Environmental Impact Statement Guidelines

HIF Asia Pacific Pty Ltd

HIF Tasmania e-Fuels Facility, Burnie

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epa TASMANIA
ENVIRONMENT PROTECTION AUTHORITY

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Glossary and abbreviations

Term	Definition
ASC NEPM	National Environment Protection (Assessment of Site Contamination) Measure 1999
ASS	Acid Sulfate Soils
Board	Board of the Environment Protection Authority
Case for assessment	Information required for environmental impact assessment, prepared according to the Board's requirements.
CEnvP-SC	Certified Environmental Practitioner Scheme
CSM	Conceptual Site Model
DSI	Detailed Site Investigation
Director	Means the Director, Environment Protection Authority holding office under Section 18 of *Environmental Management and Pollution Control Act 1994* and includes a delegate or person authorised in writing by the Director to exercise a power or function on the Director's behalf.
EIS	Environmental Impact Statement
EMPCA	*Environmental Management and Pollution Control Act 1994*
EMPCS	Environmental Management and Pollution Control System. Objectives found in Schedule 1 of EMPCA.
Environmentally hazardous material	Means any substance or mixture of substances of a nature or held in quantities which present a reasonably foreseeable risk of causing serious or material environmental harm if released to the environment and includes fuels, oils, waste and chemicals but excludes sewage.
EPA	Environment Protection Authority. Tasmania's independent principal environmental regulator which administers EMPCA and consists of a Board and a Director.
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)
HIA	Health Impact Assessment
JAMBA/CAMBA	Japan-Australia and China-Australia Migratory Bird Agreements
LUPAA	*Land Use Planning and Approvals Act 1993*
MNES	Matters of National Environmental Significance
NCA	*Nature Conservation Act 2002*
Noise sensitive premises	Residences and residential zones (whether occupied or not), schools, hospitals, caravan parks and similar land uses involving the presence of individual people for extended periods, except in the course of their employment or for recreation.

Term	Definition
PASS	Potential Acid Sulfate Soils
Planning Authority	Council for relevant local government area
PSI	Preliminary Site Investigation
RMPS	Resource Management and Planning System, Tasmania. Objectives found in Schedule 1 of EMPCA.
Suitably qualified person	Means suitably qualified person in the opinion of the Director
RFA	*Tasmanian Regional Forest Agreement*
TSPA	*Threatened Species Protection Act 1995*

Part A. Introduction

These Guidelines provide instructions for proponents on how to prepare an Environmental Impact Statement (EIS) for an activity being assessed in Tasmania by the Board of the Environment Protection Authority (the Board). The Board uses an EIS as a 'case for assessment', to assess the environmental impact of an activity, as required under the *Environmental Management and Pollution Control Act 1994* (EMPCA).

The role of the EIS

An EIS is generally required for larger scale developments, classed as requiring 2B or 2C assessments under EMPCA. It is a document that provides information about a proposal, its potential impacts and proposed mitigation measures. As a publicly available document, an EIS should facilitate public consultation and informed comment and should contain sufficient information to establish the conditions of approval by authorities, if approved.

The EIS should demonstrate that the proposal is consistent with the objectives of relevant laws and policies, including the Tasmanian Resource Management and Planning System (RMPS) and the Environmental Management and Pollution Control System (EMPCS). These systems are designed to facilitate sustainable development.

Further information on the EPA Assessment Process is available on the EPA website.[1]

Refer also to Appendix A *General principles for assessing environmental impacts*, for further information on EIS principles.

How the Board uses the EIS

The Board uses the EIS to inform decision making as part of the environmental impact assessment process. The EIS must be prepared in accordance with guidance provided by the Board under section 74(4) of EMPCA. The staff of the EPA support the Board during the assessment process.

The EIS will be advertised publicly to allow for public consultation. The proponent may then be required to supply additional information in response to public and government agency submissions. This information is generally supplied in the form of a supplement to the EIS.

The Board considers the EIS as well as other relevant information in the context of the objectives of the RMPS and EMPCS. These objectives aim to sustain the environment and avoid or mitigate adverse effects, while considering the economic and social needs of people now and in the future. The Board will endeavour to make the decision which best furthers the objectives of the RMPS and EMPCS. It may approve the proposal with conditions, or in some cases may decide to reject the proposal if the objectives cannot be upheld.

The Environmental Impact Statement Guidelines are adapted for each specific proposal. In general, more detailed studies and information will be required where issues are considered by the Board to involve a higher level of environmental risk.

Other significant matters may emerge while preparing the EIS, from environmental studies, public comments, or other sources. These must also be considered in the EIS. Information collected or generated during the assessment process may also change the understanding of the level of risk associated with some issues. This must also be reflected in the EIS.

[1] See https://epa.tas.gov.au/Pages/Assessment-Process.aspx

Planning information

The relevant Planning Authority (local Council) will assess planning information if the *Land Use Planning and Approvals Act 1993* (LUPAA) applies. Information solely for the purpose of assessment under the relevant Planning Scheme should be supplied to the Planning Authority either:

- as required under section 54 of LUPAA where the planning application has started the environmental assessment process; or
- as a combined planning and environmental report where it is intended to submit an EIS with the planning application. Where this option is selected, the information required for the Board's assessment must be clearly distinguished from that supplied for the purposes of LUPAA.

Australian Government environmental assessment

The Australian Government (Commonwealth) may have a role in the environmental assessment and approval of the proposal in addition to Tasmanian requirements. Approval under the Australian *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is required for an action which has, will have, or is likely to have, a significant impact on a Matter of National Environmental Significance (MNES).

The nine MNES are:

- world heritage properties
- national heritage places
- wetlands of international importance (often called 'Ramsar' wetlands after the international treaty under which such wetlands are listed)
- nationally threatened species and ecological communities
- migratory species
- Commonwealth marine areas
- the Great Barrier Reef Marine Park
- nuclear actions (including uranium mining)
- a water resource, in relation to coal seam gas development and large coal mining development.

The Australian and Tasmanian Governments have signed a bilateral agreement for environmental impact assessment under section 45 of the EPBC Act, which accredits the Board's assessment process. This allows a proposal that has been determined to be a controlled action under the EPBC Act to be assessed by the Board on behalf of the Australian Government.

If a proposal is to be assessed under the bilateral agreement, the EIS must specifically describe the implications of the proposal for the relevant EPBC Act controlling provisions. It must also contain a summary table showing that it addresses the matters specified in Schedule 4 of the *Commonwealth Environment Protection and Biodiversity Conservation Regulations 2000*.[2]

Information on the EPBC Act can be obtained from the Australian Government, Department of Climate Change, Energy, the Environment and Water (DCCEEW) website,[3] or by calling 1800 803 772. It is the proponent's responsibility to consult DCCEEW to determine whether the EPBC Act and the bilateral agreement apply to the proposal.

[2] See http://www8.austlii.edu.au/cgi-bin/viewdoc/au/legis/cth/consol_reg/epabcr2000697/sch4.html
[3] See https://www.dcceew.gov.au/environment/epbc

Part B. Instructions

The EIS must present information in a way that can be easily understood. It should provide summaries in non-technical language to give readers a general understanding of the proposal. It must also provide technical detail to allow analysis and understanding of impacts and mitigation measures by technical specialists, regulatory bodies, and people with an interest in specific matters arising from the proposal.

Section C of these Guidelines sets out the structure and **minimum** content requirements of the EIS.

Proponents are advised to consult the EPA during preparation of the EIS, including in the case of any uncertainty in relation to the requirements set out in these Guidelines.

General requirements

- Avoid technical terminology where possible in the main body of the EIS. It should be able to be read as an independent document which provides a general understanding of the proposal.
- Include any detailed technical data or supplementary reports as appendices.
- Consider document accessibility. The Australian Government Style Manual provides information about inclusion and accessibility.
- Use cross-referencing to prevent unnecessary duplication between sections.
- Reference all sources of information using a consistent style.
- Define all key terms and words used.
- Information in the EIS must be relevant.
    - Show reasoning for arguments. Support conclusions with referenced evidence.
    - Indicate how current information is, how reliability has been tested, and the degree of confidence attached to any predictions.
    - Sufficient technical detail must be provided to allow for environmental impact assessment, even when details are not final at the time of preparation.
    - If information is currently unavailable, estimates and alternative options should be provided, however the limitations of available information must be evaluated.
- Provide any sensitive commercial or corporate information in a confidential appendix. Provide a comment in the EIS if this has been done.

The EIS must not include information that is known to be false or misleading, and nothing should be omitted if it is known that without it the EIS would be false or misleading (section 43A of EMPCA).

Spatial and visual information requirements

- Present information in maps, plans, diagrams, and photographs where necessary, to enhance understanding.
- Images must be high quality and reproducible in monochrome, with all text and relevant features clearly visible.
- Maps and plans should include a north arrow and scale.

- Use a consistent base plan throughout the EIS where appropriate, to allow elements to be overlaid and compared. Ensure that detailed information is clear and visible, particularly when using satellite images as background layers. This is best achieved using a geographical information system (GIS).
- Specify the coordinate reference system when providing or referring to spatial information, including maps, plans, grid coordinates and heights. Further information on coordinate reference systems used in Tasmania can be found on the Land Tasmania website[4].

