



TELFER OPERATIONS

Greenhouse Gas Management Plan

700-675-EN-PLA-2008

700-675-EN-PLA-2008	UNCONTROLLED WHEN PRINTED OR SAVED		Page 1 of 20
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DOCUMENT CONTROL

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AMENDMENTS

No.	Date	Developed By	Nature of Amendment
GGEM P01-A	June 2003		Telfer Project - Mine And Borefield Extensions Greenhouse Gas Emissions Management Plan
GGEM P01-E	August 2003		Telfer Project - Power Supply And Infrastructure Corridor Greenhouse Gas Emissions Management Plan
1	13/05/2013	E Jacob/ N Zago	Update to include relevant standards
2	08/02/2018	Energetics A Vague	Update to include relevant corpoptate standards, updated legislation and combining of the Noise and Dust MP
3	24/09/2019	E Wink	Format changed to meet EPA Template for Environmental Protection Act 1986 Part IV Environmental Management Plans Inclusion of Newcrest adaptive management framework Objectives updated and presented in Schedules as management actions and targets Consultant report (previously provided as an appendix) removed Updated to meet Newcrest branding guidelines
4	28/05/2020	E Wink	Updated to meet external requirements
5	13/10/2021	E Wink	Updated to reflect new baseline

APPROVAL

Revision No.	Approval Date	Approval
5	27/10/2021	Stephen Fitch General Manager – Telfer
		Brad Stokes Manager Environment – Telfer
		Esme Wink Superintendent Environment & Closure – Telfer
		Bot Kao Senior Sustainability Advisor

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SUMMARY

Proponent Newcrest Mining Limited

Title of Proposal Telfer Project

Ministerial Statement Number	GHG MP Purpose	Key environmental factors and objectives	Key provisions in the plan
605	Implementation of condition requirements	Greenhouse Gas Emissions - To mitigate greenhouse gas emissions and consequently minimise the risk of contributing to climate change	<ul style="list-style-type: none"> Implementation of haul road maintenance. Preventative maintenance on vehicles and equipment. Provision of a bus to transport personnel from village to mine. Monitoring of driver techniques. Optimisation of mine planning and haulage operations by using Supervisory Control and Data Acquisition (SCADA) system. Progressively refurbish ventilation fans in the underground mining operations to ensure they perform optimally and maximise energy efficiency. De-rate fans in the underground mining operations to reduce energy consumption and only provide primary air flow required. Haulage from the underground mine via an electric powered shaft and winder. Optimise mill operation to increase grinding efficiency. Options for fuel additives to reduce fuel burn and emissions.
606			

1. CONTEXT, SCOPE AND RATIONALE

The purpose of this Greenhouse Gas Management Plan (GHG MP) is to:

- Describe the management actions undertaken to effectively manage emissions and minimise total net greenhouse gas emissions;
- Meet Condition 6, Ministerial Statement 605 (MS605);
- Meet Condition 7, Ministerial Statement 606 (MS606); and
- Meet the requirements of 'Instructions on how to prepare *Environmental Protection Act 1986* Part IV Environmental Management Plans' (EPA, 2018).

The following sub-sections outline the proposals that this GHG MP addresses (Section 1.1), the relevant key environmental factors (Section 1.2), the condition requirements applicable to those Proposals (Section 1.3) and the rationale and underlying approach (Section 1.4).

This management plan includes Scope 1 and Scope 2 emissions from the following:

- Telfer Gold Mine: Open pit and underground operations, tailings dams, ore treatment, gold processing, village, airport and power stations.
- Telfer to Port Hedland Gas Pipeline: 440 kilometre gas pipeline from Telfer Gold Mine to Port Hedland.
- Copper Concentrate Facility: Storage area in Port Hedland consisting of larger shed (30,000 tonne storage capacity) connected via conveyor to small shed (3,500 tonne storage capacity).

1.1 Proposal

The Telfer gold-copper mine in the Great Sandy Desert in the East Pilbara region of Western Australia, is 100 per cent owned by Newcrest. Telfer is a fly-in-fly-out operation, 400 kilometres east-south-east of Port Hedland and approximately 1,300 kilometres by air or 1,900 kilometres by road north-east of the state's capital, Perth.

Telfer comprises the Main Dome and West Dome open pits and the Telfer underground mine. Telfer also has a number of other prospective gold and poly-metallic deposits in the area covered by Newcrest's existing mining and exploration tenements.

