MT LYELL COPPER MINE

Copper Mines of Tasmania Pty Ltd

Mt Lyell New Processing Plant

Environmental Impact Statement

Projected Scope 1 and Scope 2 Greenhouse Gas (GHG) Emissions

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EXECUTIVE SUMMARY

This assessment estimates Scope 1 and Scope 2 greenhouse gas (GHG) emissions for the recommencement of mining at the Mt Lyell Copper Mine from diesel fuel combustion and purchased electricity. These are the material energy-related emissions expected from the integrated mining operation, including underground mining, new processing plant, and support activities.

Using activity data provided by the Company and applying factors from the *National Greenhouse and Energy Reporting (Measurement) Determination 2008*, alongside facility-specific data from *Hydro Tasmania* for Lake Margaret, projected emissions are just under 43,000 tonnes CO_2-e in Year 1, increasing to just under 55,200 tonnes CO_2-e by Year 10. This represents an absolute increase of approximately 12,200 tonnes CO_2-e, or 29%, over the projection period.

Scope 1 emissions arise exclusively from diesel combustion by mobile equipment across mining, processing, and support areas. These emissions decline over time, particularly following the recommissioning of the Prince Lyell shaft in Year 3, which eliminates underground truck haulage. By Year 6, Scope 1 emissions are projected to be 22% lower than the Year 1 peak, with modest increases thereafter as new ore bodies are accessed. By Year 10, total Scope 1 emissions are forecast to be 11% higher than Year 6, but still 12% lower (or just under 3,400 tCO_2-e) than the initial Year 1 peak.

Scope 2 emissions result from purchased electricity. Lake Margaret hydropower, assigned an effectively zero-emissions factor, is assumed to supply a fixed annual contribution of just under 85,000 MWh throughout the forecast period. This cap is exceeded from Year 1, with grid electricity supplying the balance. As site electricity demand increases to just over 215,000 MWh by Year 5, grid-supplied electricity rises from 55% of total demand in Year 1 to 60% by Year 10. This growing reliance on grid electricity, which carries a positive emissions factor, drives the majority of the increase in total emissions over the projection period.

In Year 1, emissions are split approximately 58% from diesel combustion (Scope 1) and 42% from electricity use (Scope 2), with mining operations contributing the majority of both. By Year 10, the split shifts to 39% diesel-related and 61% electricity-related emissions, reflecting the combined effect of infrastructure upgrades and increased reliance on grid electricity.

1 INTRODUCTION

1.1 Purpose

This study report has been prepared by EAGER Environmental for Copper Mines of Tasmania Pty Ltd (the Company) to support the Environmental Impact Statement (EIS) for the new Mt Lyell Processing Plant from the processing of mineral ore in the new processing plant and reinvigoration of the site out of a *Care and Maintenance* phase.

The study specifically addresses the projected scope 1 and scope 2 greenhouse gas (GHG) for the first year of full operation (referred to as Year 1) and provides a summary of the emissions trajectory to Year 10.

1.2 Scope

This study has been completed to meet the relevant requirements for projecting Scope 1 and Scope 2 emissions as specified in:

- EPA TAS (April 2025) **Section 6.8 Greenhouse gas emissions, ozone depleting substances and climate change** from the Environmental Impact Statement Guidelines - Copper Mines Tasmania Mt Lyell New Processing Plant, Mt Lyell Mine, Queenstown.

This assessment is limited to GHG emissions from diesel fuel combustion (Scope 1) and purchased electricity (Scope 2). These are the material energy-related emissions from mining operations.

1.3 Disclaimer

The data presented in this report has been provided by the Company or its representatives. No independent verification has been conducted to assess its accuracy or completeness.

This report makes no claims regarding the reliability or validity of the data and should be interpreted accordingly. All findings and analyses are based solely on the data as received. Readers should exercise their own discretion when using this information for decision-making or further analysis.

2 METHODOLOGY

2.1 Operational Control Boundary

Scope 1 and scope 2 GHG emissions have been assessed using an operational control organisational boundary, consistent with Section 11 of the *National Greenhouse and Energy Reporting Act 2007* (NGER Act):

... the full authority to introduce and implement operating policies at an operation. Simply put, this is the ability to directly manage and influence activities, essentially meaning the company has the power to make decisions about the operation, which may directly or indirectly influence the increase or decrease of GHG emissions.

2.2 Target Greenhouse Gas (GHG) Emissions

This study includes the six gases recognised under the *National Greenhouse Gas and Energy Reporting Scheme* (NGER):

- Carbon dioxide (CO_2).
- Methane (CH_4).
- Nitrous oxide (N_2O).
- Hydrofluorocarbons (HFCs).
- Perfluorocarbons (PFCs).
- Sulphur hexafluoride (SF_6).

Note: While nitrogen trifluoride (NF_3) is recognised internationally as a greenhouse gas, it is not included under the NGER Scheme and has been excluded from this study. No relevant sources have been identified at the mine site, and it is not applicable to current operations.

Their applicability to mine site operations is presented in **Table 1**.

