Planning guideline

State code 27: Battery storage facility development

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Contents

1.0 Introduction

1.1 Purpose of the guideline

Battery storage facility (BSF) developments can result in impacts on individuals, communities and the natural environment. BSF development will be considered appropriate where unacceptable adverse impacts on individuals, communities and the environment do not arise as a result of the BSF development.

This guideline provides advice to applicants on how to respond to the purpose and performance outcomes of *State code 27: Battery storage facility development* of the State Development Assessment Provisions (SDAP). This guideline does not provide advice to applicants on additional material that should be submitted with an impact assessable application to an assessment manager. Additional advice should be sought via a pre-lodgement request to the State Assessment and Referral Agency (SARA), prior to lodgement of a BSF development application.

This guideline is advice that only applies to a development application for a material change of use (MCU) of premises for BSF development, applied for under the *Planning Act 2016* (the Planning Act).

Following this guideline will assist applicants to develop project layouts, supporting technical reports, plans and strategies to enable assessments to be undertaken efficiently. Use of this guideline by applicants however will not guarantee a favourable assessment outcome.

1.2 Regulatory framework

Battery storage definitions

The Planning Regulation 2017 (the Planning Regulation) defines a battery storage terminology as follows:

> ***battery storage facility*** *means the use of premises for the operation of 1 or more battery storage devices*
>
> ***battery storage device****—*
>
> (a) *means plant that—*
>
> (i) *converts electricity into stored energy; and*
>
> (ii) *releases stored energy as electricity; and*
>
> (b) *includes any equipment necessary for the operation of the plant.*

Assessment manager

The determination of the assessment manager depends on whether the BSF involves any other assessable development, that is prescribed as assessable development.

SARA is the assessment manager for an MCU for a BSF where the development includes:

(a) no other assessable development; or

(b) if other assessable development is prescribed, assessable development only.

If any other assessable development is not prescribed assessable development, the Minister decides which entity will be the assessment manager.

> ***prescribed assessable development*** *means development stated to be assessable development in—*
>
> *(a) schedule 9 [of the Planning Regulation 2017]; or*
>
> *(b) schedule 10, other than schedule 10, part 15 or 16 [of the Planning Regulation 2017].*

All BSF assessable development is impact assessable, unless specified in Schedule 7, section 16 of the Planning Regulation, which details the following as being accepted development:

(a) *the facility is for a pad mounted battery storage device only and the total area of the premises covered by the facility is no more than 15m^2; or*

(b) *the facility is for a pole mounted battery storage device only and the total volume of the device is no more than 2m^3.*

The SDAP State code 27: Battery storage facility code is to be considered where a solar farm or wind farm includes a facility or device for storing and releasing energy as per the ancillary components of the land use definitions for wind farm and solar farm in Schedule 24 of the Planning Regulation.

MCUs for BSFs that have a maximum instantaneous electricity output of 50MW or more must address the community benefit system. Details of this system are available on the Department of State Development, Infrastructure and Planning's (the department) website at https://www.planning.qld.gov.au/planning-framework/community-benefit.

MCUs for BSFs that are assessable development will be impact assessable. It is important to note that the Planning Act and the Planning Regulation collectively require that SARA, as assessment manager:

- **must assess against** prescribed benchmarks – being *State code 27: Battery storage facility development* of SDAP
- **must have regard** to prescribed matters (including elements of relevant planning schemes and common material)

- **may have regard** to other relevant matters (dependent on the facts of an individual application)
- **consider** all properly made submissions.

All MCU applications involving BSF assessed by SARA will involve *State code 27: Battery storage facility development* of SDAP. Depending on circumstances, concurrent Operational Work applications for vegetation clearing for BSF development may trigger assessment against State code 16: Native vegetation clearing of SDAP.

1.3 Other approvals

There may be additional statutory requirements under the Planning Act, the Planning Regulation and other applicable legislation. Subsequent development applications (for example, reconfiguration of a lot, operational works, ERAs or building works applications) may also be required by a local government, SARA, a port authority or another entity as prescribed under the Planning Regulation.

Further approvals or permits may also be required from a range of entities including local authorities, the Commonwealth Government, the state-owned network service provider and air services stakeholders.

Although some of these other approvals are identified throughout this guideline, they should not be taken to be the full extent of other approvals that may be required for a specific proposal. The onus rests with applicants/ proponents to determine and seek all relevant approvals prior to commencing construction of a project.

2.0 Seeking SARA Pre-lodgement Advice

It is highly recommended applicants seek pre-lodgement advice from SARA prior to lodging a development application for a battery storage facility.

2.1 Pre-lodgement preparation and stakeholders

Pre-lodgement advice can assist applicants in determining appropriate SARA matters, understanding the requirements of the relevant SDAP codes, ascertaining SARA's preliminary views on the acceptability of site layouts and providing clarity on other material that should be provided with an impact assessable application. Advice on technical assessments, reports and methodologies as outlined in this guideline will also be provided as part of pre-lodgement advice.

To ensure effective pre-lodgement can be undertaken with SARA, it is recommended that applicants provide draft consultant reports and plans that can assist with clarifying key requirements and issues prior to the lodgement of a development application. The provision of detailed information early may minimise information requests later during assessment of the development application. Refer to the 'Seeking pre-lodgement advice from SARA' for further information.

To assist in preparing application material required by State code 27 of SDAP, applicants may wish to engage with the following stakeholders prior to seeking pre-lodgement advice:

- Queensland Fire Department **(QFD)** regarding risk mitigation and incident response including bushfire management. For information on relevant considerations in bushfire prone areas, see QFD Bushfire information for land use planning practitioners. For information on battery fire safety considerations and other on-site infrastructure fire safety considerations, see QFD Renewable energies.
- Office of Industrial Relations – regarding siting of development in proximity to known hazardous facilities and dangerous goods storage.
- Powerlink – regarding connectivity to electricity infrastructure and any potential impacts on electricity infrastructure within proximity to the site (in particular potential impacts on asset easement that protects the accessibility and operation of electricity infrastructure).
- the state-owned network service provider (Energy Queensland) and the transmission provider (Powerlink Queensland). This is to ensure that the BSF can ultimately be connected to the existing electricity grid. Refer to the Australian Energy Market Commission's (2014) National Electricity Rules Chapter 5: Network Connection, Planning and Expansion for further details.

- Department of Natural Resources and Mines, Manufacturing and Regional and Rural Development (DNRMMRRD), Land and Surveying Services to confirm land tenure status. Under Section 199A of the *Land Act 1994*, a lease may only be used for its designated purpose. If a host lot is under a lease arrangement the BSF use may not be consistent with the purpose of the lease for the lot and will need to be amended. DNRMMRRD will also advise if the project requires a Relevant Purpose Determination under section 22A of the *Vegetation Management Act 1999* to lodge a development application to SARA.
- Department of Transport and Main Roads (DTMR) to discuss impacts of development traffic on state transport infrastructure (road and rail), mitigation requirements and any separate approvals required directly from DTMR (for example constructing upgrades, requiring new access to, or placing third-party electricity infrastructure in state-controlled roads). This will ensure the information submitted with the application for MCU approval and obtaining further approvals (outside of the MCU approval process) does not delay construction of the development
- relevant railway managers to discuss approval requirements for taking oversize/overmass (OSOM) loads over railway corridors or interfering with railway corridors
- the National Heavy Vehicle Regulator regarding approvals for OSOM movements
- DNRMMRRD if the applicant considers that the regulated vegetation categories or Regional Ecosystems are outdated in mapping. An application may be made to amend the mapping prior to submitting a development application. Mapping can be amended through applying for a detailed Property Map of Assessable Vegetation (PMAV). Further information on how to apply for a PMAV is available online at https://www.qld.gov.au/environment/land/management/vegetation/maps/map-correction. the relevant Native Title party where a native title assessment identifies native title continues to exist over the subject land. The *Aboriginal Cultural Heritage Act 2003* and *Torres Strait Islander Cultural Heritage Act 2003* (the Cultural Heritage Acts) require anyone who carries out a land-use activity to exercise a duty of care. The proponent must implement take all reasonable and practicable measures to ensure the development does not harm Aboriginal or Torres Strait Islander cultural heritage. Further information is available online at Cultural heritage duty of care | Aboriginal and Torres Strait Islander peoples | Queensland Government

2.2 Community benefit obligations

A SIA and CBA is only required where a BSF is proposed to have a maximum instantaneous electricity output of 50MW or more.