The ore from the mining operations is processed by a large, dual train, comminution circuit followed by flotation and cyanide circuits, which produce gold doré and a copper-gold concentrate. The process is complex because of the need to accommodate differing ore types. Copper-gold concentrates produced at Telfer are filtered to produce a dewatered concentrate which is trucked to Port Hedland and exported to various smelters, primarily in the East Asia region. The gold doré produced at Telfer is refined at the Perth Mint.

Table 1 lists the proposals for which a Ministerial statement has been issued at the Telfer Project which include greenhouse gas conditions.

Table 1: Proposals for which Ministerial Statement implementation conditions require the development of a Greenhouse Gas Management plan.

Ministerial Statement Number	Title of proposal on Ministerial Statement	Proposal (exact wording in the Ministerial Statement)
605	Telfer Project, Power Supply and Infrastructure Corridor	“Supply of electrical power to the Telfer Gold Mine along a 440 kilometre infrastructure corridor from Port Hedland”
606	Telfer Project, Expansion of Telfer Gold Mine Great Sandy Desert.	“The expansion of mining at the Telfer Gold Mine to include the mining and processing of 400 million tonnes of gold ore at a rate of up to 23 million tonnes per annum, and the transport of copper concentrate to Port Hedland by road.” “The expansion will require the development or expansion of mine facilities and infrastructure at the Telfer Gold Mine”

1.2 Key environmental factor/s

The key environmental factors applicable to the Proposals presented in Section 1.1 are listed in Table 2.

Table 2: Key environmental factors

Ministerial Statement Number	Key Environmental Factors	Values	Impacts
605	Greenhouse Gas (GHG) Emissions	Minimise net GHG emissions.	<ul style="list-style-type: none"> The consumption of fuels by light and heavy vehicles Use of explosives for blasting operations Loading and hauling of ore or waste The consumption of fuels for the generation of electricity Direct loss of habitat (land disturbance)
606	Greenhouse Gas (GHG) Emissions	Minimise net GHG emissions.	<ul style="list-style-type: none"> The consumption of fuels by light and heavy vehicles Use of explosives for blasting operations Loading and hauling of ore or waste The consumption of fuels for the generation of electricity Direct loss of habitat (land disturbance)

1.3 Condition requirements

Table 3 lists the Ministerial Statement condition requirements.

Table 3: Ministerial Statement conditions and requirements

Condition No.	Environmental Factor	Condition Requirements	Schedule	Value
Ministerial Statement 605				
6-1	Greenhouse Gas Emissions	<p>Prepare a Greenhouse Gas Emissions Management Plan to:</p> <ul style="list-style-type: none"> • ensure that “greenhouse gas” emissions from the project are adequately addressed and best available efficient technologies are used to minimise total net “greenhouse gas” emissions and/or “greenhouse gas” emissions per unit of product; and • mitigate “greenhouse gas” emissions in accordance with the Framework Convention on Climate Change 1992, and consistent with the National Greenhouse Strategy; <p>to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority. This plan shall include:</p> <ol style="list-style-type: none"> 1. calculation of the “greenhouse gas” emissions associated with the proposal, as indicated in “Minimising Greenhouse Gas Emissions, Guidance for the Assessment of Environmental Factors, No. 12” published by the Environmental Protection Authority; 2. specific measures to minimise the total net “greenhouse gas” emissions and/or the “greenhouse gas” emissions per unit of product associated with the proposal; 3. monitoring of “greenhouse gas” emissions; 4. estimation of the “greenhouse gas” efficiency of the project (per unit of product and/or other agreed performance indicators) and comparison with the efficiencies of other comparable projects producing similar product; 5. analysis of the extent to which the proposal meets the requirements of the National Greenhouse Strategy using a combination of: <ol style="list-style-type: none"> a. “no regrets” measures; b. “beyond no regrets” measures; c. land use change or forestry offsets; and d. international flexibility mechanisms; 	6.1	Minimise net GHG emissions.

Greenhouse Gas Management Plan

Condition No.	Environmental Factor	Condition Requirements	Schedule	Value
		<p>6. a target set by the proponent for the reduction of total net “greenhouse gas” emissions and/or “greenhouse gas” emissions per unit of product over time, and annual reporting of progress made in achieving this target.</p> <p>Note: In part 5 above, the following definitions apply:</p> <p>(1) “no regrets” measures are those that can be implemented by a proponent which are effectively cost-neutral and provide the proponent with returns in savings which offset the initial capital expenditure that may be incurred; and</p> <p>(2) “beyond no regrets” measures are those that can be implemented by a proponent which involve some additional cost that is not expected to be recovered.</p>		
Condition 6-2	Greenhouse Gas Emissions	Implement the Greenhouse Gas Emissions Management Plan Required by condition 6-1 to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.	6.1	Minimise net GHG emissions.
Condition 6-3	Greenhouse Gas Emissions	Make the Greenhouse Gas Emissions Management Plan required by condition 6-1 publicly available to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority.	6.1	Minimise net GHG emissions.