Table 1: Applicable GHG Emission Types

GHG Emissions	GHG Emission Source		
	Fuel combustion Scope 1	Electricity consumption Scope 2	
Carbon dioxide (CO_2)	✓	✓	Primary contributor across all sources
Methane (CH_4)	✓ (1)	✓ (2)	Included in combined CO_2-e emission factor
Nitrous oxide (N_2O)	✓ (1)	✓ (2)	Included in combined CO_2-e emission factor
Hydrofluorocarbons (HFCs)	✗	✗	Not applicable; no relevant industrial processed
Perfluorocarbons (PFCs)	✗	✗	Not applicable; no relevant industrial processed
Sulphur hexafluoride (SF_6)	✗	✗	Not applicable; transformers are oil-filled, not SF_6-filled

Legend:

✓ Potential emission source and therefore included in the study

✗ Not applicable to the project; excluded from further consideration

Footnotes:

(1) CH_4 and N_2O from fuel combustion are not speciated; included within combined scope 1 CO_2-e emission factor

(2) CH_4 and N_2O from electricity use are included in scope 2 CO_2-e factors; not separately quantified

2.3 GHG Emission Sources

Scope 1 GHG emissions are expected to arise solely from the combustion of diesel fuel by mobile equipment. No stationary combustion sources (e.g. generators) or other fuel types are anticipated.

Mobile equipment includes:

- Underground and surface mining machinery.
- Loaders, haul trucks, and support vehicles.
- Light vehicles used across operational and support areas.

Scope 2 GHG emissions are expected to result from purchased grid electricity used to power underground ventilation systems, surface processing activities, and site-wide infrastructure. A portion of electricity is expected to be supplied by Lake Margaret hydropower, operated by Hydro Tasmania.

2.4 Carbon Dioxide Equivalence (CO_2-e)

All emissions in this report are expressed collectively as tonne carbon dioxide equivalence (tCO_2-e) i.e, GHG emissions are not speciated into CO_2, CH_4, and N_2O.

2.5 GHG Emissions Accounting Approach

Projected scope 1 and 2 emissions have been calculated in accordance with the *National Greenhouse Gas and Energy Reporting* (NGER) *Scheme* as stipulated in the following legislation:

- NGER Regulations 2008; and
- NGER (Measurement) Determination 2008.

As the Mt Lyell Copper Mine will be subject to mandatory reporting obligations under the NGER Act, adoption of this accounting approach ensures that:

- The methodology used is fully aligned with national regulatory expectations.
- Emissions estimates are consistent with the reporting obligations the Company will face during future operations.
- The results are traceable, defensible, and compatible with future audit and verification processes.

This approach provides confidence that the emissions projections presented in this report reflect best-practice standards, legislative requirements and are suitable for EIS documentation.

See **Appendix A** for detailed methodology and factors.

2.6 Emission Factors

To calculate GHG emissions, emission factors are applied to relevant activity data, such as the volume of diesel combusted or the amount of electricity purchased.

All emission factors used in this study are:

- Sourced directly from the NGER Scheme; or
- Applied in accordance with NGER legislative requirements, ensuring consistency with regulatory expectations.

The specific emission factors used in the projections are detailed in **Appendix A**.

2.7 Historical GHG and Energy Reporting

Although the mine previously reported under the NGER Scheme, it is not possible to establish a consistent historical base year for comparative purposes. The recommencement phase involves mining different ore bodies, each with distinct material movement profiles, energy requirements, and emissions characteristics. As a result, earlier reporting periods do not provide a like-for-like baseline for assessing current or future performance. Accordingly, historical comparisons have not been made.

2.8 Site Areas

To meet the requirements of the EIS, the Mt Lyell site has been divided into three distinct operational areas:

- Area 1 – Underground Mining: dewatering, ventilation, conveying, crushing, hoisting.
- Area 2 – Surface Operations: processing plant operations, ore handling and treatment.
- Area 3 – Support Infrastructure: site offices, workshops and ancillary services.

2.9 Data Sources and Traceability

All activity data used in this study was provided by the Company or its representatives. Key sources include:

- Diesel consumption estimates: derived from equipment usage models and fuel demand projections for underground and surface operations.
- Electricity demand projections: based on processing plant specifications, ventilation requirements, and infrastructure load modelling.
- Emission factors: sourced from the *NGER (Measurement) Determination 2008* and applied in accordance with regulatory guidance.
- Operational assumptions provided by project planners and Company representatives, consistent with recommencement scenarios.

3 EMISSIONS PROFILE AND PROJECTIONS

3.1 Emissions Calculations Assumptions

To support transparency and traceability, the following assumptions have been applied in the calculation of projected Scope 1 and Scope 2 emissions for the first full year of operation and the 10-year trajectory.

3.1.1 Scope 1 – Diesel Combustion

The following assumptions have been made when calculating Scope 1 emissions:

- Diesel consumption estimates are based on equipment usage models and advice provided by the Project Manager and:
  - With all Scope 1 emissions attributed to diesel combustion by mobile equipment.
  - No stationary combustion sources (e.g. generators) or other fuel types are anticipated.
- Emission factors are applied using combined CO_2-e values; CH_4 and N_2O are not speciated.

3.1.2 Scope 2 – Electricity Consumption

The following assumptions have been made when calculating Scope 2 emissions:

- As provided by the Company:
  - Maximum hydro electricity output for site use is 84,989,520 kWh/year. Electricity demand not provided by Lake Margaret will be provided by grid.
  - Electricity demand is projected to remain constant over the forecast period, based on stable ore processing volumes.
- Grid and hydropower emission factors are assumed to remain consistent with current published values.

- Lake Margaret hydropower output is assumed to remain at maximum capacity (~85,000 MWh/year) throughout the projection period. Variations in hydrological conditions, scheduled maintenance, or operational availability would affect the grid/hydro split and associated emissions.