When seeking pre-lodgement advice from SARA, applicants are expected to have awareness of their obligations under the community benefit system introduced by the state government. If this is not the case, SARA officers will direct applicants in the first instance to material on the department's website that outlines these requirements.

Applicants that are aware of and are responding to these obligations are welcome to seek pre-lodgement SARA advice:

- while they are working on social impact assessment (SIA) and community benefit agreement (CBA) obligations to concurrently be preparing their SARA applications
- when SIA and CBA obligations have been completed and applicants are endeavoring to finalise applications to SARA
- where the chief executive has given notice that a SIA report and/or CBA is not required and applicants are endeavoring to finalise SARA applications.

3.0 Supporting application material

This part of the planning guideline provides information on reporting that should be provided to support a MCU application for a BSF development. As outlined previously, this advice focuses on responding to State code 27 only and does not address other material that should be provided to SARA for its impact assessment deliberations.

The table below identifies supporting reports that are required to be submitted when lodging an application for a BSF and the material that are likely to be conditioned as part of a development permit for MCU for a BSF.

The reports listed in the first column of the table are the minimum required to respond to the outcomes of code (unless otherwise directed as per SARA pre-lodgement advice). An information request is likely to be issued if an application does not include these reports. There may be circumstances where additional reports are required during the assessment. Further details regarding the content of these reports are included in Section 4 of the guideline.

It is important that information between reports and documentation is kept consistent to ensure different development aspects work together appropriately. This is especially important for conditioning of various documents and plans that contain interplay with respect to development design, layout, safe functionality and consideration of sensitive areas and natural hazards.

Supporting material required at lodgement	Material that will likely be conditioned
Areas of high ecological value and associated wildlife habitats	
Ecology Assessment Report (EAR) (PO1)	Vegetation and Fauna Management Plan (PO1) Cleared Vegetation Management Plan (PO1)
Risk mitigation **Incident response**	
Risk Management Assessment Report (PO2-PO7)	Operational Emergency Management Plan (PO2-PO7) Fire Safety Study (PO2-PO7)
Social impacts	
For BSF with an output 50MW or more, a Community Benefit Agreement or a notice given by the chief executive under section 106ZE(1)(b) of the Planning Act stating that a community benefit agreement is not required for the application (PO8)	Community Benefit Agreement (PO8)
Agricultural land	
Agricultural Land Assessment (PO9-PO12)	

Supporting material required at lodgement	Material that will likely be conditioned
Natural hazards	
Natural Hazard Risk Assessment Report (PO13-PO15) Flood Assessment (PO13-PO14) Bushfire Management Plan (PO13-PO15)	Bushfire Management Plan (PO13-PO15)
	Flood Emergency Management Plan (PO14) Flood Assessment (PO13-PO14)
	Safety and Emergency Management Plan (PO13-PO15)
Protecting water quality and stormwater management, and Erosion	
Site plan illustrating the development avoids waterways, wetlands, and drainage lines (PO16-PO19) Stormwater Management Plan (PO16-PO19)	Stormwater Management Plan (PO16-PO19)
Statement that addresses drainage control and bank stability (PO16 & PO19)	Rehabilitation Management Plan (PO17 & PO19)
Acoustic amenity and vibration	
Noise Impact and Vibration Assessment (PO20-PO21)	Noise Impact and Vibration Assessment (PO20-PO21) Noise Monitoring Plan (PO20) Operational Noise Strategy (PO20)
Visual impact and lighting	
Visual Impact Assessment Report (If the relevant state or local government planning scheme has identified the site in an area of high scenic amenity and/or the development impacts on sensitive receptors) (PO22 – PO23) Supporting mitigation plans and schedules (PO22 – PO23)	Details of Visual Impact Assessment Report's recommended mitigation measures (PO22 – PO23)
Transport networks	
Heavy Vehicle and OSOM Construction Concept Strategy (PO27) Traffic Impact Assessment (PO24-PO28)	Traffic Impact Assessment (PO24 – PO28) Traffic Management Plan (PO24 – PO28)
Infrastructure	
Qualitative risk assessment (PO29) Project layout plan (PO30)	Project layout plan (PO30)
Decommissioning	
Decommissioning Security Report (PO31-PO35) Preliminary Battery Recycling Strategy (PO34)	End of Construction Decommissioning Management Plan (PO31 – PO33, PO35) End of Operation Decommissioning Management Plan (PO31 – PO33, PO35) Battery Recycling Strategy (PO34)

Supporting material required at lodgement	Material that will likely be conditioned
Other	
	Construction Environmental Management Plan
	Waste Management Plan

Updated plans and reports may be conditioned due to changes over the course of assessment and/or if there is further information required post lodgement.

4.0 SDAP Assessment

This part of the guideline provides further details on the information that is required to demonstrate compliance with the purpose and performance outcomes of *State code 27: Battery storage facility development* of SDAP.

Advice contained in this part of the guideline is the minimum required to respond to the code. Applicants are encouraged to provide additional material in support of aspects of a project that may be contentious or particularly challenging.

4.1 Meeting the purpose of the code

The purpose of the code is to ensure development for a BSF:

1. avoids and/or appropriately integrates risk mitigation strategies and responsive design measures to address potential fire hazards, and other environmental risks, ensuring long-term safety and resilience for people, surrounding land uses and the environment.
2. minimises the loss or fragmentation of high-quality agricultural land;
3. does not result in unacceptable adverse impacts on individuals, communities, the environment, adjacent sensitive land uses and sensitive receptors, landscape values and infrastructure and services.
4. is decommissioned in a timely and efficient manner that reuses, recycles, and/or repurposes materials to the greatest extent possible and rehabilitates the environment.

The assessment benchmarks for the code comprise:

- a purpose statement which identifies the overall intent of the code
- performance outcomes which specify assessment benchmarks.

Development complies with the code where:

- it complies with all relevant performance outcomes; or
- development does not meet the relevant performance outcome(s) and SARA determines, on balance, that the development complies with the purpose statement.

There are no acceptable outcomes for this code.

4.2 Meeting performance outcomes: Areas of high ecological value and associated wildlife habitats

Context

BSF are often constructed on land that would typically be used for energy storage infrastructure of existing substations and utility installations. Development for BSF generally have the following characteristics:

- flat, mostly cleared land (i.e. concrete or gravel pad)
- low building height (generally less than a single storey dwelling)
- proximate to transmission grid or distribution network connections, or, for onsite use for specific land uses and development types
- well graded, wide vehicular access.

To provide appropriate site conditions for development of BSF, the land may require significant land modification and clearing of vegetation to provide the necessary physical conditions for the use and supporting ancillary infrastructure, such as Asset Protection Zones (APZ) in bushfire prone areas.

These interventions could lead to the loss or fragmentation of habitats and impacts on waterways and fauna movement patterns within areas of high ecological significance.

Applicants are required to consider these impacts in areas of high ecological value both on the immediate site and surrounding areas. These, and other aspects are important considerations particularly when a project is in proximity to National or State Parks, World Heritage Areas (including the Wet Tropics and the Great Barrier Reef) and the like.

