

**Guideline**  
Greenhouse gas emissions  
*Environmental Protection Act 1994*

*This guideline provides information to support applications for activities that involve greenhouse gas emissions.*



**Queensland**  
Government

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## 1 Purpose

This guideline clarifies existing application requirements under the *Environmental Protection Act 1994* (EP Act) and provides information about how to meet these requirements in relation to greenhouse gas (GHG) emissions. **It does not include any new regulatory provisions.**

This guideline sets out the minimum expectations for GHG emissions information to be provided with applications for new environmental authorities (EAs) and applications to amend existing EAs. It also supports the administering authority<sup>1</sup> in considering GHG emission information when making decisions on new or amended EAs under the EP Act.

This guideline supports rigorous, defensible, and transparent decision making in relation to GHG emissions.

This guideline applies to EAs for resource and prescribed environmentally relevant activities (ERAs) and may inform the Terms of Reference for an EIS. It does not apply to commercial cropping and horticulture in the Great Barrier Reef catchment (ERA 13A)<sup>2</sup>.

Where the administration of the activity is devolved or delegated to another agency, decision-makers are encouraged to have regard to this guideline. This guideline may also be considered by the Coordinator General when evaluating environmental impact statements (EIS's) for coordinated projects.

For details on all the assessment considerations required to decide an EA application, refer to the guideline: *Assessment requirements for an environmental authority for an environmentally relevant activity* (ESR/2015/1725<sup>3</sup>).

The Department of Environment, Science and Innovation will continue to explore options to support applicants in preparing GHG information for EA applications.

### 1.1 Outline

Section 2 provides context on why consideration of GHG emissions is important, explains what GHGs are and how they are measured (as Scope 1, Scope 2, and Scope 3 emissions) and provides national context through an explanation of National Greenhouse and Energy Reporting and the Commonwealth Safeguard Mechanism.

Section 3 outlines application requirements for different application types **for new and amended EAs** as required under the EP Act, further information may be required for EIS projects. This includes:

- Details of GHG emissions likely to be generated by the activities of the project.
- The threshold for determining the application requirements required for low or medium to high emitting applications.
- Details of the management practices proposed to be implemented to prevent or minimise adverse impacts including the GHG abatement hierarchy and requirements for a GHG abatement plan (for

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<sup>1</sup> The administering authority is the relevant local government for ERAs devolved under s. 133 of the Environmental Protection Regulation 2019, DAF for ERAs 2, 3 and 4 or the Department of Environment, Science and Innovation (the department) for all other ERAs. See the information sheets *Environmentally relevant activities devolved to local government* (ESR/2015/1662) and *Environmentally relevant activities delegated to the Department of Agriculture and Fisheries* (ESR/2015/1671) for further information (available at [www.qld.gov.au](http://www.qld.gov.au) using the publication number as a search term).

<sup>2</sup> According to section 125(5) of the EP Act, applications for ERA 13A need only include details of environmental values, emissions, impacts and management practices to the extent the matters relate to fine sediment, or dissolved inorganic nitrogen, entering the water of the Great Barrier Reef or Great Barrier Reef catchment waters.

<sup>3</sup> Available on the Queensland Government website using the document ID (ESR/2015/1725) as a search term.

medium to high emitters).

- A risk assessment that outlines the scale of expected GHG emissions from the activity and how they are expected to contribute to climate change impacts on Queensland's environmental values.

Section 4 describes how the GHG emissions information will be used by the administering authority. It outlines:

- the EA assessment process including the regulatory requirements that must be complied with and the standard criteria that must be considered.
- considerations under the *Human Rights Act 2019* (Human Rights Act).
- EA conditioning and compliance.

A glossary of terms is provided in Section 5 and a list of acronyms is provided in Section 6.

Appendix A outlines the requirements of a GHG abatement plan in more detail, Appendix B provides resources for estimating GHG emissions, and Appendix C provides examples of GHG information required for different application types.

## 2 Background

This section provides context on why consideration of GHG emissions is important, explains what GHGs are and how they are measured and provides national context.

The Queensland Government has committed to action on climate change through the Queensland Climate Action Plan, including setting legislated GHG emission reduction targets. All sectors of the economy are expected to contribute and there are a range of plans and strategies in place to support emissions reduction across different sectors.

It is recognised that many companies may already have net zero plans as part of their environmental, social, and corporate governance (ESG). Many companies may also need to comply with requirements relating to climate-related financial disclosure.

Factors relating to climate change are particularly relevant to applications for an EA where the ERA will significantly contribute to GHG emissions. In this regard, consideration of the Human Rights Act is also relevant when making any EA assessment decisions.

The level of detail required to support an application will depend on the type of ERA proposed and its likely GHG emissions. The information required will be proportionate to the expected environmental impact of the activity. Applicants are encouraged to request a pre-lodgement meeting with the administering authority to discuss specific application requirements for the proposed activity.

### 2050 zero net emissions target for Queensland

The Queensland Government has set a legislated target of zero net emissions by 2050 with interim emissions reduction targets of 30% by 2030 and 75% by 2035 from 2005 levels. As per the Intergovernmental Panel on Climate Change (IPCC), reaching zero "net" emissions means ensuring emissions released to the atmosphere are balanced by the emissions being removed over a specific period.

### 2.1 Greenhouse gas emissions

GHGs include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), sulphur (or sulfur) hexafluoride (SF<sub>6</sub>), hydro fluorocarbons (HFCs) and perfluorocarbons (PFCs). GHGs are often expressed as a standard unit called a 'carbon dioxide equivalent' or CO<sub>2</sub>-e, as the scale and duration of impact arising from individual emissions vary.

GHG emissions can be further categorised into 'Scopes' to delineate between sources and reporting responsibilities. To maintain consistency with the National Greenhouse and Energy Reporting (NGER) scheme<sup>4</sup>, this guideline adopts the terms Scope 1, Scope 2, and Scope 3 emissions (see below).

**Scope 1:** GHG emissions released to the atmosphere as a direct result of an activity. This includes direct emissions and fugitive emissions.

*Note:* Emissions generated by livestock are not considered under this guideline. Queensland has a Queensland Emissions Agriculture Roadmap 2022-2032<sup>5</sup> in place designed to help reduce emissions from agricultural sources.

#### **Fugitive methane emissions**

Fugitive methane emissions are losses, leaks, and other releases of methane to the atmosphere that are most commonly associated with industries producing natural gas, oil, and coal (CSIRO). Methane is the second most abundant GHG in the atmosphere after carbon dioxide (US EPA), contributing to around 30% of global warming (IEA). While methane has a relatively short lifespan of 12 years in the atmosphere (NASA), it is a very potent greenhouse gas with a global warming potential of 28 over a 100-year period and of 84 over a 20-year period (EU).

The monitoring and reporting requirements for methane emissions is a matter for the Commonwealth through the National Greenhouse and Energy Reporting (NGER scheme). The 2023 Climate Change Authority review of the NGER legislation (<https://www.climatechangeauthority.gov.au/nger-act-reviews>) recommended several improvements that would enhance the accuracy of fugitive methane emissions reporting and bring the NGER scheme into better alignment with international best practice in methane measurement, reporting and verification.

**Scope 2:** GHG emissions released to the atmosphere from the indirect consumption of an energy commodity that was produced elsewhere.

*Note:* The Queensland Energy and Jobs Plan<sup>6</sup> is expected to reduce Scope 2 emissions for Queensland industries through the transformation of Queensland's energy system to deliver clean, reliable and affordable energy.

**Scope 3:** indirect GHG emissions, other than Scope 2 emissions, that are generated in the wider economy, either in Australia or overseas. They occur as a consequence of a relevant activity, but from sources not owned or controlled by that activity. Scope 3 emissions include upstream emissions (from the goods and services required to produce the product) and downstream emissions (from the use or consumption of the product).

## **2.2 National approach**

The Commonwealth Government is responsible for the administration of the *National Greenhouse and Energy Reporting Act 2007* (NGER Act). The NGER Act provides a framework for reporting on GHG emissions, energy consumption and energy production. Companies that meet the NGER scheme thresholds of 25,000 tonnes CO<sub>2</sub>-e per annum for a facility, or 50,000 tonnes CO<sub>2</sub>-e per annum for a corporation, are required to register and report on their GHG emissions annually.

The NGER Act also provides a framework for Australia's highest emitters to manage and report on their GHG emissions. This framework is the Safeguard Mechanism. The Safeguard Mechanism applies to facilities that emit over 100,000 tonnes CO<sub>2</sub>-e annually (as Scope 1 emissions).

Commencing on 1 July 2023, the Safeguard Mechanism was reformed to ensure that covered facilities contribute to meeting emission reduction targets, while strengthening their competitiveness as the world moves

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<sup>4</sup> Refer to the [Clean Energy Regulator website](#)

<sup>5</sup> Available on the [Department of Agriculture and Fisheries website](#)

<sup>6</sup> Available on the Queensland Government website [Queensland Energy and Jobs Plan](#)

to net zero. Overall, this means that generally Safeguard Mechanism facilities will face tighter emissions baselines that are required to decline over time on a trajectory consistent with Australia's commitments on nationally determined contributions, including net zero emissions by 2050. Under the Safeguard Mechanism, baselines will decline in a predictable and gradual way from 1 July 2023 (except for grid-connected electricity generators). The decline rate will be set at 4.9 per cent each year to 2030, with limited exceptions. This will see Safeguard Mechanism facilities contributing their proportionate share to meet the Federal Government's emissions reduction targets.

