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Regulatory Guidelines

002

Environmental Impact Assessment Criteria

Hydrogen and Renewable Energy Act 2023



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Introduction

This document has been generated as a guideline for undertaking an environmental impact assessment to satisfy the Environmental Impact Assessment Criteria (the Criteria), required under part 4, section 60 of the *Hydrogen and Renewable Energy Act 2023* (the Act). The impact assessment must be prepared by the licensee and be included as part of the Environmental Impact Report (EIR) submitted by the licensee as required under section 61 of the Act.

The Criteria establishes a holistic assessment of the environment, operation, stakeholder and community views, and applicable legislation or standards to develop potential impact events using a source, pathway and receptor environmental framework. The analysis of the presence and potential linkage between source, pathway(s) and receptor(s) for each potential impact event is required to be addressed by mitigation and control strategies to manage potential impacts. For each potential impact that is confirmed through the assessment, the licensee must develop environmental objectives and associated assessment criteria to demonstrate and commit to appropriately managing potential impacts. The objectives, assessment criteria and any developed leading performance criteria determine regulatory obligations that licensees will be regulated against.

This document provides a guide to undertaking an environmental impact assessment to meet the Criteria, including:

- The identification and confirmation of potential environmental impacts.
 - The management of confirmed impact events during operations and rehabilitation by the licensee.
 - The process to undertake an environmental significance assessment.
 - The process for establishing a set of environmental objectives the licensee expects to achieve following the implementation of control measures for each confirmed impact event.
- The process for establishing assessment criteria, including leading performance criteria that the applicant proposes to use to demonstrate the achievement of those environmental objectives.

Reference to the environment throughout this document is in accordance with the definition of the environment in the Act, which is broadly defined to include:

- land, air, water (including both surface and underground water and sea water), organisms, ecosystems, flora, fauna and other features or elements of the natural environment ;
- buildings, structures and other forms of infrastructure and cultural artefacts;
- existing and potential land use;
- public health, safety and amenity;
- the heritage, aesthetic or cultural values of an area; and
- the economic or social impact on an area.

The intention of this guideline is not to be exhaustive on the assessment of environmental impacts or on the development of projects, rather, this guideline has been generated to provide further explanation of the Criteria and to assist in decision making in relation to the environmental impact assessment process.

DEM recognises that there are unique aspects for any given proposal that require specific considerations. There may be aspects or examples of this guideline that may not be appropriate to adopt directly into documentation, i.e. the specific detail provided in an example, or the layout of guidance tables. It is important to note that while it is a legislative requirement that each section of the Criteria must be met, how the assessment of environmental impacts is demonstrated and/or displayed is not prescribed. Further to this, the environmental impact assessment framework has been adopted with a risk-based approach, wherein the level of detail of the assessment should be commensurate to the potential impacts and the management of anticipated impacts (typical and atypical) should be prioritised.

Criteria 1 Elements of the Environment

Guidance table 1 and Guidance table 2 (Appendix A) provide templates and examples for this section.

Environmental Impact Assessment Criteria: Requirement under Part 4 of the *Hydrogen and Renewable Energy Act 2023*

Regulation 32(2)(a) Regulation 32(2)(a) requires that the licensee, in their EIR provide a description of the authorised operations to be undertaken and the location at which the operations are to be undertaken.

Regulation 32(2)(b) requires that a licensee, in their EIR provide a description of the specific elements of the environment that can reasonably be expected to be affected by authorised operations, Under the Environmental Impact Assessment Criteria, the licensee must, for each element of the environment identified:

- provide a summary of any relevant issues or considerations raised by stakeholders, and any relevant legislated or recognised standards in relation to the element of the environment; and
- identify all potential environmental receptors

In accordance with Regulation 32(2)(b), the licensee must identify environmental elements that can reasonably be expected to be affected by the activities proposed, with particular reference to the environment (as defined under the Act) and existing land and water (marine) uses for the specific area and present them in the Environmental Impact Report (EIR). The Criteria specifies that for each environmental element identified in the EIR the following information must be provided for each element:

- provide a summary of any relevant issues or considerations raised by stakeholders, and any relevant legislated or recognised standards in relation to the element of the environment; and
- identify all potential environmental receptors.

The following environmental elements are common to most operations and the minimum that should be addressed/considered:

- biophysical environment
- climate
- public health and safety
- heritage (Aboriginal and non-Aboriginal)

- soil
- groundwater, including quality and quantity
- surface water, including quality and quantity
- noise and vibration
- air quality
- existing land and water (marine) use and infrastructure
- native fauna
- native vegetation
- biodiversity and sensitive ecosystems
- visual amenity
- economic and/or social value

Guidance table 1 (Appendix A) provides a template with an example of how to summarise this information.

For each environmental element, provide detail about the relevant environmental receptors. An environmental receptor has a degree of significance or environmental value as determined by stakeholder engagement, recognised legislative or other standards. Licensees should appropriately

reference any database or resource that has been used to establish an environmental element, a non-exhaustive list of useful resources is available in Appendix B.

For example, if groundwater has been identified as an environmental element, the importance or value of groundwater as an environmental receptor must be specifically addressed by identifying:

- the specific aquifers - there may be multiple
- existing groundwater users and if quality or quantity, or both, has the potential to be impacted
- where there are no known users, the quality or quantity, of a groundwater aquifer, or both, that has the potential to be impacted
- the sustainability or vulnerability of the groundwater resource to additional use or impacts.
- the hydrodynamics of the groundwater system including recharge and overall water balance.
- Groundwater Dependent Ecosystems (GDEs).

Or, for example, if Aboriginal heritage has been identified as an environmental element that could be affected by the proposed activities, the known and likelihood of unknown Aboriginal heritage (both tangible and intangible) in the project area must be assessed, including through engagement with relevant Traditional Owners and Aboriginal parties (e.g. Recognised Aboriginal Representative Body (if any), Native Title bodies and other Aboriginal groups with interests in the project area). Searching available databases for known Aboriginal sites, objects and/or ancestral remains e.g. Aboriginal Affairs and Reconciliation's (AAR's) central archives, may also assist in understanding the presence of heritage and cultural values, as well as the likelihood of unrecorded heritage, within the project area.

Where matters of national environmental significance (MNES), under the *Environment Protection and Biodiversity Conservation Act 1999*, are identified within a project area and proposed activities have the potential to impact MNES, the proposal must be referred to the [Commonwealth Department of Climate Change, Energy, the Environment and Water \(DCCEEW\)](#).

Where the Department of Infrastructure and Transport (DIT) road network is identified as part of an environmental element (e.g. existing infrastructure/land use) of a project, a Traffic Impact Assessment may be required, that should include any resultant infrastructure and/or service modifications or upgrades, and in some instances a Traffic Management Plan may also be required.

To establish biodiversity values within a declared release area, the Department for Environment and Water (DEW) have prepared biodiversity mapping values outputs. The mapping outputs spatially delineate biodiversity values protected by existing legislation within a release area, including native vegetation under the *South Australian Native Vegetation Act 1991* and threatened species under the *Environment Protection and Biodiversity Conservation Act 1999* and the *South Australian National parks and Wildlife Act 1927*. Where a proposed development is located in a [declared release area](#), the accompanying information pack, including mapping outputs, should be considered by proponents on the biodiversity values likely to occur.

To determine the views of affected parties in relation to social values and/or economic impacts, a social impact assessment (SIA) may be required. An SIA may be undertaken on any scale of project and may be undertaken voluntarily by licensees or may be determined, by DEM, as necessary for a licensee to meet the requirements of the Act. The process of undertaking an SIA may also provide details that relate to other aspects of the Criteria, e.g. identification of additional potential impacts and control measures. The SIA should be scalable and the scope commensurate to the project, with specific consideration given to the unique project setting and potential impacts. SIAs should be undertaken by suitably qualified professionals to ensure that consultation and assessments are undertaken appropriately to achieve best practice outcomes.

It is important that licensees establish the requirement for an SIA early in the planning process, prior to formal submission of an EIR or SEO. This can be achieved by preparing a scoping report in consultation with DEM and in

accordance with subdivision 5 of the Act, or may be determined in consultation with DEM with no formal requirement for a scoping report. The scoping process identifies key environmental and social issues to be addressed in the environmental impact assessment and can reduce decision-making time and increase certainty with respect to government and community expectations, as well as identifying any requirement for proponents to undertake an SIA.

There is no prescribed methodology or specific framework for an SIA to meet the Criteria, however SIAs should be performed in accordance with the [International Association for Impact Assessment International Principles for Social Impact Assessment](#). DEM has published a guidance document for undertaking SIAs for mining projects, [An Introduction to social impact assessment](#), which may be a useful reference for licensees to understand the SIA process and also provides additional useful references for SIA.

Criteria 2 Potential Impact Events

Environmental Impact Assessment Criteria: Requirement under Part 4 of the *Hydrogen and Renewable Energy Act 2023*

The licensee must identify potential impact events associated with the proposed authorised operations during each phase of the proposed operations (during construction, operation, decommissioning and rehabilitation) and how they are relevant to element(s) of the environment. Both typical events during these operations as well as atypical events (including but not limited to human error, extreme weather events, equipment failure, or discharges above normal operating levels) must be considered.

For the purpose of the environmental impact assessment, a potential impact event is the combination of a source, a pathway and an environmental receptor.

The source, pathway and environmental receptor of each potential impact event must be identified prior to the implementation of any control measures.

For each potential impact event identified, the licensee must provide:

2.1. Source

A description of the source of the potential impact event.

2.2. Pathway

A description of the potential pathway by which an identified environmental receptor can be exposed.

2.3. Environmental Receptor

A description of the environmental receptors that may reasonably be expected to be adversely impacted by the source prior to the implementation of any control measures.

2.4. Description of Uncertainty

Describe any significant degree of uncertainty pertaining to the evaluation of sources, pathways and environmental receptors.

Provide specific details about the source, pathway and environmental receptor. The description of the source, pathway or receptor should state specifically what it relates to. For example, 'contamination of aquifers' is not a sufficient description of a source, this should specifically relate to a source or hazard, 'contamination of aquifers due to improper handling of fuel, oil and chemicals'.

Ultimately the potential impact assessment determines regulatory obligations, environmental objectives and the criteria that the licensee will be regulated against.

The source, pathway and environmental receptors for potential impact events should be described in accordance with the following:

Provide a description of potential impact events to be investigated, both typical and atypical events should be identified and described prior to the implementation of any control measures. The potential impact events should describe any potential impact of operations on an environmental element, with consideration given to all phases of

the project. Atypical events should also consider natural hazard events that are specific to the project area, for example, a project area may be subject to flooding, therefore a flooding event should be considered where it has the potential to interact with future and/or existing infrastructure or activities and the subsequent impacts on the environment. Once the potential impact event has been identified the source, pathway(s) and receptor(s) should be described.

2.1 DESCRIBE THE SOURCE

A description of the source should specify all activities associated with the proposed operation that could reasonably be expected to negatively impact a receptor for the environmental element.

The description of sources should be specific about the activity, such as 'dust from civil construction earthworks' and avoid broad descriptions such as 'dust generated by construction activities'.

2.2 DESCRIBE THE PATHWAY

A pathway refers to the mechanism by which a source could potentially impact on a receptor. It is important to understand pathways in assessing the potential for impacts and, if confirmed, to inform control measures. The potential pathway should describe how an identified receptor can be exposed to or may reasonably be expected to

be impacted by an identified source. Examples of pathways include, but are not limited to, air or wind, surface or ground waters, and soil. Natural barriers may be considered in the description of pathways, particularly if a natural barrier would eliminate a pathway between a source and receptor.

2.3 DESCRIBE THE ENVIRONMENTAL RECEPTOR

This should reflect any person(s) and/or ecosystem(s) that may be detrimentally affected by exposure to the potential impact, this will include the environmental receptors identified and discussed in the previous section. An environmental receptor will have a degree of significance or environmental value as determined by stakeholder engagement or recognised under legislation or other standards. If there has been no value or significance attributed to a receptor, it can be assumed that there could be no potential impact on that receptor. Licensees should appropriately reference any database or resource that has been

used to identify receptors, a non-exhaustive list of useful resources is available in Appendix B.

There may be instances where an environmental element is considered both a pathway and receptor. For example, surface and ground waters can behave as a pathway for contaminants to reach a receptor and are also considered a receptor under the definition of the environment under the Act.

The source, pathway and environmental receptor are to be described before the implementation of any engineering and/or administrative controls.

For instance, dust generated from heavy machinery should be assessed without consideration of dust suppression from water trucks. The description of the source, pathway and environmental receptor can consider measures inherent to the design of operations that would eliminate or substitute a hazard, or source, for the protection of the environment. For example, adopting wind turbine designs that reduce noise production.

When developing and documenting a potential impact event, the licensee should provide the following:

1. List the environmental element. For example, groundwater.
2. List the phase of operation. For example, ongoing operations.
3. Assign an impact identification number (ID). For example, groundwater – GW2.
4. Describe potential impact events. For example, contamination of shallow groundwater resources, reduction of beneficial use to third party groundwater users.

There is no prescribed format for displaying this information. The complexity of the proposed project may inform the appropriate format for conveying the relationships between sources, pathways and receptors. For example, the source, pathway and environmental receptors for potential impact events may be described in text, presented in a table or through an ecohydrological conceptual model and/

or impact pathway diagram. The proponent should adopt an appropriate method for conveying this information so that potential impacts are conveyed clearly, i.e. it may not be suitable to only include extensive descriptions in text for complex and broad scoping projects.

Further explanation of impact pathway diagrams based on ecohydrological conceptualisation is available in the Independent Expert Scientific Committee (IESC) Information Guidelines Explanatory Note - Using impact pathway diagrams based on ecohydrological conceptualisation in environmental impact assessment.

The assessment of environmental impacts should consider and be specific about all potential combinations of source, pathway and receptor. Multiple sources of a proposed operation could impact on a particular receptor. Similarly, one particular source or hazard could impact on multiple environmental receptors.

Perceived major impacts identified through public consultation should be listed, appropriately addressed and validated or dismissed using scientific and logical justification. Where a SIA has been undertaken, potential impacts identified through a SIA should be provided to address this aspect of the Criteria.

2.4 DESCRIBE THE UNCERTAINTY

Uncertainties, including knowledge gaps, and assumptions regarding the identification and description of the source, pathway and environmental receptors must also be addressed. This includes whether there is sufficient information and representative data, or baseline environmental data, to fully characterise the proposed activities or existing environment. This includes any modelled predictions based on a limited dataset and range of assumptions. The description of uncertainty required is in relation to the identification of source, pathway and receptors. It is important to identify any uncertainty in predicting potential impact

events so that this can be taken into account during the assessment process. Where uncertainty is identified, licenses should detail any measures that can be or are planned to be taken to reduce or address matters of uncertainty.

The description of uncertainty can be done by exception. If there is no uncertainty and the source, pathway or receptor are obvious then a description is not required. This is relevant when modelling is used to define the existing environment or modelling is used to predict potential impacts. Models by nature are based on assumptions

and always carry a degree of uncertainty when predicting future scenarios. For example, if groundwater modelling was used to describe the hydrogeological setting in the existing environment, such as the location of the water table and environmental receptors, describe the uncertainties and assumptions present in that model.