3.2 Projected Scope 1 Emissions (Years 1 to 10)

Figure 1 presents the projected diesel consumption across operational activities.

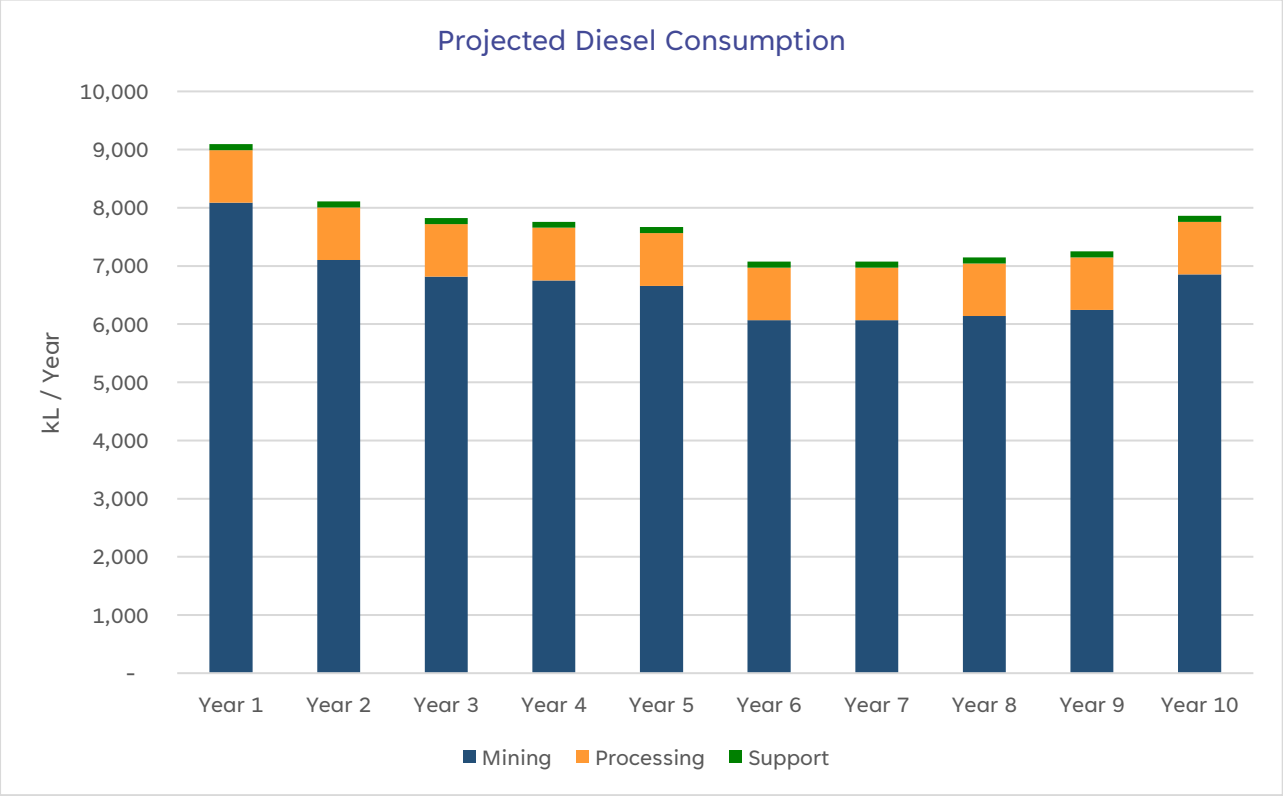

Figure 1: Projected Diesel Consumption (Years 1 to 10)

Figure 2 presents the projected Scope 1 emissions operational activities directly related to the amount of diesel consumption.