  Recommended systems are:

  - Horizontal – Geocentric Datum of Australia 1994[5] Map Grid of Australia Zone 55 (GDA94 MGA55)
  - Vertical – Australian Height Datum (Tasmania) (AHD83).

Independent Review

For large proposals, such as Class 2C activities, prior to submission to the EPA, the EIS should be independently reviewed by a suitably qualified person to confirm that it meets the requirements detailed in Guidelines issued for the proposal.

Submission

It is strongly recommended that proponents submit the EIS to the EPA for review prior to formal lodgement of the EIS with the Board. The EIS submitted for review must meet the requirements of these Guidelines and be in accordance with Appendix A; incomplete documents will not be accepted for review.

The EIS may be submitted via email to assessments@epa.tas.gov.au and your nominated contact officer. Proponents should contact the EPA if alternative submission methods are deemed necessary.

[4] See https://nre.tas.gov.au/land-tasmania/geospatial-infrastructure-surveying/geodetic-survey/coordinate-height-and-tide-datums-tasmania

[5] Geocentric Datum of Australia 2020 (GDA2020) is the new official datum for recording the horizontal location of spatial information in Australia but is not yet fully implemented in Tasmania.

Part C. EIS structure and content

The EIS must follow the structure set out below and must address all requirements unless otherwise agreed following consultation with the EPA. For clarity, organise content with further headings and subheadings as appropriate.

Title page

The title page must include:

- Name of proponent (legal entity)
- Name of proposal (include "expansion" or "upgrade" where appropriate)
- Proposal address or location
- EIS version number
- Month and year of submission

Executive summary

The executive summary must provide a clear and concise overview of the proposal, its environmental implications, and the function of the EIS in the context of the assessment process. For a larger EIS, the executive summary must be written as a stand-alone document for people who may not wish to read or acquire the full EIS.

Table of contents

The EIS must include a table of contents and a list of figures and tables to allow the reader to easily locate information. The table of contents should include hyperlinks to allow documents to be navigated easily.

Glossary and abbreviations

Provide a list of abbreviations and acronyms and a glossary which clearly defines any technical terms used in the EIS.

Proponent information

Proponent details:

- Name of proponent (legal entity)
- Name of proponent (trading name)
- Registered address of proponent
- Postal address of proponent
- ABN
- ACN (where relevant)

Contact person's details:

- Name
- Telephone
- Email address

Activity Operator details must be provided if the operator will be a different entity to the proponent.

1. Introduction

The introduction should provide:

- General background information on the proponent, including relevant development and operational experience.
- General background information on the proposal, including:
    - current status of the proposal;
    - an overview of the principal components of the proposal;
    - the proposal location;
    - likely markets for the product; and
    - possibilities for future expansion.
- If the proposal is associated with an existing activity, information on current permits, regulatory approvals and/or licences.
- A discussion about how the proposal relates to any other proposals that have been or are being developed in the same region as the proposal.
- Environmental legislation, standards and guidelines that will be applicable, such as policies, regulations, and industry codes of practice.
- Other relevant Commonwealth, State and Local Government policies, strategies, and management plans with which the proposal would be expected to comply.

2. Proposal description

The scope of the proposal must be clearly described, and must include:

- A summary table,
- A detailed description of proposal,
- Definition of the activity area,
- Maps, plans and visual information,
- A summary of planning aspects,
- Socio-economic context, and
- Off-site infrastructure.

Where a proposal will require a permit application under LUPAA, the proposal description and specification of the site must be consistent with the intended or current permit application.

2.1 Summary table

The summary table provides an overview of the proposal and identifies the key characteristics, including:

- Location and planning context;
- Existing site information, including topography, local climate, geology, geomorphology, soils (e.g. erodibility and acid sulphate soils), vegetation, fauna, groundwater, and surface drainage (e.g. waterways, lakes, wetlands, coastal areas);
- Proposed infrastructure;
- Proposed timeline; and
- Inputs (e.g. water, materials, energy) and outputs (e.g. products, wastes and emissions).

Refer to *Appendix C* for an example of a project description summary table.

2.2 Detailed description of proposal

This section should include information that has not been included in the summary table, or that requires further explanation. Provide detail on the proposed construction, commissioning and operation of the activity, including any ancillary works that are for the purpose of the proposal (e.g. access works).

2.2.1 Project components

- Describe the physical components required for the proposal to function up to closure, including, but not limited to the:
    - e-Fuel production facility including:
        - Biomass to carbon dioxide conversion (including the biomass storage area, biomass boiler, Carbon Absorption Unit, and stack).
        - Electrolyser blocks (including electrolysis stacks, gas separation modules, hydrogen purification systems and nitrogen and compressed air systems).
        - e-methanol synthesis unit (including heat exchangers, compressors, pumps, reactor, vessels and separation columns, and methanol storage tanks).
    - Water treatment and supply infrastructure (including pipelines).
    - Electricity supply infrastructure (including transmission lines).
    - e-Methanol storage and transport (including pipelines).
    - Other systems/infrastructure (including emergency flare system, administration and office building, warehouse and workshops, stormwater management system, catalyst and chemical storage, cooling towing system).
    - Temporary site facilities for construction.
- Describe the major items of equipment (including pollution control equipment) and onsite facilities. Include detailed technical information on major items of equipment as appendices.
- Describe the pipework, pump stations and other ancillary infrastructure associated with the proposed recycled water scheme and discharges of trade waste and saline wastewater. Outline any additional approvals required in relation to such infrastructure or facilities.
- Detail the total footprint of the proposal including pipeline and transmission line easements.

2.2.2 Construction

- Provide a step-by-step description of significant activities that will occur during the construction phase of the proposal.
- Provide an indicative timetable for completing major stages of construction.
- Describe any demolition of existing buildings, equipment or amenities that will occur prior to and during construction.
- Detail the total construction footprint and the likely extent of excavation and disturbance.
- Define the proposed hours within which construction activities will take place (hours per day and specific days per week).
- Describe the volume, composition, origin, destination, and route for transport movements (road, rail, shipping, and air) during construction. Specify what proportion of road usage and vehicle movements will involve over-dimension and heavy road vehicles. Compare the proposed transport movements with existing usage of relevant routes.
- Describe the existing light environment and identify and describe all sources of light (purpose, what time of day, intensity).

2.2.3 Commissioning

- Provide a step-by-step description of significant commissioning activities that will occur following installation of equipment.

- Provide an indicative timetable for completing major stages of commissioning. Describe the point at which commissioning will be considered complete.

2.2.4 Operation

- Describe the process(es) of operation in a step-by-step manner, using explanatory diagrams and flow charts where appropriate.
- Outline all raw materials (including water) required for operation. Detail sources, quantities, and characteristics and:
    - Specify the volume of water required for hydrogen production as opposed to other uses on site.
- Provide a detailed description (source, volume, composition etc.) of expected biomass feedstock for the facility. Describe the capacity of existing plantations to provide material and whether any forestry certifications or standards apply.
    - Where characteristics of raw materials may vary according to source, outline potential variations, and indicate the proportion of material to be obtained from each source.
    - Outline any significant foreseeable changes in raw material usage (including water) over the lifetime of the project.
- Provide a process water balance, indicating how water will flow around the site, where it will be recycled, and where wastewater streams will be generated.
- Outline all energy requirements for operation. Describe how energy demands will be met. Describe the capability of the existing network and any future electricity generation projects to supply electricity.
- Identify and quantify all products, emissions and/or wastes produced.
- Define the production capacity and rate for relevant processes. Include peak rates, daily average rates and annual production rates where applicable.
- Define the proposed hours of operation (hours per day and specific days per week). Specify any seasonal variations.
- Describe plant operation during start-up, significant maintenance, and shut-down activities (e.g., annual planned shutdowns). Where applicable, include details on these aspects as they relate to the key components and facilities that make up the plant.
- Describe the volume, composition, origin, destination, and route for transport movements (road, rail, shipping, and air) likely to occur during operation, including timing of any transport. Specify what proportion of road usage and vehicle movements will involve over-dimension and heavy road vehicles. Compare the proposed transport movements with existing usage of relevant routes.
- Describe the existing light environment and identify and describe all sources of light (purpose, what time of day, intensity).

2.3 Maps, plans and figures

Spatial information should be presented in maps, plans, diagrams and imagery. These must be of high quality and reproducible in monochrome with all text and relevant features clearly visible. Maps and plans should include a north arrow, scale and legend. When spatial data (including maps, plans, coordinates and heights) are provided or referred to, the horizontal and vertical datum must be specified. At a minimum, provide the following:

2.3.1 General location maps

Provide general location maps of the existing environment and surrounding area (of a suitable scale), showing:

- The location of the proposal site;
- Boundaries of the property on which the proposal is located;

- Road access to and from the site;
- The distance(s) to any sensitive uses and residences[6] within 1.5km of the proposed activity;
- The applicable attenuation distance[7]
- Topographical features, aspect, and direction of drainage;
- Location of waterways and drains (including ephemeral waterbodies and water courses);
- Electricity transmission lines;
- Surrounding land tenure;
- Surrounding land use (including areas of conservation or recreational significance); and
- Surrounding land zoning in the local government planning scheme.