Ministerial Statement 606

Condition 7-1	Greenhouse Gas Emissions	<p>Prepare a Greenhouse Gas Emissions Management Plan to:</p> <ul style="list-style-type: none"> • ensure that “greenhouse gas” emissions from the project are adequately addressed and best available efficient technologies are used to minimise total net “greenhouse gas” emissions and/or “greenhouse gas” emissions per unit of product; and • mitigate “greenhouse gas” emissions in accordance with the Framework Convention on Climate Change 1992, and consistent with the National Greenhouse Strategy; <p>to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority. This plan shall include:</p> <p>1. calculation of the “greenhouse gas” emissions associated with the proposal, as indicated in “Minimising Greenhouse Gas Emissions, Guidance for the Assessment of Environmental Factors, No. 12” published by the Environmental Protection Authority;</p>	6.1	Minimise net GHG emissions.
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Greenhouse Gas Management Plan

Condition No.	Environmental Factor	Condition Requirements	Schedule	Value
		2. specific measures to minimise the total net “greenhouse gas” emissions and/or the “greenhouse gas” emissions per unit of product associated with the proposal; 3. monitoring of “greenhouse gas” emissions; 4. estimation of the “greenhouse gas” efficiency of the project (per unit of product and/or other agreed performance indicators) and comparison with the efficiencies of other comparable projects producing similar product; 5. analysis of the extent to which the proposal meets the requirements of the National Greenhouse Strategy using a combination of: <ul style="list-style-type: none"> a. “no regrets” measures; b. “beyond no regrets” measures; c. land use change or forestry offsets; and d. international flexibility mechanisms; 		
Condition 7-2	Greenhouse Gas Emissions	Implement the Greenhouse Gas Emissions Management Plan Required by condition 6-1 to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority	6.1	Minimise net GHG emissions.
Condition 7-3	Greenhouse Gas Emissions	Make the Greenhouse Gas Emissions Management Plan required by condition 6-1 publicly available to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority	6.1	Minimise net GHG emissions.

1.4 Rationale and approach

This section provides a concise description of the rationale and approach for this GHG MP, including:

- Study and monitoring findings;
- Key assumptions and uncertainties;
- The management approach; and
- The rationale for choice of provisions.

For these above-listed, management actions, targets and proposed monitoring parameters have been developed in this GHG MP and specifically included in the relevant Schedules for the endorsement of the CEO of the EPA. The Schedules are intended to be stand-alone documents.

1.4.1 Studies

Studies have been undertaken at Telfer to assess emissions risk and compliance to legal requirements. These reports are updated periodically and in the case of legislative changes. The most recent reports are listed in Section 5.1.

1.4.2 Management Approach – General

Newcrest's management approach is risk based. Environmental risk assessments have been undertaken at the prefeasibility stage, feasibility stage, mining lease application stage, construction stage and operational stages. Mitigation controls have been developed to manage the identified risks and these are included in operational management plans in including this Greenhouse Gas Management Plan.

Emissions which impact Environmental Values at Telfer are managed as per the following:

- This Greenhouse Gas Management Plan (700-675-EN-PLA-2008);
- Newcrest Air Quality Management Standard (EN ST 02);
- Diesel Emissions Management Plan (700-200-VN-PLA-0001); and
- Surface Disturbance Permit Procedure: (700-675-EN-PRO-1012)

Occupational health and hygiene impacts from emissions are not addressed in this plan as they are specific to the Health and Hygiene Management Plan (700-676-HE-PLA-2000).

1.4.3 Value specific rationale and approach

The rationale and approach for the GHG MP against the environmental objectives are provided in Appendix 7.1, which summarises study findings, key assumptions and uncertainties, management approach and rationale for choice of provisions regarding each value.

Additionally Appendix 7.2 provides the Telfer GHG emissions by source.

2. GHG MP PROVISIONS

Please refer to schedules 6.1 and 6.2.

3. ADAPTIVE MANAGEMENT AND REVIEW OF THE GHG MP

Newcrest applies an adaptive management framework for implementing management measures identified in this GHG MP. Adaptive management is a structured, iterative process to enable decision making. An integral component is the application of the mitigation hierarchy (avoid, minimise and rehabilitate environmental impacts, prior to applying offsets as a last resort).