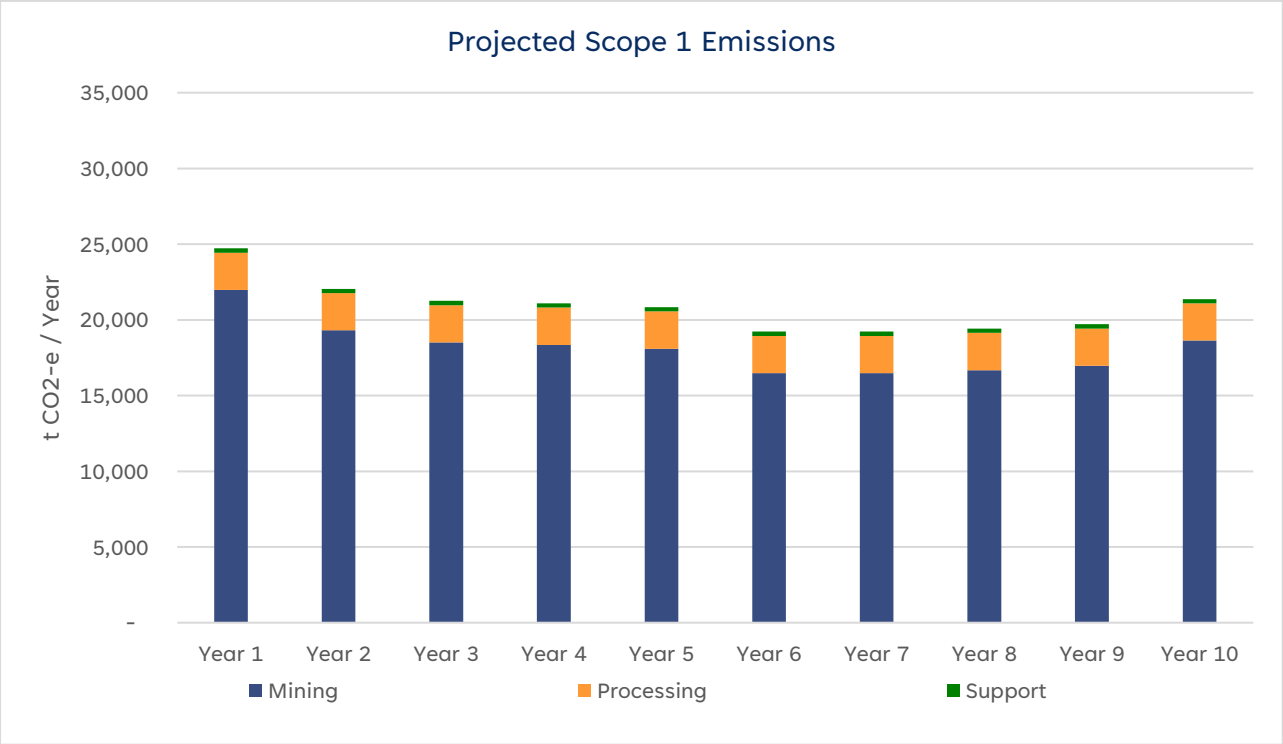

Figure 2: Projected Scope 1 Emissions (Years 1 to 10)

In the first full year of operation (Year 1), diesel consumption is expected to generate just over 24,000 tCO_2-e. Emissions distribution is anticipated as follows:

- Approximately 89% will be generated from mining operations.
- Around 10% will be generated during processing operations.
- Support services, including site vehicles, will contribute the remaining 1%.

This proportional split remains consistent throughout the projection period, with mining continuing to represent the majority of diesel-related emissions. Processing emissions increase slightly in later years as throughput grows, while support services remain a minor contributor.

From Year 2 onward, diesel consumption is expected to progressively decline as the Prince Lyell shaft is recommissioned. This infrastructure upgrade will eliminate the need for trucks to transport ore from underground to the processing area, with ore instead moved to the surface via the shaft.

By Year 6, Scope 1 emissions are projected to decrease by 22% (or just under 5,500 tCO_2-e) compared to the Year 1 peak. As new ore bodies are accessed in later years, emissions are expected to rise gradually. By Year 10, total Scope 1 emissions are forecast to be 11% higher than Year 6, but still 12% lower (or just under 3,400 tCO_2-e) than the initial Year 1 peak.

This trajectory reflects both operational improvements and the evolving nature of the mine's production profile.

3.3 Projected Scope 2 Emissions (Years 1 to 10)

Figure 3 presents the projected electricity consumption across operational activities.

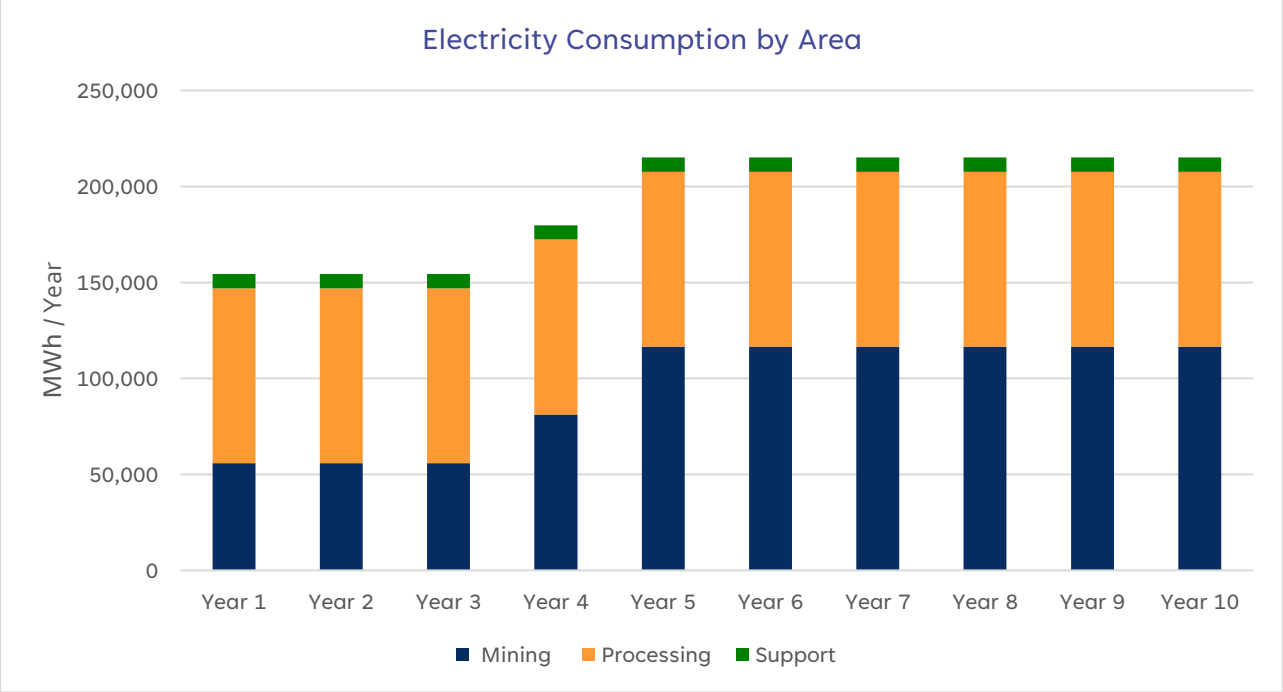

Figure 3: Projected Electricity Consumption (Years 1 to 10)

Figure 4 presents the projected scope 2 emissions for the mine, based on electricity consumption across operational activities.

