

# Colongra Power Station

2022 - 2023

## Annual Environmental Management Report



March 2023

Reporting period 31 January 2022 to 30 January 2023

Revision	Details	Date	Drafted	Reviewed
01	Original - Updated to new template	February 2019	R Williams Snr. Env Advisor	A Weston
02	31 Jan 2019 to 30 Jan 2020	February 2020	R Williams Snr. Env Advisor	S Allam
03	31 Jan 2020 to 30 Jan 2021	February 2021	R Williams Snr. Env Advisor	C Litchfield Manager Environmental Services
04	Updated to Address DPIE comments	July 2021	R Williams Snr. Env Advisor	C Litchfield Manager Environmental Services
05	31 Jan 2021 to 30 Jan 2022	March 2022	R Williams Snr. Env Advisor	C Litchfield Manager Environmental Services
06	31 Jan 2022 to 30 Jan 2023	March 2023	R Williams Snr. Env Advisor	C Litchfield Manager Environmental Services

# Contents

	Page number
<b>Executive summary</b>	<b>4</b>
<b>1. Introduction</b>	<b>8</b>
1.1 Background	8
1.2 AEMR Scope	8
1.3 Overview of Colongra Power Station	9
1.3.1 Location	9
1.3.2 Facility Description	10
1.3.3 Operations	11
<b>2.0 Details of Compliance</b>	<b>12</b>
2.1 Project Approval	12
2.1.1 Operational Environmental Management Plan	12
Implementation of Mitigation and Maintenance Measures	16
2.1.2 Independent Environmental Audit	16
2.2 Colongra Environment Protection Licence No. 13036	17
2.3 Snowy Hydro Environmental Management System	18
<b>3.0 OEMP Implementation &amp; Monitoring</b>	<b>18</b>
3.1 Environmental Aspects, Impacts and Risk	19
3.2 Environmental Management Plans & Monitoring	19
3.2.1 Air Quality	19
3.2.2 Water	23
3.2.3 Noise	24
3.2.4 Waste	24
3.2.5 Fuel Use	25
3.2.6 Meteorological Data	25
3.2.7 Complaints Register	25
3.2.8 Environmental Incidents and Corrective/Preventative actions	25
<b>4.0 Predicted Performance &amp; Achievement of Environmental Goals</b>	<b>26</b>
<b>5.0 Overall Performance Against Licences and Approvals</b>	<b>27</b>

**Appendix 1 - Table of Diesel Run Hours**

# Executive summary

The Project Approval for the Munmorah Gas Turbine Facility Application No. 05\_0195 (**the Project Approval**) was granted in July 2006, and Delta Electricity (**Delta**) completed the construction and commissioning of the Munmorah Gas Turbine Facility in 2009. The gas turbine power station is now commonly known as the Colongra Power Station (**Colongra**) and is owned by Snowy Hydro Limited (**Snowy Hydro**). Snowy Hydro completed the purchase of Colongra on 30 January 2015.

The Project Approval requires submission of an Annual Environmental Management Report (**AEMR**). This report has been prepared to satisfy that requirement.

## Project Description

Colongra is an open-cycle electricity generation plant, consisting of four 167 megawatt (**MW**) dual-fuel turbines primarily powered by natural gas fed from a trunk pipeline from the main Sydney to Newcastle gas pipeline. The plant also has the capability to be fuelled with diesel oil (as back-up fuel) and to perform in-service fuel changeovers between the two fuel types. The power station supplies electricity during peak demand periods meaning the operating hours of the power station across the year are fundamentally intermittent and very low.

The operational objectives of Colongra are to:

- Provide electricity at relatively short notice during periods of peak demand;
- Provide 'black start' capability (it is possible to start the gas turbines when there is no grid supplied electricity available) to improve system security, stabilisation and emergency response;
- Provide electricity using best available technology and low greenhouse gas emissions;
- Establish an electricity supply that is market-competitive and consistent with current trends and future energy demands; and
- Produce socially acceptable environmental outcomes.

## Colongra Operational Activity

Colongra comprises four GT13E2 gas turbines with a nominal combined output of approximately 660 MW and a licensed annual generation capacity of 1,000 gigawatt hours (**GWh**) to 4,000 GWh, as identified in the Environmental Protection Licence (**EPL**) No. 13036 Administrative Condition A1.