2.3.2 Map of the Land as defined in the Development Application

Provide a map of the Land showing relevant Cadastral boundaries with title details, e.g. Volume/Folio 136529/1.

2.3.3 Map of the proposed activity area

Provide a map of the proposed activity area clearly showing the physical extent of the proposal. The activity area should encompass all works for construction and areas used for operations, including:

- Earthworks, land clearing, stockpiles, laydown areas, parking, amenities, sediment management infrastructure and any temporary site facilities to be used for construction;
- All project components as per section 2.2.1.

The map should include enough coordinates at corner points for the activity area boundary. The activity areas boundary should also be provided in a geospatial vector format (shapefile or DXF).

2.3.4 Site plan

Provide site plan(s) showing the detail of proposal, including:

- Cadastral boundaries;
- The boundary of the activity area;
- The location of existing and proposed buildings/structures and plant
- Relevant topographic features, including contours and waterways;
- Proposed major earthworks and any temporary stockpiles;
- The location of materials stockpiles, storage and loading/unloading areas;;
- Site water management (drains, settling ponds, bunding and monitoring points, as relevant); and
- Vegetation types, clearly marking areas to be cleared, and records of any threatened species/vegetation communities.

2.3.5 Figures and flowcharts

Present figures such as process flowcharts and images where they are likely to improve readers' understanding of the site and proposal. Any images and photos used must be high-quality, with an accurate description and date.

3. Planning and socio-economic context

The planning aspects description should include any additional planning information and data not included in the summary table.

- If a permit is required under LUPAA provide Use Class and Permissibility of the proposed activity under the applicable Planning Scheme.

[6] Defined in the State Planning Provisions as 'a residential use or a use involving the presence of people for extended periods except in the course of their employment such as a caravan park, childcare centre, dwelling, hospital or school.'

[7] Refer to relevant planning scheme or State Planning Provisions

- Detail land tenure and property boundaries of the activity area, with certificate of title details.
- Detail land zonings for the activity area and surrounding areas.
- Describe any rights of way, easements and covenants affecting the activity area.
- Discuss land use and planning history of the activity area, including the potential for site contamination[8], present use and any existing buildings and significant structures.
- Describe land use and ownership in the vicinity of the activity area and those areas which may be affected by the proposal.
- Provide the location and nature of industrial facilities.
- Detail sensitive uses[9] and residential zones within applicable attenuation distances including the location of individual residences, schools, hospitals, caravan parks and similar sensitive uses, and the location of any tourist or recreation facilities or routes (such as camping areas, picnic areas, walking tracks, historic routes).
- Consider any proposed or potentially sensitive uses within applicable attenuation distances from the activity area, which have been or are likely to be granted approval under the local planning scheme.
- Briefly describe the existing social and economic environment that may be affected by the proposal. This may include:
- A summary of the social or demographic characteristics of the population living in the vicinity of the proposal site, identifying any special characteristics which may make people more sensitive to impacts from the proposal than might otherwise be expected.
- A summary of the characteristics of the local and regional economy.

4. Project alternatives

Proponents should provide the rationale for the proposal. Alternatives should consider best practice environmental management, including measures listed under section 4(2) of EMPCA.[10] The rationale should:

- Describe the site selection process and criteria.
- Evaluate any alternative sites considered. Justify the choice of the proposed site in terms of clearly defined environmental, social, economic, and technical considerations, including avoidance of environmental impacts.
- Describe the effect of any community consultation on the selection process.
- Identify and provide an assessment of other available technologies, materials, design options or management practices, where relevant, including how environmental impacts will be avoided. Evaluate the environmental performance of identified alternatives and provide justification for the preferred option.
- Describe any similar facilities which have been constructed and operated elsewhere, either in Australia or internationally, and the purpose of e-methanol as part of policies in relation to broader transport and alternative fuel options.

[8] Information on potentially contaminating activities and contaminated site assessment can be found online at https://epa.tas.gov.au/Pages/Land.aspx

[9] Defined in the State Planning Provisions as 'a residential use or a use involving the presence of people for extended periods except in the course of their employment such as a caravan park, childcare centre, dwelling, hospital or school.'

[10] See: https://www.legislation.tas.gov.au/view/html/inforce/current/act-1994-044#GS4@EN

5. Public consultation

Describe any public consultation that has taken place during project planning and preparation of the EIS and summarise the results of this consultation. Describe any proposed future public consultation that will take place during project implementation and operation. The Board encourages early community engagement, as it often leads to better outcomes for all parties. Guidance on effective community engagement is available on the EPA website. [11]

6. Potential impacts and management

Identify all potential environmental impacts and describe the proposed measures to avoid, mitigate or offset adverse consequences. The detail provided on each issue should reflect its significance. While key issues are identified for the proposal, other issues that emerge as significant while preparing the EIS, through environmental studies, public comments or otherwise, must be considered and addressed.

Address each discrete issue separately, using headings and subheadings where necessary to organise and separate discussions.

Use scientific data to support predictions and evaluate impacts and provide references to the data used. Where specialist reports have been required for key issues, summarise them within the body of the EIS where relevant, and attach the reports as appendices. Detail the qualifications of the authors of any specialist reports. Make sure that the information in the body of the EIS is consistent with the information in the appendices.

General information requirements for each potential impact are described below and are in addition to any specific information requirements detailed later in this section.

Existing environment

- Describe the existing environment in relation to the impact, including the vulnerability of the potentially affected environment.
- Analyse the issue in relation to the existing environment.

Methodology

- Describe how the assessment of the impact has been undertaken, such as by survey or desktop study.
- Identify any relevant guidelines and standards used.
- Discuss any choice of methodology over alternatives where relevant.

Assessment

- Clearly articulate potential impacts, using tables and figures to aid communication where possible.
- Support assertions and assumptions with adequate argument and/or evidence.
- Identify plausible worst-case scenarios and the reversibility of the impact.
- Summarise the proposal's contribution to any cumulative impacts, where appropriate.

Avoidance and mitigation measures

- Describe the measures proposed to avoid, mitigate or offset potential adverse impacts.

[11] See https://epa.tas.gov.au/Documents/Guidance on Community Engagement.pdf

- Detail any specialist recommendations which have been/will be implemented. Where specialist recommendations are not to be implemented, justify why. All recommendations made in specialist reports should be addressed.
- Analyse the effectiveness of the mitigation measures. Describe how and to what degree the impacts will have been avoided, minimised or offset.
- Discuss any residual impacts, referring to relevant guidelines or standards.
- Discuss any contingency measures related to pollution control equipment.

Refer to *Appendix A: General principles for assessing environmental impacts*.

Key issues

The key issues identified for this proposal, which should be the focus of the EIS, are:

1. Potential impacts on air quality associated with the proposal.
2. Potential impacts on water quality associated with the proposal.
3. Potential noise impacts on sensitive receptors associated with the proposal.
4. Identification and management of potential contamination.
5. Management of dangerous goods and environmentally hazardous materials.

6.1 Key issue 1: Air quality

Discuss potential impacts of the proposal on the local and regional air environment during construction and operation stages. Include methodology where appropriate.

6.1.1 Existing environment

- Provide a site map that includes the activity area and the location of nearest sensitive receptors.
- Describe the existing environment. Include details on climatic/meteorological conditions, terrain, land use and air quality in the vicinity of the proposal.

6.1.2 Assessment

- Provide a figure showing the locations and names of all potential sources of atmospheric emissions from the proposed activity.
- Describe all potential sources of atmospheric emissions (point and fugitive) and the composition of the atmospheric emissions, including odour and dust, that may arise from activity on the site. Provide a process flow diagram for the proposed e-Fuel production, with information about where the air emissions are potentially generated. The diagram should cover all stages of the activity.
- For each identified potential emission source, characterise the emissions in terms of quantities, emission frequencies and predicted emission rates. The description should contain contextual information regarding operating hours, time of day, duration and frequency, to establish suitable parameters for air dispersion modelling. Average and worst-case scenarios should be considered.
- Provide a description of potential atmospheric emissions during the construction and commissioning phases of the project, including the potential impact of air emissions caused by increased vehicle movements in the area.
- Provide the results of atmospheric dispersion modelling and an assessment of the potential impacts of air emissions from the proposed facility against the requirements of the *Environment Protection Policy (Air Quality) 2004*[12] (Air EPP). Reference should also be made to the EPA Board Statement, *Update to Air Pollution Design Criteria used in the Environmental Impact Assessment Process*[13] *(Jan 2022)*.
    - Refer to Information for Consultants.[14]
    - Where performance requirements are not specified in Air EPP Schedules, appropriate national or international standards should be quoted for comparison purposes.
    - Modelling should be conducted by a suitably qualified specialist in accordance with the *Atmospheric Dispersion Modelling Guidelines*.[15] It is strongly recommended that the scope and method of atmospheric dispersion modelling be discussed with the EPA Air Section prior to commencement

[12] See *https://epa.tas.gov.au/Documents/EPP_Air_Quality_2004.pdf*
[13] See *https://epa.tas.gov.au/Documents/Board%20Statement%20-%20Update%20to%20Air%20Pollutant%20Design%20Criteria%20used%20in%20the%20EIA%20Process%20-%20January%202022.pdf*
[14] See https://epa.tas.gov.au/environment/air/monitoring-air-pollution/how-we-monitor/atmospheric-dispersion-modelling/information-for-consultants
[15] See https://epa.tas.gov.au/Documents/Atmospheric%20Dispersion%20Modelling%20Guidelines.pdf

of any modelling to prevent re-work. Please contact your designated Assessment Officer to arrange this.