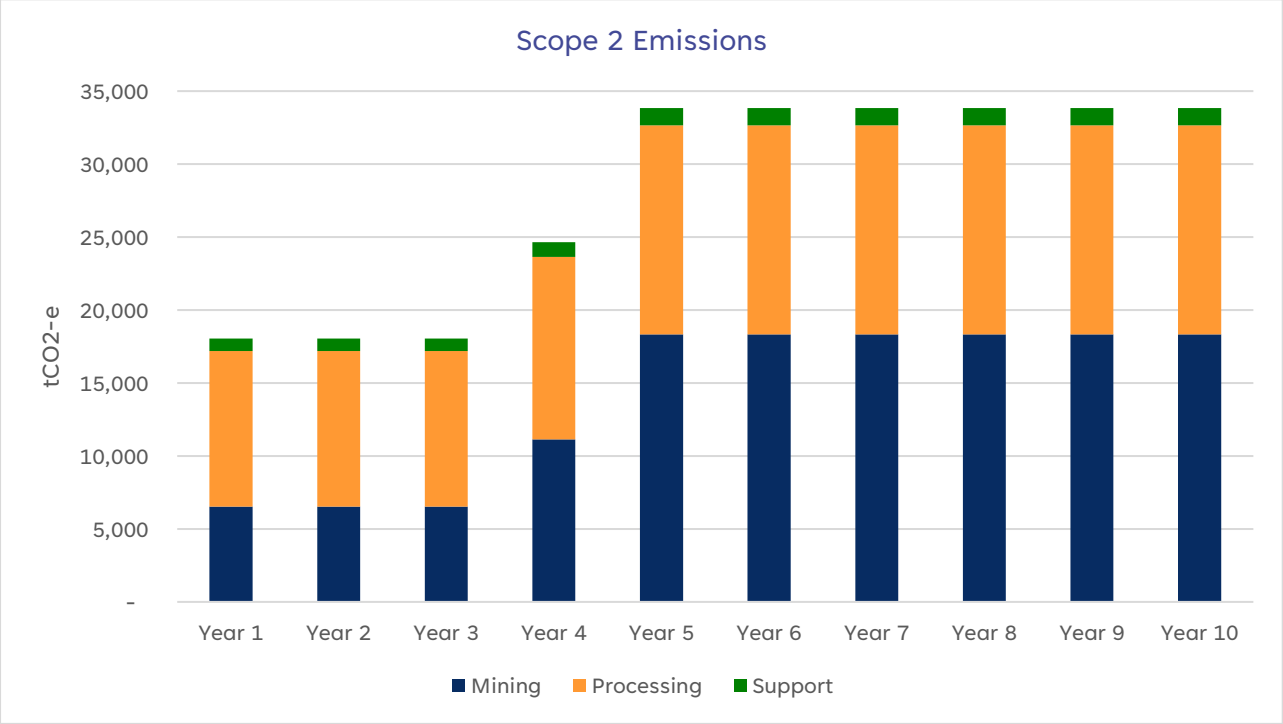

Figure 6 Figure 4: Projected Scope 2 Emissions (Years 1 to 10)

Figure 5 presents the projected supply of electricity from Lake Margaret (hydroelectricity) and additional demand to be supplied by the State grid. By Year 4, the amount of electricity supplied by the grid will progressively increase as the generation capacity of Lake Margaret is reached. Electricity consumption (site demand) is expected to remain relatively constant after Year 5 with an estimated electricity demand of just over 215,000 MWh/year, supplied approximately 40% supplied by Lake Margaret and 60% supplied by the grid. This reflects a 39% increase in electricity demand compared to Year 1.