The framework embeds a cycle of monitoring, reporting and implementing change where required. It ensures continuous improvement of management controls to ensure the outcome-based objectives are achieved. The key steps of Newcrest’s adaptive management approach highlighted in Figure 1 below.

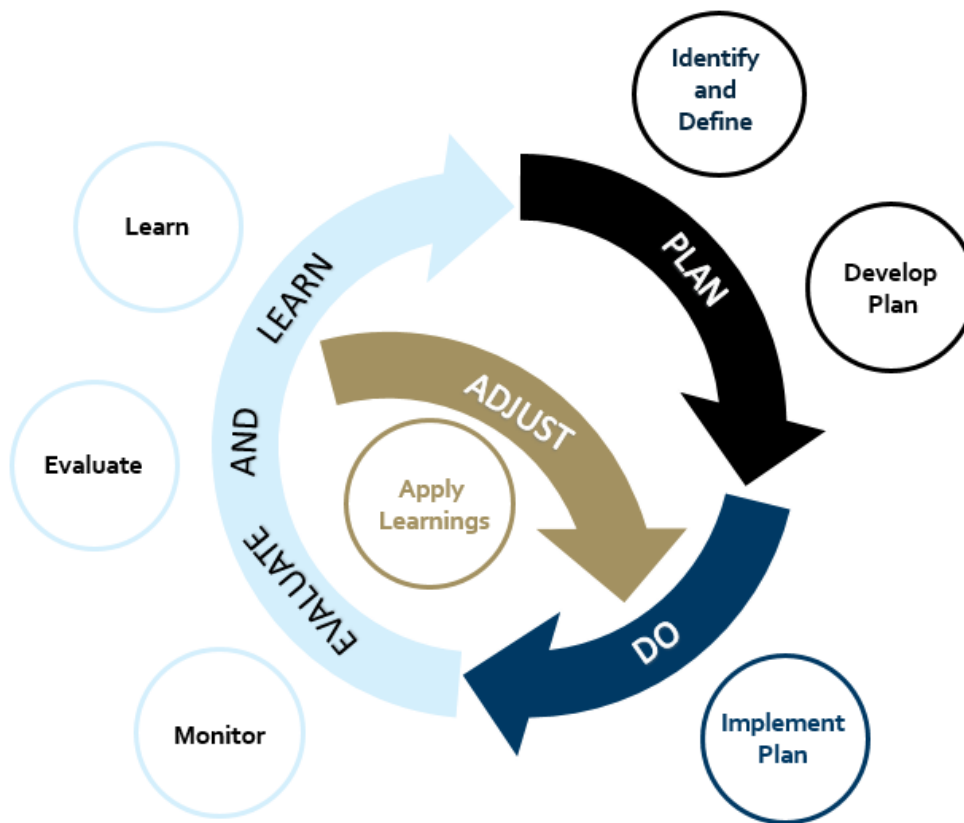


Figure 1: Adaptive management approach

3.1 Review and update of this GHG MP

This GHG MP is updated as minimum every two years or more frequently where changes prompt an update. This may include stakeholder comments/requests for change, changes in knowledge, changes in conditions and opportunities for improvement.

Updated schedules will be provided for review and endorsement by the CEO as per the requirements of the respective Ministerial Statement implementation conditions.

This management plan and all supporting documents shall be maintained as controlled documents in Newcrest’s Document Management System and in accordance with Newcrest Document Control Procedure.

4. STAKEHOLDER CONSULTATION

Newcrest undertakes regular and ongoing stakeholder engagement to understand and where applicable address expectations, concerns and interests of stakeholders.

Newcrest maintains a Telfer Project Stakeholder Engagement Register and a Stakeholder Engagement Plan.