This guideline is intended to operate alongside Commonwealth laws and not duplicate requirements under the Safeguard Mechanism. This guideline does not impact Commonwealth obligations or benefits. This includes the ability to earn Safeguard Mechanism credit units (SMCs).

For further details on the national approach refer to the Commonwealth Department of Climate Change, Energy, the Environment and Water website [www.dcceew.gov.au](http://www.dcceew.gov.au)

#### Comparing State and Commonwealth regulatory frameworks

The regulatory framework for environmental authorities, outlined in Chapter 5 of the EP Act, sets out the process for authorising ERAs. An application for an EA to undertake an ERA is required to be approved prior to commencement. The requirements in this guideline for GHG emissions are only in relation to the activities to be authorised by the EA (or proposed in an amendment application). The relevant environmental objective assessments as part of the regulatory requirements for decision making is outlined in Schedule 8 of the EP Reg as follows:

- prescribed ERA's – operational assessment (Schedule 8, Part 3, Division 1); or
- resource activities – operational and land use assessment (Schedule 8, Part 3, Division 1 and 2). This includes impacts generated by clearing vegetation.

The Commonwealth NGER scheme and Safeguard Mechanism are frameworks for reporting greenhouse gas emissions, energy production, and energy consumption – it does not include any assessment or authorisation of activities. Commonwealth reporting requirements may include activities that are not regulated under an EA or are regulated under multiple EAs (for example where multiple activities are reported by one facility or corporate group). The NGER scheme does not include the reporting of GHG emissions generated by clearing vegetation.

The Safeguard Mechanism is not an approval framework, so the GHG emissions information is still required for the Queensland Government to make a decision on new and amended EAs. Similarly, the Safeguard Mechanism does not require details of how emissions will be reduced. This information is required for the Queensland Government to determine whether the EA application can be approved.

### 3 Application requirements for an EA

This section outlines application requirements for different application types for new and amended EAs as required under the EP Act, further information may be required for EIS projects.

Application requirements for an EA are outlined in section 125 of the EP Act and include the requirement to provide an assessment of the likely impact of each relevant activity on the environmental values, including details of any emissions or releases likely to be generated by each relevant activity, and the management practices proposed to be implemented to prevent or minimise emissions and adverse impacts.

This guideline provides details about the GHG emissions information that would form part of an application **for new or amended activities**, along with any other emissions or releases likely to be generated by each relevant activity.

Information to be provided with an EA application will depend on the type of application. The application is required to include sufficient information to enable the administering authority to consider the potential impacts of each relevant activity for the whole life of the project – from the first activities onsite, including surveying and construction, during ramp-up, full construction through to the surrender of the EA.

Applications made with inaccurate, incomplete, or missing supporting documents, or substandard plans, may result in an information request being made. Table 1 provides an overview of the process to follow in applying this guideline based on the application type.

**Table 1: Process to apply this guideline by application type**

<b>Application type</b>	<b>Process</b>
Site-specific applications (including projects that require an EIS)	<p><i>Step 1:</i> Identify the GHG emissions likely to be generated throughout the life of the project (<a href="#">Section 3.1</a>).</p> <p><i>Step 2:</i> Determine if the application meets the medium to high GHG emission category (<a href="#">Section 3.2</a>).</p> <p><i>Step 3:</i> Identify the management practices proposed to be implemented to prevent or minimise adverse impacts. (<a href="#">Section 3.3</a>).</p> <p><i>Step 4:</i> Identify if a GHG abatement plan will be required to accompany the application (<a href="#">Section 3.3.1</a>).</p> <p><i>Step 5:</i> Describe the impacts of climate change on environmental values and the risk and likely magnitude of such impacts based on the relative scale of the project's net GHG emissions (<a href="#">Section 3.4</a>).</p>
Variation applications	<p><i>Step 1:</i> Identify the GHG emissions likely to be generated through the life of the project, <b>only in relation to the variation to the standard conditions being sought.</b></p> <p>Continue to follow the steps and provide the same information as required for a new site-specific application but only in relation to the variation to the standard conditions being sought.</p>
Standard applications	There is no requirement to provide details of GHG emissions or releases as this is managed through the eligibility criteria and standard conditions.
Amendment applications (including projects that require an EIS)	<p><i>Step 1:</i> Identify the GHG emissions likely to be generated through the life of the project, <b>only in relation to the amendment being sought.</b></p> <p>Continue to follow the steps and provide the same information as required for a new site-specific application but only in relation to the amendment being sought (<a href="#">Section 3.5</a>).</p> <p>Where the amendment is for an EA that already has a GHG abatement plan in place, the application may include an amended GHG abatement plan.</p>

### 3.1 Expected greenhouse gas emissions

In accordance with the requirements of the EP Act, applications for activities with expected GHG emissions must include details of GHG emissions likely to be generated by each relevant activity. This includes both direct and indirect emissions. This information may already be available to companies with NGERs and/or financial disclosure obligations.

All applications should:

- Include an emissions inventory identifying the GHG to be emitted and the stage of the project at which the emissions will occur. Include a breakdown of GHG emissions by source.
- Estimate the projected annual Scope 1 and Scope 2 CO<sub>2</sub>-e emissions over the life of the project. Include both unabated emissions and emissions after all avoidance and abatement measures (as outlined in section 3.3) have been accounted.
- Provide an estimate of annual Scope 3 emissions and total Scope 3 emissions over the life of the project (refer to [Section 3.1.1](#)).

The quantification of emissions should be undertaken by an appropriately qualified person and consider the operation of the activity for the life of the project, considering various phases of the project life cycle.

Some examples are provided below and may not be applicable to all industries:

- commissioning and ramping up
- different stages of operation including actual expected operation and/or at maximum capacity
- ramping down and decommissioning
- during maintenance and incidents.

Emissions data should be supported by a description of how the values were determined including:

- information about the methodology used (including software)
- assumptions made (such as the boundary of where Scope 3 emissions were considered)
- identification and justification of any emissions that were excluded from the calculation.

Refer to [Appendix B](#) for further information about how to estimate GHG emissions.

### **3.1.1 Scope 3 emissions**

Scope 3 emissions are considered by the administering authority when deciding an EA application (as outlined in Section 4 of this guideline). However, as they are outside the control of the EA holder, they are not required to be included in a GHG abatement plan. Estimated Scope 3 emissions are not required to be included in applications where projected Scope 1 and Scope 2 emissions are expected to be less than 25,000 tonnes of CO<sub>2</sub>-e per annum.

#### **Scope 3 Greenhouse Gas Emissions and the EP Act**

Scope 3 emissions may be considered by the administering authority in a decision on an EA application. The administering authority must consider whether the project will result in one or more environmental objectives being met and/or serious or material environmental harm occurring. In considering environmental harm, the administering authority will consider the likelihood of that harm and any control measures proposed to minimise the impacts. The EP Act identifies that environmental harm may be caused by an activity, whether the harm is a direct or indirect result of the activity. While Scope 3 emissions are considered as part of the overall application, Scope 3 emissions will not be managed through EA conditions. This is because the generation of Scope 3 emissions is outside the direct control of the operator.

When preparing the estimate of annual and total Scope 3 emissions to support an EA application, applicants can provide an estimation of the quantum of Scope 3 emissions expected expressed as a range (i.e., lower and upper amount) and an identification of the boundary of where Scope 3 emissions were considered. If an applicant is required to make annual climate-related financial disclosures, the basis of estimating Scope 3 emissions and identifying this boundary may be consistent with the approach used by the applicant in preparing such disclosures.

For a new or amended EA application, only consider Scope 3 emissions that occur as a consequence of the activities authorised by the EA (or amendment). Scope 3 emissions that occur as a consequence of activities that are not regulated by the EA do not need to be considered (e.g., emissions from business travel, employee commuting, upstream leased assets or investments). Table 2 provides some examples of upstream and downstream Scope 3 emissions for consideration.



**Table 2 Example upstream and downstream Scope 3 emissions from ERAs**

Upstream Scope 3 emissions	Downstream Scope 3 emissions
<ul style="list-style-type: none"> <li>• Capital goods (e.g., plant and machinery, buildings, tools and equipment).</li> <li>• Purchased goods and services (e.g., raw material, production of feed for livestock).</li> <li>• Transport and distribution of goods upstream of the project (e.g., transporting raw material to the project site).</li> <li>• Waste streams (for landfills and waste treatment facilities)</li> </ul>	<ul style="list-style-type: none"> <li>• Transport and distribution of products from the project (e.g., transport of: ore from a mine to a refinery; livestock to meat processing; processed meat to point of sale; canned food to point of sale; coal or mineral from a mine to domestic and overseas end-users).</li> </ul> <p data-bbox="874 600 1460 694"><u>Note:</u> where the ERA is a transport service, such as regulated waste transport, the transport emissions are considered Scope 1 emissions.</p> <ul style="list-style-type: none"> <li>• Consumption or use of sold products (e.g., consuming mined coal for power generation (domestic and overseas), or use of manufactured cement).</li> <li>• Disposal and treatment of waste</li> </ul>

Where Scope 3 emissions are identified within Australia, National Greenhouse Accounts Factors<sup>7</sup> may be useful for estimating emission volumes. Where emissions are likely to be released outside Australia, the Intergovernmental Panel on Climate Change (IPCC) Emission Factor database<sup>8</sup> can be used to find emission factors. The GHG Protocol (World Resources Institute and the World Business Council for Sustainable Development, 2013) can be used as a guide to identify potential sources of Scope 3 emissions. The Australian Governments Climate Active Carbon Neutral Standards may also provide useful guidance in this regard.