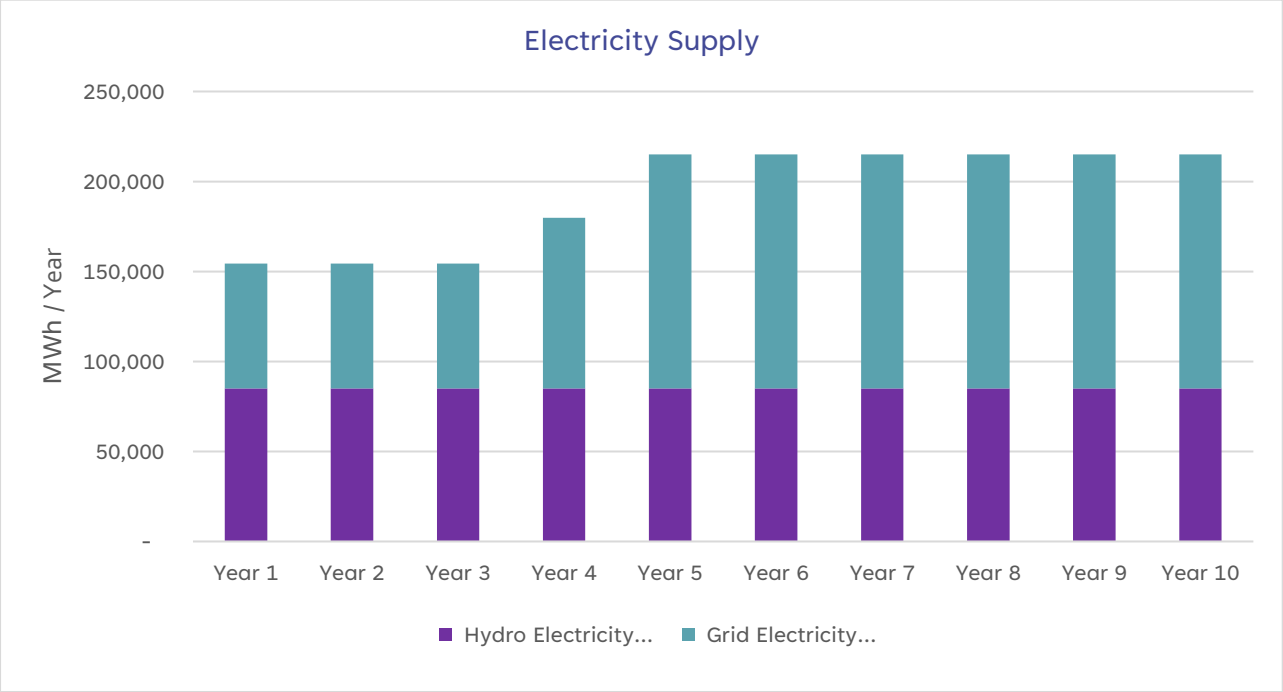

Figure 5: Projected Electricity Supply (Years 1 to 10)

Figure 6 presents the projected Scope 2 emissions operational activities directly related to the amount of electricity consumption and electricity supply source.

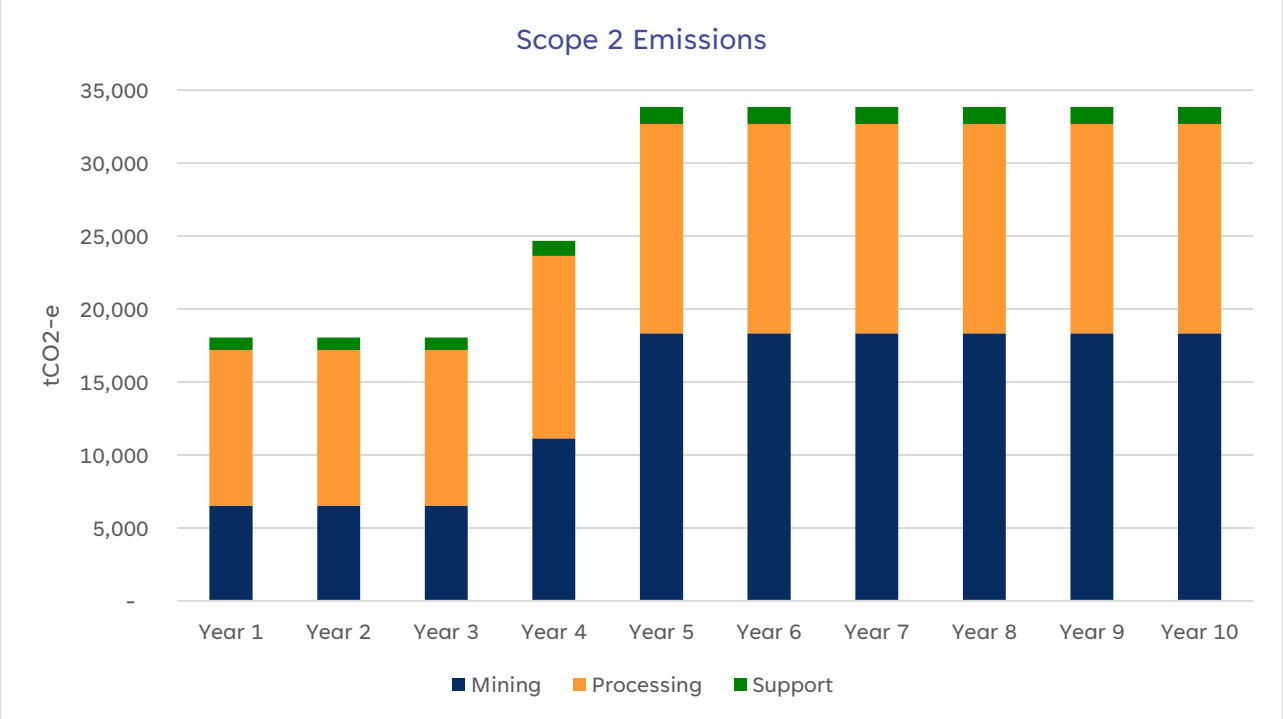

Figure 6: Projected Scope 2 Emissions (Years 1 to 10)

In the first full year of operation (Year 1), electricity consumption is expected to generate just over 18,000 tCO_2-e. Emissions distribution is anticipated as follows:

- Approximately 60% will be generated during processing operations.
- Mining operations will contribute around 36%.
- Support services, including the office and laboratory, will account for the remaining 5%.

This proportional split shifts gradually over the projection period. As new ore bodies are accessed and the Prince Lyell shaft is recommissioned, mining-related electricity demand increases, particularly for dewatering, ventilation, and underground services. By Year 5, mining becomes the dominant contributor to Scope 2 emissions, while support services remain the smallest component throughout.