5. REFERENCES AND SUPPORTING DOCUMENTS

5.1 Studies and Monitoring Reports

- Resource Strategies (2002), Telfer Project – Power Supply and Infrastructure Corridor Environmental Protection Statement
- Climate Managers Pty Ltd (2007), Newcrest Mining Energy and Greenhouse Gas Review (Report prepared for Newcrest)
- Emission Assessments (2011), Telfer Power Station – Stack Emissions Compliance Monitoring (Report Prepared for Newcrest)
- Emission Assessments (2012), Telfer Power Station – Stack Emissions Compliance Monitoring (Report Prepared for Newcrest)
- Emission Assessments (2013), Telfer Power Station – Stack Emissions Compliance Monitoring (Report Prepared for Newcrest)
- Emission Assessments (2014), Telfer Power Station – Stack Emissions Compliance Monitoring (Report Prepared for Newcrest)
- Emission Assessments (2015), Telfer Power Station – Stack Emissions Compliance Monitoring (Report Prepared for Newcrest)
- Emission Assessments (2016), Telfer Power Station – Stack Emissions Compliance Monitoring (Report Prepared for Newcrest)
- Emission Assessments (2017), Telfer Power Station – Stack Emissions Compliance Monitoring (Report Prepared for Newcrest)
- Emission Assessments (2018), Telfer Power Station – Stack Emissions Compliance Monitoring (Report Prepared for Newcrest)
- Energetics Pty Ltd (2018), Telfer Gold Mine GHG and NOx Risk Assessment (Report Prepared for Newcrest)
- EthosEnergy Pty Ltd Australia (2019), Telfer Power Station – Stack Emissions Compliance Monitoring (Report Prepared for Newcrest)
- Energetics Pty Ltd (2020), Telfer Operations Greenhouse Gas Management Plan (Report Prepared for Newcrest)
- EthosEnergy Pty Ltd Australia (2020), Telfer Power Station – Stack Emissions Compliance Monitoring (Report Prepared for Newcrest)
- EthosEnergy Pty Ltd Australia (2021), Telfer Power Station – Stack Emissions Compliance Monitoring (Report Prepared for Newcrest)

5.2 Newcrest Supporting Documents

- [2021 Newcrest Sustainability Report](#)
- [2020 Newcrest Sustainability Report](#)
- [2019 Newcrest Sustainability Report](#)
- [Climate Change Policy](#)
- [Sustainability Policy](#)

6. SCHEDULES

6.1 Greenhouse Gas Emissions - Management based provisions

Purpose	To meet the requirements of Condition 6-1, 6-2 and 6-3 of Ministerial Statement 605 and Condition 7-1, 7-2 and 7-3 of Ministerial Statement 606		
EPA Factor and Objective	Greenhouse Gas Emissions –To mitigate greenhouse gas emissions and consequently minimise the risk of contributing to climate change		
Outcomes	MS605 Condition 6-1 and MS606 Condition 7-1: Ensure Greenhouse gas emissions from the project are adequately addressed and best available technologies are used to minimise total net greenhouse gas emissions and / greenhouse gas emissions per unit of product		
Environmental Values	Minimise net GHG emissions to reduce risk of global climate change		
Key Impacts and Risks	Activities which have potential to emit GHG include mining and processing of metallic minerals, direct loss of habitat (land disturbance) and burning fossil fuels for energy production		
Management Actions	Management Targets	Monitoring	Reporting
<p>MS605 6-1(1) and MS606 7-1 (1) calculation of the “greenhouse gas” emissions associated with the proposal, as indicated in “Minimising Greenhouse Gas Emissions, Guidance for the Assessment of Environmental Factors, No. 12” published by the Environmental Protection Authority.</p> <p>MS605 6-1(2) and MS606 7-1 (2) specific measures to minimise the total net “greenhouse gas” emissions and/or the “greenhouse gas” emissions per unit of product associated with the proposal;</p> <p>MS605 6-1(4) and MS606 7-1(4) estimation of the “greenhouse gas” efficiency of the project (per unit of product and/or other agreed performance indicators) and comparison with the efficiencies of other comparable projects producing similar product;</p> <p>MS605 6-1(5) and MS606 7-1 (5) analysis of the extent to which the proposal meets the requirements of the National Greenhouse Strategy using a combination of:</p> <ul style="list-style-type: none"> • “no regrets” measures; • “beyond no regrets” measures; • land use change or forestry offsets; and • international flexibility mechanisms; 	<p>MS605 6-1(6) and MS606 7-1 (6) a target set by the proponent for the reduction of total net “greenhouse gas” emissions and/or “greenhouse gas” emissions per unit of product over time, and annual reporting of progress made in achieving this target.</p>	<p>MS605 6-1(3) and MS606 7-1 (3) monitoring of “greenhouse gas” emissions;</p>	<p>MS605 5-1 and MS606 5-1 The proponent shall prepare an audit program in consultation with and submit compliance reports to the Department of Environmental Protection which address:</p> <ul style="list-style-type: none"> • The implementation of the proposal as defined in schedule 1 of this statement; • Evidence of compliance with the conditions and commitments; • The performance of the environmental management plans and programs. <p>MS606 5-2 The proponent shall submit a performance review report every five years after the start of operations phase to the requirements of the Minister for the Environment and Heritage on advice of the Environmental Protection Authority which addresses:</p> <ul style="list-style-type: none"> • The major environmental issues associated with the project; the targets for those issues, the methodologies use to achieve these and the key indicators of environmental performance measured against those targets • The level of progress in the achievement of sound environmental performance, including industry benchmarking and the use of best available technology where practicable • Significant improvements gained in environmental management, including the use of external peer reviews; • Stakeholder and community consultation, including a report of any on-going concerns being expressed • The proposed environmental targets over the next five years, including improvements in technology and management processes