The level of detail required on Scope 3 emissions will depend on the type of activity proposed and its likely impact on environmental values. If applicants have questions about different Scope emissions, they are encouraged to request a pre-lodgement meeting with the administering authority, but this is optional. The administering authority may, at its discretion, request further information regarding the estimate of Scope 3 emissions.

<sup>7</sup> [Available on the Australian Department of Climate Change, Energy, the Environment and Water website](#)

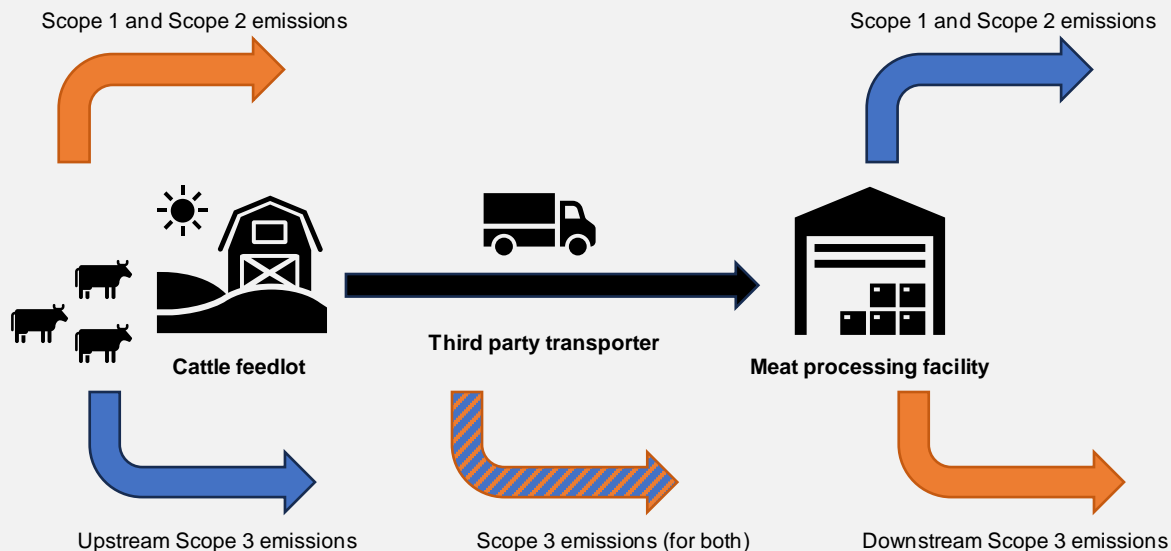
<sup>8</sup> [Available on the IPCC website](#)

**One company's Scope 3 is another company's Scope 1 and Scope 2**

Indirect emissions from the production or consumption of a product are considered Scope 3 emissions. These emissions will also be considered Scope 1 emissions for the company that creates or uses the product. For example:

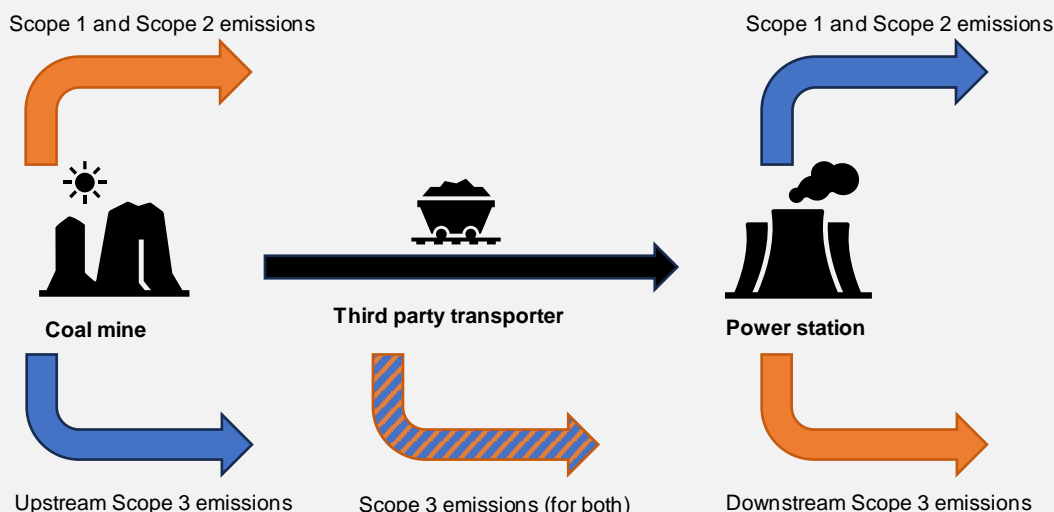
**Processing meat products**

- Meat processing facility (ERA 25) emissions (blue)
- Cattle feedlot (ERA 2) emissions (orange)



**Generating electricity**

- Power station (ERA 14) emissions (blue)
- Coal mine (resource activity) emissions (orange)



### 3.1.2 Background greenhouse gas emissions (optional)

Proponents may wish to identify natural background sources to assist in accurately measuring GHG emissions, including fugitive emissions, from the project. Information about background GHG concentrations may be useful for projects identified as:

- having a medium to high emission category; and/or
- having a large percentage of fugitive emissions.

Background GHG emissions data may include a description of nearby activities or sources that do not result from the project but may emit GHG emissions (point source or diffuse) including naturally occurring (potential or actual) sources. Knowledge of the background level of GHG emissions can help distinguish the natural and anthropogenic emissions in the area from those of the authorised activity.

Background emissions are not mandatory but may help the administering authority understand other background sources of emissions during the life of the project if relevant.

#### Background methane

Naturally occurring methane sources can include:

- the decomposition of organic matter, including within soils, wetlands or bodies of water
- natural geological seeps
- fires.

Methane from anthropogenic sources can include:

- intensive livestock, including cattle
- existing mineral or petroleum activities
- abandoned mines or legacy boreholes.

Identifying and measuring background sources of methane can establish a baseline of methane emissions which enables additional emissions from future industries to be identified and quantified.

### 3.2 GHG emission category

In this guideline:

- applications with expected GHG emissions (Scope 1 and Scope 2) 25,000 tonnes CO<sub>2</sub>-e or more per year (at any time during the life of the project) are considered **medium to high emitters**; and
- applications with expected GHG emissions (Scope 1 and Scope 2) of less than 25,000 tonnes CO<sub>2</sub>-e per year are considered **low emitters**.

The emission category is determined at the time of the application. There is no requirement for annual reassessments of the GHG emission category once an application has been assessed.

However, as outlined in section 4 of this guideline, EA conditions may require reporting on progress towards GHG emission reduction targets.

The emissions projections used to determine the GHG emission category must be robust and appropriate for the application type. It is an offence under the EP Act to provide false and misleading information as part of an EA application. Where the activity changes from what is authorised by the EA, the EA may need to be amended.

Table 3 outlines the application requirements for low and medium to high emitters and provides examples of the activities that would typically fall into each category. The examples are provided for reference, but this will be determined on a site-specific basis and is dependent on the scale and intensity of the activity, and the operating

parameters. The level of information provided for low emitters may be less than what is required for medium to high emitters and will be proportionate to the expected environmental impact of the activity being authorised.

**Table 3: Application requirements for low and medium to high emitters**

GHG emission category	Example activities	Application requirements
<b>Low emitters</b>	<ul style="list-style-type: none"> <li>• Small scale mining (mining claim)</li> <li>• Intensive animal feed lotting</li> <li>• Poultry farming</li> <li>• Pig farming</li> <li>• Aquaculture</li> </ul>	<ul style="list-style-type: none"> <li>• GHG emissions inventory (Scope 1 and 2 only) – refer to section 3.1.</li> <li>• GHG emission mitigation and management practices -refer to section 3.3.</li> <li>• A risk assessment that outlines the scale of expected GHG emissions from the activity and how they are expected to contribute to climate change impacts on Queensland’s environmental values- refer to section 3.4.</li> </ul>
<b>Medium to high emitters</b>	<ul style="list-style-type: none"> <li>• Medium to large scale mining activities</li> <li>• Petroleum and gas activities</li> <li>• Food processing</li> <li>• Metal smelting and refining</li> <li>• Non-metallic mineral product manufacturing</li> <li>• Sawmilling, wood chipping, and timber and laminated product manufacturing</li> <li>• Waste management</li> <li>• Cement, lime, plaster and concrete production manufacturing</li> <li>• Electricity generation</li> </ul>	<ul style="list-style-type: none"> <li>• GHG emissions inventory (Scope 1, 2 and 3) – refer to section 3.1.</li> <li>• GHG emission mitigation and management practices (including Scope 3 where possible) – refer to section 3.3.</li> <li>• GHG abatement plan – refer to section 3.3.1.</li> <li>• A risk assessment that outlines the scale of expected GHG emissions from the activity and how they are expected to contribute to climate change impacts on Queensland’s environmental values – refer to section 3.4.</li> </ul>

### 3.3 Proposed management practices

The application requirements in the EP Act include an assessment of the likely impacts of each activity on the environmental values including details of the management practices proposed to be implemented to prevent or minimise adverse impacts.