Supporting action for PO1

During Assessment

An **Ecological Assessment Report (EAR)** should be lodged with an application to demonstrate how the project complies with PO1. This report should be prepared by competent professionals of suitable expertise and have regard to the methodology outlined in **Appendix 1 – Ecological Assessment Report (EAR) methodology**.

An **EAR** is the principal report that will be reviewed by SARA to determine whether compliance with PO1 is achieved. Failure to prepare and lodge a comprehensive **EAR** with an application will likely result in Information Requests and/or Advice Notices being issued by SARA after lodgement.

An **EAR** should identify the nature and characteristics of all on-site flora and fauna. This information should then be correlated with the proposed project layout to identify and assess resultant risks to flora, fauna and associated

habitats. The **EAR** should then outline how the project layout has been modified to, from the proponent's perspective, achieve compliance with PO1. This analysis and outline of how the project has been correspondingly modified is an important demonstration of how proposed disturbance has "*avoided*" adverse impacts on the habitats specified in PO1.

The rest of the **EAR** should then demonstrate how the proposed project layout aims to minimise and mitigate impacts on the habitats specified in PO1. It is also important that the **EAR** acknowledges and responds to the ecological values of areas outside of but proximate to the project site. This is particularly important if a project is proximate to National or State Parks/Forests and World Heritage listed areas (including the Wet Tropics and the Great Barrier Reef) and the like. In bushfire prone areas, this should include implications of creating APZ or any other bushfire mitigation strategy requiring clearing or modification of ecological values.

It is strongly recommended that applicants prepare an **EAR** having regard to **Appendix 1 – Ecological Assessment Report (EAR) methodology.**

Conditions of approval

These conditions will require the preparation of several detailed plans prior to commencing construction. These plans will include:

- a **Vegetation and Fauna Management Plan (VFMP)**. A **VFMP** addresses all aspects of the clearing of vegetation to ensure that impacts on flora and fauna are minimised and mitigated. A **VFMP** may be required to be prepared in accordance with relevant sections of an **EAR** that was submitted for assessment.
- a **Cleared Vegetation Management Plan (CVMP)** outlining how all felled vegetation is proposed to be stacked, stored, reused, mulched and/or removed off site. The **CVMP** will also include strategies to manage bushfire risks associated with the clearing and management of vegetation.
- a detailed **Rehabilitation Management Plan (RMP)** to be prepared after construction has commenced and prior to its completion. An **RMP** must be prepared by a suitably qualified ecologist, be generally in accordance with relevant sections of a lodged **EAR** or **PRP**, and outline how areas cleared for construction will be:
- rehabilitated (returned over time to pre-disturbance regional ecosystem or condition); and/or
- restored (using grasses, groundcovers and other local indigenous species that are consistent with the composition of surrounding vegetation communities); and/or
- stabilised (using hard engineering devices and measures complemented by landscaping)
- prepared cognisant of and complementary to a **Site Stabilisation Plan – Operations (SSPO)** (which will also be conditioned to achieve compliance with PO19)

- reflective of agreements to deliver parts of the disturbance footprint to a condition requested by landowners.

Applicants will also be conditioned to monitor and provide yearly progress reports on rehabilitation outcomes for 5 years after the commencement of full operations of the BSF.

Note: Rehabilitation imposts will not reduce or remove the need for an environmental offset under other relevant legislation or codes, unless there is adequate demonstration that the rehabilitation works will address impact on matters of environmental significance. Refer to section 3.5.2 of the General guide for the Queensland Environmental Offsets framework for further information.

Other approvals (associated with PO1)

Where clearing of vegetation is unavoidable and has been approved by SARA, it is the applicant's responsibility to ensure all relevant approvals and permits are obtained, including under the *Planning Act 2016*, the *Vegetation Management Act 1999,* the *Nature Conservation Act 1992* and the *Environment Protection and Biodiversity Conservation Act 1999.*

4.3 Meeting performance outcomes: Risk mitigation

Context

BSFs introduce specific safety challenges such as thermal runaway, electrical faults, and fire hazards. Effective risk mitigation begins with resilient infrastructure design, layout, comprehensive monitoring, and preventive maintenance strategies to minimise the likelihood of incidents. Equally important is a well-defined incident response strategies and procedures that ensures rapid detection, clear communication, and coordinated action with QFD and/or local emergency services. By combining proactive risk management with responsive emergency planning, operators can protect personnel, assets, and the surrounding community while maintaining system reliability and regulatory compliance.

Supporting actions for PO2 - PO4

During Assessment

BSF requires consideration of a range of battery failure hazards and risks based on size, type, and location.

Safety considerations typically associated with the operation of BSF need to account for thermal runaway, fire, and explosion from battery storage infrastructure.

Safety considerations can include, but are not limited to the following:

- integration and installation of BSF near existing buildings does not compromise the safety of building occupants on and offsite

- installation of BSF proposed near protected vegetation areas or biodiversity areas does not pose an unacceptable risk to flora and fauna
- the safety hazards presented by different battery technologies are addressed with evidence-based mitigation and fire intervention measures.

It is required that a **Risk Management Assessment Report (RMAR)** be prepared and lodged with the application to demonstrate compliance with PO2-PO4. The risk assessment process supporting the RMAR should be aligned with *AS/NZ ISO 31000:2018 Risk Management - Guidelines*, or analogous processes in technical standards such as *AS/NZS 5139*.

The proponent should consider information of 'Fire Safety for Battery Energy Storage Systems' available at QFD's Renewable Energies webpage when designing the proposed development and demonstrating compliance with the above benchmarks. The following risk management considerations should be addressed at a minimum:

- Identification of onsite hazards and operations at the facility
- Provision for firefighting infrastructure
- Prevention of fire spread within onsite infrastructure and across the site boundary
- Appropriate fire suppression and explosion mitigation
- Site access in and around the facility
- Bushfire exposure risk evaluation, if applicable
- Water inundation mitigation evaluations for the site
- Management of firefighting run-off water
- Communication and monitoring strategies
- Clear intervention signage and action plans.

With regard to identification of onsite hazards and operations at the facility, detail regarding the management of storage of dangerous goods and materials (including firefighting chemicals) and how maintenance waste is managed should be specified in the **RMAR**, submitted at lodgement. Ultimately, this information is required to be further detailed in the conditioned **Operational Emergency Management Plan (OEMP)** and **Construction Environment Management Plan (CEMP)**. A **Site Plan** should clearly detail infrastructure layout, site separation from adjoining and surrounding uses, and site access (particularly for use by emergency services in the case of an onsite emergency).

A **Fire Safety Study (FSS)**, identifying hazards and fire prevention strategies and measures should be prepared in line with the information on Fire Safety for Battery Energy Storage Systems available at QFD's Renewable Energies webpage.

Conditions of approval

Conditions will be imposed requiring the preparation of a detailed **OEMP, CEMP** and a separate **FSS** to ensure that construction and operational workforces, surrounding sensitive receptors and existing facilities exposure to the potential risks from the use is mitigated where it cannot be avoided.

4.4 Meeting performance outcomes: Incident Response

Context

BSF present unique risks that require appropriate detection and suppression systems and tailored incident response protocols to ensure safety of people on and off the site, environmental protection, and operational continuity. In the event of a fire, bushfire, explosion, contamination leak or other incident, rapid and coordinated action with Queensland Fire Department and/or Local fire services is essential.

Supporting actions – PO5 - PO7

During assessment

To demonstrate compliance with PO5 the development should be designed to accommodate efficient emergency service access in response to incidents. With regard to access in the case of a bushfire, cleared fire fighting areas at the interface of hazardous vegetation or APZ must be accessible.

The measures should be justified as part of the overall fire safety strategy as described in the **FSS**. The emergency response plan would be developed following consultation with QFD and reflecting the measures agreed in the FSS.