Minimise

- Haul roads graded on regular basis to increase tyre life and reduce fuel consumption.
 - Preventative maintenance program for mobile and fixed equipment.
 - Provide bus to transport personnel from village to mine.
 - Optimise mine planning and haulage operations by using Supervisory Control and Data Acquisition (SCADA) system.
 - Optimise mill operation to increase grinding efficiency.
 - Options for fuel additives to reduce fuel burn and emissions.
 - Progressively install new components in the existing underground ventilation system and as development proceeds, to provide the necessary level of mine ventilation and maximise energy efficiency.
 - Haulage from the underground mine via an electric powered shaft and winder. The shaft is filled to capacity upon haulage out of the mine and completely empty on return.
- Greenhouse gas emissions is to remain below its safeguard baseline of 626,808 tCO₂-e per year
 - Maintain compliance to statutory and licence conditions
- Conduct regular risk assessments to determine:
 - Risk to receptors
 - If an abatement program is required
 - If an air quality model is required
 - An Annual Stack Emissions Compliance Monitoring Audit is conducted by and external NATA accredited auditor (as per licence requirements)
- Annual National Greenhouse and Energy Reporting
 - Annual National Pollution Index
 - Annual Global Reporting Index
 - Annual Sustainability Report
 - Annual Compliance Assessment Report which address:
 - The implementation of the proposal as defined in schedule 1 of the statement;
 - Evidence of compliance with the conditions and commitments;
 - The performance of the environmental management plans and programs.

7. APPENDICES

7.1 Rationale and Approach

Schedule 6.1 Minimise GHG emissions

Surveys and Studies	Survey and Study Findings	Key assumptions and uncertainties	Rationale for choice of provisions
<ul style="list-style-type: none"> Energetics Pty Ltd (2018), Telfer Gold Mine GHG and NOx Risk Assessment EthosEnergy Pty Ltd Australia (2021), Telfer Power Station – Stack Emissions Compliance Monitoring 	<p>EMISSION SOURCES</p> <p>GHG emissions resulting from mining operations (excluding power supply) from the Telfer Project are generated by:</p> <ul style="list-style-type: none"> The consumption of fuels by light and heavy vehicles Use of explosives for blasting operations Loading and hauling of ore or waste The consumption of fuels for the generation of electricity (see primary & secondary power-stations below) <p>Approximately 90% of emissions from the Gold Room are Nitrogen oxides, with minimal amounts of sulphur dioxide. The stack is 45m in height and contains a scrubber to remove caustic elements. Emissions from the Carbon Regeneration include carbon monoxide & carbon dioxide. The stack is 21m in height and no scrubbers have been fitted.</p> <p>The Primary Power Station (PPS) operates on natural gas, with an approved production capacity of 158.2 megawatts per year. The PPS has three stacks, each with a height of 20m and do not contain any scrubbers.</p> <p>The Secondary Power Station (SPS) has a capacity of 22 megawatts. The SPS is only operated in times where the capacity of the PPS is insufficient (e.g. during maintenance, shutdowns and breakdowns).</p> <p>EMISSIONS</p> <p>See Appendix 7.2 for Telfer Emissions by Source.</p> <p>At current emissions intensity and production levels, Telfer is unlikely to exceed its safeguard mechanism baseline of 626,808 tCO₂-e per annum.</p> <p>The findings of the risk assessment concluded that Telfer's NOx emissions pose a low risk to people and the environment and an air quality model and abatement program for NOx would not be required based on the following:</p>	<p>PROPOSED LEGISLATIVE CHANGES</p> <p>The Department of the Environment and Energy released a consultation paper in February 2018 which outlined proposed changes to the Safeguard Mechanism. The changes proposed in the consultation paper build on the existing framework of the safeguard mechanism and consider allowing baselines to be updated to reflect actual production levels on an annual basis. The paper proposed that all facilities be shifted to a calculated baseline. In July 2021 Newcrest submitted calculated-emissions baseline application for Telfer (reference number CAPP167/2021) under section 22 of the National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015 (Safeguard Rule) to the Clean Energy Regulator.</p> <p>MS 605 6-1 (5) and MS 606 7-1 (5)</p> <p>The National Greenhouse Strategy has been replaced with a suite of climate change policies, namely the Emissions Reduction Fund and Safeguard Mechanism; therefore, no assessment on the extent to which the projects complies with the requirements of the now defunct National Greenhouse Strategy has been undertaken in this management plan. Instead an assessment of how Telfer is meeting emissions requirements under the Safeguard Mechanism has been undertaken (see study findings).</p> <p>PIPELINE CONSTRUCTION</p> <p>Construction of the infrastructure corridor was completed in 2004. The pipeline corridor has been rehabilitated (rehabilitation monitoring conducted annually by the Telfer Environment Department), with a</p>	<p>A greenhouse gas target has been set in accordance with Australian climate change legislation in existence at the time. Telfer has been allocated what is known as a calculated baseline by the Clean Energy Regulator, which has been set at 626,808 tCO₂-e per year from 1 July 2020 to 30 June 2023.</p> <p>The key impacts to GHG emissions at Telfer include:</p> <ul style="list-style-type: none"> The consumption of fuels by vehicles Use of explosives for blasting operations Loading and hauling or ore or waste The consumption of fuels for the generation of electricity Direct loss of habitat (land disturbance). <p>Therefore the following provisions have been implemented:</p> <ul style="list-style-type: none"> Haul roads graded on regular basis to increase tyre life and reduce fuel consumption Preventative maintenance program for mobile and fixed equipment Provide bus to transport personnel from mine to village Optimise mine planning and haulage operations by using Supervisory Control and Data Acquisition (SCADA) system. Optimise mill operation to increase grinding efficiency.