So far as is relevant, the sensitivity to change of any assumption that has been made, including whether a change in assumption may result in a new environmental impact must also be identified. A sensitivity analysis should be undertaken if the sensitivity to change in an assumption could reasonably result in a significant change to the predicted potential impact event. Sensitivity analysis is commonly applied in impact prediction modelling where an input to the model could have a range of values. If there is a possible range of input values that could be applied and for example a value of 3 has been assumed but a value of 6 is

possible, the sensitivity associated with a change from 3 to something higher or lower should be described. The change of an assumed value may have no effect, or it may result in additional impacts on receptors. If the input value was a decibel output for machinery that fed into a noise model, the sensitivity test may highlight that only machinery of a particular decibel output can be used to prevent additional impacts.

In accordance with regulation 36, an SEO must be reviewed by the licensee every five years. It is expected that the uncertainty associated with the identification of a source, pathway or receptor will reduce where site specific data collected during the five-year period will be included in the SEO review.

Guidance table 2 (Appendix A) provides a template with an example of how to summarise and display this information.

Criteria 3 Confirmation of impact events

Environmental Impact Assessment Criteria: Requirement under Part 4 of the *Hydrogen and Renewable Energy Act 2023*

For each potential impact event confirmed under Criteria 2, the licensee must provide:

- an analysis of whether a source, pathway and receptor does exist (and if not, or if it remains uncertain, provide an explanation for the conclusion); and
- information on the estimated frequency of the events that may pose a threat to the environment (source, pathway, receptor exists), and an explanation of the basis on which these events and frequencies have been predicted; and
- a description of the likely impact of the source on the environmental receptor prior to the implementation of any engineering and/or administrative control measures where the impact cannot be eliminated or avoided.

Confirmation of complete source, pathway and environmental receptor linkages for each impact event will indicate which of those will subsequently require control and management strategies. The assessment of source, pathway and environmental receptor linkages should be achieved through science-based analysis of the presence of, and interactions between, the source, pathway and receptor. The confirmation of impacts should be undertaken by a suitably qualified person(s) to ensure that all potential impacts are appropriately identified and assessed.

Where source, pathway and environmental receptor linkages are considered incomplete, justification and evidence must be provided that clearly demonstrates that conclusion. A source, pathway and environmental receptor linkage is considered incomplete where at least one of the source, pathway or receptor(s) have been eliminated or considered unlikely to cause harm. For example, no receptors of concern have been identified for an environmental element or where the source/hazard is of such low intensity or concentration that it is unlikely to cause harm to a receptor.

Guidance table 2 (Appendix A) provides a template with an example of how to display this information.

Confirmation of impact events is determined prior to the implementation of control strategies, this should be taken into consideration during

the analysis of an impact event. For example, if modelling is undertaken to confirm an impact event, control strategies should not be included, however modelling may confirm natural barriers between the source and receptor.

Any doubt regarding the confirmation of a source, pathway and receptor must be explained. If it is not obvious that a source, pathway and receptor do not exist then a conservative approach should be applied, and an objective proposed.

Models developed and used to determine source, pathway or receptor linkages should have the following attributes:

- The model will adequately represent historic data;
- The model will be consistent with the conceptual understanding of the site; and
- The model will be appropriately designed to answer the key questions.

In addition, models and associated documentation should be as transparent as possible, defensible, and robust. It should be clear that the developers of the model adhered to any relevant national accepted guidelines or principles during construction and use.

Criteria 4 Control and Management Strategies and Uncertainty Assessment

The following sections describe how the licensee proposes to manage confirmed impact events during the life of the project and post completion.

Guidance table 3 (Appendix A) provides a template and example for this section.

4.1 CONTROL AND MANAGEMENT STRATEGIES

Environmental Impact Assessment Criteria: Requirement under Part 4 of the *Hydrogen and Renewable Energy Act 2023*

For each potential impact event, that cannot be eliminated or avoided, the licensee must implement engineering and/or administrative control measures to prevent, manage, control, limit or remedy the potential environmental impacts confirmed in Criteria 3.

The licensee must:

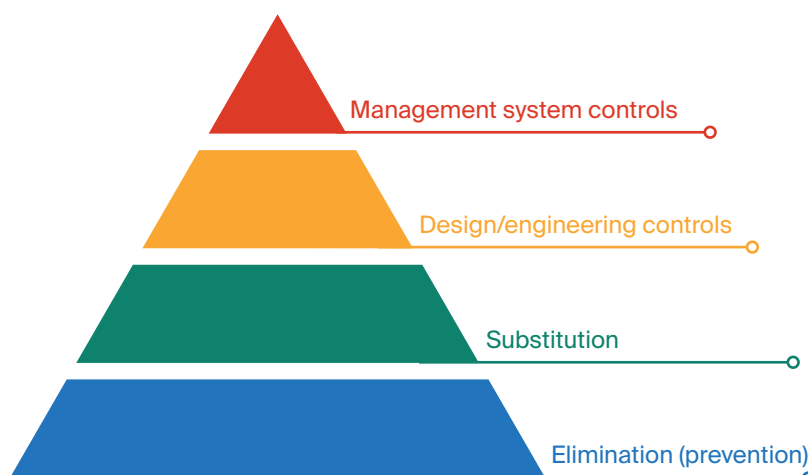
- include a description of the strategies proposed to manage, limit or remedy each impact event to as low as reasonably practicable (ALARP);
- demonstrate that the control and management strategies proposed are commensurate with the potential impacts, achieve compliance with other applicable statutory requirements and where relevant promote progressive rehabilitation; and
- ensure the long-term effectiveness of implemented control strategies beyond the construction and operational period, with the goal of achieving little to no ongoing maintenance, therefore allowing for any proposed future licence surrender.

It is recommended that a 'hierarchy of controls' approach is considered to manage impact, focusing on firstly eliminating the impact:

Describe what steps will be taken to minimise or prevent impacts on the environment.

Control measures should:

- be proportionate to the consequence of the impact
- achieve compliance with other applicable statutory requirements
- be technically and economically achievable, that consider the best available technology economically achievable (BATEA)



Using a 'hierarchy of controls' approach to manage impact, applied in the following order:

- **Elimination (prevention).** Redesign to eliminate the impact, for example:
 - remove the hazard (source)
 - decommissioning of infrastructure at high-risk of failure
- **Substitution.** Replace the material or process with a less hazardous one:
 - use alternative processes that do not result in the impact
 - replace hazardous chemicals with a safer alternative
- **Design/engineering (physical) controls,** for example:
 - location of plant and equipment
 - placement of produced wastes
 - containment of hazardous materials, pollutants and emissions
 - install engineered barriers to control access by receptors

■ **Management system (procedure) controls.**
Manage the risk through procedures and the way the activity is conducted by personnel, for example:

- clearance permit system for ensuring native vegetation clearance is in accordance with approved clearance
- inducting and providing training to new employees to ensure awareness of Aboriginal heritage and to avoid unauthorised impacts to heritage, and engaging Aboriginal heritage monitors to observe ground disturbing works.

Clearly state if it is a design (engineering) or a management system (administrative) measure, and how it avoids or reduces the likelihood of the event occurring or the consequences if it does happen.

Control strategies detailed in the description of operations should be summarised and reference(s) to the location of the detailed design information in the document should be provided.

Control strategies must consider long-term effectiveness beyond the construction and operational period, with the goal of achieving little to no ongoing maintenance, allowing for any proposed future licence surrender. Provide sufficient information to demonstrate that the proposed control strategies are likely to be effective in the long term.

Where a SIA has been undertaken, the outcomes and control and management strategies identified to manage the potential social impacts should be outlined to address this aspect of the Criteria.

Setbacks, as set out in the *Planning and Design Code (the Code) under the Planning, Development and Infrastructure Act 2016* (SA) (PDI Act), are not prescribed under the Act or Criteria as each project will be assessed on a case-by-case basis based on the potential impacts a project poses to the given environment in that area. However, setbacks are considered necessary as a control measure to mitigate impacts in the context of projects under the Act, such as solar and wind farms, associated transmission lines, battery energy storage systems (BESS), or hydrogen production facilities and pipelines. Licensees must provide justification for proposed setback distances as part of the demonstration of managing impacts to as low as reasonably practicable (ALARP) as required by the Criteria. For example, potential impacts from wind farms that are likely to require mitigation by setbacks may include noise, shadow flickering, or blade throw and the proposed setback distance to mitigate these impacts may consider noise modelling, tip height considerations for visual amenity, and existing infrastructure and/or land or water (marine) use. Or, in the context of solar farms, setback distances may be determined by mitigating impacts to visual amenity from glint or glare, impacts to surface hydrology, or impacts to the community from the 'heat island' effect. Mitigation of noise impacts, impacts to visual amenity, and/or electromagnetic interference may also be considered where transmission lines or other electrical infrastructure, e.g. BESS, is proposed. Setback distances should also consider future land use scenarios, for example potential expansion

and development around township areas. Post-construction testing should also be included as a mitigation strategy to demonstrate that impacts are being managed and that the management of impacts will be ongoing throughout the project life.

As stated above, licensees may adopt setback distances with appropriate justification. Setback distances should be adopted to minimise impacts to identified and/or potential receptors and to ensure adequate safety buffers are in place. As each project and any proposed setback distances will be assessed on a case-by-case basis, it is important that licensees consider how and why setback distances have been developed in instances where setbacks are adopted from published codes or guidelines. In particular, if setback distances are adopted from jurisdictions outside of South Australia, consideration should be given to whether the adopted setbacks were developed based on specific characteristics or legislation relevant to that area, e.g. setback distances based on specific zoning definitions that do not translate to South Australian legislation. For context, setback distances as defined in the Code under the PDI Act are provided in Table 1 below, where setback distances are proposed to be less than those outlined in Table 1, sufficient justification should be provided.

Where possible, projects or project features should be relocated or re-engineered to avoid impacts to Aboriginal heritage. Control strategies to avoid and protect known and discovered Aboriginal heritage within the project area may be documented in a cultural heritage management plan (CHMP),

developed in consultation with Traditional Owners. If relocation or re-engineering of the project is not possible, authorisation/s under the *Aboriginal Heritage Act 1988* (SA) would be required before any impacts to Aboriginal heritage can legally occur. Where authorisation has been granted for the project and heritage impacts are unavoidable, a CHMP should detail how those impacts will be minimised and managed. Further guidance on managing Aboriginal heritage in South Australia can be found on the Attorney General's Department – Aboriginal Affairs website.

When considering development options which involve the clearance of native vegetation, the Mitigation Hierarchy must be applied. The Mitigation Hierarchy comprises of four elements, including avoid, minimise, rehabilitate or restore and offset. Where native vegetation clearance is proposed, licensees will be required to obtain approval from the Native Vegetation Council (NVC) prior to clearance being undertaken, noting that the Native Vegetation Council would require proponents to demonstrate how they have sought to mitigate impacts to native vegetation prior to considering clearing. Where clearance is approved by the NVC and undertaken by the licensee, the licensee will be required to provide a Significant Environmental Benefit (SEB) in accordance with the *Native Vegetation Act 1991* and *Native Vegetation Regulations 2017* to offset the clearance. SEB can be provided via an on-ground SEB or making a payment into the Native Vegetation Fund. Further information for native vegetation clearance is available in the Guide for applications to clear native vegetation.

TABLE 1 SETBACK DISTANCES AS PREVIOUSLY DEFINED BY THE PLANNING AND DESIGN CODE UNDER THE PDI ACT.

RENEWABLE ENERGY FACILITIES (WIND FARM)

<p>Visual impact of wind turbine generators on the amenity of residential and tourist development is reduced through appropriate separation.</p>	<p>Wind turbine generators are:</p> <p>(a) Set back at least 2000 m from the base of a turbine to any of the following zones:</p> <ul style="list-style-type: none"> I. Rural Settlement Zone II. Township Zone III. Rural Living Zone IV. Rural Neighbourhood Zone <p>With an additional 10m setback per additional metre over 150m overall turbine height (measured from the base of the turbine).</p> <p>(b) Set back at least 1500m from the base of the turbine to non-associated (non-stakeholder) dwellings and tourist accommodation</p>																																							
<p>Amenity impacts of solar power facilities are minimised through separation from conservation areas and sensitive receivers in other ownership.</p>	<p>Ground mounted solar power facilities are set back from land boundaries, conservation areas and relevant zones in accordance with the following criteria:</p> <table border="1" data-bbox="676 810 2828 1171"> <thead> <tr> <th>Generation capacity</th> <th>Approximate size of array</th> <th>Setback from adjoining land boundary</th> <th>Setback from conservation areas</th> <th>Setback from Township, Rural settlement, Rural neighbourhood and Rural Living Zones¹</th> </tr> </thead> <tbody> <tr> <td>50MW></td> <td>80ha+</td> <td>30m</td> <td>500m</td> <td>2km</td> </tr> <tr> <td>10MW<50MW</td> <td>16ha-<80ha</td> <td>25m</td> <td>500m</td> <td>1.5km</td> </tr> <tr> <td>5MW<10MW</td> <td>8ha to <16ha</td> <td>15m</td> <td>500m</td> <td>1km</td> </tr> <tr> <td>1MW<5MW*</td> <td>1.6ha to <8ha</td> <td>15m</td> <td>500m</td> <td>500m</td> </tr> <tr> <td>100kW<1MW*</td> <td>0.5ha</td> <td>10m</td> <td>500m</td> <td>100m</td> </tr> <tr> <td><100kW*</td> <td><0.5ha</td> <td>5m</td> <td>500m</td> <td>25m</td> </tr> </tbody> </table> <p>Notes: 1 Does not apply when the site of the proposed ground mounted solar power facility is located within one of these zones.</p>					Generation capacity	Approximate size of array	Setback from adjoining land boundary	Setback from conservation areas	Setback from Township, Rural settlement, Rural neighbourhood and Rural Living Zones ¹	50MW>	80ha+	30m	500m	2km	10MW<50MW	16ha-<80ha	25m	500m	1.5km	5MW<10MW	8ha to <16ha	15m	500m	1km	1MW<5MW*	1.6ha to <8ha	15m	500m	500m	100kW<1MW*	0.5ha	10m	500m	100m	<100kW*	<0.5ha	5m	500m	25m
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*Note, the Act and Regulations only consider renewable energy projects with a nameplate capacity of 5MW for renewable energy generation, obtaining energy from a renewable energy resource and/or storing, transmitting or otherwise conveying energy obtained from a renewable energy resource. All renewable energy projects that are less than 5MW remain under the PDI Act.

4.2 UNCERTAINTY ASSESSMENT

Environmental Impact Assessment Criteria: Requirement under Part 4 of the *Hydrogen and Renewable Energy Act 2023*

The licensee must include a description of any significant degree of uncertainty pertaining to the likely effectiveness of the proposed control and management strategies, including but not limited to:

- Lack of current and/or site-specific information (including baseline data), modelling limitations and quality of data;
- Description of any assumptions connected with the identified uncertainty; and

So far as is relevant, identify the sensitivity to change of any assumption that has been made.

In accordance with the Criteria, any matter where there is a significant lack of relevant information or degree of uncertainty, and the sensitivity to change of any assumption and any significant risks that may arise if an assumption is later found to be incorrect must be identified.

In accordance with regulation 36, an SEO must be reviewed by the licensee every five years. It is expected that the uncertainty associated with the effectiveness of implemented control measures will reduce where site specific data collected during the five-year period will be included in the SEO review.