- Describe climate change projections relevant to the project area, and how the future climate may change the local meteorology and impact of air emissions from the proposal.
- Demonstrate that the assessment is consistent with the requirements of the *Tasmanian Environment Protection Policy (Air Quality) 2004*[12] and any supplementary documents, including the *Air Pollutant Design Criteria - EPA Board Statement*.[13]

6.1.3 Avoidance and mitigation measures

- Describe measures to be implemented to avoid and/or mitigate the impact of all atmospheric emissions from the activity area that may cause environmental nuisance or harm at or beyond the boundary of the activity area.
- Provide a comprehensive description of all proposed air emission control systems and equipment as well as emission management and monitoring measures that will be used at the facility.
    - Include details of the management and continuous monitoring measures to be implemented to ensure the early detection and management of potential emissions due to failure or leaks in the facility's processing infrastructure including pipes, valves, vessels, and other auxiliary equipment.
    - Describe mitigation and contingency measures that will be employed during maintenance phases or other periods when emission control equipment may not be fully functional at various phases of the project including construction, commissioning, and operational phases.
    - Provide evidence of application of accepted modern technology for reduction of unavoidable emissions to the greatest extent practicable.

6.2 Key issue 2: Water quality

Discuss potential impacts of the proposal on marine and surface water quality during construction and operation, including methodology where appropriate.

6.2.1 Existing environment

- Provide a description and maps of the activity area with respect to topography and preferential surface water flow, existing surface water and stormwater drainage.
- Identify and describe nearby water bodies and watercourses likely to be impacted by the proposal.
- Provide information on flooding likelihood and history for the activity area and surrounds, including flooding extent (area affected), levels and frequency.
- Provide an overview of the receiving environment. Identify all relevant Protected Environmental Values (PEVs)[16], including:
    - sensitive uses and associated water quality considerations;
    - seasonal water quality, hydrological characteristics and biological condition of the receiving environment;
    - reference to published or determined (site-specific) water quality guideline values for receiving environments. For information about the water quality management framework and evaluation criteria in Tasmania, refer to *Technical Guidance for Water Quality Objectives (WQOs) Setting for Tasmania, August 2020*.[17]

[16] See https://epa.tas.gov.au/environment/water/pevs-for-tasmanian-surface-waters
[17] See https://epa.tas.gov.au/Documents/Technical%20Guidance%20for%20Water%20Quality%20Objectives%20(WQOs)%20Setting%20for%20Tasmania.pdf

- Undertake baseline water quality, biological and sediment monitoring and describe the methodology used. Detail any other information relevant to assessing potential impacts, such as ecotoxicological data or potential hydrological changes.
- Include the results of any monitoring and provide separately as data. Provide metadata and monitoring data to the EPA following the instructions and using the Excel workbook templates or file formats provided on the Water Quality Data Elements[18] webpage.

6.2.2 Assessment

- Identify and characterise all liquid emissions that could arise from the proposal, including from industrial processes, waste management and/or treatment processes, fuelling, domestic/office facilities, stormwater or other sources.
- Describe any wastewater treatment for the development including any potential contaminants of concern. Describe the selected treatment technology, the likely volume and quality of effluent/water that will be produced and its fate in the environment.
- Provide details of any agreement with the operator of the municipal sewerage system for the supplied recycled water to be used by the proposal and for any discharges of trade waste, saline waters and sewage to the system.
- Describe proposed stormwater management during construction and operational phases, including during reasonably foreseeable flood events and include an assessment of the potential for pollutants to become entrained in stormwater.
- Provide details of any proposed discharge to the environment, e.g. saline water, wastewater, including:
    - A description of the discharge pathway, including details of the length, depth and diffuser details of any proposed outfall infrastructure, as relevant.
    - A description of the proposed discharge regime, including consideration of frequency, continuity and rate of discharge. Where flow rate varies relevant patterns and statistics should be provided.
- Provide details of, and a map depicting:
    - Proposed wastewater storage and discharge locations.
    - Preferential flow of stormwater arising from rainfall on the activity area.
    - Location of stormwater collection system(s).
- Evaluate the direct and indirect water quality impacts associated with the proposal, including, but not limited to the following:
    - The liquid emissions from operation, including quality, volume(s) and discharge regime in conjunction with the receiving environment conditions. The evaluation should include consideration of seasonal variations in wastewater and any other emissions and the receiving environment water quality and quantity.
    - Any potential impacts associated with accidental discharges such as spillages, containment failures, firefighting wastewater, etc.
    - Any potential impacts associated with the onsite storage of forestry waste to be used by the proposal, e.g., the potential entrainment of sediments from stockpiles in stormwater.
- Provide a water-balance for the e-fuel production process, considering variations in water content and generation from raw materials, process inefficiencies that may result in water loss or excess water, and events that may result in loss or retention of process water
- Provide information about any risks to marine and surface water quality associated with hazards and emergency management e.g., firefighting, hazardous materials accidental spills, storage tanks overflow and pipeline failures, breakdown, etc.

[18] See https://epa.tas.gov.au/environment/water/water-quality-data-elements

- Undertake dilution/dispersion modelling for the marine environment. Include sufficient information to assess the appropriateness and validity of the model. It is recommended that the scope and method of the modelling is discussed with the EPA's Water Section prior to commencement. Please contact your designated Assessment Officer to arrange this.

6.2.3 Avoidance and mitigation measures

- Identify and assess available options for improved effluent management and minimisation of wastewater discharge, according to the hierarchy set out in the *State Policy on Water Quality Management 1997, Division 2: 'Management of Point Sources of Pollution'*.[19] Viable reduction or reuse options must be implemented. The assessment must include:
    - Details of any investigations undertaken to identify options for beneficial reuse of effluent.
    - Justification for any proposed emission of contaminants to surface water in accordance with the principles outlined in the *State Policy on Water Quality Management 1997*.
- Provide details of the management and monitoring measures to be implemented to minimise and monitor the impacts of the proposed discharges on the receiving waters.
- Provide information on erosion and sediment control measures for all phases of the proposal.
- Provide a Hazard Analysis and Risk Assessment with appropriate control measures of potential uncontrolled discharges, including, but not limited to, firefighting wastewater, accidental hazardous material spills, leakages and containment failure.
- Describe the proposed construction method for any pipeline and outfall infrastructure, detailing any likely disturbance to the receiving environment (including the marine environment, the Emu River and its estuary, and Romaine Creek) and appropriate management methods to minimise ecological damage.

For information about water quality management framework and evaluation criteria in Tasmania refer to *Technical Guidance for Water Quality Objectives (WQOs) Setting for Tasmania, August 2020*.[20]

6.3 Key issue 3: Noise emissions

6.3.1 Existing environment

- Provide a map showing the closest noise sensitive premises in the vicinity of the boundary of the activity area.
- Provide a list of nearby identified residences and other noise-sensitive premises in the vicinity of the boundary of the activity area.
- Conduct a minimum of 7-days of noise monitoring to evaluate the existing background noise levels at the activity area and at noise sensitive premises within the vicinity of the boundary of the activity area.

6.3.2 Assessment

- Describe all major sources of noise, including associated
    - Sizes and power ratings;
    - 1/3 octave source noise data (linear/C-weighted and A-weighted) to assess for low frequency and tonal noise;
    - Noise attenuation features; and
    - Hours of operation.
- Show the location of all proposed operational noise sources (fixed and mobile sources) on the site plan.

[19] See https://epa.tas.gov.au/about-the-epa/policy-legislation-cooperative-arrangements/statutory-policies/state-policies-and-environment-protection-policies/state-policy-on-water-quality-management-1997

[20] See https://epa.tas.gov.au/Documents/Technical%20Guidance%20for%20Water%20Quality%20Objectives%20(WQOs)%20Setting%20for%20Tasmania.pdf

- Analyse the potential for noise emissions (during both construction and operational phases) to cause nuisance for nearby land users, particularly at noise sensitive premises[21]. When assessing nuisance at noise-sensitive premises, discuss the *Environment Protection Policy (Noise) 2009*[22], *Department of environment and Climate Change NSW Interim Construction Noise Guideline*[23] and the existing acoustic environment.
- Discuss noise-related environmental impacts associated with current and altered traffic flows on other road users and on residences adjacent to roads.
- Provide the results of a noise model for the proposal undertaken by a suitably qualified person. Modelling must include the generation of noise contour maps.
- The prediction methodology for the noise model will need to consider:
    - The worst case weather conditions (i.e. temperature inversions and downwind);
    - Topography of the activity area and surrounds (including any noise sensitive premises); and
    - Assessing L_{Amax} noise emissions to assess for sleep disturbance during the night-time period.