Schedule 6.1 Minimise GHG emissions

Surveys and Studies	Survey and Study Findings	Key assumptions and uncertainties	Rationale for choice of provisions
	<ul style="list-style-type: none"> No sensitive receptors have been identified near Telfer's operations and the nearest community is located 100km from the Telfer mine. Telfer estimates and reports its NOx emissions to the National Pollutant Inventory (NPI) on an annual basis. Telfer is compliant with NOx emissions monitoring and stack emission concentration limits specified in the Environmental Licence (L6079/13). <p>EMISSIONS INTENSITY AND COMPARISON</p> <p>In FY21 Telfer processed approximately 17,933 kt of ore and produced 601,600 MWh of electricity which is below the forecast quantities for the calculated baseline of 25,098 kt and 682,055 MWh respectively. A total of 500,244 tCO₂-e was generated in FY21, below the safeguard limit. This equates to an 'all-in' emissions intensity of 0.028 tCO₂-e / tonne processed (or 28kg CO₂-e/t) .</p> <p>Appendix 7.3 provides a comparison with the efficiencies of other comparable projects producing similar product, with Telfer having the lowest emissions intensity of the projects.</p>	<p>maintenance and observation track remaining. Greenhouse gas emissions for the operation of the gas pipeline is negligible.</p>	<ul style="list-style-type: none"> Options for fuel additives to reduce fuel burn and emissions. Progressively refurbish ventilation fans in the underground mining operations to ensure they perform optimally and maximise energy efficiency. De-rate fans in the underground mining operations to reduce energy consumption and only provide primary air flow required. Haulage from the underground mine via an electric powered shaft and winder. The shaft is filled to capacity upon haulage out of the mine and completely empty on return.

Greenhouse Gas Management Plan

7.2 Comparison of Telfer Mine emissions intensity compared with other gold mining operations

FY 2018

Mine and company	Approximate throughput (Mt ore)	Greenhouse Gas emissions (ktCO ₂ -e)	Efficiency (tCO ₂ -e/kt throughput)
Telfer, Newcrest Mining Limited	23.3	535.8	23
Cadia Valley, Newcrest Mining ^a Limited	22.6	812.8	36
Sunrise dam, Anglo Gold Ashanti ^b	4	140	35

^a From Newcrest 2018 Sustainability Report

^b From Anglo Gold Ashanti 2018 Sustainable Development Report and 2018 Integrated Report

FY 2019

Mine and company	Approximate throughput (Mt ore)	Greenhouse Gas emissions (ktCO ₂ -e)	Efficiency (tCO ₂ -e/kt throughput)
Telfer, Newcrest Mining Limited	22.6	544.1	24
Cadia Valley, Newcrest Mining ^a Limited	29.6	949.4	32
Sunrise dam, Anglo Gold Ashanti ^b	4	146	36