Describing uncertainty and assumption for control strategies

Describe any significant uncertainties and assumptions regarding the likely effectiveness of proposed control measures in managing and mitigating impacts and achieving the environmental objectives of operations and rehabilitation. Include any assumptions used in modelling carried out to assess the effectiveness of proposed control strategies. Where uncertainty is identified, licenses should detail any measures that can be or are planned to be taken to reduce or address matters of uncertainty.

Consideration should be given to the uncertainties and assumptions of proposed control measures over timeframes beyond the operational period, with the aim to reduce the reliance on control measures

up to eventual licence surrender. Uncertainty relating to rehabilitation must be identified and assessed, and key sensitivities addressed.

Most control strategies are likely to have uncertainties. For example, noise modelling to determine the distance required to reduce noise impacts on nearby communities to meet the Environmental Protection Authority South Australia (EPA) Wind farms environmental noise guideline, may have uncertainties associated with the calculation standard used for modelling, such as meteorological conditions. Or, for example, where an Aboriginal heritage survey has been undertaken to identify and avoid Aboriginal heritage within a project area, uncertainty remains regarding the presence of subsurface and/or obscured heritage that may only be encountered during project works.

Models by nature are based on assumptions and always carry a degree of uncertainty when predicting future scenarios. The most common impact prediction models relate to air quality, noise, groundwater, surface water, traffic, and visual amenity. These models can include assumptions and uncertainty regarding the effectiveness of control strategies.

A risk assessment framework may be adopted as a useful tool to evaluate uncertainty and unplanned events. If a risk assessment framework is adopted, any associated matrices used in the risk assessment should be provided.

Sensitivity of assumptions

Provide an assessment of the sensitivity of a change in any assumption related to any significant uncertainty concerning proposed control strategies. The sensitivity analysis should be performed so far as is relevant. Sensitivity is relevant when a change in an assumption relating to a significant uncertainty may result in an unexpected or unplanned environmental impact occurring.

For example, there may be some level of uncertainty and assumption associated with venting of hydrogen gas reaching an environmental receptor based on the results of dispersion modelling subsequent to control strategies. An example of assumptions made in the dispersion model may be:

- (1) volume of hydrogen gas being vented
- (2) meteorological processes including constant wind direction and speed

How do the potential environmental impacts of venting hydrogen change if the assumed volume of gas or meteorological conditions change?

Criteria 5 Environmental significance assessment

Environmental Impact Assessment Criteria: Requirement under Part 4 of the *Hydrogen and Renewable Energy Act 2023*

For potential impact events confirmed within Criteria 3, the level of significance of these impacts on the receiving environment must be considered. The environmental significance assessment of potential impact events is to be considered after relevant engineering and administrative controls outlined in Criteria 4.1 have been implemented (unless there is significant uncertainty pertaining to the likely effectiveness of the control as assessed under Criteria 4.2).

The environmental significance assessment must consider the following:

- The level to which a potential impact can be avoided through elimination (prevention);
- The estimated frequency of the potential impact occurring;
- The anticipated duration of the potential impact;
- The extent of the potential impact;
- The severity of the potential impact;
- The cumulative effects (if any) of the potential impact when considered in conjunction with other impacts on the same receptor; and
- The sensitivity of the receiving environment.

A statement to demonstrate the outcome of the significance assessment must be provided.

For potential impact events (Criteria 2 and Criteria 3 of this guideline), the level of significance of these impacts on the receiving environment must be considered. The significance of the impacts should be assessed with consideration of the control and management strategies adopted in Criteria 4. The key elements in determining the significance of a potential environmental impact are outlined below:

- Can the potential impact be eliminated or avoided? For example, soil contamination due to a fuel spill may result in a reduction in soil fertility. If the consequence to the local environment is managed through avoidance measures, such as no refuelling within the project area, then it could be said that the potential impact can be avoided. This should refer to control measures adopted in Criteria 4. If the control measure is deemed to eliminate the potential impact, the potential impact event does not need to be further assessed.
- What is the frequency of the potential impact occurring? Consideration needs to be given to how often the potential impact will occur, for example is it a known impact or is it unlikely. How often does it, or has it happened previously within the company or industry.
- Over what duration will the potential impact occur. Determine and describe if the potential impacts are permanent, may occur over the life of the project/activity, may occur only in specific phases of the activity or will occur infrequently throughout the project.
- What is the predicted geographical extent to which the potential impacts may occur? Will the impacts extend beyond the site boundary or across a moderate to large geographical area. Will the impacts affect a large portion of a population group.
- What is the severity of the potential impact? What is the scale or degree of change from the existing conditions as a result of an impact? Is it easily remediated, or will it take substantial time and/or effort to reverse or restore the impact. Will it substantially impact upon ecological communities, threatened species, health and safety of the public, state resources or other land or water (marine) users.
- Cumulative effects of the consequences. For example, the consequence of an activity individually may not result in a significant environmental impact but with an increased occurrence of that activity, or when taking into

consideration existing activities, the collective impacts may be very significant in a particular region. Licensees that undertake a cumulative impact assessment should provide the boundaries and/or criteria used to undertake the assessment.

- The sensitivity of the receiving environment. This should consider the susceptibility or vulnerability of people, receivers or receiving environment to adverse changes caused by the impact, or the importance placed on the element being affected. As well as the intactness, uniqueness or rarity, resilience to change and potential replacement of the receiving environment. This includes any views of affected parties, stakeholders and the community as well as recognised, legislated, or inherent environmental value and protections.

DEM does not prescribe a method or particular format for undertaking a significance assessment, however, assessments could be presented in a table or as a discussion in text. The aim of the significance assessment is to draw information on the environmental significance of the proposal when considering the frequency, duration, extent and severity of potential impacts, along with considerations of any cumulative effects and the sensitivity of the receiving environment after proposed controls have been implemented. Licensees must include a statement to demonstrate the outcome of the significance assessment, i.e. as to whether the impact assessed is significant or not significant. Where impacts are identified as significant, licensees should demonstrate that adopted mitigation measures manage impacts to ALARP or may require redesign.

Licensees may elect to define the level of impacts to determine whether the significance of an impact is acceptable or unacceptable. For example, impacts ranked 'Negligible' may generally be considered as acceptable, impacts ranked 'Minor' or 'Moderate' may be considered as acceptable with demonstration that mitigation measures control the risk to ALARP, while 'Major' and 'Catastrophic' impacts are considered unacceptable and require redesign of the proposed activity or project.

Guidance table 4 (Appendix A) provides another example of an environmental significance assessment for each potential impact identified. As stated above, proponents may elect to present the significance assessment in any appropriate format, e.g. grouping of potential impact events in a table may be appropriate where there are a large number of potential impact events, or presented in text for a smaller number of potential impact events.

Criteria 6 Statement of environmental objectives

Environmental Impact Assessment Criteria: Requirement under Part 4 of the *Hydrogen and Renewable Energy Act 2023*

Regulation 34(1)(a) requires that objectives must be included within the SEO that relate to dealing with the impacts on various elements of the environment associated with undertaking the authorised operations.

Regulation 34(1)(b) requires that criteria (assessment criteria) be applied to determine whether or not the stated environmental objective has been achieved in a particular case.

The licensee must develop objectives and assessment criteria for each impact event confirmed under Criteria 3.

Section 62(2)(b)(ii) of the Act, requires that an SEO must also set out leading performance criteria, which give an early warning that a control measure strategy may be absent, fail, or be failing.

Where there is a high level of reliance on control measure strategies (as described in Criteria 4 to achieve an environmental objective, corresponding leading performance criteria must be developed.

Environmental objectives and assessment criteria must be developed for all potential impacts determined through the environmental impact assessment process. Objectives must align with the elements of the environment as discussed in Criteria 2. These Objectives must be defined within the EIR and be carried through to the SEO document as required under Regulation 34.

The environmental objectives should be a commitment on the extent to which the operation will limit impact, which may be no impact, on the specific element of the environment. The generation of an appropriate objective should consider the level of expected impact on environmental receptor(s) with consideration given to the implementation of control measures. These environmental objectives should be reasonable and realistically achievable, acceptable to affected parties and meet other applicable legislative requirements.

Wording of environmental objectives should aim to be clear and unambiguous, such that each objective is capable of assessment. Objectives should be generated in accordance with following:

- use definitive terms on what is required and the appropriate level of impact.
- refer to the specific phase(s) of the project the objective is applicable to if the impact does not apply to all phases.
- description of the measure of impact and the receptor and pathway (if applicable), e.g. public nuisance impacts from noise generated.

The assessment for achieving each environmental objective will be further defined by the specification of assessment criteria and leading performance indicators, which will determine how each objective is measurable and achievable. Assessment criteria and leading performance indicators are discussed below.

Proponents may elect to include a 'guide to how objectives can be achieved' or comments column. This column is not a legislative requirement, however, can be provided to demonstrate that appropriate controls and systems are in place to achieve a specific objective and/or assessment criteria. This optional column can also be used to provide additional commentary to demonstrate that specific considerations have been made in relation to a specific element of the environment, e.g. commentary provided highlighting an area of legislated environmental sensitivity and how it relates to an objective. The Criteria does not require the inclusion of the 'guide to how objectives can be achieved' column, or an equivalent commentary column, but may be useful where information relating to an objective doesn't qualify as either assessment criteria or leading performance criteria.

Assessment criteria

An SEO must define criteria (assessment criteria) to be applied to determine whether the stated environmental objective has been achieved in a particular case. Assessment criteria can be expressed in quantitative or qualitative terms but must clearly define what is acceptable and what is not acceptable.

As stated above, assessment criteria must be developed for all potential impacts determined through the environmental impact assessment process. In some cases, there may be one environmental objective with several corresponding potential impact events and relevant criteria.

Assessment criteria, as required under regulation 34(3) must consider the following:

- A description of the objective to be measured and the manner and form of the measurement to be used;
- The locations where the relevant measurements are to be taken, or how such locations are to be determined;
- The frequency of any measurement or monitoring; any background or control data that is to be used or the manner in which the data is to be obtained;

- How the achievement of a relevant objective is to be determined;
- If required by the Minister- provisions with respect to assessing the ongoing fitness for purpose of management system, facilities, plant, equipment, machinery or other infrastructure to ensure-
 - Security of production or supply of natural gas; and
 - The protection of public safety; and
 - The protection of the environment; and
- May include provisions with respect to-
 - Gathering information and the conduct and timing of studies; and
 - The conduct and timing of management system audits; and
- So far as is reasonably practicable and appropriate, be expressed in quantitative (rather than qualitative) terms.

Where appropriate, use legislated standards, recognised industry standards and codes of practice as the basis for the chosen assessment criteria. The application of standards or existing criteria may be used to define assessment criteria that specifies 'no impact' or 'no adverse impact'. Licensees may elect to generate specific criteria where existing standards do not exist to define the assessment criteria, however, in this scenario a licensee will be required to demonstrate that the generated criteria is valid for use.

Examples where criteria should adopt legislative provisions or maximum allowable limits include noise, air quality and water quality, which are set through environment protection policies under the *Environment Protection Act 1993*. Or for example, assessment criteria to address the legislative requirement of Regulation 32(2)(c) to report biodiversity data in the EIR. Examples of industry standards that could be applied to assessment criteria include Australian Standards AS 1940:2004 The storage and handling of flammable and combustible liquids and recognised guidelines such as the EPA wind farms environmental noise guideline.

Leading performance criteria

Develop leading performance criteria for each impact event that relies significantly on a control strategy to reduce the potential environmental impact. These should give early warning that the control measure may fail or is failing, and that the environmental objective or relevant assessment criteria is at risk of not being achieved, allowing time to respond accordingly.

For example:

If the assessment criteria to ensure the environmental objective of no *impact to groundwater quality caused by operations* has been proposed as follows:

- No unauthorised discharge or escape of any liquid (including wastewater, processed substance, chemical or fuel) or solid wastes to surface and/or groundwater. Then a leading performance criteria may be proposed as follows:
 - All liquid chemicals and fuels appropriately banded in accordance with Australian Standards AS 1940:2004 The storage and handling of flammable and combustible liquids and/or EPA 080/16 bunding and spill management guideline. An annual audit of all chemicals and fuels demonstrates compliance.

Appendix A

GUIDANCE TABLE 1 ENVIRONMENTAL ELEMENTS, VIEWS OF AFFECTED PARTIES, LEGISLATION, STANDARDS AND RECEPTORS

ENVIRONMENTAL ELEMENT	VIEWS OF AFFECTED PARTIES ¹	APPLICABLE GOVERNMENT LEGISLATION ²	APPLICABLE NON-LEGISLATED STANDARDS ³	ENVIRONMENTAL RECEPTOR
Noise	Stakeholders in nearby township raised concerns regarding noise impacts from wind farm.	<i>Environment Protection (commercial and industrial noise) Policy 2023</i>	SA EPA Wind farms environmental noise guidelines 2021	Local community residents
Aboriginal heritage	Stakeholders have identified areas of Aboriginal heritage significance likely to occur within the project area.	<i>South Australian Aboriginal Heritage Act 1988</i> <i>Commonwealth Native Title Act 1993</i>		Native title holders Aboriginal communities
Native vegetation	Stakeholders have provided advice in the identification of native vegetation species including online tools available for use to identify sensitive areas. Project area borders a National Park.	<i>South Australian Native Vegetation Act 1991</i> <i>Commonwealth Environment Protection and Biodiversity Conservation Act 1999</i> <i>National Parks and Wildlife Act 1972</i>		Health of native vegetation, preservation of biodiversity.

¹ List issues relating to environmental elements or receptors raised during stakeholder engagement.

² List legislated standards or the requirements of relevant government agencies which are to be considered in the identification of environmental receptors.

³ List other industry standards which apply to identification of environmental receptors, such as Australian Standards.

GUIDANCE TABLE 2 ENVIRONMENTAL IMPACT ASSESSMENT

ENVIRONMENTAL ELEMENT	PHASE OF PROJECT	IMPACT ID	POTENTIAL IMPACT EVENT	SOURCE	PATHWAY	ENVIRONMENTAL RECEPTOR	UNCERTAINTIES AND ASSUMPTIONS	SENSITIVITY TO CHANGE (IN ASSUMPTIONS)	CONFIRMATION OF SOURCE-PATHWAY-RECEPTOR (Yes/Uncertain/No)	DESCRIPTION OF THE LIKELY IMPACT
Noise	Operations	N1	Local residents disturbed by noise generated by wind turbine operations.	Noise generated by movement of wind turbines	Acoustic waves through air	Local residents	Noise model assumes noise absorption due to air and ground. Noise emissions assumed to be standard noise associated with wind turbine operations.	Noise assumptions may not materialise. Increase in noise generation from wind turbine operations due to mechanical issues.	Yes - based on noise modelling, some noise from wind turbines will be heard in specific meteorological conditions (township downwind).	Potential disturbance to local communities.
Aboriginal heritage	Construction, operations and decommissioning	AH1	Damage or disturbance of Aboriginal heritage sites, objects, remains and/or places.	Earthworks associated with lease preparation.	Soil disturbances	Aboriginal heritage and communities	Potential of subsurface and/or obscured heritage that may only be encountered during project works. Understanding of areas of sensitivity based on AAR database searches and advice received from Native Title holders..	Should a site, object or human remains of Aboriginal Heritage be identified during operations, the likelihood of finding additional heritage items would increase.	Yes - based on advice received from Native Title holder and AAR records	Damage or disturbance of Aboriginal heritage sites, objects, remains and/or places.
Native vegetation	Construction	NV1	Loss of biodiversity and/or ecological value.	Clearance of native vegetation.	Physical disturbance/ removal of vegetation by machinery/ vehicles.	Native vegetation	No uncertainty or assumptions apply.	Potential change to impacts if vulnerability categorisations amended.	Yes - Native vegetation searches have identified occurrences within the project area, clearance is necessary to establish project.	Reduction in biodiversity, ecological value and habitat.