Proposed management practices should demonstrate that all reasonable and practical measures have been applied to manage GHG emissions through best practice design, process, technology, and management. The GHG abatement hierarchy provided in Figure 1 illustrates the preferred prioritisation of management practices to be implemented to minimise GHG emissions.

Applicants should demonstrate how the proposed GHG emission reduction measures:

- meet best practice environmental management and are reasonable for the specific industry; and
- will avoid or reduce the activities scope 1 and scope 2 emissions at commencement and throughout the life of relevant activity.

Applicants should also demonstrate that consideration has been given to reducing scope 3 emissions, where reasonably practicable. As outlined below, offsetting may be considered for hard to abate emissions, however offsetting is not a mandatory requirement for all activities.

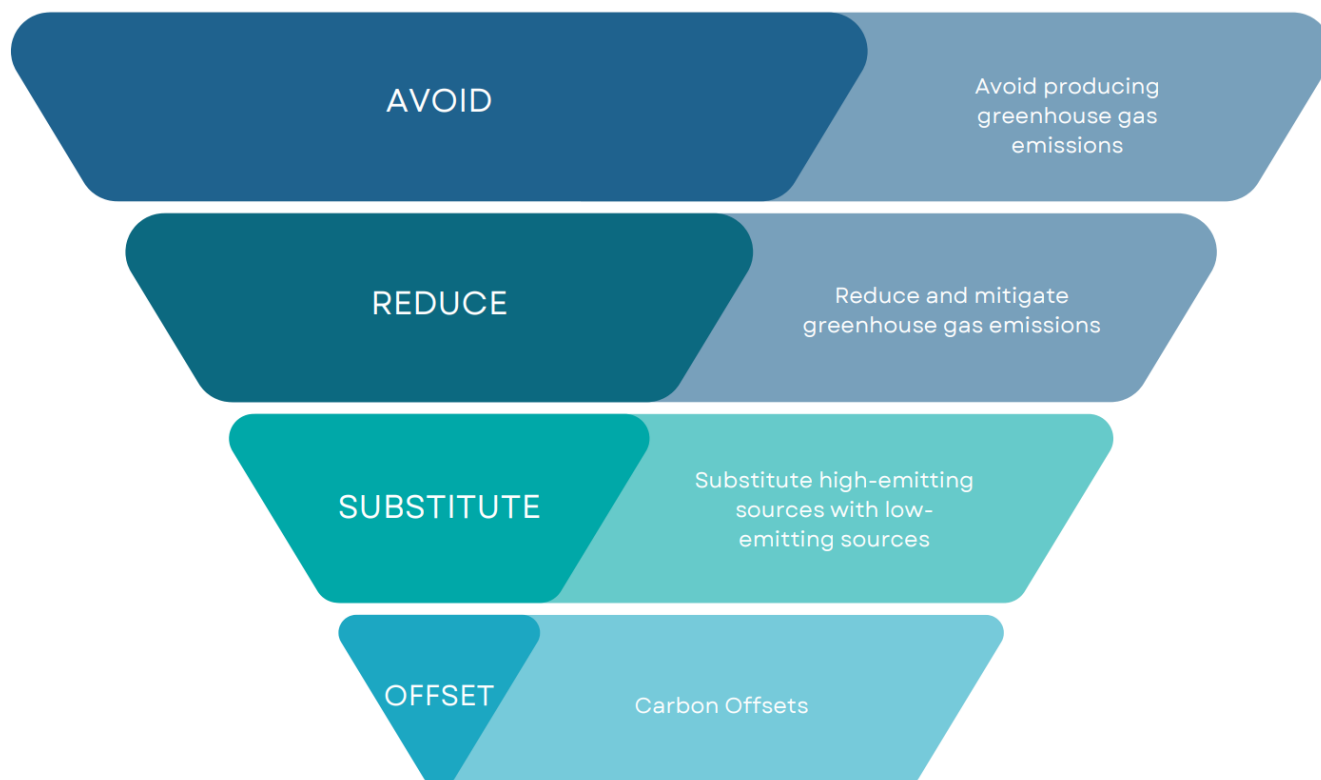


Figure 1: GHG abatement hierarchy

As per the GHG abatement hierarchy in Figure 1, the order of priority for management practices is as follows:

- 1. Avoid:** Removing the risk of harm by avoiding the production of GHG emissions is the highest level of control. Avoiding an activity's GHG emissions may be achieved through planning, appropriate technology, and site selection. Explain feasible alternatives that were considered to avoid or reduce the project's emissions as well as the alternative of not proceeding with the proposed project.
- 2. Reduce:** If avoidance cannot be reasonably achieved, demonstrate that GHG emissions have been reduced, and will continue to be reduced. Reduction in GHG emissions may be through using more energy efficient processes, upgrading equipment, or introducing pollution control technologies.

For Scope 3 emissions:

- outline actions that will be taken to reduce Scope 3 emissions, for example entering into arrangements with third party suppliers or users; and
  - identify the location of emissions (domestic or international) and outline whether they are expected to be generated in countries that are signatories to the Paris Agreement or otherwise have policies that are consistent with the objectives of the Paris Agreement.
- 3. Substitute:** Where possible, switch remaining GHG emissions processes to low emissions processes. For example, replace high-carbon energy sources with renewable energy sources, or by using fuels with a lower carbon content.

- 4. Offset:** Offsets may be considered as a last resort, after all reasonable avoidance, reduction and substitution measures have been taken, and there are still emission reductions required to meet emission reduction targets outlined in the GHG abatement plan. Only Australian Carbon Credit Units (ACCUs)<sup>9</sup> or SMCs will be accepted as offsets. Noting that SMCs are only available under the Safeguard Mechanism.

Offsets should be located in Queensland where possible. Applications proposing to offset outside of Queensland must be justified by a report prepared by an appropriately qualified person outlining why offsets are not available within Queensland.

Similarly, proposals to offset more than 30% of the required emission reductions must be supported by a report prepared by an appropriately qualified person outlining why avoidance, reduction and substitution measures cannot be utilised.

#### Receiving Australian Carbon Credit Units (ACCUs) for GHG reduction measures

The guideline is not intended to impact on eligibility of applicants to undertake projects that generate ACCUs in accordance with the ACCU scheme. However, the ACCU Scheme legislation has a regulatory additionality requirement<sup>10</sup>, which ensures that ACCUs are not issued for emission reduction activities that are already required by law. The Clean Energy Regulator assesses additionality on a case-by-case basis and has guidance applicable to entities that are subject to state or territory emissions reduction or offsetting requirements.

### 3.3.1 Greenhouse gas abatement plan

Applications for activities that meet the medium to high emission category at any point during the carrying out of the authorised activity will be required to include a GHG abatement plan. A GHG abatement plan identifies the GHG emissions to be generated by a project and details ongoing emission mitigation and management measures proposed to be implemented throughout the life of the project to progressively reduce Scope 1 and Scope 2 GHG emissions. This will ensure long-life projects contribute to transitioning to a low carbon global economy.

The requirements of the GHG abatement plan are outlined in Appendix A.

### 3.4 Risks and likely magnitude of impacts on environmental values

The application requirements outlined in the EP Act include the requirement to provide an assessment of the likely impact of the activity on environmental values, including a description of the risk and likely magnitude of impacts on the environmental values. In relation to GHG emissions, this involves qualitatively describing the impacts of climate change on environmental values and the risk and likely magnitude of such impacts based on the relative scale of the project's net GHG emissions, as well as the other likely impacts from the activity. This is to be a broader description of the impacts (e.g., the impacts as described in Section 3.4.1) rather than a detailed quantitative assessment of the impacts from the project on individual species etc. The description will cover impacts before and after proposed GHG emission management measures.

#### 3.4.1 Potential impacts of GHG emissions on environmental values

The IPCC (IPCC 2021) has identified that human-induced climate change is already affecting weather and climate extremes across the globe and that 'continued emission of GHGs will cause further warming and long-

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<sup>9</sup> Refer to the Clean Energy Regulator for details: <https://www.cleanenergyregulator.gov.au/OSR/ANREU/types-of-emissions-units/australian-carbon-credit-units>

<sup>10</sup> Regulatory additionality for regulated entities with state or territory emission reduction or offsetting requirements: <https://cleanenergyregulator.gov.au/regulatory-additionality-regulated-entities-state-or-territory-emission-reduction-or-offsetting>

lasting changes in all components of the climate system. Increasing the likelihood of severe, pervasive, and irreversible impacts for people and ecosystems (IPCC 2014)'.

### Understanding climate change and impacts from GHG emissions

In the Earth's atmosphere, naturally occurring GHG results in a balance of solar radiation being reflected away from the atmosphere, away from Earth and back through the atmosphere or trapped within the atmosphere, heating the Earth to create the climatic conditions (this is referred to as the greenhouse effect). Anthropogenic sources of GHG have increased the concentration of these gases within the atmosphere (known as the enhanced or increased greenhouse effect) which causes more heat to be trapped in the atmosphere, resulting in rising global temperatures. This rise in global temperatures in turn impacts climatic conditions.