To demonstrate compliance with PO6, the development is to be supported by 24-hour monitored detection and battery thermal management system to maintain safe and efficient operation and prevent fire incidents or system failure. A battery thermal management system involves controlling the temperature of battery cells to prevent overheating, and thermal runaway. The battery management system should monitor down to the module level and ideally isolate individual cells or modules that are displaying unusual behaviour well in advance of the onset of thermal runaway. Under emergency conditions the battery management system will electrically disconnect battery enclosures and may also trigger emergency systems such as emergency ventilation.

Additionally, the **OEMP** and **FFS** should detail restrictions on staff movements during an emergency incident. A qualified representative of the BSF should advise on safety protocol (depending on current site conditions) before control is handed over to emergency services. Procedures require the qualified BSF representative to be available to continue to advise emergency services during emergency operations on site-specific matters.

PO7 requires the development to be provided with adequate water supply, commensurate with the scale of the development, for fire-fighting purposes.

Conditions of approval

Conditions will be imposed requiring the preparation of a detailed **OEMP** and a separate **FSS** to ensure that construction and operational workforces, surrounding sensitive receptors and existing facilities exposure to the potential risks from the use is mitigated where it cannot be avoided.

4.5 Meeting performance outcomes: Social impacts

Context

The community benefit system applies to all MCU applications for BSF that has a maximum instantaneous electricity output of 50MW or more. Prior to lodging an application with SARA, applicants are required to have satisfied obligations required under this system. Details of the community benefit system are available on the department's website at https://www.planning.qld.gov.au/planning-framework/community-benefit.

In dealing with social impacts that could arise from a BSF, PO8 reflects the two main outcomes from responding to these requirements being:

- a proposed project has an executed community benefit agreement **(CBA)**; or
  a proposed project has sought and received an exemption from developing a **CBA**.

Supporting action – PO8

During assessment

If an applicant has entered into a **CBA**, a copy of this document and its underpinning **social impact assessment** (**SIA**) report should be lodged with the application as evidence of compliance with PO8.

If an applicant has obtained notice under section 106ZE of the Planning Act waiving the requirement for a SIA and/or **CBA**, a copy of this document should be submitted with the application. This document should be accompanied by a report that demonstrates how *"social impacts of the development are identified, managed, mitigated, counterbalanced and monitored."* The report must demonstrate that the application will not have a social impact or will have a minor social impact only.

Conditions of approval

Elements of, or in some cases the entirety of a submitted **CBA**, are likely to form conditions of an approval.

Elements of the report provided to demonstrate compliance with PO8 may flow through to conditions of approval, including:

- compliance with a **CBA** or elements of a CBA; and
- the monitoring of a social impact of the development.

Alternatively, where a **CBA** was not entered into for the development application, the assessment manager may impose conditions on the development approval to ensure social impact is addressed. Refer to the Community Benefit Agreements – Guidance for Local governments and Proponents for more information.

4.6 Meeting performance outcomes: Agricultural land

Context

BSF developments can lead to the reduction or loss of **high-quality agricultural land** in regional areas across Queensland. Having regard to local context and the scale of loss of agricultural land this could result in unacceptable adverse impacts on individuals, rural communities, and the broader agricultural sector, as well as on the long-term viability of productive soils.

Project layouts should avoid unacceptable loss of **high-quality agricultural land** whilst minimising detrimental impacts on the long-term viability of productive soils. Applicants must carefully assess site suitability and prioritise locating BSF on land that does not compromise Queensland's agricultural prosperity or diminish the important role of agriculture in supporting regional economies and communities.

Where a BSF is proposed on **high-quality agricultural land**, applicants must demonstrate 'no unacceptable loss' from the perspective of the degree of impact on the agricultural productivity and prosperity of the local government area and surrounding region. This is particularly important in those parts of the state where local and state governments have sent clear policy signals regarding the significance of agricultural productivity and how it needs to be balanced with competing land uses.

Supporting action – PO9 - PO12

During assessment

Applicants are required to submit an **Agricultural Land Assessment (ALA)** report that demonstrates the proposal does not result in an unacceptable loss of **high-quality agricultural land**.

The **ALA** report should address the following:

- identify whether the site contains **high-quality agricultural land** values (as defined in State code 27 of SDAP)
- clarify and map the amount of hectares of **high-quality agricultural land** the footprint of the BSF will impact

- if the amount of hectares of impacted **high-quality agricultural land** is believed to constitute 'no unacceptable loss' - provide a short ALA report supporting this conclusion as evidence of compliance with PO9 - PO12
- if the project footprint proposes to impact on a material quantum (to be determined on a case-by case basis) of **high-quality agricultural land** values - a comprehensive **ALA** needs to be prepared which:
    - is prepared by a suitably qualified professional (i.e. suitably qualified agronomist) and with consideration of relevant sections of the *Guidelines for Agricultural Land Evaluation in Queensland* (Queensland Government, 2015)
    - includes a description of the historic use of the site for agricultural production (if any)
    - includes an assessment of soils and land suitability for agricultural production (of the area affected by the project footprint)
    - provides information about the agricultural *potential* of the **high-quality agricultural land** on the site (as an indicator of agricultural production that might be foregone for the life of the project)
    - acknowledge the amount of hectares of **high-quality agricultural land** that will be removed from potential agricultural production by the project footprint
    - calculate the percentage and quantum of the alienation of **high-quality agricultural land** associated with the proposal against the quantum of **high-quality agricultural land** in the broader local government area
    - assess the implications of the alienation of the identified amount of **high-quality agricultural land** associated with the project footprint for the life span of a typical BSF (e.g. lithium-ion batteries are expected to last at least 20 years). This assessment should have regard to:
        - where the agricultural uses involves sugar cane production – implications on viability of local mill/s and supply chains
        - where the agricultural pursuit is other than sugar cane - whether the loss of agricultural production would have adverse impacts on local or regional agricultural and economic productivity and viability. Whether the alienation of locally significant agricultural productivity could affect viability thresholds of supply chains, processing plants and the like.
    - should underpin conclusions that demonstrate that the development:
        - avoids unacceptable loss of **high-quality agricultural land** (PO9)

- avoids land fragmentation, ensuring land connectivity to support ongoing agricultural use (PO10)
- will maintain soil fertility and productivity (avoiding irreversible impacts on soil quality), and will allow for restoration to pre-construction values after operations cease (PO11)
- if on or near a stock route network, does not compromise its primary purpose for moving stock (PO12).

4.7 Meeting performance outcomes: Natural hazards

Context

BSF can be located in areas that can be exposed to natural hazards such as flooding and bushfires and, in some cases, disasters such as cyclones, heatwaves and droughts.

The construction of BSF normally involves a modular installation process. The period of installation can vary dependent on the scale of the proposal and can require additional vehicle trips and personnel on site to deliver BSF units and personnel on site. BSF can also impact on surrounding communities.

Plans and strategies need to be in place to ensure the safety of on-site workers and surrounding communities in the event of natural hazards or disasters occurring.

BSF should be located, sited and designed to avoid natural hazards, or if there is no alternative location, implement appropriate mitigation measures to mitigate risk to people, property and the environment.

Site layouts need to facilitate the following outcomes:

- access for necessary evacuation of workers, emergency vehicles to respond to bushfires and other emergency events such as fires and flood inundation that can impact battery storage systems. Failure to design, construct and maintain access tracks could impede the ability for workers to evacuate the site in emergency conditions while inhibiting access for emergency vehicles
- adequate separation from natural hazards, and
- other hazard specific requirements such as strategic location of water supply for firefighting.

Supporting action – PO13 – PO15

During assessment

Site layouts should be informed by an assessment of natural hazard risk. A **Natural Hazard Risk Assessment (NHRA)** should be prepared and lodged with an application to demonstrate compliance with PO13–PO15.