6.3.3 Avoidance and mitigation measures

- Describe attenuation measures that will be implemented to avoid or mitigate impacts of noise emitted by the proposal (as relevant).
- Attenuation measures should ensure that:
    - Cumulative noise emissions (L_{Aeq}) from the operation of the activity do not exceed 5 dB(A) over the existing background noise levels (L_{A90});
    - Continuous type noise emissions from fixed plant equipment do not exceed the existing background noise levels (L_{A90}) for the night-time period;
    - Noise emissions from the activity should not contain excessive energy in low frequency when measured/observed at any sensitive receivers;
    - Noise emissions from the site do not result for any noise sensitive premises to experience noise emissions greater than the noise indicator levels presented in *Environment Protection Policy (Noise) 2009*; and
    - All continuous fixed mechanical plant noise sources are located in an enclosed environment.
- Demonstrate that the proposal is consistent with environmental performance requirements, including any identified in the *Environment Protection Policy (Noise) 2009*.[22]

6.4 Key issue 4: Identification and management of potential contamination

Discuss the characterisation and proposed management of human health and environmental risks associated with contaminated material which may be present within and adjacent to the activity area, including the following:

- An assessment of human health and environmental risks associated with existing site contamination must be completed in accordance with the *National Environment Protection (Assessment of Site Contamination) Measure 1999*[24] (the ASC NEPM)
    - The assessment must be managed, and final recommendations approved by a practitioner who holds Site Contamination Specialist certification under the Certified Environmental Practitioner Scheme (CEnvP-SC).
    - The assessment must include a conceptual site model (CSM) which represents site-related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. The CSM must be appropriate to the scale and complexity of known or potential contamination impacts.

[21] Noise-sensitive premises are defined as 'residences and residential zones (whether occupied or not), schools, hospitals, caravan parks and similar land uses involving the presence of individual people for extended periods, except in the course of their employment or for recreation.'
[22] See https://epa.tas.gov.au/Documents/EPP_Noise_2009.pdf
[23] See https://www.epa.nsw.gov.au/sites/default/files/09265cng.pdf
[24] See https://www.legislation.gov.au/F2008B00713/latest/text

  - The assessment must incorporate a preliminary site investigation (PSI) which utilises existing information to identify:
    - the potential sources of contamination;
    - contaminants of concern;
    - areas of potential contamination;
    - affected material, and likely human and ecological receptors.
  - If the PSI indicates that contamination is likely but the information available is insufficient to enable site management strategies to be derived, then a detailed site investigation (DSI) must be completed. The DSI must identify the nature and extent of contamination (lateral and vertical) across all relevant material (e.g.: soil, sediment, surface water, groundwater, gas, waste, biota) and the risk that contamination represents to identified human and ecological receptors. To clarify risks the DSI may need to incorporate specialist testing as appropriate, such as (but not limited to):
    - hydrogeological testing;
    - soil vapour testing;
    - contaminant fate and transport modelling;
    - site specific human health and/or ecological risk assessment.

- A description of the proposed construction methodology, footprint and extent of disturbance with respect to identified site contamination.
- A plan to manage identified site contamination and any associated risks to human and ecological receptors arising during construction, that includes:
  - a description of any mitigation measures to be implemented before and/or during construction; and
  - a statement from a CEnvP-SC certified practitioner that construction activities will not represent an unacceptable risk to human or ecological receptors.
- A plan to manage identified site contamination and any associated risks to all human and ecological receptors arising from the proposed long-term use/operation of the site, that includes:
  - a description of any mitigation measures to be implemented before use commences; and
  - a statement from a CEnvP-SC certified practitioner that the site will be suitable for its intended use.

For legislative and policy requirements refer to *National Environment Protection (Assessment of Site Contamination) Measure 1999*[25] and the *Environmental Management and Pollution Control (Waste Management) Regulations 2020*.[26]

6.5 Key issue 5: Dangerous goods and environmentally hazardous materials

Discuss the storage, transport and use of dangerous goods and environmentally hazardous materials, and potential associated impacts on the environment. Consider any substance or mixture of substances of a nature or held in quantities that present a reasonably foreseeable risk of causing serious or material environmental harm if released to the environment, including hydrogen, carbon dioxide, methanol, electrolytes, catalysts, fuels, oils, waste, and other chemicals.

- Describe the nature, quantity and storage location of all environmentally hazardous materials including Dangerous Goods (as defined in the Australian Code for the Transport of Dangerous Goods by Road and Rail)[27] that will be used during the construction and operation of the proposal.

[25] See https://www.legislation.gov.au/F2008B00713/latest/text

[26] See https://epa.tas.gov.au/about-the-epa/policy-legislation-cooperative-arrangements/acts-regulations/empca/waste-management-regulations

[27] See https://www.ntc.gov.au/codes-and-guidelines/australian-dangerous-goods-code

- Provide a map showing:
    - The location of temporary and permanent storage areas for hydrogen, carbon dioxide, methanol, electrolytes, catalysts, fuels, oils, and other dangerous goods or chemicals.
    - The location of pipelines used to convey these materials within the activity area.
- Detail the measures (such as leak detection mechanisms, online monitoring, venting procedures, bunded areas, spill trays, or others) to be adopted to prevent or control any accidental releases of dangerous goods and environmentally hazardous materials, including from locations where they are stored, conveyed in pipelines, or used in production.
- Provide contingency plans for when control measures fail, equipment breaks down or accidental releases to the environment otherwise occur. Include detail on proposed emergency and clean-up measures and notification procedures. Identify any safety management requirements for the protection of human health and safety where incidents may affect the community.
- Identify any safety management measures required to protect human health and safety beyond the boundary of the activity area.

6.6 Biodiversity and natural values

Discuss impacts of the proposal on biodiversity and nature conservation values (terrestrial, marine and aquatic). Include details on how information has been collected or generated where applicable.

6.6.1 Existing environment

- Specify and map known records of fauna, flora, vegetation communities and habitat, including aquatic as relevant, including reference to:
    - threatened species, communities and habitats, including those listed under the relevant Schedules of the Australian Government EPBC Act and the Tasmanian *Threatened Species Protection Act 1995* (TSPA)[28] and Tasmanian *Nature Conservation Act 2002* (NCA).[29]
- Specify and map known records of weeds, pests and diseases.
- Provide the results of terrestrial, marine and (as relevant) aquatic natural values surveys undertaken by a suitably qualified person(s), in accordance with relevant survey guidelines.[30]
- Identify areas or habitats of conservation significance, including designated conservation areas, areas relating to the requirements of international treaties (e.g. Japan-Australia and China-Australia Migratory Bird Agreements (JAMBA/CAMBA) and Ramsar (wetlands) Convention), or wetlands listed in Directory of Important Wetlands in Australia.[31]
- Identify any freshwater ecosystems of high conservation management priority using the Conservation of Freshwater Ecosystem Values (CFEV) database,[32] including values in the vicinity of the proposal. The specific CFEV information should be Conservation Management Priority Potential.
- Specify and map known sites of geoconservation significance or natural processes (such as fluvial or coastal features), including sites of geoconservation significance listed on the Tasmanian Geoconservation Database.
- Describe natural processes of particular importance for the maintenance of the existing environment (e.g. fire, flooding, etc).

[28] See https://www.legislation.tas.gov.au/view/html/inforce/current/act-1995-083
[29] See https://www.legislation.tas.gov.au/view/html/inforce/current/act-2002-063
[30] See https://nre.tas.gov.au/conservation/development-planning-conservation-assessment/survey-guidelines-for-development-assessments
[31] See https://www.environment.gov.au/water/wetlands/australian-wetlands-database/directory-important-wetlands.
[32] See https://nre.tas.gov.au/water/water-monitoring-and-assessment/cfev-program

6.6.2 Assessment

Describe potential impacts of both construction and operation of the proposal on:

- Flora, vegetation communities and habitat, with particular reference to threatened species, communities and habitats listed under the relevant Schedules of the EPBC Act, TSPA and NCA, including consideration of:
    - Direct impacts, such as disturbance, clearing, excavation or burning;
    - Indirect impacts, such as changes in hydrogeological flows, fragmentation of populations or introduction of weeds, pests or diseases;
    - Cumulative impacts with other human activity.
- Fauna, with particular reference to threatened species, communities and habitats listed under the relevant Schedules of the EPBC Act, TSPA and NCA, including consideration of:
    - Direct impacts, such as collision risks from both vehicles[33] and infrastructure, clearing or other physical changes to breeding and hunting or foraging habitat;
    - Indirect impacts, such as changes in disturbances to nesting, impacts of noise and light, changes in prey or food availability or introduction of pests or diseases;
    - Cumulative impacts with other human activity.
- Existing conservation reserves that may be affected by the proposal, with reference to the management objectives of the reserve(s) and the reserve management plan(s) (if any).
- Other species, sites or areas of special conservation significance, including areas of wilderness or scientific value.
- The reserve system identified as part of the Tasmanian RFA, including high-quality wilderness areas; maintenance of forest communities under the Permanent Native Forest Estate Policy;[34] wildlife habitat strips under the Tasmanian Forest Practices Code 2015;[35] and non-forest communities.
- Sites of geoconservation significance or natural processes (such as fluvial or coastal features), including sites of geoconservation significance listed on the Tasmanian Geoconservation Database.