Due to the peaking nature of the power station Colongra generated 436 GWh of electrical power during this reporting period. This is compared to approximately 61 GWh during the previous reporting period. The increase in generation is attributed to the "energy crisis" that occurred during May - September of 2022. The combination of gas shortages and significant power station outages during that period caused potential / actual periods of energy shortfall in NSW. At times during this period Colongra was also under the direction of AEMO as to when it was required to generate.

Colongra operated the turbines for approximately 597 total hours on diesel fuel during this period which is above the 75 hour total limit for any 12 month period imposed by clause 2.2 of the Project Approval. However, of the 597 diesel run hours, approximately 570 hours were

production runs which aligned with the exemption conditions of Clause 2.3 of the Project Approval listed below:

- a) to manage network constraints;
- e) if cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability; and
- g) at the direction of AEMO

The remaining balance (approximately 27 hours) related to maintenance and testing of the plant and diesel fuel system.

A table has been provided in **Appendix 1** detailing the diesel run times and applicable exemption conditions during the period.

It is also noted that during this period SHL requested an exemption to the emissions limits on diesel fuel in accordance with Condition L3.5 of the Colongra environmental Protection Licence (EPL) 13036. The exemption was subsequently approved by the EPA for a temporary period between the 16 and 23 June 2022.

At this time an administrative modification (Modification 4) was also lodged and subsequently approved by DPE to align the emissions limits in the Project Approval with those as approved by the EPA. The following wording was included at the beginning of condition 2 .8 Schedule 2 'unless otherwise authorised by the EPA'.

### Annual Environmental Management Report scope

Condition 6.3 of the Project Approval states that this AEMR is required to review the performance of Colongra against the Operational Environmental Management Plan (OEMP) developed under condition 5.3 of the Project Approval, as well as the conditions of the Concept Approval, the Project Approval, and other licences and approvals relating to the project as identified in the OEMP.

The AEMR scope covers the Colongra facilities within the site boundary fence (refer **Figure 1**) for the period 31 January 2022 to 30 January 2023. The study does not include the Colongra trunk pipeline from the Sydney to Newcastle gas pipeline, which is operated by Jemena. The details of Condition 6.3 of the Project Approval are provided in the following table along with the sections of the report where each detail is addressed.

### Condition of Project Approval addressed by AEMR

Condition No.	Condition Requirement	AEMR Section	Compliance Status
Condition 6.3	<b>Annual Performance Reporting</b> <i>The Proponent shall, throughout the life of the project, prepare and submit for the approval of the Director-General, an Annual Environmental Management Report (AEMR). The AEMR shall review the performance of the project against the Operation Environmental Management Plan (refer to condition 5.3 of this approval), the conditions of this approval and other licences and approvals relating to the project. The AEMR shall include, but not necessarily be limited to:</i>	Whole of document	Compliant
Condition 6.3a)	<i>- details of compliance with the conditions of this approval;</i>	Section 2	Compliant
Condition 6.3b)	<i>- a copy of the Complaints Register (refer to condition 4.3 of this approval) for the preceding twelve-month period (exclusive of personal details), and details of how these complaints were addressed and resolved;</i>	Section 2	Compliant (no complaints were received)

Condition 6.3c)	- <i>identification of any circumstances in which the environmental impacts and performance of the project during the year have not been generally consistent with the environmental impacts and performance predicted in the documents listed under condition 1.1 of this approval, with details of additional mitigation measures applied to the project to address recurrence of these circumstances;</i>	Section 3 & 4	
Condition 6.3d)	- <i>results of all environmental monitoring required under this approval and other approvals, including interpretations and discussion by a suitably qualified person; and</i>	Section 3	Compliant
Condition 6.3e)	- <i>a list of all occasions in the preceding twelve-month period when environmental performance goals for the project have not been achieved, indicating the reason for failure to meet the goals and the action taken to prevent recurrence of that type of incident.</i>	Section 3 & 4	Compliant

### **Snowy Hydro ISO 14001 Environmental Management System**

Snowy Hydro maintains an Environmental Management System (EMS) for its operations that is certified to ISO 14001 and externally audited annually. Snowy Hydro was recertified to the ISO14001 standard following the most recent recertification audit in October 2022.

Colongras' participation in the audit is determined during the scheduling of that year's audit. A site visit to Colongra was included within the scope of the ISO 14001 recertification audit that was undertaken for Snowy Hydro during 2022.

### **Consistency with Predicted Performance & Environmental Goals**

A review of the data collected during the reporting period identified that other than the increase in plant operational hours due to the energy crisis, there were no significant changes in circumstances to the previous reporting period. The environmental performance of Colongra was generally consistent with the original predictions made and conclusions drawn in the documents listed under Condition 1.1.