Following an initial rise in electricity demand, Scope 2 emissions are expected to stabilise at approximately 33,800 tCO_2-e from Year 5 onward. This represents an 87.5% increase (or just over 15,780 tCO_2-e) compared to Year 1, reflecting both expanded operational activity and a growing share of electricity supply drawn from the State grid. The grid carries a positive emission factor, whereas hydroelectricity supplied by Lake Margaret is assigned an effectively zero-emission factor (see **Appendix A**).

3.4 Projected Scope 1 and Scope 2 Emissions (Years 1 to 10)

Figure 7 presents the combined projected Scope 1 and Scope 2 emissions for the mine, based on diesel combustion and electricity consumption across operational activities.

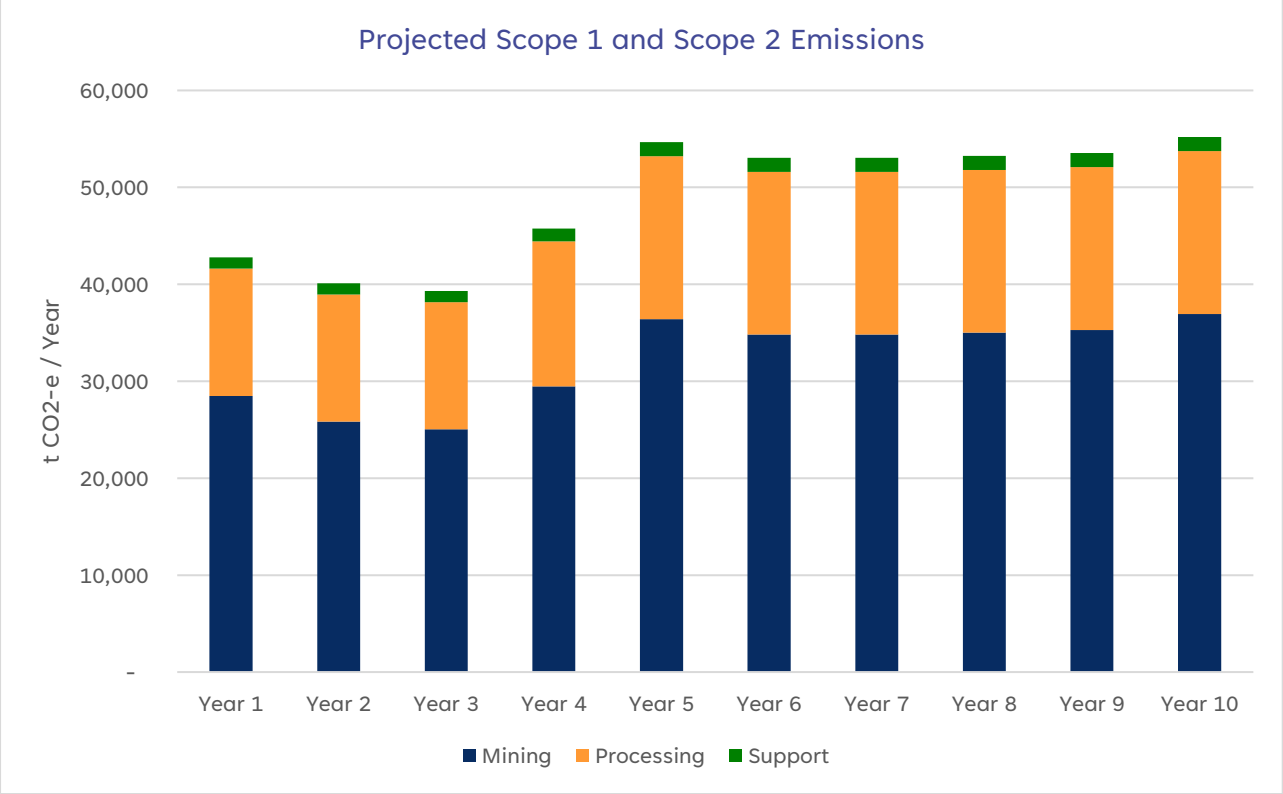

Figure 7: Projected Combined GHG Emissions by Area (Years 1 to 10)

In the first full year of operation (Year 1), emissions from diesel and electricity consumption are expected to reach just under 43,000 tCO_2-e. Emissions distribution is anticipated as follows:

- Approximately 67% will be generated from mining operations.
- Around 31 % will be generated during processing operations.

- Support services, including site vehicles, the office and laboratory, will account for the remaining 3%.

This proportional split remains broadly consistent throughout the projection period. By Year 10, total combined Scope 1 and Scope 2 emissions are projected to reach just under 55,200 tCO_2-e, representing a 29% increase compared to Year 1 (or approximately 12,400 tCO_2-e). This reflects expanded underground activity, increased ventilation and dewatering requirements, and the fixed contribution of Lake Margaret hydropower relative to rising demand. Notably, diesel-related emissions are expected to decline following the recommissioning of the Prince Lyell shaft, which eliminates the need for truck haulage from underground to surface. This infrastructure upgrade contributes to a net reduction in Scope 1 emissions over the projection period, partially offsetting increases in electricity-related emissions.