6.6.3 Avoidance and mitigation measures

- Describe management measures that will be implemented to avoid adverse impacts to threatened fauna, flora and vegetation communities and other natural values, including management of weeds, pests and diseases.
- Include any roadkill management measures as required in the *Survey Guidelines and Management Advice for Development Proposals that may impact on the Tasmanian Devil (Sarcophilus harrisii)*.[33]
- Where impacts cannot be avoided, present proposed measures to minimise and mitigate adverse impacts on biodiversity and nature conservation values.
- Identify potential residual impacts[36].
- Discuss any offset[37] proposed for residual impacts, including likely benefits from such an offset.

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[33] An increase in night-time (between one hour before sunset and one hour after sunrise as defined by the Bureau of Meteorology) traffic on internal and nearby roads of more than 10% combined with a high abundance of Tasmanian Devils and/or Tasmanian Devil roadkill records in the Natural Values Atlas is considered significant regarding likely impacts on the Tasmanian Devil. See the *Survey Guidelines and Management Advice for Development Proposals that may impact on the Tasmanian Devil* (*Sarcophilus harrisii*) at https://nre.tas.gov.au/Documents/Devil%20Survey%20Guidelines%20and%20Advice.pdf

[34] See https://www.stategrowth.tas.gov.au/about/divisions/Renewables,_Climate_and_Future_Industries_Tasmania_and_resources/forestry/legislative_and_policy_framework/permanent_native_forest_estate_policy

[35] See https://fpa.tas.gov.au/

[36] As defined in Appendix A of these Guidelines.

[37] See Appendix A of these Guidelines under Residual Impacts.

- Discuss rehabilitation of disturbed areas following the completion of construction activities and cessation of the activity, including any proposed seed collection and progressive rehabilitation program.

6.7 Groundwater

Discuss potential impacts of the proposal on groundwater (quality and quantity). Consider construction and operation phases and include methodology details where appropriate.

6.7.1 Existing environment

- Describe and illustrate (maps/plans where applicable) the local hydrogeology and associated PEVs that might be potentially affected by all phases (construction, operation, decommissioning etc.) and aspects of the proposal, including:
    - geology, soils, aquifers and aquitards;
    - groundwater levels and flow direction;
    - water quality, including interaction with saline water;
    - interaction with surface water, including recharge and discharge characteristics;
    - connectivity between aquifers;
    - groundwater dependant ecosystems; and
    - groundwater bore uses. Refer to NRE's Groundwater Information Access Portal where relevant.[38]
- Provide details of any baseline groundwater quality monitoring undertaken.

6.7.2 Assessment

- Discuss the potential impact of the proposal on groundwater (quality and quantity) with reference to groundwater assessments undertaken where appropriate.
- Provide information about any risks to groundwater quality associated with hazards and emergency management e.g., firefighting, hazardous materials accidental spills, storage tanks overflow and pipeline failures, breakdown, etc.
- Provide a hydrogeological risk assessment (HRA), including a conceptual hydrogeological model (CHM) showing contamination sources, pathways and receptors if the proposal has the potential to contaminate groundwater or if any interaction with historical contamination is likely to occur. Information on the development of HRA and CHM is available at EPA Victoria Hydrogeological assessment (groundwater quality) guidelines.[39]

6.7.3 Avoidance and mitigation measures

- Describe the measures proposed to avoid or mitigate potential adverse impacts to groundwater.
- Include a map showing the location of any proposed groundwater bores.
- Provide details of a groundwater monitoring plan to monitor the impact from the activity.
- Justify any potential impact to groundwater in accordance with the principles outlined in the *State Policy on Water Quality Management 1997*[40] and with reference to likely groundwater community values, associated guideline values and guideline values for receiving surface waters.

For information about the water quality management framework and evaluation criteria in Tasmania refer to *Technical Guidance for Water Quality Objectives (WQOs) Setting for Tasmania, August 2020*.[41]

[38] See https://wrt.tas.gov.au/groundwater-info/
[39] See https://www.epa.vic.gov.au/publications?q=groundwater
[40] See https://epa.tas.gov.au/about-the-epa/policy-legislation-cooperative-arrangements/statutory-policies/state-policies-and-environment-protection-policies/state-policy-on-water-quality-management-1997
[41] See https://epa.tas.gov.au/Documents/Technical%20Guidance%20for%20Water%20Quality%20Objectives%20(WQOs)%20Setting%20for%20Tasmania.pdf

6.8 Waste management

Discuss the impacts of waste generated by the proposal, during construction and operation.

6.8.1 Existing environment

- Describe the existing environment in relation to the impact of waste generated by the activity.

6.8.2 Assessment

- Describe the source, nature and quantities of all general wastes likely to be generated by the proposal (liquid, gaseous, solid or other), including general refuse and by-products from the various stages of the process.
- Describe the methods and facilities proposed to collect, store, reuse, treat or dispose of each general waste stream. Describe collection or other maintenance requirements where relevant.
- Describe the source, nature, quantity, and method of treatment, storage and disposal for each controlled waste arising from the proposal.[42] Describe collection or other maintenance requirements where relevant.

6.8.3 Avoidance and mitigation measures

- Demonstrate that any waste management measures follow the following hierarchy of waste management, arranged in decreasing order of desirability:
    - Avoidance,
    - Reuse,
    - Treatment/stabilisation for reuse,
    - Recycling,
    - Energy recovery,
    - Repository storage (for future treatment/recovery),
    - Treatment/stabilisation for disposal,
    - Disposal/permanent containment.

For information on the landfill levy and reporting requirements for landfills or resource recovery facilities under the *Waste and Resource Recovery Act 2022* and Regulations, refer to Waste and Resource Recovery, Department of Natural Resources and Environment Tasmania website..[43]

6.9 Potential acid sulfate soils (PASS)/Acid sulfate soils (ASS)

Identify potential acid sulfate soils (PASS)/acid sulfate soils (ASS) which may be disturbed by the proposal and/or any associated infrastructure.

6.9.1 Existing Environment

- Provide an analysis as to whether PASS/ASS may be present and potentially disturbed by the proposal, including as a minimum, a desktop assessment of the potential for disturbance of acid sulphate soils. The desktop assessment should consider:
    - soil profiles, including any test pit and bore log data;
    - geology, hydrogeology, and geomorphology;
    - detail of development footprint, proposed construction methodology and the extent of disturbance;
    - the time period over which sub surface materials are likely to be exposed;
    - any proposed groundwater extraction and associated drawdown; and
    - initial geochemical testing in areas where PASS/ASS may be disturbed.

[42] Controlled waste is defined in EMPCA and associated regulations. A non-exhaustive listing of categories of controlled waste can be found at https://epa.tas.gov.au/business-industry/regulation/waste-management/controlled-waste

[43] See https://nre.tas.gov.au/environment/waste-and-resource-recovery

6.9.2 Assessment

- Outline the potential volumes of acid sulfate soil that may require management prior to disturbance and how results will be used to make decisions regarding construction management and PASS/ASS impact mitigation.

6.9.3 Avoidance and mitigation measures

- Determine whether an acid sulfate soil management plan consistent with the Tasmanian ASS Management Guidelines[44] and the Commonwealth ASS Guidelines[45] is required. If significant disturbance of PASS/ASS is likely to occur, provide an acid sulfate soil management plan for the proposal. The acid sulfate soil management plan should contain as a minimum:
    - Identification of receptors and the risk to receptors from PASS/ASS disturbance with consideration of all proposal stages (e.g., from scouring of sediment due to altered flow patterns);
    - Discussion of potential consequences of disturbance (i.e., potential impacts/risks), and evaluation of their significance, including consideration of water quality, natural values, and karst systems; and
    - Proposed management and mitigation measures for minimising impacts of PASS/ASS during construction and long-term use/operation, including storage, monitoring, and disposal as relevant, including consideration of the following:
        - The management of excavated spoil which may contain PASS/ASS;
        - The management of intersected groundwater and groundwater ingress and associated groundwater drawdown where PASS/ASS may be present;
        - Where treatment of excavated PASS/ASS is proposed at a specialised facility, detail potential locations, the size of the facility, pad design, and treated water management and discharge criteria; and
        - Detail disposal options for excavated and treated PASS/ASS including any onsite or off-site disposal locations and the disposal method.

6.10 Marine and coastal

If not addressed in other sections, discuss impacts of the proposal on marine and coastal areas.

- Provide measures to avoid and mitigate any possible adverse impacts.
- Assess the overall residual impacts on marine and coastal areas following implementation of the proposed avoidance and mitigation measures.
- Use cross-references to relevant sections dealing with conservation values (marine flora and fauna, geoconservation) and coastal impacts where relevant.
- Describe mitigation or contingency measures for any potential marine pollutant spills originating from the activity.
- Demonstrate that the proposal is consistent with the objectives and requirements of all relevant marine and coastal policies and legislation, including the *Living Marine Resources Management Act 1995*[46], *State Policy on Water Quality Management 1997*[47] and the *Tasmanian State Coastal Policy 1996*[48].

[44] See https://nre.tas.gov.au/agriculture/land-management-and-soils/soil-management/acid-sulfate-soils
[45] See https://www.waterquality.gov.au/issues/acid-sulfate-soils
[46] See https://www.legislation.tas.gov.au/view/html/inforce/current/act-1995-025
[47] See https://epa.tas.gov.au/about-the-epa/policy-legislation-cooperative-arrangements/statutory-policies/state-policies-and-environment-protection-policies/state-policy-on-water-quality-management-1997
[48] See https://www.dpac.tas.gov.au/__data/assets/pdf_file/0010/11521/State_Coastal_Policy_1996.pdf

6.11 Greenhouse gas emissions, ozone depleting substances and climate change

Discuss potential impacts of the proposal in relation to greenhouse gases, ozone-depleting substances and climate change. The discussion should be proportionate to the significance of the potential impacts.