GUIDANCE TABLE 3 CONTROL MEASURES, ENVIRONMENTAL OBJECTIVES AND CRITERIA

PHASE OF PROJECT	IMPACT EVENT ID (can retain from previous table)	IMPACT EVENT (those confirmed in previous table)	CONTROL MEASURES	UNCERTAINTIES AND ASSUMPTIONS	SENSITIVITY TO CHANGE OF ASSUMPTIONS	PROPOSED ENVIRONMENTAL OBJECTIVE	ASSESSMENT CRITERIA	LEADING PERFORMANCE CRITERIA
Operation	N1	Noise disturbance to local communities	SA EPA Wind farms environmental noise guidelines are complied with, noise modelling undertaken to confirm.	Noise model assumes noise absorption due to air and ground cover. Noise emissions assumed to be standard noise associated with wind turbine operations.	Noise assumptions may not materialise. Increase in noise generation from wind turbine operations due to mechanical issues.	No public nuisance impacts from noise as a result of wind turbine operations.	Compliance with the SA EPA Wind farms environmental noise guideline. Demonstration that noise emissions do not exceed the noise levels set out in Section 2.2 of the SA EPA Wind farms environmental noise guideline of: <ul style="list-style-type: none"> • 35 dB(A) at relevant receivers in localities which are primarily intended for rural living, or • 40 dB(A) at relevant receivers in localities in other zones, or • the background noise by more than 5dB(A) . Noise monitoring by a suitably qualified person in accordance with SA EPA Wind farms environmental noise guideline. Stakeholder complaints are documented and steps taken to resolve them is demonstrated/ documented in a complaints register.	Site activities planned and undertaken to minimise disturbance to local community. Timely notification to stakeholders prior to and during significant works. To maintain compliance with SA EPA Wind farms environmental noise guideline, noise monitoring undertaken to detect anomalous noise generation and anomalous noises investigated and remedied. Infrastructure and equipment operated and maintained in accordance with manufacturer specifications.

GUIDANCE TABLE 3 cont.

PHASE OF PROJECT	IMPACT EVENT ID (can retain from previous table)	IMPACT EVENT (those confirmed in previous table)	CONTROL MEASURES	UNCERTAINTIES AND ASSUMPTIONS	SENSITIVITY TO CHANGE OF ASSUMPTIONS	PROPOSED ENVIRONMENTAL OBJECTIVE	ASSESSMENT CRITERIA	LEADING PERFORMANCE CRITERIA
Construction, operations and decommissioning	AH1	Disturbance or disturbance of Aboriginal heritage sites, objects, remains and/or places.	<p>SA EPA Wind farms environmental noise guidelines are complied with, noise modelling undertaken to confirm.</p> <p>Setback distance of 2km adopted based on noise modelling contours (35dB noise contour). Placement of turbines utilise topography as noise screen to reduce noise to the township and to reduce impacts to visual amenity.</p> <p>Wind turbine design selected to reduce noise production:</p> <ul style="list-style-type: none"> • aerodynamic design with no protruding features. • Rotors facing upwind. • Wind turbines fitted with anti-vibration mounts. • Sound-dampening buffer pads fitted. • Gearbox insulated and lubrication maintenance undertaken. <p>Noise monitoring undertaken post-construction to validate model. Noise observations to be undertaken at township during operational periods to assess noise impacts. Noise monitoring plan in place to detect any anomalous noise generation. Repair and investigation undertaken where noise levels have increased due to mechanical issues.</p>	Potential of subsurface and/or obscured heritage that may only be encountered during project works.	Should a site, object or human remains of Aboriginal Heritage be identified during operations, the likelihood of finding additional heritage items would increase.	No damage, disturbance or interference to sites, objects or remains of Aboriginal.	<p>Aboriginal heritage surveys undertaken and sites are identified.</p> <p>Avoid damage, disturbance or interference to Aboriginal sites, objects or remains as required by the <i>SA Aboriginal Heritage Act 1988</i>.</p> <p>Where damage, disturbance or interference to Aboriginal heritage is unavoidable then application for authorisation in accordance with section 23 of the <i>Aboriginal Heritage Act 1998</i> will be sought and appropriate consultation with Aboriginal parties, as required by section 13 of the AHA. In appropriate circumstances, a risk management approach may be undertaken prior to works commencing.</p> <p>Records will demonstrate that upon discovery during works of any possible Aboriginal sites of significance, objects and/or remains, that works ceased until the relevant authorities were notified and work recommenced only once authorisation was received.</p>	<p>Aboriginal heritage surveys and/or assessments are conducted in collaboration with the relevant Native Title group prior to conducting regulated activities.</p> <p>Any sites identified in searches of the AAR central archive, the Register of Aboriginal Sites and Objects, or identified during on-ground Heritage surveys are avoided.</p> <p>Activities confined to existing cleared areas.</p> <p>Approved work areas and restricted areas clearly delineated on site with fencing or flags. Exclusion areas present on geospatial and/or vehicle guidance systems.</p> <p>Training and induction for all personnel to educate on the importance of remaining within designated / approved areas.</p> <p>Procedures, systems and plans are in place if sites, objects or human remains are encountered.</p>

GUIDANCE TABLE 3 cont.

PHASE OF PROJECT	IMPACT EVENT ID (can retain from previous table)	IMPACT EVENT (those confirmed in previous table)	CONTROL MEASURES	UNCERTAINTIES AND ASSUMPTIONS	SENSITIVITY TO CHANGE OF ASSUMPTIONS	PROPOSED ENVIRONMENTAL OBJECTIVE	ASSESSMENT CRITERIA	LEADING PERFORMANCE CRITERIA
Construction, operations and decommissioning	NV1	Loss of native vegetation, biodiversity and ecological value.	<p>All vegetation clearances are undertaken with appropriate approvals in place.</p> <p>Minimise impacts to vegetation by selecting sites that avoid sensitive land systems and vegetation. Plan construction to avoid vegetated areas and/or trim vegetation rather than clearing.</p> <p>Avoid significant or priority vegetation and ensure proposed site has been scouted for significant vegetation and wildlife habitats by appropriately qualified personnel. Areas of high sensitivity are identified on maps and have on-ground validation where applicable.</p> <p>Ripping will be undertaken where appropriate to minimise erosion and compaction, conform with the land contour and to promote revegetation.</p>	No uncertainty or assumptions apply.	Controls that consider specific vegetation types will require updating if vulnerability categorisations amended.	No loss of abundance or diversity of native vegetation unless prior approval under the relevant legislation is obtained.	<p>No unauthorised clearing of native vegetation</p> <p>No rare, vulnerable or endangered flora removed without appropriate permits</p> <p>High quality or significant remnant vegetation has not been cleared</p> <p>Activities are not carried out in parks or reserves established under the <i>National Parks and Wildlife Act 1972</i></p> <p>All biodiversity data collected by an appropriately qualified professional and reported in accordance with HRE Regulation 32(2)(c).</p>	<p>Prior to undertaking regulated activities, appropriately trained and experienced personnel have assessed or scouted proposed project area identify and flag significant (or rare, vulnerable or endangered) species and communities.</p> <p>The boundary of native vegetation clearance areas will be surveyed and marked to ensure that clearance does not occur outside of the authorised area.</p> <p>Any sites of rare, vulnerable or endangered species or threatened communities have been identified, flagged and subsequently avoided</p> <p>Vegetation is trimmed rather than cleared where possible. Sites are selected to avoid native vegetation where possible.</p> <p>Activities are not carried out in parks or reserves established under the National Parks and Wildlife Act.</p> <p>Visual inspections are undertaken to ensure that project areas are appropriately rehabilitated.</p>

IMPACT ID	POTENTIAL IMPACT EVENT	AVOIDANCE	FREQUENCY	DURATION	EXTENT	SEVERITY	CUMULATIVE EFFECTS	SENSITIVITY OF RECEIVING ENVIRONMENT	OUTCOME
N1	Noise disturbance to local community	No – noise modelling indicates that the potential exists that noise may be detected by the local community in specific conditions (township downwind)	Low - Operational times will be dependent on meteorological conditions, however, the site has been selected based on favourable wind conditions for energy generation. Maintenance strategy and turbine design have been adopted to reduce noise impacts and avoid exceedance of the SA EPA Wind farms environmental noise guideline.	Long – operational lifespan of wind turbines is 25+ years. Operational times will be dependent on meteorological conditions, however, the site has been selected based on favourable wind conditions for energy generation. Duration of noise impacts will be reduced by the implementation of the maintenance strategy and turbine design.	Confined – noise impacts are confined to surrounding project areas as demonstrated by noise modelling.	Low – selected design of wind turbine, utilisation of site topography and noise absorbing properties of groundcover suggest that noise impacts will be low. Noise modelling suggests that noise may be detected by local community but within acceptable levels as set out in the SA EPA Wind farms environmental noise guideline. Uncertainty of noise impacts to the community remains in atypical scenarios where mechanical issues may generate anomalous noise.	Potential – if additional wind turbines are added later in the project life or if other wind turbine projects are constructed around the township.	High – local community members have expressed concerns regarding noise impacts on the community and have expressed that noise impacts that have not been managed or monitored appropriately will not be acceptable to the community.	Significance of potential impact is minor. Impacts are expected to occur infrequently and constrained locally. Potential impacts are managed to ALARP by specific turbine design, turbine placement within the landscape, and noise management plan in place. Ongoing and early communication with community members, as well as maintaining a feedback and complaints register, will be undertaken to align the project with community expectations for noise impact management.
AH1	Damage or disturbance of Aboriginal heritage sites, objects, remains and/or places.	No – based on uncertainty and sensitivity to change assessments, the potential exists that disturbance or damage may occur where it is encountered during the project/not previously identified during surveys.	Low – all new disturbances are subject to an Aboriginal heritage survey and Traditional Owners are engaged, as well as registered sites identified and avoided. Obscured Aboriginal heritage has been encountered in this region in previous projects.	Long – damage or disturbance to Aboriginal heritage sites, objects, remains or places is permanent.	Confined – impacts confined to disturbance site.	High – permanent damage or disturbance to Aboriginal heritage.	Yes – permanent loss of Aboriginal heritage.	High – consultation with Traditional Owners has identified Aboriginal heritage sites and objects.	Significance of potential impacts is moderate. Impacts may result in permanent loss of Aboriginal heritage where uncertainty remains regarding the potential for sites, objects or remains to exist. However, impacts are managed to ALARP by control measures adopted to identify Aboriginal heritage sites, objects, remains and/or places prior to undertaking earthworks.
NV1	Loss of biodiversity and/or ecological value.	No – vegetation clearance is necessary to establish project. Where possible, sites will be selected to avoid vegetated areas and/or trim vegetation where possible.	Medium – vegetation may be required to be cleared, however where possible sites will be selected to avoid vegetated areas and/or trim vegetation where possible.	Medium – all cleared vegetation sites will be rehabilitated where possible. The duration of revegetation may depend on seasonal conditions. Payments made to the Native Vegetation Fund or on ground offsets made to preserve and establish native vegetation in the region.	Confined – vegetation only removed from project area where required.	Medium to high – some permanent impacts on vegetation and cumulative impacts are leading to overall reduction in vegetation. avoidance of vegetated areas is preferable. Key habitat components may be able to recreated artificially such as nest boxes or relocation of hollows.	Potential – ongoing removal of vegetation across multiple projects will result in an overall reduction in vegetation cover in the region. Cumulative impacts of habitat loss may put species at risk of decline or extinction	Medium – native vegetation with limited identified threatened species or sensitive ecosystems within project area. Receiving environment has long durations for rehabilitated sites to reach maturity and ecological value. Sensitive to loss from low rainfall during establishment and wildfire.	Significance of potential impact is minor, as it is expected that limited threatened species will be affected and impacts will be confined. Potential impacts managed to ALARP through adoption of management strategies to preserve native vegetation where possible. Where unavoidable payment to the Native Vegetation Fund or on ground offsets made to preserve native vegetation in the region. At the end of project life, the project site will be rehabilitated.

Appendix B

USEFUL RESOURCES

DEPARTMENT	DATABASE	WEBSITE
Aboriginal Affairs and Reconciliation - Attorney General's Department	Taa wika cultural database	www.taawika.sa.gov.au/public/home
Australian Bureau of Statistics		www.abs.gov.au/
Bureau of Meteorology	Climate data online	www.bom.gov.au/climate/data/
Department for Infrastructure and Transport	Location SA Map Viewer	www.location.sa.gov.au/viewer/
Department for Housing and Urban Development	SA Property and Planning Atlas (SAPPA)	www.sappa.plan.sa.gov.au/
Department for Climate Change, Energy, the Environment and Water	Protected Matters Search Tool	www.dcceew.gov.au/environment/epbc/protected-matters-search-tool
Department for Climate Change, Energy, the Environment and Water	Australian Heritage Database	www.dcceew.gov.au/parks-heritage/heritage/publications/australian-heritage-database
Department for Environment and Water	Nature Maps	www.data.environment.sa.gov.au/NatureMaps/pages/default.aspx
Department for Environment and Water	WaterConnect	www.waterconnect.sa.gov.au/Systems/GD/Pages/Default.aspx
Department for Environment and Water	Enviro Data SA	www.data.environment.sa.gov.au/Pages/default.aspx
Department for Energy and Mining	South Australian Resources Information Gateway (SARIG)	map.sarig.sa.gov.au/
Department of Premier and Cabinet	Data SA South Australian Government Data Directory	www.data.sa.gov.au/
Environmental Protection Authority	Public register	www.epa.sa.gov.au/public_register
Geoscience Australia	Geoscience Australia Data	www.ga.gov.au/data-pubs
Office of the Registrar of Indigenous Corporations	Find a corporation - corporation register	https://www.oric.gov.au/