Using environmental monitoring and complaints management as the key assessment mechanisms, the environmental performance of Colongra was able to be assessed against the performance goals established through the various approvals, licences and permits for the project.

No physical environmental impacts were found in excess of those predicted by the environmental assessment studies or in excess of environmental licence, planning or legislative limits during this reporting period. As such, it's considered that the environmental goals of the project have been achieved during the reporting period.

Regarding compliance with the EPL air emission limits, SHL requested and was approved a temporary exemption to the diesel NOx limit for a short period between the 16 and 23 June, during the energy crisis described above. Air quality modelling was undertaken to assess the potential impacts of increased emissions on ground level NO<sub>2</sub> concentrations at surrounding sensitive receivers during the temporary exemption period 16 to 23 June 2022. The modelling found that potential air quality impacts to the surrounding areas were low and within or equal to the EPA's impact assessment criterion.

There are a number of conditions in the project approval related to the construction and commissioning phases of the project. As such they are no longer relevant to current site operations. Of the remaining conditions there were no environmental non-conformances

against the Approval conditions, similarly there were no non-compliances with the site EPL conditions.

# 1. Introduction

## 1.1 Background

The Project Approval for the Munmorah Gas Turbine Facility Application No. 05\_0195 (**the Project Approval**) was granted in July 2006. Delta Electricity (**Delta**) completed the construction and commissioning of the Munmorah Gas Turbine Facility, now commonly known as the Colongra Power Station (**Colongra**), in 2009. Colongra is now owned by Snowy Hydro Limited (**Snowy Hydro**). Snowy Hydro completed the purchase of Colongra on 30 January 2015.

Condition 6.3 of the Project Approval requires completion of an Annual Environmental Management Report (**AEMR**) on an annual basis. The previous AEMR covered the period from 31 January 2021 to 30 January 2022 . The reporting year with respect to this AEMR is from 31 January 2022 to 30 January 2023.

## 1.2 AEMR Scope

The AEMR covers the Colongra facility within the site boundary shown in **Figure 1** for the period 31 January 2022 to 30 January 2023, addressing condition 6.3 of the Project Approval as outlined in **Table 1**.

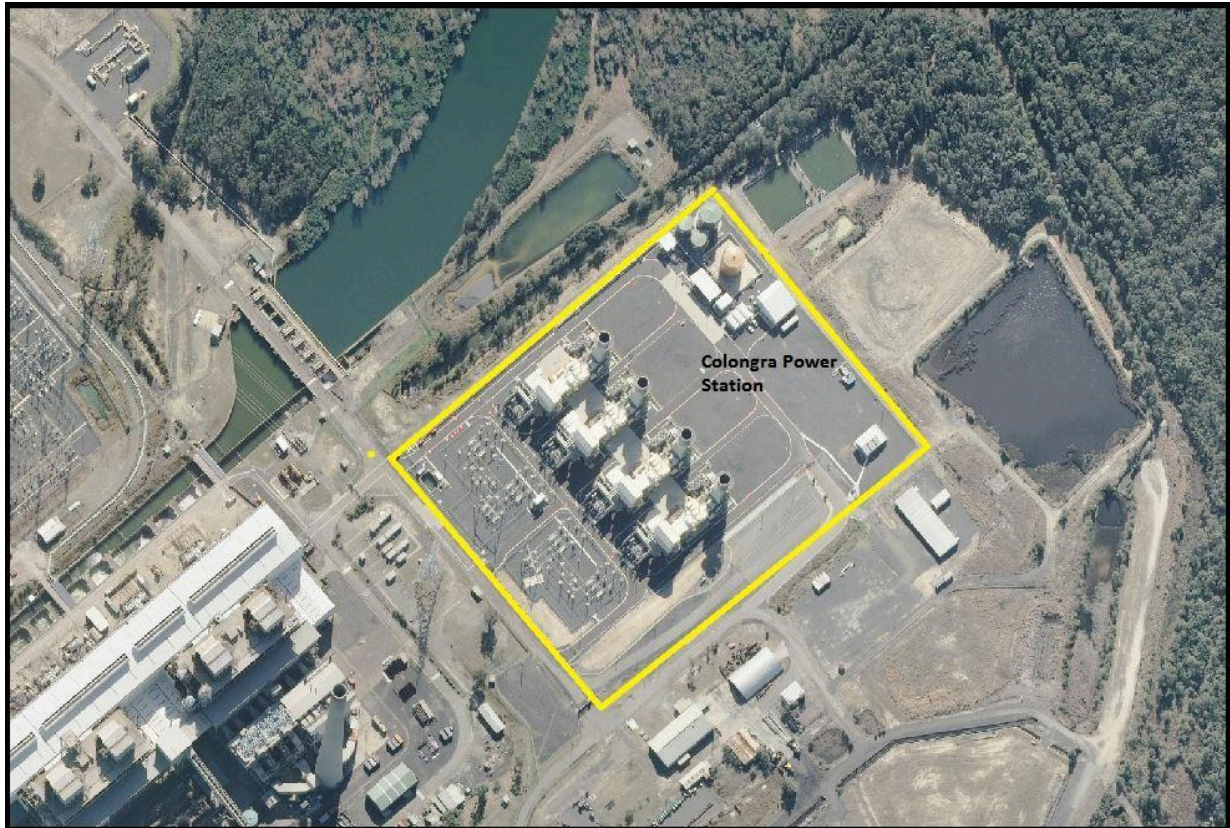
**Table 1 Condition of Project Approval addressed by AEMR**