- Describe the direct and indirect effects of the proposal on greenhouse gas production and ozone-depleting substances, as well as any associated benefits of the proposal.
- Provide an inventory of projected scope 1, scope 2 and total greenhouse gas emissions,[49] energy production, and energy consumption for a year of operation. Describe the methods used to develop the inventory[50]. Discuss potential annual variation that may occur.
- Demonstrate that the development will use cost-effective, best practice measures to minimise future greenhouse gas emissions.
- Detail measures proposed to minimise emissions and describe the anticipated effectiveness of these measures. Where less emissions-intensive options are not adopted, provide sufficient justification and/or mechanisms to offset greenhouse gas emissions.
- Estimate 'whole of life' greenhouse gas emissions for the proposed development. Include details of the methodology used.
- Describe the potential impacts of climate change upon the proposal. For example, it may be appropriate to plan for more intense storm events, more severe fire weather, and/or long-term sea level rise.
- Discuss impacts of the proposal in terms of the evolving national response to climate change and greenhouse gas emissions and the targets set in the *Climate Change (State Action) Act 2008* (Tas),[51] *Tasmania's Climate Change Action Plan 2023-25*[52] and the *Climate Change Act 2022* (Commonwealth).[53]

Note: Proponents must determine whether they are required to report to the Commonwealth under the *National Greenhouse and Energy Reporting Act 2007*.[54]

6.12 Socio-economic issues

Discuss the social and economic impacts of the proposal. This discussion may:

- Include an estimate of total capital investment for the proposal and where that capital will be expended (particularly in relation to the source of large capital items of processing equipment).
- Provide a summary of operational expenditures and revenues.
- Describe impacts on local and state labour markets for both the construction and operational phases of the proposal. The number and nature of direct and indirect jobs arising from the proposal must be detailed. Skills and training opportunities should also be discussed.
- Describe impacts on upstream/downstream industries, both locally and for the State.
- Detail the extent to which raw materials, equipment, goods and services will be sourced locally.

[49] More information on categorising emissions can be found at https://www.cleanenergyregulator.gov.au/NGER/About-the-National-Greenhouse-and-Energy-Reporting-scheme/Greenhouse-gases-and-energy

[50] Calculators are available on the Australian Government Clean Energy Regulator website. See http://www.cleanenergyregulator.gov.au/NGER/Forms-and-resources/Calculators#Emissions-and-Energy-Threshold-Calculator-202021-and-user-guide

[51] See https://www.legislation.tas.gov.au/view/html/inforce/current/act-2008-036

[52] See https://recfit.tas.gov.au/climate/climate_change_action_plan

[53] See https://www.legislation.gov.au/Details/C2022A00037

[54] See https://www.legislation.gov.au/Details/C2007A00175

- Provide a qualitative assessment of impacts on local social amenity and community infrastructure, including recreational, cultural, health and sporting facilities and services. Any proposals to enhance or provide additional community services or facilities should be described.
- Describe community demographic impacts (changes to cultural background, occupation and incomes).
- Describe impacts on land values, and demand for land and housing.
- Describe impacts on the local, regional, state and national economies.
- Detail any publicly funded subsidies or services to be relied upon for the construction or operation of the proposal.
- Detail any impacts on local, state and federal government rate, taxation and royalty revenues.

The extent to which socio-economic considerations need to be described depends on the nature and extent of any negative impacts or risks to the environment from the proposal. Modest proposals with relatively low-level and localised environmental impacts or risks may be adequately supported by details of intended capital expenditure, operational expenditures, revenues and employment (distinguishing between direct and indirect employment) and a qualitative discussion of other socio-economic aspects of particular relevance.

Proposals with higher-level or broader-scale environmental impacts need more comprehensive analysis of economic and social benefits, to allow the Board to evaluate both the benefits and adverse impacts of the proposal. Methods used to model social and economic impacts should be described where relevant. A description of how the local community has been consulted to determine its needs and aspirations in relation to the proposal should also be included. A social impact assessment and/or economic impact assessment may be required.

6.13 Fire risk

Discuss the potential fire risk associated with the proposal, including:

- Consideration of fire within the site, fire escaping from the site and the impact of wildfire originating outside the development and the environmental impacts that could result from such an event.
- The objectives and management principles to be adopted to prevent and respond to potential fire events.
- Where a fire response plan is appropriate, it should be fully integrated with other relevant documents, such as a Tasmania Fire Service Local Area Fire Management Plan, a Sustainable Timber Tasmania Fire Management Plan and a Parks and Wildlife Service Fire Action Plan for relevant districts.

6.14 Infrastructure and off-site ancillary facilities

Discuss potential environmental impacts of the proposal on any significant off-site infrastructure or facilities (e.g., rail infrastructure), including increased use of existing infrastructure, such as roads, ports and quarries. Identify measures proposed to avoid and mitigate any possible adverse impacts. Assess the likely overall impacts after implementation of the proposed avoidance and mitigation measures.

Identify roads and other infrastructure to be used by vehicles for the proposal (during both construction and operation). Potential environmental impacts associated with construction and use of such infrastructure should be assessed.

Describe any forestry related operations or facilities which may be affected by the diversion of biomass waste from plantations and any environmental impacts which may be associated with this aspect of the activity.

Cross-reference to other sections where relevant.

6.15 Public Health

The Director of Public Health has determined that in accordance with section 74(5) of EMPCA, the environmental impact assessment for the proposal must include an assessment of the impact of the proposed activity on public health, i.e., a health impact assessment (HIA). A particular focus of the HIA should be airborne emissions associated with the proposed development.

Specifically, the HIA is required to assess the risks to population groups through:

- Identifying the nature and extent of airborne emissions, both being released from the activity and migrating to the surrounding area, including ground level concentrations of pollutants.
- Identifying potential routes of human exposure.
- Assessing the potential risks to human health that may be associated with exposure to emissions in the surrounding environment.
- Advising on what mitigation measures may be required to manage health risks.

The HIA should be done in accordance with the principles established in the documents:

- *enHealth (2012) Environmental Health Risk Assessment, Guidelines for assessing human health risks from environmental hazards*[55]
- *enHealth (2017) Health Impact Assessment Guidelines*[56]

[55] Available at https://www.health.gov.au/sites/default/files/documents/2022/07/enhealth-guidance-guidelines-for-assessing-human-health-risks-from-environmental-hazards.pdf
[56] Available at https://www.health.gov.au/sites/default/files/documents/2022/07/enhealth-guidance-health-impact-assessment-guidelines.pdf

7. Monitoring and review

Outline any proposed monitoring, review and reporting programs for the proposal. Include a table of proposed monitoring locations, parameters and frequencies, and a map showing the location of all monitoring sites.

Monitoring, review and reporting programs should be designed to:

- Assess compliance with the proposed management measures;
- Assess compliance with emission standards and other identified performance requirements;
- Assess the effectiveness of the performance requirements and environmental safeguards in achieving environmental quality objectives; and
- Assess the extent to which the potential impacts described in the EIS have eventuated.

8. Decommissioning and rehabilitation

Describe any proposed rehabilitation of disturbed areas that will follow construction activities or occur upon cessation of the activity. Outline a preliminary Decommissioning and Rehabilitation Plan or Closure Plan for the proposal. If applicable, describe the stages of site decommissioning and rehabilitation.

9. Management measures table

Provide a summary table listing all management measures detailed throughout the EIS. Each measure must include a reference number, must be an unambiguous statement of intent, must specify when it is to be implemented (including whether it is to be implemented during construction, operation, maintenance or other phases) and must include a cross-reference to where the measure is described in the EIS.

10. Conclusion

Summarise the proposal and present a balanced overview of its net impacts. Draw together the critical environmental, social and economic impacts. Evaluate the extent to which negative impacts can be avoided, mitigated, remediated or compensated and positive impacts promoted and sustained.

Describe how the proposal meets and furthers the objectives of relevant legislation, policies, plans and strategies. Itemise the RMPS and EMPCS objectives and comment on how the proposal addresses each of the objectives.

11. References

Provide details of authorities consulted, reference documents and other information sources, using a consistent referencing style.

12. Appendices

Detailed technical information which supports the EIS should be included as appendices. The salient features of the appendices should be included in the main body of the EIS. Technical content of appendices must be consistent with information presented in the EIS itself, unless inconsistencies are carefully explained. The EIS may not be accepted where unexplained inconsistencies exist.

Appendix A: General principles for assessing environmental impacts

This Appendix summarises general principles for assessing environmental impacts in EIS documents prepared in accordance with EMPCA.

General approach

When assessing environmental impacts in an EIS, the proponent should:

- Present information in a clear, well-structured manner appropriate to the audience of the EIS.
- Avoid duplication.
- Base assessments and evaluations on scientifically supportable, referenced data.
- Describe methodologies used and provide supporting research and information wherever relevant.
- State any scientific assumptions, simplifications, or judgements, and define uncertainties.
- Describe impacts and their mitigation to a level of detail that is proportionate to potential consequences and to what extent they can be controlled.