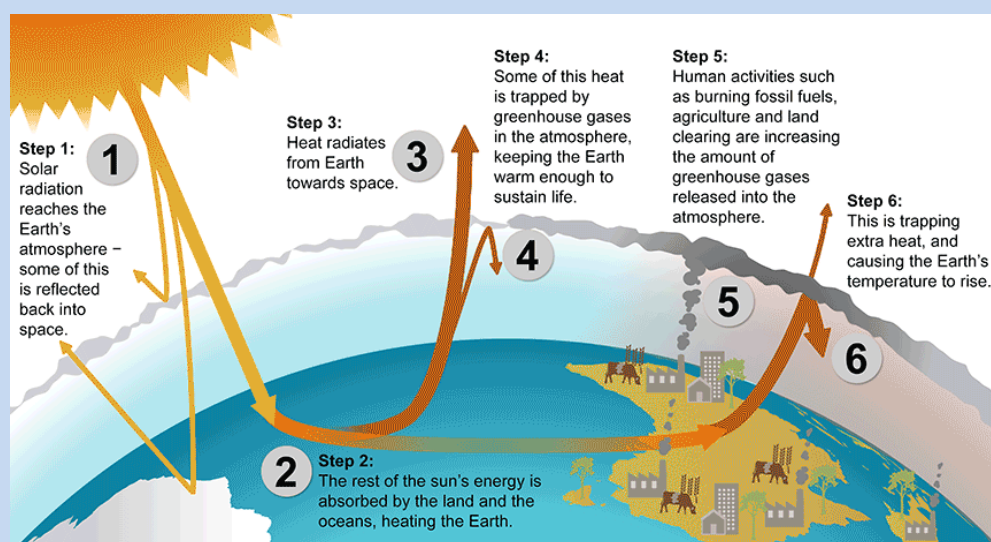


Figure 2: Greenhouse and increased greenhouse effect

Source: [Department of Climate Change, Energy, the Environment and Water](#)

In Queensland, average temperatures across the state are currently 1°C higher than they were 100 years ago. Climate change is expected to impact Queensland in the future by resulting in:

- higher temperatures
- hotter and more frequent hot days
- harsher fire weather
- fewer frosts
- reduced rainfall in the south-east
- more intense downpours
- less frequent but more intense tropical cyclones in the north
- rising sea level
- more frequent sea-level extremes
- warmer and more acidic seas (Queensland Government, 2019).

Human-induced changes to climate can negatively affect environmental values, including:

- human health and wellbeing
- the health and biodiversity of ecosystems
- agricultural use of the environment.

While it is difficult to determine the likelihood and magnitude of impacts to environmental values from an individual project's GHG emissions, it is recognised that any increases in net GHG emissions may also increase the risks, and the larger the relative scale of net GHG emissions, the more significant the contribution may be. However, this needs to be considered with regard to potential net emissions reductions due to a project's impacts on emissions generated by other parties, and projects that produce commodities necessary for achieving global decarbonisation objectives may assist in achieving overall emissions reductions.

The Queensland Climate Action Plan (QCAP) identifies regional climate impact summaries<sup>11</sup> that can assist an applicant in determining the risks and likely impacts associated with the project. The Queensland Future Climate Dashboard<sup>12</sup> can further assist applicants in determining the risks and likely impacts associated with the project with the dashboard allowing users to explore, visualise and download the latest Queensland-specific climate modelling data across regions.

#### **3.4.2 Likely magnitude of impacts**

In relation to GHG emissions, the description of the likely magnitude of impacts on environmental values includes consideration of the project's contribution to climate change impacts from the release of GHGs.

The description of the likely magnitude of impacts on environmental values would include:

- Comparison of identified activity specific GHG emissions intensity with industry average emissions intensity (if available).
- Consideration of Scope 3 emissions and whether they are a significant component of the project emissions.
- Identification of positive and negative contributions to GHG emissions associated with the project. For example, certain resource projects may enable more renewable technologies and infrastructure which could support decarbonisation in other sectors. This is also an opportunity to outline other public benefits of the proposed activity, for example sewage treatment and waste disposal facilities.
- For medium to high emitters this would also include a comparison of expected project GHG emissions with the remaining global, national, and state emissions budgets.

#### **3.5 Amendment applications**

An amendment application for an EA may be:

- a minor amendment (condition conversion).
- any other minor amendment – known as a minor amendment (threshold).
- a major amendment, which is an amendment that is not a minor amendment.

Application requirements for amendment applications are outlined in section 226AA of the EP Act and include the requirement to provide an assessment of the likely impact of the proposed amendment on the environmental

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<sup>11</sup> Available on the DES website: [Climate science and information | Queensland Climate Action \(des.qld.gov.au\)](https://www.des.qld.gov.au/Climate-science-and-information/Queensland-Climate-Action)

<sup>12</sup> Available on the DES website: [Queensland Future Climate Dashboard | State of the Environment Report 2020 \(des.qld.gov.au\)](https://www.des.qld.gov.au/Queensland-Future-Climate-Dashboard)



values. These impacts are considered in the context of what is already authorised under the existing EA. This includes details of any emissions or releases likely to be generated by each relevant activity, and the management practices proposed to be implemented to prevent or minimise adverse impacts by managing GHG emissions of the project in accordance with the GHG abatement hierarchy and any required GHG abatement plan.

An amendment application that is a condition conversion is not required to provide the information required under section 226A(1)(f), which includes information outlined within this guideline on GHG emissions.

### 3.5.1 Assessment level decision

For an amendment application that is not a condition conversion, the administering authority must make an assessment level decision (ALD) to determine if the proposed amendment is a minor or major amendment. The ALD determines the assessment process for an application. An amendment application will only be assessed as a minor amendment if all the relevant subsections of the minor amendment (threshold) definition under section 223 of the EP Act will be met.

An application to amend an EA must include enough information to allow the administering authority to decide whether the proposed amendment is a major or minor amendment. The guideline: *Major and minor amendments* (ESR/2015/1684<sup>13</sup>) provides information to assist applicants in addressing the information requirements to allow an assessment level decision to be made. It also provides details on each of the criteria for determining whether an amendment is a major or minor amendment.

Under the EP Act, an EA amendment is considered a major amendment if it is not a condition conversion or if it doesn't meet the requirements for a minor amendment (threshold).

The minor amendment (threshold) criteria from the EP Act that may be relevant to GHG emissions include:

(b) whether the generation of GHG emissions proposed by the amendment would significantly increase the level of environmental harm caused by the relevant activity.

Under the EP Act, environmental harm may be caused by an activity whether the harm is a direct or indirect result of the activity and whether the harm results from the activity alone or from the combined effects of the activity and other activities or factors.

(d) whether the generation of GHG emissions proposed by the amendment would significantly increase the scale or intensity of the relevant activity.

Where the amendment will involve an increase in GHG emissions that may significantly increase environmental harm or significantly increase the scale or intensity of the activity, the amendment may be considered a major amendment. The guideline: *Major and minor amendments* (ESR/2015/1684) provides more information about how to consider the element of 'significantly'.

### 3.5.2 Amendment application requirements

An amendment application must include all the information outlined in this guideline for a site-specific application, but only to the extent they relate to the proposed amendment. For example, if an application relates to the addition of a new landfill cell, the application would only provide information on GHG emissions from the new cell. Similarly, an application to amend an EA to add more CSG wells, would only provide information on GHG emissions from the new wells.

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<sup>13</sup> Available on the Queensland Government website using the document ID (ESR/2015/1684) as a search term.

Further information requirements may be required for EIS projects.

As an overview:

- projected GHG emissions as per section 3.1 need only to refer to GHG emissions that will be generated as a result of the proposed amendment, including the determination of the GHG emission category for the application.
- proposed management practices as per section 3.3 are only applicable to the GHG emissions that will be generated as a result of the proposed amendment. This includes any GHG abatement plan that may be required for GHG emissions generated by the proposed amendment.
- the description of risks and likely magnitude of impacts to environmental values as per section 3.4 only needs to address the risks associated with the GHG emissions that would be generated by the proposed amendment.

It is recognised that some amendment applications will have no impact on GHG emissions (e.g., changing water release requirements), or have an immaterial impact on GHG emissions, in which case this would be noted in the amendment application (as with any other emissions).

While not required for the amendment decision, applicants are encouraged to undertake an inventory of GHG emissions and identify opportunities to reduce GHG emissions from the whole activity. This may form part of a company's ESG goals, net zero plan or financial reporting requirements. Refer to Appendix C for examples of application requirements for amendment applications.

#### **4 How GHG emissions information will be used by the administering authority**

This section describes how the GHG emissions information will be used by the administering authority including the EA assessment process, considerations under the Human Rights Act, EA conditioning and compliance.

The administering authority has an obligation to meet the legislative requirements of the EP Act and Human Rights Act when making decisions.

The information provided will be used by the administering authority in considering your application, including:

- establishing contextual details of the activity, the site, and the surrounding environment.
- assessing the impact of climate change on environmental values and the risk and likely magnitude of such impacts based on the relative scale of the net GHG emissions of the proposed project.
- assessing the impact of the proposed project on State, national and global GHG emission targets.
- assessing whether the ERA and its components can be operated in a way that minimises the impacts to environmental values.

##### **4.1 Assessment process**

When deciding a site-specific application, the administering authority must comply with any relevant regulatory requirement and have regard to the application, any standard conditions for the relevant activity or authority, any response given for an information request and the standard criteria specified in the EP Act.

Applicants are not required to provide specific information for any of these matters. Instead, the administering authority must consider any material which is provided by the applicant and determine its relevance to the criteria in making a decision.

The GHG emission information is only one aspect of the decision-making process.