In addressing PO13, this assessment should demonstrate that all parts of the project layout are located outside of natural hazard areas and responsive to the risks posed by natural hazards that could affect the site.

In addressing PO14, demonstrate that the development is designed to address impacts from natural hazards where there is no suitable alternative location, such as resilience-focused design and operational strategies.

If the BSF is in a bushfire prone area

In addressing PO15, for BSF in bushfire prone areas, a detailed **Bushfire Management Plan (BMP)** and a separate **Safety and Emergency Management Plan (SEMP)** should be provided to demonstrate that construction and operational workforces and surrounding community members are appropriately protected.

For bushfire risk, the proponent should utilise the information available at Bushfire resilient communities – Information for Land Use Planning Practitioners when designing the proposed development.

The **BMP** must:

Be prepared in consultation with **QFD**, relevant landowners and relevant local governments and include, but is not limited to:

- a bushfire hazard assessment prepared by a suitably qualified person, that identifies the level of bushfire hazard and the location of hazardous vegetation
- details of APZ based on bushfire hazard assessment and radiant heat flux achieved at the development footprint, buildings, structure and critical infrastructure
- location of evacuation routes and safety zones
- fire-fighting requirements including infrastructure and water supply;
- evacuation procedures for construction workforce in the event of a bushfire emergency
- emergency response procedures for landowners and surrounding communities
- mitigation strategies to achieve the development outcomes in Part E of the *State Planning Policy July 2017 – Natural Hazards, Risk and Resilience*
- details of any sensitive land uses in proximity to the BSF development.

The **SEMP** should include the following details:

- a Hazard Analysis and Risk Assessment undertaken in accordance with *AS/NZ ISO 31000:2009 Risk Management Principles and Guidelines* and with *HB203:2006 Environmental Risk Management Principles and Processes*
- emergency evacuation plans for the construction and operation phases of the development

- safety management plans and emergency response procedures in consultation with the state and regional emergency service providers and provide an adequate level of training to staff who will be tasked with emergency management activities.

If the BSF is in a flood prone area

Development on a site susceptible to flooding, should be informed by a **Flood Assessment (FA)**. The **FA** should be undertaken by a suitably qualified person and where engineering principles are discussed, certified by a Registered Professional Engineer Queensland. The flood material should:

- identify flood hazards posing risk to the development
- assess the impacts of the development including design solutions to mitigate flood risk
- locate critical infrastructure above known flood levels
- if in an overland flow pathway or creek/waterway flooding area
    - preserve the natural flow of floodwaters, allowing water and debris to pass through the site with minimal obstruction
    - avoid altering floodwater behaviour, ensuring it does not concentrate, intensify, or redirect flow onto upstream, downstream, or adjacent properties
    - not cause a material increase in flood levels or hazard to upstream, downstream, or neighbouring properties
- demonstrate that the development does not adversely impact on public safety and the environment as a result of the impacts of floodwater
- demonstrate that the development does not reduce the ability of emergency services to access and evacuate the site in a flood emergency.

Conditions of approval

The conditions may require the development to comply with the recommendations of the **BMP** and **FA,** preparation of a **SEMP**, and the preparation of a **FEMP**, to ensure the development is designed to avoid impacts from natural hazards and on surrounding sensitive receptors and the environment.

Where susceptible to flooding, conditions may be imposed to ensure the development can continue to function properly during a flood event and does not cause an actionable nuisance to downstream and upstream properties.

The **SEMP** and **FEMP** are intended to be kept on site for access by staff involved with onsite operations.

4.8 Meeting performance outcomes: Protecting water quality and stormwater management

Context and supporting action – PO16

BSF have the potential to significantly alter the physical and environmental characteristics of an area. This can include affecting soil composition, hydrology, run off and water quality. Careful planning, design, and management are essential to minimise harm to on-site and adjacent sensitive environmental features and to ensure the long-term sustainability of the landscape.

Acid sulfate soils, when disturbed, can release harmful substances such as acid, iron, and other contaminants, posing a serious threat to water quality and ecosystem health. BSF need to minimise disturbance of acid sulfate soils as far as possible. If disturbance is unavoidable, effective management strategies such as soil neutralisation and containment must be implemented to prevent adverse impacts. Activities like vegetation clearance, excavation, and drainage changes should be carefully planned to mitigate risks associated with these soils, ensuring design approaches are adapted to minimise disturbances. Failure to manage these risks adequately can lead to long-term environmental damage, regulatory non-compliance, and harm to surrounding ecosystems.

The construction and operation of BSF must also safeguard water quality in nearby receiving waters, waterways, and wetlands. Poorly managed site preparation, including earthworks, vegetation removal, or alterations to natural drainage lines, can cause erosion, sediment runoff, and contamination of adjacent aquatic systems. Site layouts must avoid interaction with sensitive waterways and wetland areas wherever practicable and ensure that any unavoidable impacts are effectively controlled through erosion and sediment management. Waterway banks and natural drainage structures must be stabilised to protect aquatic habitats and maintain the hydrological functions of these areas.

Water flow and drainage must be carefully managed to minimise disruption to natural systems. BSF should maintain the stability and natural structure of waterways and drainage banks, avoiding unnecessary hardening or modifications that could interfere with ecological values. Using low-impact approaches and prioritising nature-based solutions can deliver both functional and environmental benefits. These approaches also provide a foundation for the ultimate decommissioning of the BSF and returning the land to its pre-development condition.

Managing stormwater effectively is another essential consideration for BSF, given their potential to have expansive layouts, dependant on megawatt (MW) scale and potential to alter natural hydrological dynamics. Poorly managed drainage can lead to localised flooding, erosion, and sedimentation, disrupting the natural flow and balance of overland water pathways.

Development must integrate robust stormwater systems that retain natural flow paths, rates, and volumes. Sustainable features, such as vegetative swales, detention basins, and permeable surfaces, should be incorporated into designs to mitigate potential impacts and preserve pre-development hydrological conditions.

Conditions of approval

If the proposed development is likely to cause disturbance or oxidisation of acid sulfate soil, a condition will be imposed to ensure affected soil is treated and thereafter managed (until the affected soil has been neutralised or contained) in accordance with the current *Queensland Acid Sulfate Soil Technical Manual: Soil management guidelines*, prepared by the Department of Science, Information Technology, Innovation and the Arts, 2014.

Supporting action – PO17 and PO19

During assessment

Provide a **site plan** identifying waterways, wetlands, and drainage lines, along with buffer zones to confirm that these areas will be avoided. If crossings near these features are unavoidable, provide low-impact methods, such as culverts, and detail how natural drainage patterns will be preserved. Measures to minimise erosion and sediment runoff, such as retaining vegetation, should also be included, along with a commitment to regular monitoring, especially during periods of heavy rain.

To address drainage control and bank stability, provide a **statement** prepared by an RPEQ specialising in water quality and stormwater specifying systems that naturally manage runoff and prevent water flow concentration. The statement must also confirm that construction and operation will not destabilise waterway banks and detail any rehabilitation works, such as revegetation. The statement can also outline a commitment to use permeable surfaces where feasible and avoid non-essential hardening or modification of waterways.

Conditions of approval

If, during an assessment, SARA is of the view components of PO17 and PO19 can be complied with through conditions, the approval will require the preparation of a detailed **Stormwater Management Plan (SMP)** and **Rehabilitation Management Plan (RMP)** prior to the full operations of the BSF.

Supporting action – PO18

During a fire or explosion event at a BSF, large volumes of water or chemicals may be required for suppression. Development should incorporate water containment systems to prevent contaminated runoff from entering surface water or groundwater. This may include specific infrastructure such as bunded areas, retention basins, or controlled discharge points capable of capturing water containing contaminants. The **SMP** should demonstrate appropriate containment and disposal/treatment of contaminated water, including fire water.