Impact assessment

Impact assessment involves the identification and characterization of the effects of a proposal. When undertaking impact assessment, the proponent should:

- Explain methodologies used to identify and characterise impacts.
- Clearly state the impacts that are expected to result from the development in terms of the aspect of the proposal involved and the environmental receptor affected.
- Characterise those impacts in terms of:
    - The magnitude of impacts, quantified where possible, including spatial extent and timeframe;
    - The vulnerability of the affected environmental receptors to harm or nuisance;
    - Sources of the impacts and pathways by which the impact may occur;
    - Probability of occurrence (if not 100%);
    - The range of scenarios in which the impact may occur, including plausible worst-case consequences;
    - Reversibility of impacts;
    - Any predicted indirect effects; and
    - Any aspects of other proposals examined cumulatively.
- With reference to the project description and alternatives described in the EIS, state what measures to avoid or reduce impacts have been considered as part of this assessment, and which of these have been incorporated into the proposal.

Impact evaluation

Impact evaluation is the determination of the significance of impacts. Proponents should support conclusions about the significance of impacts using a structured argument that clearly describes the magnitude of the impact, the sensitivity of the affected receptors, and how they relate.

Mitigation and monitoring

Mitigation (planning and design considerations, pollution control technology and management practices) and monitoring are measures additional to those considered during the impact assessment to reduce the impact of the proposal. In presenting mitigation and monitoring the proponent should:

- Describe the measures proposed;
- Describe how mitigation measures function to avoid or reduce the impacts;

- Explain how measures accord with existing guidance, accepted practice or best practice environmental management as defined in EMPCA;
- Discuss contingencies for the breakdown/malfunction of equipment or processes;
- Describe any anticipated impacts resulting from the mitigation actions and how these will be addressed; and
- Identify where control measures are to be carried out, operated and/or maintained by a third party, and how this will be achieved.

Residual impacts

Residual impacts are those that remain after all proposed avoidance and mitigation measures have been taken into account. When assessing residual impacts, the proponent should:

- Revisit the first evaluation of impact, taking into account the effects of the measures to reduce the magnitude of the impacts and present a revised statement of significance, and
- Where required, identify appropriate actions that will offset impacts , based on the relevant guidelines.[57] Offset actions must present a measurable, relevant and ongoing net benefit which would not otherwise have been realised, and which is not accounted for by any other project or proposal.

[57] Guidelines include Appendix 4: General Offset Principles from the Guidelines for Natural Values Surveys – Terrestrial Development Proposals, see https://nre.tas.gov.au/Documents/Guidelines%20for%20Natural%20Values%20Surveys%20related%20to%20Development%20Proposals.pdf and Offset Guidelines for Impacts to Threatened Eagles from Wind Farm Developments, see https://nre.tas.gov.au/conservation/development-planning-conservation-assessment/offset-guidelines-for-impacts-to-threatened-eagles-from-wind-farm-developments

Appendix B: Other issues and agency contacts

In addition to a permit under LUPAA and EMPCA, there may be other legal requirements to allow your proposal to proceed, including other permits, licences or landowner consent. You may also need to contact other Government agencies to obtain information for the purpose of assessment.

Your proposal may have been referred to other agencies by EPA. If assessments or approvals outside of the Board's responsibilities are required, you should engage with the respective agency to progress them. The following list identifies some of the agencies you may need to contact:

Conservation Assessments
Department of Natural Resources and Environment Tasmania
Telephone: (03) 6165 4396
Email: conservationassessments@nre.tas.gov.au
Website: www.nre.tas.gov.au/conservation

Purpose: Natural values including flora, fauna, and geoconservation values, or permits to deal with threatened species.

Heritage Tasmania
Department of Natural Resources and Environment Tasmania
Telephone: (03) 6165 3700
Email: enquiries@heritage.tas.gov.au
Website: www.heritage.tas.gov.au

Purpose: Historic cultural heritage, including State-level site listings, impacts and permits as required under the *Historic Cultural Heritage Act 1995*. Where works are proposed in or near a heritage place entered on the Tasmanian Heritage Register or likely to be of heritage significance to the whole of Tasmania, and a permit is required under the *Land Use Planning and Approvals Act 1993*, the proposal will be referred to Heritage Tasmania by the planning authority. There may also be additional sites listed under local planning schemes, impacts on which are assessed by the relevant planning authority.

Aboriginal Heritage Tasmania
Department of Natural Resources and Environment Tasmania
Telephone: 1300 487 045
Email: aboriginal@heritage.tas.gov.au
Website: www.aboriginalheritage.tas.gov.au

Purpose: Aboriginal heritage, including desktop assessment, artefact survey requirements, permits and advice.

Parks and Wildlife – Property Services
Department of Natural Resources and Environment Tasmania
Telephone: (03) 6169 9015
Email: PropertyServices@parks.tas.gov.au
Website: www.parks.tas.gov.au

Purpose: Impacts on parks and reserves managed by Parks and Wildlife, or Crown land.

Agriculture and Water
Department of Natural Resources and Environment Tasmania
Telephone: 1300 368 550
Email: Water.Enquiries@nre.tas.gov.au
Website: www.nre.tas.gov.au/water

Purpose: Water licences and works impacting natural waterway flow (e.g. dams or fords).

Transport Services
Department of State Growth
Telephone: (03) 6166 3369
Email: permits@stategrowth.tas.gov.au
Website: www.transport.tas.gov.au

Purpose: State roads, including where any proposal requires works on or access from a State-managed road.

Mineral Resources Tasmania
Department of State Growth
Telephone: (03) 6165 4800
Email: info@mrt.tas.gov.au
Website: www.mrt.tas.gov.au

Purpose: Mining Leases.

Appendix C: Example of project description summary table

Location and Planning Context

Location	State the address of the site, and CTs and PIDs (as applicable) for all titles on which the activity will take place.
Land zoning	Describe the land zoning of the site and surrounds. If rezoning of the site is required, provide details.
Land tenure	Provide the land tenure of the proposal.
Use Class and Permissibility	If a permit is required under LUPAA, provide the Use Class of the proposed activity and Permissibility of the activity with reference to the relevant Planning Scheme.

For extractive industries only, delete if not required

Mining lease	
Lease area	
Bond	State the amount of any bond required by MRT (for extractive industries)

Existing site

Land Use	Describe the existing land use of the site and surrounds.
Topography	Describe the topography of the site and surrounds.
Geology	Describe the geology of the site, including the likely presence of potentially acid forming (PAF) material. Describe any geoconservation values on or near the site, e.g. karst.
Soils	Describe the potential to encounter acid sulphate soils and or contaminated soil (from past activities, as relevant).
Hydrology	Describe groundwater and surface drainage (including waterways, lakes, wetlands and coastal areas) Describe the waterbodies and aquatic values on site and in the surrounding area. State the distance from the activity to the nearest waterbody.
Natural Values	List the threatened fauna, flora and vegetation communities, including potential habitat for any such species, that are known to occur on or near the site (use the Natural Values Atlas, TASVEG 4.0 or results of any relevant survey). State the vegetation types on and near the site.
Potential Hazards	Provide a brief assessment of the vulnerability of the site to natural hazards (e.g. flooding, seismic activity, fire, landslips or strong winds) or climate change.

Local Region

Climate	State the annual rainfall and predominant wind direction.
Surrounding land zoning, tenure and uses	Describe the surrounding land use, distance to the nearest residences in other ownership, note any conservation reserves or recreation areas in the area, and provide a coastal description if the coast is nearby.
Species, sites or areas of conservation significance	Provide information on species, sites or areas of landscape, aesthetic, wilderness, scientific or otherwise special conservation significance which may be affected by the proposal. Relevant information resources include the LIST (*www.thelist.tas.gov.au*) and the Natural Values Atlas (*https://www.naturalvaluesatlas.tas.gov.au*).

Proposed Infrastructure

Major equipment	List all existing and proposed plant, machinery, or other major equipment (distinguish between existing and proposed).
Other infrastructure	List the existing and proposed buildings, structures, access roads, internal haul roads (can refer to the Site Plan) (distinguish between existing and proposed).

Inputs

Water	Include quantities and characteristics.
Energy	Include quantities and characteristics.
Other raw materials	Include quantities and characteristics.

Wastes and Emissions

Liquid	Include quantities and characteristics.
Atmospheric	Include quantities and characteristics.
Solid	Include quantities and characteristics.
Controlled wastes	Include quantities and characteristics.
Noise	Include major sources of noise emissions.
Greenhouse gases	Provide a brief description of changes to greenhouse gas emissions that will be caused by the proposal.

Construction, Commissioning and Operations

Proposal timetable	Provide a brief timetable outlining the proposed timeframe(s) for construction, commissioning and commencement of operations. Include significant milestones if applicable.
Construction hours	e.g. xx-xx Monday to Friday xx-xx Saturday
Operating hours (ongoing)	e.g. xx-xx Monday to Friday xx-xx Saturday

Other Key Characteristics

Other	Describe any additional characteristics relevant to the proposal/environment that are likely to provide important context as part of this summary.

ENVIRONMENT PROTECTION AUTHORITY