Further information on how the administering authority applies the regulatory requirements or considers the standard criteria is available through the guideline: *Assessment requirements for an environmental authority for an environmentally relevant activity* (ESR/2015/1725<sup>14</sup>). Further information regarding the process for assessing an EA is available through the guideline: *Approval processes for environmental authorities* (ESR/2015/1743<sup>15</sup>).

#### 4.1.1 Regulatory requirements

The regulatory requirements that must be complied with in deciding an EA application are outlined in Chapter 4 of the Environmental Protection Regulation 2019. In relation to GHG emissions, the administering authority must:

- carry out an environmental objectives assessment against the environmental objectives and performance outcomes listed in Schedule 8. Environmental objectives that may be impacted by GHG emissions include air, wetlands, groundwater, waste, and land.
- consider management hierarchies, environmental values, quality objectives and management intent in any relevant environmental protection policy including the Environmental Protection (Air) Policy and the Environmental Protection (Water and Wetland Biodiversity) Policy.

#### 4.1.2 Standard criteria

Consideration of the standard criteria is a balancing act. If an application is inconsistent with one or more criteria it would not be automatically refused - rather consideration is given to whether the inconsistency is outweighed by the environmental, social, and economic benefits that would come with approving the application.

The standard criteria include the following items that are relevant to GHG emissions:

- a) the following principles of environmental policy as set out in the Intergovernmental Agreement on the Environment—
- i. the precautionary principle;
  - ii. intergenerational equity;
  - iii. conservation of biological diversity and ecological integrity
- b) any Commonwealth or State government plans, standards, agreements or requirements about environmental protection or ecologically sustainable development.

While some State and federal requirements regarding GHG emissions have been in place for some time, there have been significant developments recently which have heightened the need to consider this aspect of the standard criteria.

Some relevant documents for consideration are listed below:

- the Queensland Energy and Jobs Plan released in September 2022 which sets out a 50% renewable energy target by 2030, 70% renewable energy by 2032 and 80% renewable energy by 2035.
- These renewable energy targets were legislated in the *Energy (Renewable Transformation and Jobs) Act 2024*
- the Queensland Resources Industry Development Plan released in June 2022 which sets out the government's ambition and actions to enable the resources industry to successfully transform by 2050.

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<sup>14</sup> Available on the Queensland Government website using the document ID (ESR/2015/1725) as a search term.

<sup>15</sup> Available on the Queensland Government website using the document ID (ESR/2015/1743) as a search term.

- the Queensland Climate Action Plan 2020-2030 which sets the path to achieving net zero GHG emissions by 2050, and interim targets to reduce emissions to 30% below 2005 levels by 2030 and 75% below 2005 levels by 2035.
- These GHG reduction targets were legislated in the *Clean Economy Jobs Act 2024*
- Queensland new-industry development strategy released in May 2023 which sets out the Queensland Government's approach to proactively developing the industries that will be in demand in a decarbonising world.
- Queensland Low Emissions Agriculture Roadmap 2022-2032 which assists Queensland agribusinesses and the broader supply chain to lower their GHG emissions without impacting the supply of food and fibre.
- Queensland's Zero Emission Vehicle Strategy and Action Plan released in March 2022 which plans to accelerate Queensland toward a cleaner, greener transport future while making sure our energy network supports the transition to zero emission vehicles.
- Queensland Critical Minerals Strategy released in June 2023 which outlines four objectives that will achieve Queensland's ambition for a prosperous critical minerals sector.
- the *Climate Change Act 2022* (Commonwealth) which sets out Australia's GHG emissions reduction targets.
- the *Carbon Credits (Carbon Farming Initiative) Act 2011* (Commonwealth) about projects to remove carbon dioxide from the atmosphere and projects to avoid emissions of GHGs.
- The National Greenhouse and Energy Reporting (Safeguard Mechanism) Amendment (Production Variable Update) Rules 2023 adds new production variable definitions, updates existing definitions, sets industry average emissions intensities and makes other technical amendments to ensure that a comprehensive set of suitable production variables are in place for setting Safeguard Mechanism baselines and production variable definitions support incentives for decarbonisation.
- the *National Greenhouse and Energy Reporting Act 2007* (Commonwealth) which provides for the reporting and dissemination of information related to GHG emissions, GHG projects, energy production and energy consumption.
- the Commonwealth Safeguard Mechanism which is the Australian Government's policy for reducing emissions at Australia's largest industrial facilities.
- Commonwealth Critical Minerals Strategy 2023 – 2030 which sets out the government's vision to grow Australia's critical minerals sector.
- the Under2 Memorandum of Understanding which allows subnational governments to highlight their work to reduce GHG emissions.
- the Paris Agreement which is a legally binding international treaty on climate change that Australia is party to.

## 4.2 Human rights considerations

In addition to the assessment requirements under the EP Act, the administering authority must also consider the Human Rights Act when making environmental assessment decisions. The administering authority must:

- give proper consideration to human rights before making a decision; and
- act and make decisions that are compatible with human rights.

Certain human rights might be engaged as a result of GHG emissions now and into the future. These may include the right to life, the cultural rights of Aboriginal peoples and Torres Strait Islander peoples, the rights of children, the right to property and to privacy and home, and the right to enjoy human rights equally.

## 4.3 EA conditioning

Under section 203 of the EP Act, the administering authority may impose conditions on an EA if it considers the conditions are necessary or desirable. Regulatory requirements that must be complied with in deciding an EA application include conditions to be considered (section 36) and matters to be considered for decisions imposing monitoring conditions (section 37).

Conditions that must be considered by the administering authority under section 36 of the Environmental Protection Regulation 2019 include conditions about:

- (a) implementing a system for managing risks to the environment;
- (b) implementing measures to prevent or minimise the release of contaminants or waste
- (f) restricting the type, quality, quantity, concentration, or characteristics of contaminants that may be released
- (l) implementing measures for the ongoing protection of environmental values that are, or may be, adversely affected by the activity.

In assessing the application, the administering authority may consider it necessary or desirable to impose conditions relevant to GHG to ensure the commitments made as part of the application process are implemented and reported upon and to support appropriate compliance.

For medium to high emitters this would likely include conditions that would require an EA holder to:

- implement and comply with a GHG abatement plan
- publicly report on progress towards interim and long term GHG emission reduction targets
- undertake monitoring of GHG emissions and meet specific targets or GHG emission limits (if required).

Contravention of a condition of an EA is an offence under section 430 of the EP Act. Where an EA includes a condition to implement the GHG abatement plan and the proponent fails to implement the GHG abatement plan, this would be an offence of non-compliance with an EA condition. As outlined in the Department's *Enforcement Guidelines* (ESR/2021/5549)<sup>16</sup>, enforcement action will be proportionate to the seriousness of the contravention.

Changes to the GHG abatement plan may require an amendment of the EA to update the relevant condition. However, an amendment of the EA will not be required for changes that result in a further reduction in GHG emissions (e.g., as a consequence of conducting a regular review of new technologies as contemplated by row g) of Appendix A).

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<sup>16</sup> Available on the Queensland Government website using the document ID (ESR/2021/5549) as a search term.

## 5 Glossary

**Activity** means the environmentally relevant activities to which the environmental authority relates.

**Appropriately qualified person** means a person who has professional qualifications, training, skills or experience relevant to the EA requirements and can give authoritative assessment, advice and analysis in relation to the EA requirements using the relevant protocols, standards, methods or literature.

**Australian carbon credit unit (ACCU):** One Australian carbon credit unit represents one tonne of verified carbon dioxide equivalent abatement. ACCUs are created from eligible offsets projects and issued by the Clean Energy Regulator in accordance with section 147 of the *Carbon Credits (Carbon Farming Initiative) Act 2011*.

**Best practice environmental management** is as defined in section 21 of the *Environmental Protection Act 1994*.

**Carbon equivalent (or carbon dioxide equivalent, CO<sub>2</sub>-e)** is the amount of a greenhouse gas measured as an equivalent amount of carbon dioxide, which has a global warming potential of one. CO<sub>2</sub>-e is based on the Global Warming Potential of each GHG, and each Global Warming Potential is based on a time period over which energy is absorbed.

**Emissions intensity** is the emission rate of a given pollutant relative to the intensity of a specific activity, or an industrial production process. For example, grams of carbon dioxide released per unit of production or megajoule of energy produced, or the ratio of GHG emissions produced to gross domestic product (GDP).

**Environmental Impact Statement** is a written document for a project that is undergoing the environmental impact assessment process under either the *Environmental Protection Act 1994* or the *State Development and Public Works Organisation Act 1971*

**Environmental, social and corporate governance (ESG)** is a set of aspects that takes environmental issues, social issues and corporate governance issues into account.

**Environmental values** are defined in section 9 of the *Environmental Protection Act 1994* as:

- a) a quality or physical characteristic of the environment that is conducive to ecological health or public amenity or safety; or
- b) another quality of the environment identified and declared to be an environmental value under an environmental protection policy or regulation.

**Global warming potential** is an index that allows emissions to be converted to CO<sub>2</sub> equivalent.

**Greenhouse gas (GHG)** includes carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), sulphur (or sulfur) hexafluoride (SF<sub>6</sub>), hydro fluorocarbons (HFCs) and perfluorocarbons (PFCs). GHG are often expressed as a standard unit called a 'carbon dioxide equivalent' or CO<sub>2</sub>-e, as the scale and duration of impact arising from individual emissions vary.