Containment systems should comply with Water Sensitive Urban Design principles and include filtration or treatment measures. Containment is to be provided as per *AS 4681- 2000: The storage and handling of class 9 dangerous goods*, or its latest version.

Other approvals

Approving a MCU for a BSF does not preclude the need for proponents to determine whether a separate development application under the Planning Act, or compliance with the Accepted Development Requirements for operational works that is construction or raising waterway barrier works, is required. Further information on what constitutes a waterway barrier work is available through the Department of Primary Industries website.

4.9 Meeting performance outcomes: Acoustic amenity and vibration

Context

BSF including ancillary infrastructure, must be designed, constructed, and operated to ensure noise and vibration emissions do not adversely impact sensitive receptors. While BSF typically produce less noise than wind farms, ancillary components like inverters, transformers, batteries and cooling systems can generate steady noise and low-level vibration that requires consideration of impacts.

The *Environmental Protection (Noise) Policy (EPP) 2019* sets out the acoustic quality objectives for nearby sensitive receptors. In addition to the acoustic quality objectives in the EPP, the development must demonstrate background ambient noise on nearby sensitive receptors is not impacted by complying with 30 - 35dBA at the outdoor façade or, if background noise is very low (e.g. rural areas) - background noise + 5 dBA.

The BSF should meet these objectives at a minimum or as advised by a RPEQ or someone who or is eligible for membership in the Australian Acoustical Society or whose firm is a member of the Association of Australasian Acoustical Consultants (AAAC) who can demonstrate that there will be no adverse impacts on sensitive receptors as a result of the development.

Site layouts should ensure noise and vibration generating equipment is sited away from sensitive receptors and that necessary equipment design and/or other design measures such as acoustic barriers or buffers are incorporated and shown in a project layout plan.

Audible emissions, such as humming and vibration from equipment or vehicle traffic during construction and decommissioning, can cause nuisance or discomfort if not appropriately managed and mitigated.

Supporting action – PO20 and PO21

During assessment

Noise and vibration generating elements associated with BSF, generally including inverters, transformers cooling systems must be spatially identified on a proposed project layout plan. An initial analysis should be undertaken to determine if any sensitive receptors are proximate enough to noise and vibration generators that would warrant a **Noise Impact and Vibration Assessment (NIVA)** report to be undertaken.

If no sensitive receptors are deemed likely to be affected by on-site noise and vibration generation, then evidence should be provided to this effect to demonstrate compliance with PO20 - PO21.

If any sensitive receptors could possibly be affected by noise, then a **NIVA** report should be prepared to demonstrate compliance with the relevant levels in the *Environmental Protection (Noise) Policy 2019* (EPP Noise) (PO20).

The noise section of the **NIVA** report:

- must be undertaken by a suitably qualified acoustic consultant who is an RPEQ or is eligible for membership in the Australian Acoustical Society or whose firm is a member of the Association of Australasian Acoustical Consultants (AAAC)
- describe and quantify operational noise sources and operating modes, where applicable. Where feasible and available, spectral data should be used within the calculations
- undertake 3D noise modelling using industry best-practice methods, utilising prediction algorithms that consider attenuations from distance, ground effects, terrain/shielding effects, atmospheric absorption and meteorological conditions
- utilise the noise model to predict noise level impacts onto nearby sensitive receptors under typical worst-case noise enhancing conditions (i.e. under downwind and/or temperature inversions conditions)
- assess the modelled impacts against the prescribed criteria and PO20, considering any modifying factors/penalties
- where noise impacts on sensitive receptors are predicted, identify mitigation measures or strategies to reduce or eliminate noise levels to achieve compliance with the EPP Noise (and therefore PO20)
- noise impacts during the night period (8:00 pm to 6:00 am) are required to be assessed. This specific night period is selected to avoid the shoulder period between 6:00 am and 7:00 am which typically contains an increased level of road traffic noise, rural activities and natural extraneous noise (i.e. increased ambient noise levels) compared to the pre-6:00 am period

If any sensitive receptors are considered close enough to vibration generators to be affected by vibration, then the **NIVA** report should demonstrate that the development can mitigate against any impacts on sensitive receptors during all phases of the project, and particularly during construction (PO21).

Conversely, the BSF should be designed to withstand any impacts of vibration from the project itself or from another source during operation (PO21).

Conditions of approval

Where sensitive receptors are identified as being potentially exposed to noise levels close to or potentially exceeding relevant levels in the EPP Noise, conditions of approval will likely require:

- noise generating elements of the project to be delivered '*generally in accordance with*' their depiction on an approved project layout plan
- a once-off noise monitoring report of the 'as-constructed' project will be conditioned to demonstrate that EPP Noise levels at sensitive receptors are not being exceeded
- recommended measures to avoid or mitigate against vibration impacts on sensitive receptors.

4.10 Meeting performance outcomes: Visual impact

Context

Large scale BSF will inevitably result in visual impacts on landscape amenity and on views from sensitive receptors. The project should minimise the visual impacts of the BSF where it is proposed in a locality having defined landscape values or scenic amenity articulated in a state (such as Regional Plan) or local government planning instrument (such as strategic framework and overlays/codes in a planning scheme), and where it is proposed in proximity to and viewable from sensitive receptors.

Preserving the scenic amenity of regions valued for their landscape quality is essential for protecting cultural and social connections to place, tourism appeal, and broader community expectations. In these situations, it is important that proponents carefully select sites and pay attention to site layout and design to achieve compliance with PO22.

Supporting action for PO22

During assessment

To demonstrate compliance with PO22, the project should be supported by a **Visual Impact Assessment Report (VIAR)** which details impacts on defined areas of high scenic and/or landscape amenity and surrounding sensitive receptors, and proposed mitigation measures to manage these impacts.

The **VIAR** should:

- outline the scenic amenity context and how it is represented in relevant state and/or local government planning instruments
- identify the extent of visibility of the proposal through a Visual Envelope Map (VEM) or 'viewshed' analysis to determine the likely visual catchment of the project, and how topography, vegetation and built structures affect visibility
- identify impacted sensitive receptors
- include a detailed assessment of the likely visual impacts of the BSF and associated components on sensitive receptors and areas of high scenic and/or landscape amenity
- describe how the siting and layout of the BSF components have been arranged to minimise visual impacts including measures proposed to mitigate and/or manage potential visual impacts once operational. This could include:
    - avoiding localities with landscape values or scenic amenity
    - utilising natural features such as land contours to obscure views or siting development below or behind ridgelines where practicable
    - appropriate use of colours and materiality that complement surroundings such as low-reflectivity materials to avoid glare and reflection, natural or textured materials and earth toned palette to blend into surroundings, and landscaping
    - siting development to incorporate existing vegetation or introduction of landscaping features such as screen planting or landscape mounding that complement the natural landscape
- include visual simulations or photomontages demonstrating the anticipated visual appreciation of the proposed BSF and associated components of the project (including transmission lines and any other ancillary infrastructure) from identified visual catchments.

Other supporting plans may assist in demonstrating recommended mitigation measures, such as design and landscape plans and schedules of materials, finishes and planting. Where mitigation measures such as vegetative screening or planting are proposed in proximity to the BSF footprint, consideration should be given to other technical requirements, including bushfire management. For example, while some planting within an APZ may be acceptable for visual and landscape screening purposes, this should be demonstrated and justified within the bushfire management report to ensure compliance with fire safety standards. All reporting should present these considerations holistically, showing how visual, environmental, and safety objectives are balanced and integrated across disciplines.

Conditions of approval

If a **VIAR** proposes mitigation measures, such as screen planting, use of particular materials and finishes, a condition of approval may require the mitigation measures to be undertaken prior to the operation of the BSF.