Appendix C – Consultation comments

TABLE 1 CRITERIA COMMENTS

REFERENCE	COMMENT	DEM RESPONSE
Infrastructure Advisory Group (IAG)		
Purpose	The prescribed EIR inclusions list does not include HRE Regulation section 32 (2) items a, c or f. In particular, the absence of reference to the specific need to address biodiversity impacts leaves a prominent gap in impact assessment.	Purpose section has been updated to include regulation 32(2) (a)(c)(f).
Criteria 1 Elements of the environment	The concept of the impact assessment being conducted under source, pathway and receptor basis is really helpful, providing a workable framework for licensees and assessors. This section requires that for each element of the environment, all potential receptors must be identified. However, it is suggested that the Criteria should provide, or refer to, a definition of what constitutes a receptor, noting there is no definition specific to this legislation (HRE Act or Regulation). This would also help to ensure that the expectations of section 2.3 Environmental Receptors is understood and presented consistently by licensees and is able to be comparatively assessed by DEM as the regulator (in the context of individual and cumulative assessments). It is acknowledged that some guidance around receptors is included in 1. Element of the Environment in the Guideline, however it still leaves ambiguity (extent, scope, distance, time) which may lead to differing interpretations by licensees and difficulty in how assessor can comparatively consider their applications.	A glossary has been included in the associated guideline. As the Criteria must cover a broad range of receptors for a range of projects under the HRE Act, the broad definition of a receptor is appropriate to ensure that all receptors are considered.
Criteria 1 Elements of the environment	The Guideline is very helpful in clearly suggesting that the presentation of sections 1,2,3 and 4 are intended as guide for corresponding sections in the licensee's EIR (also reflected in the Criteria's sections). However, the requirement for what would be included under section 1 may be confused by the way that the Criteria section 1 is written. For example, it lists the impact assessment step which is delivered under section 2, and it doesn't clearly articulate that the intention is to identify the environmental elements, then the potential issues which should link directly to the 'sources' listed in the section 2 impact assessment.	Text updated for clarity, third dot point from 1. Elements of the Environment has been removed.
Criteria 1 Elements of the environment	It is suggested that a cross reference to the examples of common/ minimal environmental elements in the Guideline would be beneficial in Criteria for licensees.	The intention of the Criteria is to be a standalone document that sets out the requirements that licensees must meet in an environmental impact assessment. The Criteria and associated guideline will be available on the DEM website once gazetted.
Criteria 1 Elements of the environment	This section requires a summary of issues or considerations raised by stakeholders without providing guidance over where it is expected that this data comes from, or how stakeholders should be engaged. Suggest that this should link or directly refer to an existing, concurrent consultation process within the broader assessment/ development of the proposed operation. At a minimum, some indication of level of consultation, limitations and expectations around how licensees are expected to engage for the purpose of this EIR is required.	The requirement for a licensee to meet the Criteria is part of the process of generating an EIR and SEO. The approvals process of an EIR and SEO includes consultation requirements by the licensee and by DEM. Further guidance on undertaking consultation in accordance with the EIR and SEO approvals process will be made available on the DEM website.
Criteria 2 Potential impact events	Consider including reference to 'extreme weather events' (with definition) to the list of potential atypical events that must be considered in the impact assessment to incorporate some resilience planning into the process.	Updated text accordingly.
Criteria 2 Potential impact events Criteria 3 Confirmation of impact events, Criteria 4.1 Control and management strategies and Criteria 5 Environmental significance assessment)	The nomination of potential control measures as only either engineering or administrative controls may be limiting. It is suggested that the spectrum of controls could align with the 'hierarchy of controls' provided in section 4.1 of the Guideline.	Text has been updated to better align with the hierarchy of controls to describe that for any potential impact that cannot be eliminated or avoided, an engineering and/or administrative control strategy must be implemented.
Criteria 3 Confirmation of impact events	It is suggested that in addition to consideration of frequency required in section 3, initial indication of severity of the event could also provide context around the impact and subsequent proposed management measures and their suitability.	This is addressed under 4.1 whereby the proponent must demonstrate that the control and management strategies proposed are commensurate with the potential impacts

CRITERIA COMMENTS cont.

REFERENCE	COMMENT	DEM RESPONSE
Criteria 4.1 Control and management strategies	The last dot point in this section is currently worded in a way that could leave ambiguity, despite being 'must' statements. Rather than saying "beyond construction and operation" it is suggested that it be reworded to require that control strategies must be provided against all phases of the proposed operations (listed in section 2). Further, the point about "the goal of achieving little to no ongoing maintenance, therefore allowing for any proposed future licence surrender" likely warrants it's own point or section which requires that each control measure be presented with a measurable criteria for success which is directly linked to the surrender of the licence (likely linking to the development of the SEOs in section 6).	Text included in the guideline to capture this.
Criteria 4.2 Uncertainty assessment	Suggest that this section could benefit from the licensee also being required to detail any measures that they have taken/ can take to reduce or address matters of uncertainty, including future measures.	The purpose of the uncertainty assessment is to identify where uncertainty exists and to subsequently reduce that uncertainty over time, e.g. there will be greater uncertainty for projects that are undertaking on-ground surveys for the first time/limited to desktop studies (a new licensee). DEM does not prescribe an unacceptable level of uncertainty.
Criteria 4.2 Uncertainty assessment	The outcome of the uncertainty assessment from the perspective of the licensee is not clear. Is there a level of uncertainty that will be unacceptable to the extent that the EIR will not be approved? Are they supposed to justify the uncertainty and state that it is not significant or detrimental to the proposed operations? This will also be difficult for an assessor to review and approve or otherwise, as it is just asking to state the uncertainty as opposed to providing some assurance or professional opinion that the uncertainty is manageable or minor.	Explanations of the Criteria have deliberately been left to the guideline. The purpose of two uncertainty assessments are to determine any uncertainties in the identification of a source, pathway, or receptor, e.g. lack of on-ground ecological data that can be addressed by a future on-ground ecological survey.
Criteria 4.2 Uncertainty assessment	It is suggested that further explanation is required to provide context around how this step differs from 2.4.	The uncertainty assessment associated with the implementation of control strategies is to identify whether a control strategy will be effective, particularly in modelling scenarios where assumptions are used.
Criteria 5 Environmental significance assessment	This section could benefit from a cross reference to the Guideline which is much more helpful in providing examples of how the environmental significance assessment should be conducted and presented. It is also suggested that this section of the Criteria should include the requirement for the licensee to provide a statement as to whether the impact is considered significant or not significant so that the assessment provided is not ambiguous. While the Guidance table 4 from the Guideline provides the impact assessment example, the absence of a mandatory requirement for an overall statement on impact may make assessment more difficult	The Criteria is intended to be a standalone document. The Criteria and guideline will be available together on the DEM website. Text has been included in the criteria and guideline for licensees to include a statement as suggested.
Criteria 5 Environmental significance assessment	The reference to the consideration of cumulative impacts is important, however requires additional guidance. Either, the licensee should be required to provide the boundaries or criteria that they applied to their cumulative impact assessment, or the Criteria should specify the extent of cumulative impact assessment. This likely requires its own section to adequately provide the guidance needed for licensee and assessor.	Text has been updated in the guideline to reflect the requirement for licensees to provide the boundaries and criteria that have been used in a cumulative impact assessment.
Criteria 5 Environmental significance assessment	Is there an expectation that direct and indirect impacts are to be assessed? At the moment this is a bit unclear and should be clarified to ensure that the licensees provide a consistent level of assessment. To address this, licensee could be required to nominate whether impacts identified in Section 2 are direct or indirect, helping to guide the significance assessment and development of the control measures accordingly.	Licensees are required to assess all potential impact events, with an impact event being defined as a complete source, pathway and receptor, this is inclusive of direct and indirect impacts.
Department of Infrastructure and Transport (DIT)		
Purpose and Criteria 1 Elements of the environment	More specific reference to marine environments such as the insertion of "and water" where land is mentioned so that the reader is reminded energy related projects in water are also applicable.	Text has been updated in the guideline to ensure that marine environments are included.
General	DIT acknowledges that 'sea water' is referenced in the Introduction of the Guideline as being included in the definition of environment in line with the HRE Act and also that under Purpose in the Criteria it is acknowledged that environment is broadly defined to include land, air, water (including sea water) in accordance with the HRE Act. More specific reference to water is helpful especially if someone has not read the HRE Act Interpretation section.	Under the Act, any project that would impact sea water is required to assess impacts to coastal/marine environments.

CRITERIA COMMENTS cont.

REFERENCE	COMMENT	DEM RESPONSE
Environment Protection Authority (EPA)		
Purpose	<p><i>'In accordance with the objects under division 4 of the Act, environmental impact assessments are utilised by the Department for Energy and Mining (DEM) to ensure that any proposed authorised operations that may have adverse effects on the environment are properly managed by the proponent to reduce environmental damage and are carried out in a way that eliminates (as far as reasonably practicable) the risk of significant long term environmental damage.'</i></p> <p>The EPA acknowledge the use of the term “environmental damage” throughout the HRE Act. However, the EPA seek to include or acknowledge reference to “environmental harm”, aligning with the objects of the <i>Environment Protection Act 1993</i>. Further, it should be confirmed if the terms are interchangeable across both acts.</p>	<p>The HRE Act does not define environmental damage, however, the definition of the environment in the Act refers to:</p> <p>(a) land, air, water (including both surface and underground water and sea water), organisms, ecosystems, flora, fauna and other features or elements of the natural environment; and (b) buildings, structures and other forms of infrastructure, and cultural artefacts; and (c) existing or permissible land use; and (d) public health, safety or amenity; and (e) the heritage, aesthetic, Aboriginal, social and cultural values of an area; and (f) the social or economic effects associated with regulated activities.</p> <p>Damage generally refers to the deterioration or disturbance to the environment perceived to be harmful to the existing environment.</p> <p>DEM considers that the definition of the environment under the Act is broader than the definition under the EP Act. The objects and intention between both the Act and the EP Act, within the context of the criteria, are to avoid, reduce or rehabilitate adverse effects of activities on the environment due to authorised activities.</p> <p>Matters that are required to be considered under the EP Act are considered captured in the process of undertaking an environmental impact assessment in accordance with the criteria, specifically that licensees must identify any relevant legislated or recognised standards in relation to an element of the environment.</p>
Criteria 2 Potential Impact Events	<ol style="list-style-type: none"> 1. “The licensee must identify potential impact events associated with the proposed authorised operations during each phase of the proposed operations (during construction, operation, decommissioning and rehabilitation)” <ol style="list-style-type: none"> a. It is suggested that ‘Commissioning’ is also listed as a phase. At times commissioning can draw unique issues prior to a steady state of operation being achieved. 2. With respect to end of life and relinquishment of authorisations under the HRE Act, potential impact events should consider future-use scenarios and intergenerational equity, with a view to developing assessment criteria supporting the relinquishment process. 	<p>Text updated to include commissioning.</p> <p>Consideration for future use scenarios have been included in the guideline. Section 62 (c) of the Act requires the inclusion of an objective (including assessment criteria) that addresses the rehabilitation of land adversely affected by authorised operations.</p>
Murraylands and Riverland Landscape Board		
Purpose	<p>Regarding the final sentence of the final paragraph on this page, the landscape board suggest the following amendment:</p> <p><i>In accordance with the objects under division 4 of the Act, environmental impact assessments are utilised by the Department for Energy and Mining (DEM) to ensure that any proposed authorised operations that may have adverse effects on the environment are properly managed by the proponent to avoid or reduce environmental damage and are carried out in a way that eliminates (as far as reasonably practicable) the risk of significant long term environmental damage.</i></p>	Updated text accordingly.
Criteria 2 Potential impact events	<p>Regarding the final sentence of the final paragraph on this page, the landscape board suggest the following amendment:</p> <p><i>Both typical events during these operations as well as atypical events (including but not limited to human error, equipment failure, extreme weather or discharges above normal operating levels) must be considered.</i></p>	Updated text accordingly.
Criteria 4 Control and management strategies and uncertainty assessment	<p>Regarding the second and third bullet points the landscape board proposes the following changes:</p> <ul style="list-style-type: none"> • <i>demonstrate that the control and management strategies proposed are commensurate with the potential impacts, achieve compliance with other applicable statutory requirements and where relevant promote progressive and/or innovative management and rehabilitation.</i> • <i>ensure the long-term effectiveness of implemented control strategies beyond the construction and operational period, through an accepted management and monitoring program with the goal of achieving little to no ongoing maintenance, therefore allowing for any proposed future licence surrender.</i> 	DEM consider that management and monitoring plans are captured through the implementation of control strategies as well as through the SEO, e.g. as required by the assessment criteria or leading performance criteria.

CRITERIA COMMENTS cont.

REFERENCE	COMMENT	DEM RESPONSE
Department for Environment and Water		
Purpose	Some context for how the proponent should use the criteria and the guidelines would be useful. Reference in the criteria to the guidelines where relevant would also help quick reference. Understanding of the criteria would be improved by using examples from the guidelines.	<p>The Criteria is a requirement of the Act and must be addressed by a proponent in the preparation of an EIR: <i>Under part 4, section 60 of the Act, the Minister must, by notice of Gazette, determine criteria (the environmental impact criteria) against which the environmental impact of an authorised operation is to be assessed. This impact assessment must be prepared by the licensee and be included as part of the Environmental Impact Report (EIR) submitted by the licensee as required under section 61 of the Act.</i></p> <p>The Criteria has been prepared with the intention of being a standalone document, the Guideline is cross-referenced with the Criteria on the DEM website.</p>
	The document would benefit from a glossary and cross check to ensure technical terms are clear, consistently used, and to reduce misinterpretation of requirements e.g. specific elements. Are these different from “aspects”? And “features”? or are these a component of the environmental element. The same context gets used around each. Sometimes there’s further context or definition in the guidelines, but more often not.	Document updated to include a glossary in the guideline.
	Will there be guidance offered to clarify broad terms like “physical and biological aspects” – neither term is searchable in the guidelines – particularly important if proponents need to reference these. Concern that the themes are too broad – would be good if species level implications were included.	Text has been updated to reflect the wording of the regulations.
	DEM are proposing not to prescribe how criteria are addressed. To ensure there’s a minimum standard for the style of information provided in submissions DEW suggests re-thinking this position. Having a consistent structure would help standardise approval pathways, particularly as timing will be tight. Direction could include structure, length and presentation of submissions and if there are any templates that should be used.	The specific activity and/or project will determine the structure and length of the impact assessment. Projects that are broader in scope, e.g. construction of a wind farm, are likely to result in longer and more detailed documents than one required for feasibility survey activities.
	Are there specific data and mapping requirements?	<p>Regulation 32(2)(c) requires that an EIR must contain: data relating to biodiversity within the area of land to which the report relates that can reasonably be expected to be affected by authorised operations.</p> <p>Proponents, via on-ground surveys, will be required to submit biodiversity data collected throughout the project to DEW.</p>
	How are we ensuring proponents are submitting complete and considered documents with reference to the legislation, and the standards here? For example a declaration.	Regulation 32(2)(g) stipulates that an EIR must be accompanied by a declaration signed or executed by a person who has taken reasonable steps to review the information and material to ensure its accuracy.
	A table summarising the criteria alongside descriptions with key points for each would help clarify the requirements and simplify the flow of the document. This is more consistent with the approach taken for impact assessed development under the <i>Planning, Development and Infrastructure Act 2016</i> where detailed Assessment Requirements are provided to proponents to be addressed in an Environment Impact Statement.	<p>The current format of the Criteria is such that each requirement listed sequentially as a proponent would progress through an assessment.</p> <p>Further guidance is proposed to be developed to guide proponents through the development of an EIR and SEO</p>
Criteria 1 Elements of the environment	Clear direction should be provided on what the proponent should outline in their description including specific detail around the project area, both the construction and operational elements to the proposal and timing of project delivery.	<p>Regulation 32(2)(a) requires that a description of the authorised operations to be undertaken and the location is required within the EIR.</p> <p>Further guidance on this requirement will be provided in a specific guideline for developing an EIR.</p>
	Is there an expectation that proponents provide technical reports or other assessments/surveys to support their proposal?	Yes. It is expected that proponents provide specific technical reports and survey reports to demonstrate they have adequately assessed relevant elements of the environment or as a means to manage impacts to the environment. The level of information and technical reports will be commensurate to the level of impact a specific project introduces.

CRITERIA COMMENTS cont.