**National Greenhouse and Energy Reporting (NGER) scheme** is a single, national framework for corporations to report on GHG emissions, energy use and energy production.

**Safeguard Mechanism credit units (SMCs)** are tradeable credits. They incentivise safeguard facilities to reduce their emissions beyond their baselines. An SMC represents one tonne of carbon dioxide equivalent (tCO<sub>2</sub>-e) emissions below a facility's baseline.

**Scope 1:** GHG emissions released to the atmosphere as a direct result of an activity. This includes direct emissions and fugitive emissions.

**Scope 2:** GHG emissions released to the atmosphere from the indirect consumption of an energy commodity that was produced elsewhere.

**Scope 3:** indirect GHG emissions, other than Scope 2 emissions, that are generated in the wider economy, either in Australia or overseas. They occur as a consequence of the activities of a relevant activity, but from sources not owned or controlled by that activity.

## 6 Acronyms and abbreviations

**ACCUs** Australian Carbon Credit Units

**ALD** assessment level decision

**CH<sub>4</sub>** methane

**CO<sub>2</sub>** carbon dioxide

**CO<sub>2</sub>-e** carbon dioxide equivalent

**EAs** environmental authorities

**EIS** environmental impact statement

**EP Act** *Environmental Protection Act 1994*

**ERAs** environmentally relevant activities

**ESG** Environmental, social and corporate governance

**GHG** greenhouse gas

**HFCs** hydro fluorocarbons

**IPCC** Intergovernmental Panel on Climate Change

**N<sub>2</sub>O** nitrous oxide

**NGER Act** *National Greenhouse and Energy Reporting Act 2007*

**NGER** National Greenhouse and Energy Reporting

**PFCs** perfluorocarbons

**QCAP** Queensland Climate Action Plan

**SF<sub>6</sub>** sulphur (or sulfur) hexafluoride

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### Disclaimer

While this document has been prepared with care it contains general information and does not profess to offer legal, professional or commercial advice. The Queensland Government accepts no liability for any external decisions or actions taken on the basis of this document. Persons external to the Department of Environment, Science and Innovation should satisfy themselves independently and by consulting their own professional advisors before embarking on any proposed course of action.

### Approved:

15 May 2024

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### Version history

Version	Date	Description of changes
1.00	15 May 2024	First publication



## Appendix A – Greenhouse gas abatement plan

A GHG abatement plan (for Scope 1 and Scope 2 emissions) provides details of abatement measures that will be implemented to reduce GHG emissions over the lifetime of the proposed project, following the GHG abatement hierarchy.

### A. Content requirement of a GHG abatement plan

Requirement	Description
a) Project details	<ul style="list-style-type: none"> <li>Applicant</li> <li>Project name and description (including location)</li> </ul>
b) Emissions projections and commencing abatement measures	<ul style="list-style-type: none"> <li>Emission inventory and estimates as developed in section 3.1 of the guideline.</li> <li>Management practices proposed to be implemented at commencement to reduce GHG emissions as per section 3.3 of the guideline.</li> </ul>
c) GHG emissions reference point	<ul style="list-style-type: none"> <li>Outline the level of emissions against which ongoing reduction of GHG emissions will be assessed throughout the life of the project (reference point).</li> <li>This is based on projected GHG emissions prior to implementation of the GHG abatement plan and may include multiple reference points developed for each stage of the activity.</li> <li>For projects captured by the Commonwealth Safeguard Mechanism, the reference points may be determined by the Safeguard Mechanism (referred to as baseline).</li> <li>Provide justification for the reference points proposed.</li> </ul>
d) Emission reduction targets	<ul style="list-style-type: none"> <li>Identify interim Scope 1 and Scope 2 GHG emission reduction targets to be applied throughout the life of the project.</li> <li>Identify long-term overall Scope 1 and Scope 2 GHG emission reduction targets.</li> <li>Targets may be set at intervals of up to 5 years to take into account emerging technologies over that period and allow for production variability, provided they result in a reduction of GHG emission at the end of the period.</li> <li>For projects captured by the Commonwealth Safeguard Mechanism, the emission reduction targets may be determined by the Safeguard Mechanism.</li> <li>Provide justification for the emission reduction trajectory and targets proposed and how they support the Queensland Government's greenhouse gas emission reduction targets.</li> </ul>
e) GHG emission reduction program	<ul style="list-style-type: none"> <li>A program that details the GHG emission reduction measures for Scope 1 and 2 that will be implemented throughout the life of the project, as developed in section 3.3 of the guideline and outlined in Part B below.</li> </ul>
f) Advancing technologies and opportunities	<ul style="list-style-type: none"> <li>Provisions for regularly reviewing new technologies to identify opportunities to further reduce emissions and energy efficiency.</li> </ul>
g) Monitoring and auditing	<ul style="list-style-type: none"> <li>A program for monitoring GHG emissions and auditing against GHG emission reduction targets.</li> </ul>
h) Reporting	<ul style="list-style-type: none"> <li>A program for periodic public reporting on progress towards the GHG emission reduction targets outlined in the GHG abatement plan including details about how public reporting will be undertaken.</li> <li>There is no intent to duplicate reporting requirements. Where companies are already reporting GHG emissions under another framework, this section can refer to that reporting. However, reporting must be against the emission reduction targets stated in the GHG abatement plan and must be publicly available.</li> <li>Where the GHG abatement plan includes commercial-in-confidence information, the applicant may request that specific details are treated as confidential and are not made publicly available, with justification to support this request.</li> </ul>

**B. GHG emission reduction program**

The GHG emission reduction program provides details about specific GHG emission reduction measures proposed to be undertaken throughout the life of the project to achieve the proposed GHG reduction targets.

The GHG emission reduction program must provide specific actions that will be implemented. Actions must be specific, measurable, achievable, realistic, and time-bound (following the SMART principals).

The following information must be provided for each emission reduction measures:

- Implementation details including timeframes for implementation and estimated reduction of emissions expected;
- Risk assessment details including cost, practicality, effectiveness, and risks of each measure (including risks associated with the availability of new technologies);
- Justification for each measure including a comparison of each proposed measures with relevant best practice environmental management standards;
- estimates of emissions expected to be abated by each measure; and
- any ongoing monitoring proposed to be undertaken to ensure the success of emission reduction measures.

Where the GHG emission reduction program includes offsets, provide details about the offset including justification for offsets outside of Queensland or for more than 30% of emission reductions as described in Section 3.3 of the guideline.

## Appendix B – Estimating GHG emissions

The following information, calculators and tools are provided as examples that may be useful to some industries in estimating GHG emissions. This guideline does not mandate specific calculation methodologies and other sources may be appropriate in developing GHG information.

### Carbon equivalencies

The various GHGs have different impacts on global warming by volume over time. Global warming potential is an index that allows emissions to be converted to a unit of CO<sub>2</sub> equivalent (CO<sub>2</sub>-e) to account for these differences. For example, where the GWP of methane is 28 and nitrous oxide is 265:

Use of CO<sub>2</sub>-e for reporting emissions allows for a simpler comparison between projects, industries or jurisdictions.

$$\text{tonnes CO}_2\text{-e} = \text{tonnes CO}_2 \times \boxed{1} + \text{tonnes CH}_4 \times \boxed{28} + \text{tonnes N}_2\text{O} \times \boxed{265}$$

### Emissions Factors

The quantity of emissions released for a particular unit or practice of interest is called an emissions factor. Emissions factors allow emissions to be projected based on average or calculated values and are typically expressed as CO<sub>2</sub>-e per unit of product.

### Calculating your emissions

For each Scope:

- Identify relevant emissions sources.
- Catalogue the quantity of each emission source.
- Convert the quantity to the appropriate units for use with the relevant emissions factor.
- Multiply the quantity by the emissions factor to obtain CO<sub>2</sub>-e for each source.
- Compile the results for all sources.
- Determine your reporting requirements.

### Calculators and tools

The [National Greenhouse and Energy Reporting \(Measurement\) Determination 2008 \(Cth\)](#) provides methods and criteria for calculating GHG emissions and energy data under the NGER Act which can be used in combination with the [National Greenhouse Energy Report Technical Guidelines](#), as a reference source for emissions estimate methods. This can be supplemented with information from other sources where practicable and appropriate.

The following may also assist in determining emissions:

- [National Greenhouse Accounts Factors](#) – for use by companies and individuals to estimate GHG emissions. Worked examples are provided.
- [IPCC Emissions Factor Database](#) – for emissions factors particularly for scope 3 emissions generated outside Australia.
- [Australian Government Climate Active Standards](#) – provides best-practice guidance on how to measure, reduce, offset, validate and report emissions.
- [GHG Protocol](#) – Technical Guidance for Calculating Scope 3 Emissions
- [Clean Energy Regulator - NGER calculators](#) – Calculators for developing emissions to report under NGER
- [UNFCCC – Emissions calculators](#) – A GHG calculator for use by organisations to estimate their carbon footprint.
- [Clean Energy Regulator - NGER reporting guides](#) – Guidelines for meeting reporting obligations under NGER.

### Appendix C – Examples of GHG information required for different application types

The following scenarios are provided as examples to assist applicants in determining application requirements for different application types.