Condition No.	Condition Requirement	AEMR Section
Condition 6.3	<b><i>Annual Performance Reporting</i></b> <i>The Proponent shall, throughout the life of the project, prepare and submit for the approval of the Director-General, an Annual Environmental Management Report (AEMR). The AEMR shall review the performance of the project against the Operation Environmental Management Plan (refer to condition 5.3 of this approval), the conditions of this approval and other licences and approvals relating to the project. The AEMR shall include, but not necessarily be limited to:</i>	
Condition 6.3a)	<i>- details of compliance with the conditions of this approval;</i>	Section 2
Condition 6.3b)	<i>- a copy of the Complaints Register (refer to condition 4.3 of this approval) for the preceding twelve-month period (exclusive of personal details), and details of how these complaints were addressed and resolved;</i>	Section 2
Condition 6.3c)	<i>- identification of any circumstances in which the environmental impacts and performance of the project during the year have not been generally consistent with the environmental impacts and performance predicted in the documents listed under condition 1.1 of this approval, with details of additional mitigation measures applied to the project to address recurrence of these circumstances;</i>	Section 3 & 4
Condition 6.3d)	<i>- results of all environmental monitoring required under this approval and other approvals, including interpretations and discussion by a suitably qualified person; and</i>	Section 3
Condition 6.3e)	<i>- a list of all occasions in the preceding twelve-month period when environmental performance goals for the project have not been achieved,</i>	Section 3 & 4



	<i>indicating the reason for failure to meet the goals and the action taken to prevent recurrence of that type of incident.</i>	
--	---	--