^a From Newcrest 2019 Sustainability Report

^b From Anglo Gold Ashanti 2019 Sustainability Report

FY 2020

Mine and company	Approximate throughput (Mt ore)	Greenhouse Gas emissions (ktCO ₂ -e)	Efficiency (tCO ₂ -e/kt throughput)
Telfer, Newcrest Mining Limited	16.2	493.5	30
Cadia Valley, Newcrest Mining ^a Limited	29.3	961.1	33
Sunrise dam, Anglo Gold Ashanti ^b	4	154	38

^a From Newcrest 2020 Sustainability Report

^b From Anglo Gold Ashanti 2020 Sustainability Report

FY 2021

Mine and company	Approximate throughput (Mt ore)	Greenhouse Gas emissions (ktCO ₂ -e)	Efficiency (tCO ₂ -e/kt throughput)
Telfer, Newcrest Mining Limited	17.9	500.2	28
Cadia Valley, Newcrest Mining ^a Limited	32.4	1014	31
Sunrise dam, Anglo Gold Ashanti ^b	Unavailable at time of publishing		

^a From Newcrest 2021 Sustainability Report

7.3 Emissions Legislation

7.3.1 Australian Government Legislation

The Australian Government has an international commitment to reduce Australia’s GHG emissions to 26-28% on 2005 levels by 2030. The current policies in place to achieve this target are referred to as Direct Action policies; namely the Safeguard Mechanism and the Emissions Reduction Fund (ERF). These policies are also supplemented by the Renewable Energy Target (RET), which encourages emissions reductions in electricity generation, by creating a market for renewable energy certificates, which are created for eligible units of renewable electricity generated from both small-scale and large-scale systems. The National Energy Productivity Plan (NEPP) is a further complementary policy designed to improve Australia’s energy productivity by 40% by 2030.

7.3.2 Safeguard Mechanism

The safeguard mechanism limits the quantity of greenhouse gases that can be emitted by large businesses to within recent historical emissions levels. The mechanism’s aim is to prevent emissions reductions purchased by the Australian Government through the ERF from being offset by emissions increases in other parts of the economy. The safeguard mechanism came into force in July 2016 and is administered in accordance with the National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015.

Under the mechanism, emissions from facilities from each sector covered by the legislation must be kept at or below the baselines set by the Clean Energy Regulator (CER). Facilities in covered industries exceeding emissions of 100,000 tCO₂-e scope 1 emissions in a financial year are obligated to comply with the safeguard mechanism. If a facility covered by the legislation emits above its prescribed baseline level, it is required to acquire and acquit Australian carbon credit units (ACCUs) to offset excess emissions. International offsets cannot be used to meet this compliance requirement.

7.3.3 Emissions Reduction Fund

The ERF is a voluntary scheme designed to incentivise a range of organisations and individuals to reduce their greenhouse gas emissions. The Carbon Credits (Carbon Farming Initiative) Act 2011, together with the Carbon Credits (Carbon Farming Initiative) Regulations 2011 and the Carbon Credits (Carbon Farming Initiative) Rule 2015, implements the crediting and purchasing elements of the ERF. Under the crediting mechanism, registered projects that comply with an approved ERF method can earn Australian Carbon Credit Units (ACCUs) for emissions reductions. One ACCU is earned for each tonne of carbon dioxide equivalent stored or avoided by a project. ACCUs can be sold to earn income. The Australian Government, through the Regulator, purchases ACCUs from registered projects. To date, the Regulator has purchased ACCUs through reverse auctions. ACCUs can also be sold on the secondary market. The Safeguard Mechanism aims to set regulatory limits on high emitters so that emissions reductions secured through ERF crediting and purchasing are not offset by significant increases in emissions above business as usual levels elsewhere in the economy. While it is an element of the ERF, the Safeguard Mechanism functions largely as a separate scheme.

7.3.4 National Greenhouse Gas Emissions Reporting Act 2007

The National Greenhouse and Energy Reporting Act establishes the National Greenhouse Gas Emissions Reporting (NGER) scheme as a national framework for Australian corporations to report greenhouse gas emissions, reductions, removals and offsets, energy consumption and production.

Facilities emitting 25 ktCO₂-e or above of scope 1 and scope 2 emissions, or corporate groups emitting 50 ktCO₂-e or above of scope 1 and scope 2 emissions have an obligation to report under the Act. Emissions at Telfer currently exceed both the facility threshold and the corporate group threshold hence Newcrest must report its emissions for all Newcrest facilities in Australia. Newcrest submitted its first NGER report in the 2008/2009 reporting period and continues to report annually.

Improvements have been made in the accuracy of the data for current reporting period due to improved data collection methods, as well as the use of the same consulting company to compile both the National Pollutant Inventory (NPI) and NGER reports for data integrity.

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