Application type	Emission category	Description (example)	Application requirements
Site-specific	Low: expected GHG emissions (Scope 1 and Scope 2) of less than 25,000 tonnes CO <sub>2</sub> -e per year	<ul style="list-style-type: none"> <li>Poultry farming - ERA 4(2): farming a total of more than 200,000 chickens (broiler farm)</li> <li>The project is proposed to be connected to the electricity grid and will also involve the combustion of fuels (petrol/diesel) for transport vehicles, generators and vehicles/machinery and Liquified Petroleum Gas (LPG) for heating.</li> <li>The project will be operated under a contract to a poultry processing company who will supply chicks and then collect the grown livestock.</li> <li>The EA application is not linked to the poultry processing company. Information regarding the poultry processing company's GHG emissions is not required.</li> <li>Using the Emissions and Energy Threshold Calculator (Clean Energy Regulator), the project would meet the low emissions category for Scope 1 and 2 emissions.</li> </ul>	<ul style="list-style-type: none"> <li>A GHG emissions inventory (Scope 1 and 2 only) that identifies emission sources (i.e. what equipment will be used, identified fuel consumption and average weekly run time) and expected amount of electricity purchased from the grid.</li> <li>A copy of a completed sheet from the Emissions and Energy Threshold Calculator that identifies all Scope 1 and 2 emissions.</li> <li>Details of any GHG emission mitigation and management practices proposed to be implemented to reduce GHG emissions such as electrification of vehicles, seeking renewable fuel sources, and management of manure to minimise methane emissions.</li> <li>A risk assessment that outlines that expected GHG emissions from the activity are expected to be low and unlikely to significantly contribute to climate change impacts on Queensland's environmental values.</li> </ul>
	Medium to high: expected GHG emissions (Scope 1 and Scope 2) over 25,000 tonnes CO <sub>2</sub> -e per year (at any	<ul style="list-style-type: none"> <li>Alumina Refinery – various ERAs including. ERA 14: Electricity generation, ERA 15: Fuel Burning, ERA 31: Mineral Processing, ERA 50: Mineral and Bulk Material Handling.</li> <li>The alumina refining process traditionally relies on fossil fuels to produce on-site heat and generate its own</li> </ul>	<ul style="list-style-type: none"> <li>A GHG emissions inventory (Scope 1, 2) that identifies emission sources (i.e. fuel source and quantity for heat and electricity generation, estimated diesel usage for light vehicles and plant, grid electricity)</li> <li>An estimate of Scope 3 emissions from the upstream mining and downstream smelting</li> </ul>

Application type	Emission category	Description (example)	Application requirements
	time during the life of the project)	<p>electricity which are the primary sources of scope 1 emissions.</p> <ul style="list-style-type: none"> <li>• Diesel is also consumed in smaller quantities for site vehicles, plant and smaller generators.</li> <li>• The refinery is only responsible for refining Alumina and ancillary ERAs and does not smelt aluminium or mine raw materials.</li> <li>• As a new activity it will investigate viable alternatives to reduce emissions.</li> <li>• Upstream scope 3 emissions will primarily result from the mining of bauxite. Downstream will result from aluminium smelting.</li> <li>• Using the Emissions and Energy Threshold Calculator (Clean Energy Regulator), the project would meet the medium to high emissions category for Scope 1 and 2 emissions.</li> </ul>	<p>process and other significant sources of Scope 3 emissions).</p> <ul style="list-style-type: none"> <li>• Details of any GHG emission mitigation and management practices proposed to be implemented to reduce GHG emissions such as:               <ul style="list-style-type: none"> <li>○ Use of natural gas over fuel oil.</li> <li>○ Mechanical Vapour Recompression that will be transitioned to renewable energy sources over time.</li> <li>○ Implementation of electric boilers transitioned to renewables over time.</li> <li>○ A process to review the viability and cost effectiveness of hydrogen or electric calcination to be implemented in future and any other new technologies.</li> <li>○ Scope 2 emissions are expected to reduce through the QEJP and the renewable energy transformation of the grid.</li> <li>○ Scope 3 emissions are expected to be minimised by reducing transport distances to up and down stream facilities, reducing waste generation and obtaining raw materials from mines with low emissions intensity.</li> </ul> </li> <li>• A GHG abatement plan that meets the requirements of Appendix A (including the emissions inventory and mitigation and management practices described above).</li> </ul>

Greenhouse gas emissions

Application type	Emission category	Description (example)	Application requirements
			<ul style="list-style-type: none"> <li>A risk assessment that outlines the scale of expected GHG emissions from the project and how they are expected to contribute to climate change impacts on Queensland’s environmental values.</li> <li><b>Note:</b> where a company is captured by the Safeguard Mechanism, some elements of the GHG abatement plan (such as the baseline, emissions reduction targets and trajectory) will be set by Safeguard for Scope 1 emissions.</li> </ul>
<p><b>Amendment</b></p>	<p><b>Low:</b> expected GHG emissions (Scope 1 and Scope 2) of less than 25,000 tonnes CO<sub>2</sub>-e per year</p>	<ul style="list-style-type: none"> <li>The applicant has an EA for Pig keeping – ERA 3(3): keeping more than 8,000 standard pig units of pigs.</li> <li>The amendment application is to increase the number of standard pig units of pigs from 4,000 to 8,000.</li> <li>Scope 1 emissions from the amendment include emissions from the treatment of effluent as well as from the combustion of diesel, petrol, and gas.</li> <li>Emissions generated by livestock are not included in the emissions inventory as Queensland has in place a Queensland Emissions Agriculture Roadmap 2022-2032 designed to help reduce emissions from agricultural sources.</li> <li>Scope 2 emissions are from the use of electricity from the grid.</li> <li>The Scope 1 and 2 emissions associated with the proposed amendment are expected to be less than 25,000 tonnes CO<sub>2</sub>-e per year.</li> </ul>	<ul style="list-style-type: none"> <li>A GHG emissions inventory (Scope 1 and 2 only) associated with the amendment.</li> <li>A copy of a completed sheet from the Emissions and Energy Threshold Calculator that identifies all Scope 1 and 2 emissions associated with the amendment.</li> <li>Details of any GHG emission mitigation and management practices proposed to be implemented to reduce GHG emissions associated with the amendment such as electrification of vehicles, seeking renewable fuel sources, and management of effluent to minimise methane emissions.</li> <li>A risk assessment that outlines that expected GHG emissions from the amendment are expected to be low and unlikely to significantly contribute to climate change impacts on Queensland’s environmental values.</li> </ul>
	<p><b>Medium to high:</b> expected GHG emissions (Scope 1</p>	<ul style="list-style-type: none"> <li>The applicant has an EA for coal mining.</li> </ul>	<ul style="list-style-type: none"> <li>A GHG emissions inventory (Scope 1, 2 and 3) related to the amendment.</li> </ul>

Greenhouse gas emissions

Application type	Emission category	Description (example)	Application requirements
	<p>and Scope 2) over 25,000 tonnes CO<sub>2</sub>-e per year (at any time during the life of the project)</p>	<ul style="list-style-type: none"> <li>• The amendment application is to amend the EA to add a new mining lease tenure (satellite open cut operation).</li> <li>• Scope 1 GHG emissions from the activity include fugitive methane emissions and carbon dioxide emissions from:               <ul style="list-style-type: none"> <li>○ the combustion of fuels for transport purposes owned/controlled by the applicant;</li> <li>○ the combustion of fuels for stationary purposes, such as the generation of electricity, heat or steam in boilers, turbines and furnaces;</li> <li>○ the combustion of fugitive methane through flaring; and</li> <li>○ the mining of coal as some coal strata also contain carbon dioxide.</li> </ul> </li> <li>• Scope 2 emissions are from the use of electricity from the grid.</li> <li>• Scope 3 emissions include the downstream combustion of coal.</li> <li>• The emissions associated with the proposed amendment are expected to be more than 25,000 tonnes CO<sub>2</sub>-e per year.</li> </ul>	<ul style="list-style-type: none"> <li>• Details of any GHG emission mitigation and management practices proposed to be implemented to reduce GHG emissions associated with the amendment such as:               <ul style="list-style-type: none"> <li>○ Extraction, capture and flaring of coal mine methane.</li> <li>○ Improving energy efficiency by adopting high efficiency motors, optimising the washery, and optimising mine layout to minimise diesel use.</li> <li>○ Electrification by replacing diesel powered mobile fleet with electric trucks.</li> <li>○ Uptake of automatic haulage systems to reduce diesel use.</li> <li>○ Scope 2 emissions are expected to reduce through the QEJP and the renewable energy transformation of the grid.</li> <li>○ Scope 3 emissions are expected to be minimised by ensuring that the location of coal combustion is limited to countries that are signatories to the Paris Agreement as much as possible.</li> </ul> </li> <li>• A GHG abatement plan for the proposed amendment that meets the requirements of Appendix A (including the emissions inventory and mitigation and management practices described above).</li> <li>• A risk assessment that outlines the scale of expected GHG emissions from the proposed amendment and how they are expected to</li> </ul>

Application type	Emission category	Description (example)	Application requirements
			<p>contribute to climate change impacts on Queensland's environmental values.</p> <ul style="list-style-type: none"> <li>• <b>Note:</b> where a company is captured by the Safeguard Mechanism, some elements of the GHG abatement plan (such as the baseline, emissions reduction targets and trajectory) will be set by Safeguard for Scope 1 emissions.</li> <li>• <b>Note:</b> while not mandatory, it is recommended to include background greenhouse gas emission data from generated from the existing mining operation and surrounding land use.</li> </ul>