4 MANDATORY REPORTING

Once operational, the Mt Lyell Copper Mine will trigger mandatory reporting thresholds under the *National Greenhouse and Energy Reporting Act 2007*. The mine will be required to:

- Track and report annual energy consumption.
- Calculate and report Scope 1 emissions (direct from operations).
- Calculate and report Scope 2 emissions (indirect from purchased electricity).
- Maintain auditable records compliant with NGER Regulations 2008.
- Use defensible methodologies per NGER (Measurement) Determination 2008.

Under NGER requirements, reporting occurs at the controlling corporation level (Copper Mines of Tasmania's parent company). Mt Lyell's data will be included in consolidated Australian reporting.

5 CONCLUSION

Across the 10-year operational trajectory, the emissions profile reflects the interplay between infrastructure upgrades, production expansion, and energy sourcing constraints. Diesel-related emissions decline following the recommissioning of the Prince Lyell shaft, while electricity-related emissions rise in response to increased demand and the fixed contribution of Lake Margaret hydropower. By Year 10, total Scope 1 and Scope 2 emissions are projected to be approximately 55,200 tCO_2-e (an increase of 29% from Year 1).

Appendix A: Glossary

Term	Definition
Activity data	A quantitative measure of a level of activity that results in greenhouse gas (GHG) emissions. Activity data is multiplied by an emissions factor to derive the GHG emissions associated with a process or an operation (e.g. kilowatt hours (kWh) of electricity used, quantity of fuel used, output of a process, hours equipment is operated and distance travelled.
Carbon Dioxide Equivalence (CO_2-e)	The universal unit of measurement used to indicate the global warming potential (GWP) of each GHG, expressed in terms of the GWP of one unit of carbon dioxide (CO2). It is used to evaluate releasing (or avoiding releasing) different GHGs against a common basis.
Emission Factor	A factor applied to activity data to determine GHG emissions (e.g. kilogram (kg) of CO_2-e emitted per gigajoule of fuel consumed, kg of CO_2-e per kilowatt hour (kWh) of electricity used).
Greenhouse Gas (GHG)	Gas that can trap heat when emitted within the atmosphere. The greenhouse gases (GHG) included in the GHG Protocol are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3).
Greenhouse Gas Emissions (GHG Emissions)	These are the aggregate anthropogenic carbon dioxide equivalent emissions of carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6), and nitrogen trifluoride (NF_3). All are expressed in carbon dioxide equivalence (CO_2-e).
NGER, NGER Act	National Greenhouse and Energy Reporting Act 2007.
NGER Determination	National Greenhouse and Energy Reporting (Measurement) Determination 2008.
NGER Regulations	National Greenhouse and Energy Reporting Regulations 2008.
NGERS	National Greenhouse and Energy Reporting Scheme
Operational Control	The full authority to introduce and implement operating policies at an operation. Simply put, this is the ability to directly manage and influence activities, essentially meaning the company has the power to make decisions about the operation, which may directly or indirectly influence the increase or decrease of GHG emissions.
Scope 1 Emissions	Scope 1 emissions are direct emissions from onsite sources that a company owns or controls, e.g. emissions generated from the combustion of fossil fuels by vehicles and equipment.
Scope 2 Emissions	If a company does not produce its own energy, the emissions produced in generating that energy at a power plant or other source become the company's scope 2 emissions. These indirect emissions from the creation of electricity, steam, heat or colling are not produced by the company's own facilities but are still part of its carbon footprint.

Appendix B: Scope 1 and 2 - Emission Factors and Calculation Methodology

Scope 1 emissions from the combustion of diesel are calculated in accordance with Division 2.4.2 *Method 1 – emissions of carbon dioxide, methane and nitrous oxide from liquid fuels other than petroleum-based oils and greases* of the NGER (Measurement) Determination 2008 as follows:

$$E = \frac{Q \quad \text{x } EC \text{ x } EF}{1{,}000}$$

Where:

E =	Total Scope 1 emissions released from the combustion of diesel at the mine for a full year (measured in CO_2-e tonnes)
Q =	quantity of diesel (*i*) combusted from the operation of the facility for transport energy purposes during the year measured in kilolitres (kL)
EC =	energy content of diesel measured in gigajoule (GJ)/kL (taken as 38.6 GJ/kL)
EF =	emission factor for diesel measured in kilograms (kg) CO_2-e per GJ (taken as 70.4 kg/ CO_2-e)
1,000 =	conversion of kg to tonne (T)

Assumptions: Energy content and diesel emission factors are assumed to remain consistent with current factors for Year 1 to 10 projections.

Scope 2 emissions from the purchase of electricity:

- from the main grid are calculated in accordance with Division 7.2 *location-based method - electricity purchased, acquired or lost from main electricity grid in a State or Territory* of the NGER (Measurement) Determination 2008; or
- from the Lake Margaret in accordance with Division 7.2 *Method A2 – location-based method - electricity purchased, acquired or lost from other sources* of the NGER (Measurement) Determination 2008.

All scope 2 emissions are calculated as follows:

$$Y = Q \times \frac{EF}{1{,}000}$$

Where:

Y =	scope 2 emissions measure in measured in CO_2-e tonnes
Q =	quantity of electricity purchased from the grid and Lake Margaret measured in kilowatt hours (kWh)
EF =	scope 2 emission factor measured in kg/CO_2-e per kWh: - Grid: State default (0.26 kg/CO_2-e per kWh) - Lake Margaret (0.000025 kg/CO_2-e per kWh provided by Hydro Tasmania for Lake Margaret electricity)

Assumptions: Grid and hydropower emission factors are assumed to remain consistent with current factors for Year 1 to 10 projections.