REFERENCE	COMMENT	DEM RESPONSE
	Are there minimum requirements for stakeholder engagement i.e., “provide a summary of any relevant issues or considerations raises by stakeholders” particularly as these are determining the identification of the environment receptors. To ensure this process draws on all available information (and best knowledge) a desktop analysis with minimum requirements for this (i.e. data sources to use) should be interrogated through this process. Otherwise, what is identified may be limited.	All environmental receptors must be identified, this is not limited to those identified by stakeholders. The onus is on the proponent to identify all relevant receptors, DEM do not prescribe a minimum standard. It should be noted that DEW will have the opportunity to review all EIRs and SEOs and in some instances will have multiple opportunities to review the documents during both consultation undertaken by the proponent and consultation undertaken by DEM.
	Are the environmental receptors indicators of the environmental elements? This would be essential information to identify to inform monitoring requirements.	Yes, the environmental receptors must be considered for each environmental element. Any receptor that is reasonably expected to be impacted by a source must have a control measure implemented (where a pathway is confirmed).
Criteria 2 Potential Impact Events	What is an impact “event”? Are these just the potential impacts of the proposal?	Correct, the confirmation of the impact event is the combination of a source, pathway and receptor.
	What are typical and atypical events? Would help clarify what is considered typical and therefore in/out of scope.	Typical events are those that are expected or intended to occur within the scope of an activity or operation, e.g. native vegetation clearance during trenching. Atypical events are events that are unintended or unexpected, e.g. battery explosion due to an earthquake.
	How would you expect proponents to describe/demonstrate the impact between the source, the pathway, and the environmental receptor? This should be supported by a technical assessment, and a worked example linking these elements.	Proponents must demonstrate the linkage between source, pathway and receptor. The way in which this is achieved is determined by the proponent. DEM supports the use of ecohydrological models or similar to demonstrate linkages.
Criteria 4 Control and management strategies and uncertainty assessment	Given there is a brief discussion on setback distances, should there also be consideration of buffer zones e.g. in the context of sensitive ecological receptors? For example, the Planning and Design Code currently contains policies that seek setbacks from conservation of 500m for solar power facilities.	Setback distances are discussed in the guideline, setbacks are not prescribed under the Act (or Criteria). However, setback distances are a mechanism for proponents to demonstrate that appropriate control and management strategies have been adopted for specific impacts, including setbacks from conservation areas. The purpose of the description of setbacks in the guideline is to guide proponents to consider a suitable control measure. DEM will consider that setbacks under the existing PDI Code/policies are suitable control measures.
	Is the sensitivity analysis similar to a likelihood of occurrence table where confidence in occurrence/impact is assigned and justification provided for whatever the assessment approach is given thereafter?	The sensitivity analysis is undertaken in instances where any change in an assumption made may result in a significantly different result or an unexpected environmental impact occurring, i.e. to demonstrate the variability that may result in the outcome of a model or design based on the input variable (assumption).
	In terms of whether an uncertainty is significant or not should be determined by the decision authority with justification provided by the proponent.	The purpose of the identification of uncertainties in this context is to further interrogate the suitability of a control measure with the aim to identify any gaps or assumptions that may either be limiting to the control or that can be reduced over time with the collection of further information. DEM will consider the level of uncertainty of a given impact event occurring or the effectiveness of implemented controls when considering approval of projects

CRITERIA COMMENTS cont.

REFERENCE	COMMENT	DEM RESPONSE
Department for Environment and Water		
General	<p>DEM has confirmed that there are no minimum objectives, standards or requirements to consider the information given in the information pack provided by DEW to DEM. Proponents can choose what information they use and how they apply it and the way it is reported to DEM. DEW accepts that the Criteria and Guideline must be written to cover projects under the HRE Act throughout South Australia. The data pack provided by DEW to DEM does not apply state-wide, however it is expected that DEW will provide similar information to DEM in relation to future release areas. DEW recommends inclusion of the following sentence “EIRs covering a release area should consider the constraints contained in the information pack” or similar in the documents.</p> <p>DEW maintains that setting minimum requirements/standards for EIR data and information used (and report style) would aid in processing rapid assessments and provide more certainty for proponents. Minimum requirements are necessary for consistency, quality, and standardisation of information, and overall to support the reviewer to make their final decision that is defensible. Requirements also support the proponent to effectively understand what they need to provide. If there was an inquiry, the program was audited, or decisions are requested by the proponent these standards are critical. Refer to the relevant Commonwealth EIA standards and requirements as a guide.</p>	Noted
Purpose	<p>At a meeting on the 3rd September between DEM and DEW (and CSIRO) it was agreed that the products derived from the EcoHydrological Conceptual Model project (co-funded by both departments) and the Securing water for an emerging Australian hydrogen industry project (funded by the Commonwealth would be use as the basis of the Environment Impact Assessment. Shouldn't that be reflected in this document?</p>	As noted, DEM supports the use of ecohydrological models, or similar, to demonstrate linkages. DEM does not prescribe the use of ecohydrological conceptual models, rather, considers them a useful tool that proponents may use, as noted in the guideline.
	<p>Per DEM's response, if the declaration must accompany the EIR, shouldn't that be listed under the “must have” points? Also, similar comment regarding the inclusion of technical reports.</p>	<p>The “must have” points listed are the requirements for an EIR as prescribed by the Regulations. These were included to provide context of the Environmental Impact Assessment Criteria within the broader requirements of the content of an EIR, i.e. that meeting the Criteria is only part of an EIR.</p> <p>The purpose of the Criteria is not to re-state the requirements of the Regulations. The requirement for proponents to submit a declaration to accompany an EIR submission is required under 32(4)(g). This is considered more appropriate to include in an EIR and SEO preparation guideline, that DEM is developing.</p>
	<p>Although technically the definition of 'environment' and the criteria for cultural and heritage values to be assessed are inclusive, the only culture/heritage mentioned specifically is that of Aboriginal and Torres Strait Islander persons. There is no mention of non-Aboriginal/historical, natural or maritime heritage, other than the ambiguous 'of other persons'.</p> <p>DEW maintains that the Criteria document could be strengthened by minimal editing to make specific mention of other non-Aboriginal heritage values. (Refer 'Environment' (p1, paragraph 4, dot point 5) is broadly defined as in the HRE Act to include 'the heritage, aesthetic or cultural values of an area' and EIRs must include 'an assessment of the cultural and heritage values of Aboriginal and Torres Strait Islander persons and other persons...' (p1, paragraph 3, dot point 4)).</p>	<p>DEM notes that the dot points listed are taken directly from the Regulations and therefore do not consider it appropriate to amend.</p> <p>Non-Aboriginal culture and heritage are both considered and noted in the document under the definition of the environment under the Act.</p>
	<p>The Criteria specifies that the licensee must “ensure the long-term effectiveness of implemented control strategies beyond the construction and operational period, with the goal of achieving little to no ongoing maintenance, therefore allowing for any proposed future licence surrender”.</p> <p>Suggest not including the “goal of little to no ongoing maintenance”. Activities, including revegetation, etc will require some level of maintenance to ensure that the clearance of native vegetation is appropriately offset/remedied. Additionally, how will the proponent be assured of the long-term effectiveness of the control strategies if they are not doing some form of maintenance? How is long-term defined?</p>	<p>The intention of aiming to have little to no ongoing maintenance is to ensure that impacts that have been managed appropriately throughout the construction and operational periods require a lesser extent of intervention to achieve an objective, particularly rehabilitation objectives, at the end of the operational period.</p> <p>DEM recognises that activities like revegetation will require some level of maintenance to ensure that the clearance of native vegetation is appropriately offset.</p> <p>As stated, the expectation is not that there will be no ongoing maintenance activities, but that the nature and extent of maintenance activities can be reduced by appropriately managing impacts in the first instance, including avoidance of native vegetation clearance to reduce offset liabilities. As per the hierarchy of controls, priority should be given to avoidance of an impact, that results in no ongoing maintenance activity.</p>

CRITERIA COMMENTS cont.

REFERENCE	COMMENT	DEM RESPONSE
	<p>Include a dot point on how the proponent will address the uncertainty?</p>	<p>The guideline states that where uncertainty is identified, licenses should detail any measures that can be or are planned to be taken to reduce or address matters of uncertainty.</p> <p>As also stated in the guideline, it is expected that the uncertainty will reduce where site specific data collected during the five-year period will be included in the SEO review.</p>
	<p>“Section 62(2)(b)(ii) of the Act, requires that an SEO must also set out leading performance criteria, which give an early warning that a control measure strategy may be absent, fail, or be failing”.</p> <p>How is early warning defined? Could this be stated in the Criteria or Guideline?</p> <p>Who is the early warning given to? Consider adding that if an impact not previously considered is impacted by an approved (or unapproved?) activity, then early warning should be given?</p>	<p>An early warning in the context of leading performance criteria is the identification of a potential shortfall or failure in a control measure before the potential impact eventuates.</p> <p>The early warning is for both the proponent and the regulator, so that the potential impact is managed prior to it eventuating.</p> <p>Regulated activities, through the Operational Management Plan process, must provide an assessment of that activity against each objective of the SEO and how it will be achieved.</p> <p>Once an impact has occurred, it is no longer appropriate to consider an early warning, in this instance, a control measure has already failed. Any incidents that occur must be reported to DEM as either reportable or immediately reportable in accordance with section 62(2) of the Act.</p>

TABLE 2 GUIDELINE COMMENTS

REFERENCE	COMMENT	DEM RESPONSE
Infrastructure Advisory Group (IAG)		
Criteria 1 Elements of the environment	The three dot points in this section are listed as information from the Criteria which must be provided for each element. These points are similar though not entirely aligned with Section 1. Elements of the Environment of the Criteria. For the clarity of both licensee and assessor, the requirements in both the Criteria and the Guideline are consistent, if not identical in their wording.	Updated text accordingly
Criteria 1 Elements of the environment	The discussion in this section around SIA is helpful in guiding the content and methodology within a potential SIA, but not when an SIA is required or expected (also unclear in the last paragraph of section 2.3). The statement 'To determine the views of affected parties in relation to social values and/or economic impacts, a social impact assessment (SIA) may be required' does not provide the licensee with enough guidance on when the assessor will expect to see this, and as such could result in considerable differences in effort, detail and expense expended by licensees. It is suggested that some trigger for the need for and SIA be included, more likely within the Criteria, supplemented by this section in the Guideline.	Additional text has been included in the guideline for clarity. Due to the variance of potential projects that are within the scope of HRE, a trigger has not been set and will be considered on a case-by-case basis. For proponents, establishing the requirement for an SIA needs to be determined early in the planning process, this can be facilitated by undertaking scoping (subdivision 5 of the HRE Act) or can be determined in consultation with DEM via an informal pre-lodgement meeting. It is important that proponents recognise and demonstrate their understanding of the project, the community and potential social impacts.
Criteria 2.4 Describe the uncertainty	This section includes a statement that proposed activities may require referral to the Commonwealth DCCEE. It is suggested that this is a broader limitation/ condition of the EIR process and should be presented upfront in the introduction of both the Criteria and Guideline. Other exceptions or limitations with regard to this process not deeming other legislative requirements unnecessary may also be appropriate as upfront, overarching statements (for example, to supplement the cultural heritage and native vegetation clearing matters referred to in section 4.1).	Updated. Identification of MNES and referral to DCCEE under 1 Environmental elements in the guideline. Other legislation discussed in 4.1 Control and management strategies is referred to in the context of implementing control strategies where disturbance cannot be avoided. Identification of all relevant legislation is required by the Criteria, in which licensees must identify all relevant legislation or relevant standards.
Criteria 3 Confirmation of impacts events	This section states that "The assessment of source, pathway and environmental receptor linkages should be achieved through science-based analysis' however nowhere in the document is there clarity about the necessary skills or experience of those conducting the assessments or compiling the EIR. The delivery of a potential SIA or noise assessment call for a suitably qualified person, however the lack of guidance over the qualifications of the persons involved in the remainder of the process could result in inconsistency in outputs.	Updated, text amended to include that a suitably qualified person should undertake the confirmation of impacts.
Criteria 4.1 Control and management strategies	This section requires licensees to 'clearly state if it is a design (physical) or a management (procedural) measure' while the Criteria refers to 'engineering and/ or administrative controls'. It is suggested that terminology should be consistent across the Criteria and Guideline.	Updated text accordingly.
Criteria 4.1 Control and management strategies	While helpful, example setbacks are only provided specifically for the turbines or solar PVs. Where possible, example or allowable setbacks for all development types assessed under this framework should be included, including for hydrogen developments and commonly associated infrastructure, for example BESS.	Additional text has been included in the guideline to broaden the discussion around setbacks to consider any project under HRE.
Criteria 4.1 Control and management strategies	It is suggested that the legislative framework that potential CHMP's should be developed under be specified.	CHMPs are a management tool to ensure compliance with the <i>Aboriginal Heritage Act 1998</i> requirements but are not legislated. DEM supports the use of CHMPs as part of control strategies to adequately manage potential impacts associated with impacts to cultural heritage.
Criteria 6 Statement of environmental objectives	Paragraph four refers to 'Section 3.4.1 and Section 3.4.2, respectively'. These sections are not within the Guideline.	Updated text accordingly.
Department for Infrastructure and Transport (DIT)		
General	More specific reference to marine environments such as the insertion of "and water" where land is mentioned so that the reader is reminded energy related projects in water are also applicable.	Updated text accordingly.
General	DIT acknowledges that 'sea water' is referenced in the Introduction of the Guideline as being included in the definition of environment in line with the HRE Act and also that under Purpose in the Criteria it is acknowledged that environment is broadly defined to include land, air, water (including sea water) in accordance with the HRE Act. More specific reference to water is helpful especially if someone has not read the HRE Act Interpretation section.	Text has been updated throughout to include water (marine) use, where reference to land use has been made.

GUIDELINE COMMENTS cont.

REFERENCE	COMMENT	DEM RESPONSE
General	To ensure traffic and transport impacts to the DIT road network is sufficiently addressed DIT would like to include at an appropriate place, "that where the DIT road network is involved a Traffic Impact Assessment is required for any projects, including any resultant infrastructure and/or service modifications or upgrades, and in some instances a Traffic Management Plan may also be required".	Updated text accordingly, text added to 1 Elements of the Environment
General	Controls and measures relevant to marine environments within the Criteria and Guideline documents should reflect relevant statutory requirements/State & Commonwealth legislation (as an example, the potential impact of ammonia spill into seawaters and how well the HRE Act Guideline addresses such a scenario).	In accordance with the requirements of the Act and Criteria, proponents must address all potential impacts on the environment that may result from undertaking activities, this includes coastal hazard risks. It is not intended that the guideline provides a comprehensive list of all potential impacts and subsequent assessment. It should also be noted that all EIRs and SEOs will be available to DIT for review to ensure that these aspects are captured by proponents appropriately/to meet DITs requirements.
South Australian Arid Lands Landscape Board (SAAL)		
Criteria 2.3 Describe the environmental receptors	Recommend that criteria includes which database/s were used to determine the environmental receptors. This will help us assess whether all datasets have been identified and/or considered.	Updated text accordingly in 1 Elements of the Environment and 2.3 Describe the environmental receptor
Environment Protection Authority (EPA)		
Criteria 2.3 Describe the environmental receptor	The proponent should be advised in this section to have regard to relevant environmental legislation, specifically the Environment Protection Act 1993, Environment Protection Policies, and guidelines.	Licensees are required by the Criteria to identify any relevant legislated or recognised standards.
General	Being a guideline, terms like "must" should be avoided, except where legislative and policy requirements apply and are stipulated.	Licensees are required by the Criteria to identify any relevant legislated or recognised standards.
General	This phrase is used in Guidance Table 3, and in Section 1. There should be guidance provided on what is considered a "suitably qualified person"	Instances of 'must' have only been used where referring to the requirements of the Criteria or the Act, that licensees must comply with.
General	General comment for consideration - there appears to be no reference to BATEA (Best Available Technology Economically Achievable) in the documentation. I would suggest that this be considered more broadly within the documentation. There is reference to 'Best practice' in section 1 in relation to the SIA's but nothing in relation to environmental best practice.	A glossary has been added to the guideline, which includes the definition of a suitably qualified person.
Appendix A – Guidance Table 1	For column 3, the applicable legislation for noise in South Australia for wind farms is the <i>Environment Protection (commercial and industrial noise) Policy 2023</i> , which calls up the Wind farms environmental noise guidelines 2021 in Part 7 of the noise policy.	BATEA has been included for consideration within the Criteria under 4.1 Control and management strategies, to be used in conjunction with demonstration that impacts are managed to ALARP. Updated text accordingly.
Total Energies H2		

GUIDELINE COMMENTS cont.