4.11 Meeting performance outcomes: Lighting

Context

Night time lighting for BSF is an important design consideration, especially for safety to ensure visibility for personnel accessing the site at night time, security to deter unauthorised access or vandalism, operational efficiency to aid in navigation around high-voltage areas and equipment, and during an emergency response to facilitate safe evacuation or intervention by emergency services during incidents.

Supporting action for PO23

During assessment

This lighting may impact on nearby sensitive receptors including environmental receptors. Consequently, development should minimise off-site lighting impacts. The **VIAR** should identify and respond to potential lighting visual impacts from the development.

Conditions of approval

Development may be conditioned to ensure that external lighting is installed as low intensity lighting (except where for safety or emergency purposes), does not shine above the horizontal, and complies with *Australian/New Zealand Standard AS/NZS 4282:2023 – Control of Obtrusive Effects of Outdoor Lighting*, or its latest version.

4.12 Meeting performance outcomes: Transport networks

Context

The construction of BSF involves substantial volumes of construction traffic, including heavy vehicle haulage. While battery storage facilities do not require the transportation of turbine components like wind farms, the large-scale delivery of materials such as inverters, transformers, and batteries can still necessitate heavy and occasionally **Oversize/Overmass (OSOM)** vehicle transport. These materials are often moved from coastal ports or manufacturing facilities to sites in regional or remote areas, leading to significant loads on local and state road networks during construction.

Supporting actions for PO24 – PO28

During assessment

Some BSF projects may encounter challenges in securing practical and feasible haulage routes following development approvals. PO27 requires proponents to support applications with analysis providing a level of confidence that heavy vehicle haulage can be organised to support project construction following approvals. A **Heavy Vehicle and OSOM Construction Concept Strategy** should be prepared and submitted supporting compliance with PO27. All relevant stakeholders (including Port Authorities, local government traffic managers, DTMR regional offices and the National Heavy Vehicle Regulator) should be consulted in the preparation of this strategy. The **Heavy Vehicle and OSOM Construction Concept Strategy** should outline:

- the consultation that has occurred with relevant stakeholders in the formulation of the strategy
- details of the proposed BSF components used to develop the strategy, including information on expected material volumes and the dimensions and weights of components requiring heavy or **OSOM** haulage
- proposed vehicle types and availability to be used for **OSOM** haulage
- key identified 'pressure points' on proposed **OSOM** routes such as bridges, structures, railway level crossings and any sections of constrained horizontal and vertical geometry
- details of how the proposed construction haulage can be feasibly achieved, at full cost to the proponent, including identifying appropriate 'pressure point' route mitigation measures and concept road upgrades.

If a proposal requires direct access for construction traffic off a state-controlled road, additional information will need to be submitted to demonstrate compliance with PO28. In these circumstances, details of proposed intersection upgrades need to be submitted with the application in accordance with DTMR's requirements under section 62 of the *Transport Infrastructure Act 1994* permits and normal SARA requirements seeking to gain approvals for upgrades to state controlled roads.

Conditions of approval

All BSF applications submitted to SARA will be required to submit a **Traffic Impact Assessment (TIA)** at the time of lodgement. An updated **TIA** may be required prior to the commencement of construction transport activities. This will be conditioned as necessary.

The primary purpose of a **TIA** is to identify any upgrades that are required to state and local government road networks (including railway level crossings) to enable the passage of BSF construction traffic. Any identified upgrades will need to be implemented at full cost to applicants prior to the commencement of construction traffic. Preparation of a **TIA** needs to include engagement with relevant stakeholders including local government traffic managers, regional DTMR officers and Queensland Rail (if railway level crossings are likely to be affected).

The formulation of a **TIA** should be based on DTMR's GTIA guideline, any relevant local government guidelines, policies or standards and Queensland Rail level crossing specifications.

Approved applications will also be conditioned to prepare a **Traffic Management Plan (TMP)** prior to commencement of construction activities. The primary purpose of a **TMP** is to outline management strategies for all types of construction traffic that warrant such strategies. As a minimum. A **TMP** needs to include a detailed management strategy to ensure the safe and efficient haulage of heavy materials and BSF components from ports to construction sites. A **TMP** must also include but not be limited to providing:

- details of all BSF components triggering **OSOM** haulage including details of maximum weights and dimensions (heights, widths and lengths)
- proposed haulage vehicle configurations including axle spacings, axle and gross masses, ground contact width, tyre sizes and evidence of ability of proposed vehicles to safely haul identified components
- loaded widths, length and height measurements of the various **OSOM** components to be hauled
- detailed route/s identification and assessment of ability of the identified routes to safely haul proposed OSOM components
- identified conflict points of **OSOM** component haulage with existing infrastructure (including but not limited to bridges, culverts and other structures)
- evidence that bridges, culverts and other structures on haulage routes can accommodate heavy haulage vehicles under load
- management strategies to ensure that railway level crossings and associated road safety are not adversely affected by construction traffic
- evidence of the capacity of escorts (police and non-police) to service haulage demands in accordance with relevant legislative requirements.

Other approvals

It is the applicant's responsibility to ensure all relevant approvals and permits are obtained, including under the *Planning Act 2016,* the *Transport Infrastructure Act 1994*, and the *Local Government Act 2009* to confirm the suitability of the road network for the movement of **OSOM** vehicles and mitigate impacts accordingly. The National Heavy Vehicle Regulator can assist in identifying the proposed haulage route for OSOM vehicles, however other relevant entities, such as the Ports Authority, Energy Queensland, Queensland Rail and Local Government are also likely to have specific requirements to allow for the safe movement of items on the road network during construction.

Applicants will also need to consider and obtain permits as necessary under the *Transport Infrastructure Act 1994* and *Electricity Act 1994* if seeking to place or connect to any third-party utility infrastructure within a state-controlled road.

4.13 Meeting performance outcomes: Infrastructure

Context

BSF are considered to be an 'at risk' development. Consequently, developments are located a safe distance from any pipeline, including ancillary infrastructure, and where in the vicinity of pipeline or resource activities, ensure that the facility is not at unnecessary risk. Conversely, the facility does not adversely impact on the safe operation and maintenance of a pipeline or resource activity or compromise the future re-use of any decommissioned pipeline or resource activities.

Additionally, to ensure the safe and efficient operation of a BSF, it is essential that the development is supported by infrastructure that aligns with its scale and functional requirements. This includes electrical connection and water provision, and other infrastructure which may be relevant to the project.

Supporting action – PO29 - PO30

During assessment

To demonstrate compliance with PO29, a qualitative risk assessment in accordance with *AS 2885.1-2007 Pipelines - Gas and liquid petroleum - Design and construction* should be prepared as relevant which identifies risks, and appropriately considers development location and design to avoid impacts.

To demonstrate compliance with PO30, the development should be supported by indicative electrical connections details in a project layout plan and demonstrate that it has sufficient water supply for all stages of the development, including in the event of an emergency. The project should also detail other indicative details as relevant.

Conditions of approval

Where impacting on pipelines or resource activities, or connections to services, conditions of approval will likely require the proponent to enter into discussions and/or agreement with the pipeline licence holder and/ or other relevant authority.

Connection and supply elements of the project to be delivered '*generally in accordance with*' their depiction on an approved project layout plan.

4.14 Meeting performance outcomes: Decommissioning

Context

Decommissioning a BSF is the responsibility of the approval holder and is undertaken in two distinct phases:

- following completion of construction and commencement of full operations, then
- at the end of the operational life of the project.

Detailed decommissioning plans will be required prior to each of these project phases. Actions in these plans will be conditioned to be implemented in accordance with strategies outlined in the plans.

Decommissioning activities that are detailed in management plans should ensure that there are no adverse impacts on individuals, communities and the natural environment as a result. This typically involves activities to 'make good' the land and remove infrastructure.

PO34 Development incorporates design features that enable reuse, recycling, and recovery of battery components and associated infrastructure at end-of-life.

