal, would give proponents greater certainty. Concrete is an expensive and less sustainable option for many BESS projects.	where required by the OEM design, and where the Risk Management Plan demonstrates that mechanical protection, fire separation, access, earthing, drainage and emergency isolation risks are appropriately managed; and • list other acceptable non-combustible surfaces, such as bare soil, limestone and blue metal, as examples alongside concrete.

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Annexure D: Substation and Transmission Requirements

We provide further detail regarding specific substation and transmission requirements.

Item	Reference	Issue	Recommendation
All weather access roads	**SUB02**	SUB02 requires all-weather access roads to substations. See our comments on WEF03 in relation to the term 'all-weather'.	The CEC recommends that CFA clarify that 'all-weather' refers to the surface specification in section 13 rather than guaranteed trafficability in all weather conditions (consistent with Recommendation 18).
Energy Safe Victoria consultation	**SUB03**	SUB03 provides that separation of substation infrastructure from buildings, oil tanks and storage should be determined in accordance with AS 2067-2016 'in consultation with Energy Safe Victoria' (***ESV***). Consultation with ESV on this matter is not currently a regulatory requirement, and the timing, form and outcome of the consultation are not defined. Introducing an undefined consultation obligation with a separate statutory body may add complexity, uncertainty and delay to substation design and delivery.	The CEC recommends that CFA replace the ESV consultation requirement with a requirement for evidence of compliance with AS 2067-2016 and applicable electrical safety duties. If the requirement is retained, CFA should clarify its timing and form, and how ESV input will interact with CFA's requirements and its advice on planning applications.
Substation fire water infrastructure	**SUB04**	Version 4.4 required fire water to cover substations and grid connections. SUB04 now requires that water supplies and hydrant systems for renewable energy infrastructure provide coverage to new substations, and that 'water supplies, pumps and fire hydrants are to be located externally to, and at least 10m from, the substation compound'. Achieving coverage from outside a 10m buffer may require additional hydrant runs, tanks or pumps. This requirement should not imply active firefighting within energised	The CEC recommends that CFA: • clarify how SUB04 is to be met; • publish the risk justification and emergency response scenarios for requiring water infrastructure outside the substation compound;

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Item	Reference	Issue	Recommendation
		switchyards. Suppression strategy and hydrant coverage should be informed by: • transformer type; • oil inventory; • fire separation; • bunding; • equipment layout; • credible isolation time; • AS 2067-2016 assessment. Any CFA response should be conditional on safe electrical isolation and authorised access.	• allow performance-based alternatives, such as existing site water supplies or tanker access, where appropriate; • confirm that any response within energised switchyards remains conditional on safe electrical isolation and authorised access.
Non- or Low-combustible transformer oil	**SUB07**	SUB07 provides that dry transformers should be used 'wherever possible' and, where transformers are fluid-filled, that non- or low-combustible/fire resistant oils should be used 'wherever possible'. See our comments on WEF06. Dry-type transformers may also not be available at the voltages and ratings required for grid connection.	The CEC recommends that CFA: • clarify what 'wherever possible' requires under SUB07; • identify and publish the transformer types and specifications it considers compliant; and • expressly allow proponents to meet this requirement through performance-equivalent alternatives, such as enhanced containment, bunding and fire suppression systems.
Underground electric line requirements	**ELC01**	ELC01 requires that electric lines associated with renewable energy developments be 'installed underground wherever possible, except where required to be above-ground for grid	The CEC recommends that CFA: • identify the specific fire risk scenario that ELC01 is intended to address;

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Item	Reference	Issue	Recommendation
		connection'. This is a new requirement that did not appear in version 4.4. The CEC submits that this requirement is not supported by a transparent evidence base and will impose significant cost on renewable energy projects. Underground cabling costs materially more than overhead lines across equivalent distances. For large wind and solar projects with internal electrical networks spanning tens of kilometres, the cumulative cost is substantial. The requirement to underground 'wherever possible' is also broad and undefined. Without the circumstances in which above-ground installation will be accepted being specified, proponents face uncertainty about what justification is required to depart from the default.	• demonstrate that the risk reduction achieved by undergrounding justifies the additional cost; and • define the circumstances in which above-ground installation will be accepted.

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