REFERENCE	COMMENT	DEM RESPONSE				
<p>Criteria 4.1 Control and management strategies Table 1</p>	<p>The Draft Environmental Impact Assessment Guideline 2024 has not accurately replicated the wording of the Planning and Design Code under the PDI Act. We recommend that the table be updated with the correct allocation of the additional 10m setback calculation under item (a) and not item (b) as per the wording of the Code (see extract below).</p> <table border="1" data-bbox="507 615 1715 1144"> <thead> <tr> <th colspan="2" data-bbox="507 615 1715 651">Renewable Energy Facilities (Wind Farm)</th> </tr> </thead> <tbody> <tr> <td data-bbox="507 657 1047 1144"> <p>PO 8.1 Visual impact of wind turbine generators on the amenity of residential and tourist development is reduced through appropriate separation.</p> </td> <td data-bbox="1056 657 1715 1144"> <p>DTS/DPF 8.1 Wind turbine generators are:</p> <ul style="list-style-type: none"> (a) set back at least 2000m from the base of a turbine to any of the following zones: <ul style="list-style-type: none"> (i) Rural Settlement Zone (ii) Township Zone (iii) Rural Living Zone (iv) Rural Neighbourhood Zone <p>with an additional 10m setback per additional metre over 150m overall turbine height (measured from the base of the turbine).</p> <ul style="list-style-type: none"> (b) set back at least 1500m from the base of the turbine to non-associated (non-stakeholder) dwellings and tourist accommodation </td> </tr> </tbody> </table>	Renewable Energy Facilities (Wind Farm)		<p>PO 8.1 Visual impact of wind turbine generators on the amenity of residential and tourist development is reduced through appropriate separation.</p>	<p>DTS/DPF 8.1 Wind turbine generators are:</p> <ul style="list-style-type: none"> (a) set back at least 2000m from the base of a turbine to any of the following zones: <ul style="list-style-type: none"> (i) Rural Settlement Zone (ii) Township Zone (iii) Rural Living Zone (iv) Rural Neighbourhood Zone <p>with an additional 10m setback per additional metre over 150m overall turbine height (measured from the base of the turbine).</p> <ul style="list-style-type: none"> (b) set back at least 1500m from the base of the turbine to non-associated (non-stakeholder) dwellings and tourist accommodation 	<p>Updated text accordingly.</p>
Renewable Energy Facilities (Wind Farm)						
<p>PO 8.1 Visual impact of wind turbine generators on the amenity of residential and tourist development is reduced through appropriate separation.</p>	<p>DTS/DPF 8.1 Wind turbine generators are:</p> <ul style="list-style-type: none"> (a) set back at least 2000m from the base of a turbine to any of the following zones: <ul style="list-style-type: none"> (i) Rural Settlement Zone (ii) Township Zone (iii) Rural Living Zone (iv) Rural Neighbourhood Zone <p>with an additional 10m setback per additional metre over 150m overall turbine height (measured from the base of the turbine).</p> <ul style="list-style-type: none"> (b) set back at least 1500m from the base of the turbine to non-associated (non-stakeholder) dwellings and tourist accommodation 					
<p>Murraylands and Riverland Landscape Board</p>						
<p>Criteria 4.1 Control and management strategies –</p>	<p>Regarding the final paragraph discussing the potential requirement for approval to clear native vegetation, including mention of Significant Environmental Benefits. It is recommended that the guidelines also include mention of the requirements under the EPBC Act 1999 which may also be applicable.</p>	<p>Text included in 1 Elements of the Environment to capture EPBC Act.</p>				
<p>Criteria 5 Environmental significance assessment, bullet point 1</p>	<p>The scenario provided as an example of eliminating or avoiding impacts, to implement spill management measures following an oil spill, is not avoidance – it is a response. Avoidance is not using a contaminant like oil on site or not refuelling on site/near sensitive areas. Consideration should also be given to what impact may occur if a control measure fails and a risk management assessment should consider this.</p>	<p>Updated text accordingly.</p>				
<p>Department for Environment and Water</p>						
<p>Introduction</p>	<p>“how the assessment of environmental impacts is demonstrated and/or displayed is not prescribed”. Does this mean that proponents do not necessarily need to take into account DEW information on likely occurrence of protected matters?</p>	<p>No this is certainly not the case. The proponent is required to document, understand and demonstrate that all potential impacts to the environment are known and appropriately avoided or managed. The way this information is presented by the proponent within the EIR is not prescribed by DEM.</p> <p>It should be noted that DEW will have the opportunity to review all EIRs and SEOs and in some instances will have multiple opportunities to review the documents during both consultation undertaken by the proponent and consultation undertaken by DEM. It is expected that any information or advice provided by DEW to the proponent relating to the likely occurrence of protected matters or other environmental sensitivities is appropriately addressed.</p>				

GUIDELINE COMMENTS cont.

REFERENCE	COMMENT	DEM RESPONSE
Introduction	“Level of detail of the assessment should be commensurate to the potential impacts and the management of anticipated impacts”. So, if not much work has been done on understanding and describing the potential impacts and their management then proponents can keep to less detail. No standards applied?	No, the level of detail of the assessment should be commensurate to the scope of the project, i.e. a project of limited scope and hence, of a lesser number of potential impacts will not require as much detail as a major project with a higher number of potential impacts. As required by the Act and Criteria, all potential impacts must be assessed and all confirmed impacts must have mitigation strategy applied.
Criteria 1 Elements of the environment	The specific elements of the environment to be described if it is reasonably expected to be affected is not to species level but can be grouped by elements such as ‘native fauna’, ‘native vegetation’, ‘biodiversity and sensitive ecosystems’. By grouping elements in this way, it dilutes any significant impact on one or more species. It’s only if reasonably expected to be affected it then goes down to environmental receptor level which will include ‘values’ as determined by legislative or other standards or engagement. There is no minimum standard to include assessment of all likely to occur protected biodiversity values in footprint.	Proponents are required to establish the existing environment, as required by the Act, in the development of an EIR. This is inclusive of assessment at the species level within the project area and any existing biodiversity values. Any environmental that is reasonably expected to be affected must be assessed. This assessment must then go into detail relating to the specific aspects of that environmental element that may be impacted. For the native flora and fauna elements this must include site specific, on-ground ecological surveys, to understand at species level the potential impacts of the project and how this will be avoided or managed.
	No information on what data must be considered under ‘perceived major impacts’ or definition of ‘major’. Under description of uncertainty, it is likely proponents will use the “this includes any modelled predictions based on a limited dataset and range of assumptions” to describe uncertainty as high and lead to easy to acquit outcomes that won’t affect operations such as surveys/research instead of genuine avoid/mitigation measures.	Perceived major impacts are raised by stakeholders during consultation. Where these perceived major impacts are identified, any requirement for data to address them will be considered on a case-by-case basis depending on the nature of the concerns/impacts identified and on the nature of the project The purpose of providing a description of the uncertainties (for example in a model) is so that any gaps identified, or assumptions included in the model can be addressed, such that models can be refined for precision and accuracy as further data is collected and the site further understood. Therefore, where uncertainty is identified it is valid that surveys or research are required to reduce that uncertainty in a model. This does not allow a proponent to proceed with unmitigated impacts. All impacts are required to be controlled to as low as reasonably practicable, where uncertainty regarding a particular impact is high, the controls will be required to be commensurate to this, i.e. high uncertainty will require a higher level of control.
Criteria 4 Control and management strategies and uncertainty assessment	Should there be a definition of ‘progressive rehabilitation’?	A glossary has been added to the guideline that includes a definition for progressive rehabilitation. Ongoing rehabilitation undertaken progressively or through a staged approach throughout operations.
	Control and management strategies only need to be commensurate to impacts which = offsetting but does not lead to net environmental gain as per objectives of HRE. If wanting to genuinely achieve net environmental gain, then minimum standards would be offsetting all impacts.	Offsetting is considered an appropriate measure to meet the objects of the Act, particularly that adverse effects on the environment are managed to reduce environmental damage so far as reasonably practicable. The Act does not specify net environmental gain as an objective, however, this does not preclude proponents from achieving this through the adoption of mitigation measures to achieve this:
	“Where possible, projects or project features should be relocated or re-engineered to avoid impacts to Aboriginal heritage.” Why is there no similar sentiment to avoid impacts to biodiversity. There is only a statement on “avoid, limit and mitigate clearance of native vegetation” but this does not pick up all direct impacts to biodiversity. No statement on protected species and ecosystems.	The intention of the guideline is not to be exhaustive. Select examples have been provided that are carried throughout the document and into Appendix A. It is expected that any potential impacts to any environmental element be avoided where possible.

GUIDELINE COMMENTS cont.

REFERENCE	COMMENT	DEM RESPONSE
Criteria 5 Environmental significance assessment	"DEM does not prescribe a method or particular format for undertaking a significance assessment". How will DEM measure if the significance assessment is thoroughly meeting the key elements defined?	The Criteria requires that proponents address each item of the significance assessment, regardless of the format that it is completed in. Proponents may elect to address the requirement for the significance assessment in a variety of methods, including by text or by using their own matrix. An example table has been included to assist in defining the level of impact to complete the significance assessment.
Criteria 6 Statement of environmental objectives	SEO's will only be targeted at each 'element' level not likely impacted species/protected matter level. Proponents set their own objectives per element so there is no minimum target such as net environmental gain they need to follow.	Each element must have a detailed description of the existing environment which includes identification of any protected matters and/or impacted species. Objectives that are set by proponents are approved by DEM through consultation with co-regulators including DEW as deemed as appropriate on a case-by-case basis for each project.
	If assessment criteria is defined e.g., 'no impact' or 'no adverse impact' how will these be cross-checked or reviewed?	The purpose of the assessment criteria in the SEO is to define criteria to determine whether the objective has been achieved and must clearly define what is and is not acceptable. Unambiguous language should be used. The requirements for assessment criteria are described in regulation 34(3). Assessment criteria may be demonstrated through a variety of methods that depend on the adopted assessment criteria including compliance reporting, maintaining registers, ongoing measurements or monitoring and subsequent reporting, incident reporting etc.
Appendix A	Guidance tables only address native vegetation clearance as a potential impact. It would be good to include a biodiversity example based on the information pack that DEW provided to DEM with outputs on biodiversity values e.g., likely presence of EPBC listed species. Given it's only focused on impacts from clearing vegetation it would be good to use examples of biodiversity values from other parts of documentation to expand on the approach.	The examples in Appendix A are not intended to be exhaustive. DEM support the use of the data pack for the release areas and has been referred to in the Renewable Energy Feasibility Licence EIR and SEO currently being developed by DEM.
	The information pack provided to DEM by DEW contains not only the species/native vegetation distribution layers for protected matters and the summary layers but also information on limitations and interpretation. DEW anticipated the information from this pack about protected matters would also be something that could be considered by proponents as part of the assessment process (not just for supporting release areas). For example, if it was clear the site likely contained multiple EPBC protected species then making sure native fauna was an 'environmental element' listed and then those species you would expect to come up in the environmental receptor level as they are protected by legislation. The way the assessment guideline reads is that the information provided by DEW is not being prescribed.	DEM recognise the importance of using the species modelling data package provided by DEW in EIRs to identify key threatened species within the first two proposed release areas.. DEMs expectation is that the data package provided by DEW will be used by proponents that obtain access to the release area through the competitive bidding process to understand the biodiversity value of the area and the potential for threatened species and ecologically communities protected under both State and Commonwealth legislation. It is expected that proponents will use and build on this data at a specific site level to understand and confirm the presence of protected species within their proposed project area.
	Under 'leading performance criteria' in Table 3 there is no standard or minimum expectation in the level of effort/ quality of data produced.	The leading performance criteria is in place to demonstrate that a control measure may fail or is failing. The leading performance criteria indicates whether a proponent may be at risk of failing to meet an objective.
	Examples used for native vegetation impact in Table 4 are not adequate. Firstly, it does not evaluate impact of clearing on actual habitat factors like hollows, it uses an unlikely example under sensitivity of receiving environment of "no identified threatened species of sensitive ecosystems within project area" given known biodiversity values mapping and gives the outcome as a Significant Environmental Benefit offset payment which encourages a pay and go rather than direct action. DEW could assist DEM to improve the examples.	Examples provided by DEW during consultation have been adopted in the document.
	Overall, the level of detail in the table for an impact of 'loss of biodiversity and/or ecological value' is not sufficient to assess if or how appropriate avoidance and mitigation and control measures and monitoring is in place.	Examples provided by DEW during consultation have been adopted in the document.

GUIDELINE COMMENTS cont.