PO35 requires evidence of financial security to ensure that the two phases of decommissioning occur in a timely manner with minimal risks to landowners and government.

Supporting action – PO31 - PO34 (and PO11)

Conditions of approval

End of construction decommissioning

Conditions of approval will require proponents to prepare an **End of Construction Decommissioning Management Plan (ECDMP)** to be submitted to SARA prior to finalisation of construction of the BSF. The **ECDMP** will outline all actions required to:

- remove all above ground non-operational structures and equipment such as construction site offices, concrete batching plants, on-site accommodation camps etc
- reflect any agreements with landowners about on-site conditions
- remove and clean up any contamination caused during construction as defined in the *Environmental Protection Act 1994*.

The **ECDMP** should not duplicate, but needs to be compatible with **Rehabilitation Management Plans (RMPs)** and **Site Stabilisation Plan - Operations (SSPOs)** that will also be conditioned to be prepared prior to finalisation of construction activities.

End of operations - Decommissioning

Conditions of approval will also require the preparation of an **End of Operation Decommissioning Management Plan (EODMP)** six months prior to the ceasing of a BSF operations.

An **EODMP** should be informed by consultation with relevant stakeholders including landowners and will outline all actions required to:

- deconstruct and remove off-site all structures and infrastructure (including, but not limited to batteries and associated footings, inverters, transformers, cooling systems, above and underground ground cabling)
- manage impacts on the transport network arising from removal of materials from the site
- decontaminate any affected areas in accordance with requirements of the *Environmental Protection Act 1994*
- achieve outcomes described in PO11 being – "*to return the land to its pre-construction agricultural land productive value*."

All of the above aspects of the **EODMP** can be varied through agreements with landowners who may desire to have certain project elements, such as parts of access tracks, left in situ to support the ongoing use of the property.

The **EODMP** should aim to maximise the recycling, repurposing and/or reuse of all materials removed from the site during decommission. A key objective of a decommissioning plan is to minimise materials destined for landfill and to implement the full decommissioning of the project as efficiently and sustainably as possible.

End of operations - Reuse, recycling and recovery of battery components

As part of decommissioning the project sustainability, the reuse, recycling and recovery of battery components must also be planned to demonstrate compliance with PO34. A **Battery Recycling Strategy (BRS)** will be conditioned as part of the approval, and should incorporate the following information:

- Details of a qualified professional to assist with deinstallation of batteries
- Any risks associated with deinstallation of batteries, in particular management steps necessary to contain harmful and dangerous battery materials and any direction provided from the supplier regarding an 'end-of-life' plan
- Whether the battery system contains recycled content and if it is recyclable
- Itemised breakdown of materials to be reused, recycled and/or recovered. Additionally, this should detail what happens to other system components associated with the decommissioned BSF.

At the time of lodgement, a **Preliminary Battery Recycling Strategy (PBRS)** should be submitted for assessment. It is acknowledged the strategy may change over the operation period of the BSF as new technologies and recycling processes emerge. The conditioned **BRS** is intended to account for these changes and incorporate best practice at the time decommissioning of the **BSF** occurs.

Supporting action – PO35

During assessment

To demonstrate compliance with PO35, applicants are required to provide a **Decommissioning Security Report**. This report needs to provide evidence of the proposed financial security (bonds, financial guarantees or similar) that will ensure compliance of decommissioning at end of construction and at end of operations - at no cost to landowners (that are not project operators) or the government.

Conditions of approval

If SARA deems that PO35 is complied with, a condition of approval will require the implementation of the proposed financial securities to underpin end of construction, end of operations decommissioning and **BRS.**

5.0 Appendices

Appendix 1 – Ecological Assessment Report (EAR) methodology

An **EAR** should be prepared and submitted with an application to demonstrate how PO1 is to be complied with. This report should have regard to the methodology outlined below.

An **EAR** should include:

- project details including, history, location, site details, project footprint, expected operational life of the BSF
- outline of planning and approvals framework relevant to the project
- description of detailed studies and expert inputs into the **EAR**
- details of desktop assessment of all relevant environmental documents, databases, maps and legislation used to identify ecological values both on and around the site
- details of how the desktop assessment informed field studies and surveys
- determining 'Likelihood of occurrence' for threatened flora and fauna
- details of ecological surveys undertaken including survey times, durations, expertise involved on survey teams and survey conditions. Two seasonal field surveys to map the vegetation and identify flora and fauna species, should be undertaken in accordance with *Methodology for survey and mapping of regional ecosystems and vegetation communities in Queensland*. Version 6.0 (Neldner et al, 2022) and consideration of *Terrestrial Vertebrate Fauna Survey Assessment Guidelines for Queensland,* Version 4.0 (Eyre et al. 2022).
- description of the project environment including existing land uses, landforms and geology, presence of wetlands and waterways and climate
- description of vegetation communities including results of ground-truthed RE mapping showing distribution of individual RE types
- identification of and distribution of any threatened flora
- details of fauna habitat types
- details of fauna species including acknowledging status under relevant state and/or Commonwealth legislation
- details of invasive species (having regard to *Biosecurity Act 2014*)
- details of presence of pest animals

- description of identified vegetation corridors, linkages and connectivity and relevance to identified fauna
- description of MSES listed species and categorisation
- assessment of impacts of project construction and operations on flora, vegetation communities and fauna including:
    - based on details of proposed clearing involved with the project footprint
    - consideration of potential impacts on the integrity of flora, fauna and landscapes of high-value wilderness areas (including but not limited to World Heritage Areas, National and State parks) proximate to the site boundaries
    - statement of compliance with PO1. Details of how the project layout has been designed, constructed, and planned to avoid areas of high ecological value and details of proposed mitigation measures that, subject to assessment by SARA, may form the basis of conditions of approval and parameters to be incorporated into detailed reports and strategies prepared prior to commencement of construction
    - determination of Significant Residual Impacts (MSES matters)
    - determination of MSES offsets
    - figures, tables and appendices containing all relevant documents and reports used in the preparation of the **EAR**.

6.0 Abbreviations

Abbreviation	Meaning
ALA	Agricultural Land Assessment
APZ	Asset Protection Zone
AS	Australian Standard
AS/NZS	Australian Standard/New Zealand Standard
BMP	Bushfire Management Plan
BPA	Bushfire Prone Area
BRS	Battery Recycling Strategy
BSD	Battery storage device
BSF	Battery storage facility
CBA	Community Benefit Agreement
CEMP	Construction Environment Management Plan
CVMP	Cleared Vegetation Management Plan
EAR	Ecological Assessment Report
ECDMP	End of Construction Decommissioning Management Plan
EODMP	End of Operation Decommissioning Management Plan
EP Act	*Environmental Protection Act 1994*
EPP (Noise)	Environmental Protection (Noise) Policy 2008
ESCPC	Erosion and Sediment Control Plan – Construction
FA	Flood Assessment
FEMP	Flood Emergency Management Plan
FSS	Fire Safety Study
ISO	International Standards Organisation
NHRA	Natural Hazard Risk Assessment
NIVA	Noise Impact and Vibration Assessment
OEMP	Operational Emergency Management Plan
OSOM	Oversize/Overmass
PBRS	Preliminary Battery Recycling Strategy
PMAV	Property Map of Assessable Vegetation
QLD	Queensland
RMP	Rehabilitation Management Plan
RPEQ	Registered Professional Engineer of Queensland
RMAR	Risk Management Assessment Report

Abbreviation	Meaning
SEMP	Safety and Emergency Management Plan
SIA	Social Impact Assessment
SMP	Stormwater Management Plan
SSPO	Site Stabilisation Plan – Operations
TIA	Traffic Impact Assessment
TMP	Traffic Management Plan
VFMP	Vegetation and Fauna Management Plan
VEM	Visual Envelope Map
VIAR	Visual Impact Assessment Report

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