REFERENCE	COMMENT	DEM RESPONSE
	There are no minimum objectives, standards or requirement to consider the information given in the information pack provided by DEW to DEM. Proponents can choose what information they use and how they apply it and the way it is reported to DEM.	<p>Correct, proponents may use a range of resources to prepare an EIR and SEO. All prescribed requirements to prepare an environmental impact assessment (as part of an EIR) are detailed in the Criteria. The guideline is in place to assist proponents in their preparation of an environmental impact assessment to meet the Criteria.</p> <p>This Criteria and guideline must be written to cover projects under the HRE Act throughout the whole of South Australia, The data pack provided by DEW to DEM is does not apply state-wide, therefore at this stage won't be called up in the guideline. DEM support the use of the data pack for the release areas and has been referred to in the REFL EIR and SEO.</p>
Criteria 1 Elements of the environment and Criteria 4.1 Control and management strategies	The two examples included in the document around heritage (p6 and p13) both use Aboriginal heritage. It would be good to make one of these examples about natural heritage site (e.g., a palaeontological (fossil) site, as these will likely be the non-Aboriginal site type most impacted by this legislation).	The guideline has intentionally included select examples to carry throughout the document, one being Aboriginal heritage as an example. The guideline is not intended to provide an exhaustive list.
Criteria 4.1 Control and management strategies	The 'Management system (procedure) controls' (p10) only includes Aboriginal heritage. This could be corrected by including '...awareness of Aboriginal and other heritage and to avoid unauthorised impacts to heritage, and engaging Aboriginal or other relevant heritage monitors to observe ground disturbing works.'	The guideline is not intended to provide an exhaustive list of all potential impacts. In accordance with the Criteria, where heritage matters are likely to be impacted within a project area, a description must be provided and potential impacts assessed by the proponent.
Criteria 4.1 Control and management strategies	'Where possible, projects or project features should be relocated or re-engineered to avoid impacts to Aboriginal, historical, archaeological or natural heritage. Control strategies to avoid and protect known and discovered Aboriginal, historical, archaeological or natural heritage within the project area may be documented in a cultural heritage management plan (CHMP), developed in consultation with Traditional Owners or other relevant stakeholders . If relocation or re-engineering of the project is not possible, authorisation/s relevant heritage legislation would be required before any impacts to Aboriginal or other heritage can legally occur. Where authorisation has been granted for the project and heritage impacts are unavoidable, a CHMP should detail how those impacts will be minimised and managed. Further guidance on managing Aboriginal heritage in South Australia can be found on the Attorney General's Department – Aboriginal Affairs website. Further guidance on managing archaeological, geological, palaeontological speleological, maritime or underwater cultural heritage in South Australia can be found on the Department for Environment and Water website.'	The guideline is not intended to provide an exhaustive list of all potential impacts. In accordance with the Criteria, where heritage matters are likely to be impacted within a project area, a description must be provided and potential impacts assessed by the proponent.
Criteria 4.2 Uncertainty assessment	'Or, for example, where heritage survey has been undertaken to identify and avoid Aboriginal or other heritage within a project area, uncertainty remains regarding the presence of subsurface and/or obscured heritage that may only be encountered during project works.'	The guideline is not intended to provide an exhaustive list of all potential impacts. In accordance with the Criteria, where heritage matters are likely to be impacted within a project area, a description must be provided and potential impacts assessed by the proponent.
Appendix A	Tables all need to have rows added to cover historical archaeological, maritime/underwater and natural (geological, palaeontological and speleological) heritage, covered under the <i>Heritage Places Act 1993</i> (SA), <i>Historic Shipwrecks Act 1981</i> (SA) and <i>Underwater Cultural Heritage Act 2018</i> (Cwth).	The guideline is not intended to provide an exhaustive list of all potential impacts. In accordance with the Criteria, where heritage matters are likely to be impacted within a project area, a description must be provided and potential impacts assessed by the proponent.
General	There is no mention of natural hazard risk impacts in the draft EIA Guideline.	Text has been included under Potential impact events to capture potential impacts that may result due to natural hazards.
	The draft EIA Guideline should be amended to include natural hazard risk impacts as an environmental element (p.5). In addition, coast and marine environment should also be included on the list.	<p>Text has been amended under elements of the environment to include a dot point for biophysical environment, in which proponents describe the land systems activities will be undertaken in.</p> <p>Natural hazard risk impacts aren't considered an environmental element (i.e. establishing the existing environment), however text has been included under Potential impact events to capture potential impacts that may result due to natural hazards.</p>

GUIDELINE COMMENTS cont.

REFERENCE	COMMENT	DEM RESPONSE
	DEW considers that, coastal hazard risks (e.g. erosion, flooding, dune drift and acid sulphate soils), and the effect climate change/ sea level rise will have on these impacts, must be considered in the preparation of any Environmental Impact Report for development on/near the coast.	In accordance with the requirements of the Act and Criteria, proponents must address all potential impacts on the environment that may result from undertaking activities, this includes coastal hazard risks. It should also be noted that all EIRs and SEOs will be available to DEW for review to ensure that these aspects are captured by proponents appropriately/to meet DEWs requirements.
	Note, the Coast Protection Board, as a prescribed referral body under the HRE Act, will have an interest in: <ul style="list-style-type: none"> the risk to development from current and future coastal hazards (including sea-level rise considerations) potential impacts from development on public access and the coastal environment (including important coastal features) coast protection works. 	Noted.
Department for Environment and Water		
General	DEW recognises the Guideline is 'not meant to be exhaustive on the assessment of environmental impacts or on the development of projects'. As DEM clarified, the Guideline includes three examples that carry throughout the document: namely, (1) aspects of the physical environment; (2) Aboriginal heritage; and (3) native vegetation. DEW appreciates the intention to carry through these simple examples through the Guidelines document. However, the risk is that simplified high level definitions of environmental elements and receptors provides limited use in understanding and defining impacts. DEW has attempted to improve the NV example in the Guideline document, as requested, however more work is required to provide an example of an impact assessment on biodiversity values. DEW considers proponents would benefit from further useful and accurate examples, particularly in relation to biodiversity (see above suggestion).	DEM has incorporated DEWs reworked example in the document.
Criteria 2 Potential impact events	How would proponents describe/demonstrate the impact between the source, the pathway, and the environmental receptor? This should be supported by a technical assessment, and a worked example linking these elements. At a meeting on 3 September 2024 between DEM and DEW (and CSIRO) it was agreed that the products derived from the EcoHydrological Conceptual Model project (co-funded by both departments) and the Securing water for an emerging Australian hydrogen industry project (funded by the Commonwealth would be use as the basis of the Environment Impact Assessment. DEM's response to DEW comments also states "DEM supports the use of ecohydrological models or similar to demonstrate linkages". Can this be reflected in the Guidelines?	There are a variety of ways that a source-pathway-receptor linkage can be displayed, the onus is on the proponent to demonstrate that the linkage exists. DEM supports the use of ecohydrological conceptual models to appropriately demonstrate an S-P-R linkage, however does not prescribe their use. DEM proposes to use the outputs from EcoHydrological Conceptual Model project to inform other guidance material, including guidance on developing an Environmental Impact Report (EIR) as well as in DEM developed EIR's for the first release areas under the HRE Act, as relevant.
Criteria 1 Elements of the environment	<i>For example, if groundwater has been identified as an environmental element, the importance or value of groundwater as an environmental receptor must be specifically addressed by identifying:</i> <ul style="list-style-type: none"> <i>the specific aquifers - there may be multiple</i> <i>existing groundwater users and if quality or quantity, or both, has the potential to be impacted</i> <i>where there are no known users, if it is the quality or quantity of a groundwater aquifer, or both, that has the potential to be impacted</i> <i>Groundwater Dependent Ecosystems (GDEs).</i> DEW understand that this is an example only of a more general risk assessment process and it is therefore generally adequate at presenting this point. DEW is cognisant that the document should not become too weighed down by example but would ask DEM to consider an additional dot point concerning the sustainability and vulnerability of a groundwater resource as a risk as it pertains to hydrodynamics. For example, what is the water balance? How is groundwater recharged? Will the impacts cause a water balance deficit to develop over time?	Further dot points added to ensure proponents consider the sustainability or vulnerability of any groundwater resource, including the hydrodynamics of the system.

GUIDELINE COMMENTS cont.

REFERENCE	COMMENT	DEM RESPONSE
Criteria 2.3 Describe the environmental receptor	<i>Licensees should appropriately reference any database or resource that has been used to identify receptors.</i> DEM may wish to consider including a list of (non-exhaustive but important) databases and resources in an appendix.	An additional appendix has been added with useful databases.
Criteria 2.3 Describe the environmental receptor	<i>For example, the source, pathway and environmental receptors for potential impact events may be described in text, presented in a table or through an ecohydrological conceptual model and/or impact pathway diagram.</i> DEW endorses reference to this methodology, however we appreciate that these terms and methodologies may be new to many readers. DEW suggests putting in a link to the IESC guidelines and or the Goyder project page. Further, adding definitions of these terms to a glossary or talking point box may be beneficial in promoting usage. https://www.iesc.gov.au/publications/information-guidelines-explanatory-note-using-impact-pathway-diagrams-based-ecohydrological-conceptualisation-environmental-impact-assessment	Noted, the link provided has been included in text in the referenced paragraph.
Criteria 3 Confirmation of impact events	<i>For example, if modelling is undertaken to confirm an impact event, control strategies should not be included, however modelling may confirm natural barriers between the source and receptor.</i> DEW notes there is reference to modelling throughout the document. Recent experience reviewing modelling has highlighted a need to explain basic requirements for modelling used for regulatory approvals processes. DEW has developed some succinct wording that describes this. DEM might consider including similar wording within the document. We have provided a more generalised version below, but could provide the groundwater-specific version upon request. <i>Models developed and used to support applications must have the following attributes:</i> 1. <i>The model will adequately represent historic data</i> 2. <i>The model will be consistent with the conceptual understanding of the site</i> 3. <i>The model will be appropriately designed to answer the key questions</i> <i>In addition, models and associated documentation should be as transparent as possible, defensible, and robust. It must also be clear that the developers of the model adhered to any relevant national accepted guidelines or principles during construction and use.</i>	
Criteria 4.1 Control and management strategies	Please note, the Native Vegetation Council would require proponents to demonstrate how they have sought to mitigate impacts to native vegetation prior to considering clearing.	Noted, suggested text has been incorporated.
Criteria 4.1 Control and management strategies	The Mitigation Hierarchy could be referenced more explicitly in this part, including direction to apply it. Suggested wording to include: When considering development options which involve the clearance of native vegetation, the Mitigation Hierarchy must be applied. The Mitigation Hierarchy comprises of four elements, including avoid, minimise, rehabilitate or restore and offset	Noted, the wording and link suggested by DEW have been incorporated.
Criteria 4.1 Control and management strategies	Please note this link does not work.	Noted, link updated.
Criteria 5 Environmental significance assessment	The new Table 5 in the Guideline on 'Categorisation of Impact Level', is a welcome addition however the column Flora and Fauna does not provide a source for the definitions. Noting viability of a species relates (typically) to health and condition – if proponents are being asked to measure or provide some assessment on these, some understanding of the current status/trend of value is needed (or a prediction of such), and measures will likely need more than just abundance. Table 5 should provide a source for how impacts have been defined. Table 5 should link to existing cross-jurisdictional documents that provide guidance on likelihood of occurrence assessment as a part of the EIA process.	Table 5 has been removed. The examples provided throughout the document are intended to be general in nature and it is recognised that the table provided in the context of a significance assessment should be specific and provide a relevant source or appropriate justification for definitions. Therefore, definitions and/or matrices determined by proponents will be assessed on a case-by-case basis, wherein the definitions provided should be specific to the activities being undertaken.
General	Suggested text: Where a proposed development is in full or part located in a declared release area the accompanying information pack should be referred to by proponents in their EIR on the biodiversity values likely to occur	Suggested text has been included with additional context provided.

Glossary

REFERENCE	COMMENT
Atypical event	Events that are unintended or unexpected as a result of operational factors or external factors, e.g. human error, equipment failure, extreme weather, natural hazards.
Affected party	An individual or group of people who will be directly or indirectly affected by the proposed operation. These may include landowners, neighbours, the local council or the wider community.
Assessment criteria	Measurable criteria that define a standard or level of performance that demonstrates the achievement of an environmental objective. Requirements for assessment criteria are stated in regulation 34(3) of the <i>Hydrogen and Renewable Energy Regulations 2023</i> .
Baseline environmental data or study	The existing conditions within the area of interest with consideration of the variability expected of a dynamic system, that are established prior to the commencement of compliance monitoring for the purpose of informing regulatory decision making, i.e. baseline conditions can be established prior to or post operational commencement. This is distinct from background conditions, which define the naturally occurring, ambient conditions that are free from influence from activities or operations.
Control measures	Measures to mitigate or minimise an environmental impact. These can also determine the strategies designed to ensure the ongoing achievement of environmental objectives.
Environment	The definition of the environment in the <i>Hydrogen and Renewable Energy Act 2023</i> includes– land, air, water (including both surface and underground water and sea water), organisms, ecosystems, flora, fauna and other features or elements of the natural environment ; <ul style="list-style-type: none"> • buildings, structures and other forms of infrastructure and cultural artefacts; • existing or permissible land use; • public health, safety and amenity; • the heritage, aesthetic, Aboriginal, social or cultural values of an area; and • the economic or social impact on an area.
Environmental element	Any aspect, feature or element of the environment as defined under the <i>Hydrogen and Renewable Energy Act 2023</i> .
Environmental objective	A statement of the appropriate level of impact on the environment, which may be no impact, caused by the proposed operations following the implementation of control measures and strategies. Environmental objectives must be accompanied by assessment criteria designed to demonstrate that the objective has been achieved. The department will regulate the operation against the approved assessment criteria.
Impact or environmental impact	Any change to the environment wholly or partially, directly or indirectly, caused by operations, which is confirmed through the presence of a source, pathway and environmental receptor.
Impact event	A specific event that may result in an impact. May be natural, such as rainfall, earthquake, wind, caused by third-party activities, or by typical or atypical operations. Confirmed impact events are a result of a complete linkage between source-pathway-receptor.

GLOSSARY cont.

REFERENCE	COMMENT
Leading performance criteria	As defined by the <i>Hydrogen and Renewable Energy Act 2023</i> ; criteria used to give an early warning that a control or other strategy necessary for compliance with a statement of environmental objectives— (a) is absent; or (b) may fail or be failing.
Pathway	The mechanism, means or route by which a receptor is exposed to, or may reasonably be expected to be impacted by, an identified source.
Progressive rehabilitation	Ongoing rehabilitation undertaken progressively or through a staged approach throughout operations.
Receptor	Any element or aspect of the environment, as defined by the <i>Hydrogen and Renewable Energy Act 2023</i> , that may be detrimentally affected by exposure to an impact from activities or operations. An environmental receptor will have a degree of significance or value as determined by stakeholder engagement or recognised legislative or other standards.
Rehabilitation	The return of disturbed land to pre-existing conditions or a state agreed to by relevant stakeholders.
Release area	A release area is an area of pastoral land, certain Crown land and state waters that the Minister responsible for the HRE Act has declared for renewable energy development.
Risk	Defined by the likelihood and consequence of an impact event occurring.
Sensitivity analysis	An analysis of how sensitive an output is to any change in an input while keeping other inputs constant.
Significant environmental benefit (SEB)	A requirement under the <i>Native Vegetation Act 1991</i> , whereby clearance of native vegetation can only be undertaken if it is compensated, or offset, by the establishment of a process to protect and manage the biodiversity in that region over and above that lost.
Set back	The minimum distance a specific type of infrastructure can be from a particular receptor.
Source	Origin of an impact or potential impact which has the potential to cause harm or damage to a receptor, as a result of activities or operations.
Stakeholder	Individuals or groups with an interest in a proposal or project. Stakeholders may be directly or indirectly affected by the project. Stakeholders generally include (but are not limited to): owners, occupiers and users of nearby land, Aboriginal groups, local communities and business owners, local and state government, users of water resources, people or groups with a specific interest in the site or area, potential contractors and suppliers.
Suitably qualified person	A person who holds relevant qualifications, has demonstrated professional experience and expertise encompassing an appropriate range of competencies.
Typical event	Events that are expected or intended to occur as a result of an activity or operation.
Uncertainty	A measure of the completeness or accuracy of a statement or position.

ACKNOWLEDGEMENT OF COUNTRY

As guests on Aboriginal land, the Department for Energy and Mining acknowledges everything this department does impacts on Aboriginal country, the sea, the sky, its people, and the spiritual and cultural connections which have existed since the first sunrise. Our responsibility is to share our collective knowledge, recognise a difficult history, respect the relationships made over time, and create a stronger future. We are ready to walk, learn and work together.

FURTHER INFORMATION

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