Figure 1 Colongra Power Station premises boundary for this AEMR



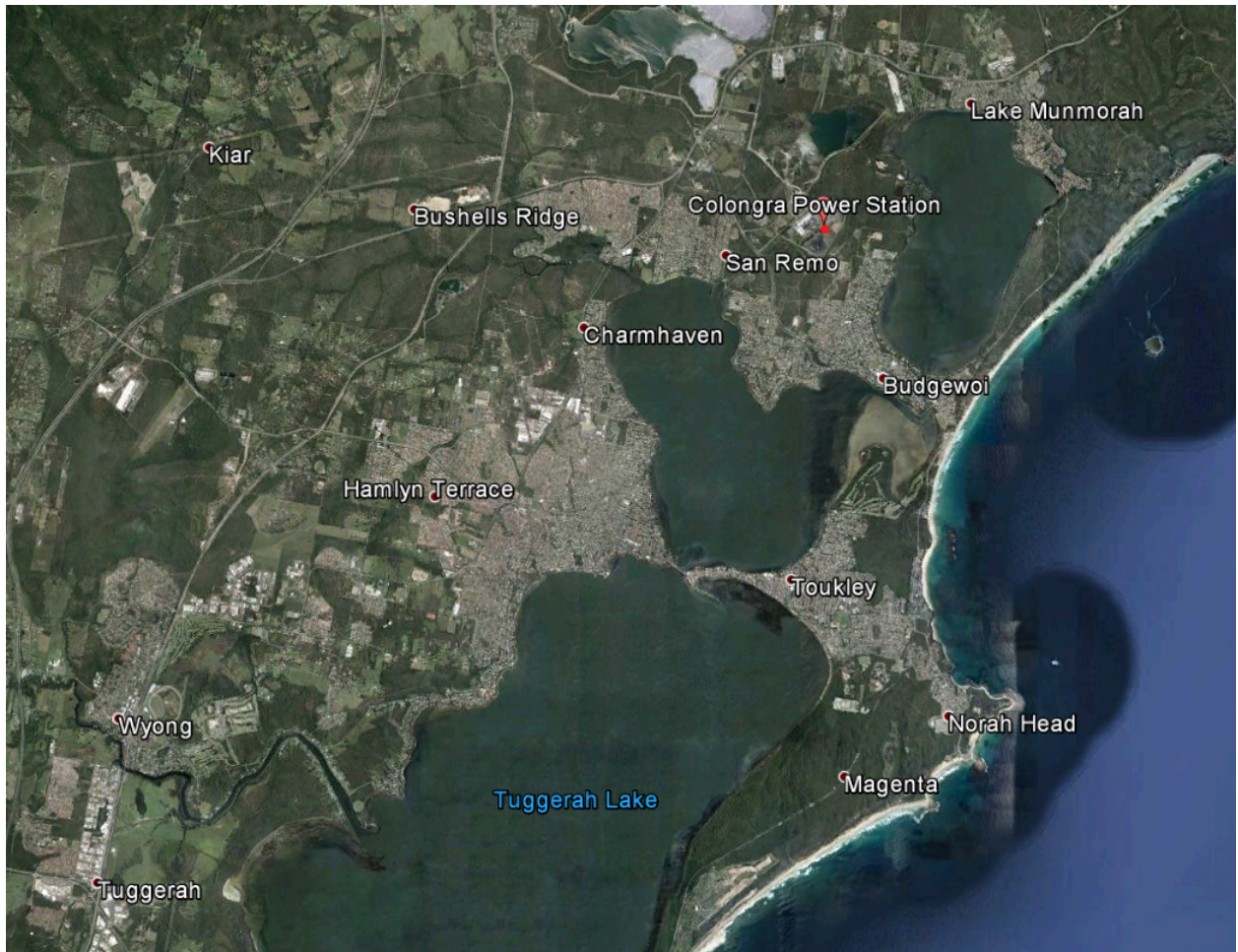
## 1.3 Overview of Colongra Power Station

### 1.3.1 Location

Colongra is located adjacent to the decommissioned Munmorah Power Station (about 110 kilometres (km) north of Sydney, NSW) on the shore of Lake Munmorah and is located within the Central Coast Council Local Government Area . The location of Colongra in the regional context is shown in **Figure 2**.



Figure 2 Regional location of the Colongra Power Station



### 1.3.2 Facility Description

The Colongra facility is an open-cycle 'peaking' generation plant, consisting of four GT 13E2 167 megawatt (MW) dual-fuel gas turbines primarily powered by natural gas fed from a trunk pipeline from the main Sydney to Newcastle gas pipeline and supplies electricity during peak demand periods. The nominal combined output is approximately 660 MW dependent upon ambient conditions. The gas turbines are capable of running on natural gas (as the primary fuel) and distillate fuel (as the back-up fuel for use during a major interruption to the natural gas supply), with a marginally higher potential power output whilst running on distillate fuel.

The basic components and structures of the Colongra facility include:

- Four gas turbine buildings and exhaust stacks;
- Electrical generating equipment and power supply cables;
- Facilities building;
- Distillate fuel delivery area, a 1.3 million litres (ML) fuel storage tank and delivery system;
- Demineralised water storage (2 ML) and delivery system;
- Lube oil supply systems (tanks, pumps and pipe work);

- Fire detection, protection and fire-fighting systems (detectors, fire main, fire water pumps and fire water storage tanks);
- Oil / water separator system;
- Three back-up diesel generators (black start); and
- Demineralised water plant.

Natural gas is supplied to Colongra via an underground “lateral” pipeline connecting the facility to the Sydney–Newcastle pipeline, which is located approximately seven kilometres west of the facility, and adjacent to the F3 Freeway. The lateral pipeline is owned and operated by Jemena Colongra Pty Ltd (**Jemena**).

Due to the energy crisis in May - September 2022 and the significant demands placed upon Colongra to run more frequently, including more frequent operation on diesel fuel to support the NEM; a temporary demineralised water plant was installed on the site that was able to generate significantly more demineralised water used for NOx suppression than the existing site capability.

### 1.3.3 Operations

The operational objectives of Colongra are to:

- Provide electricity at relatively short notice during periods of peak demand;
- Provide ‘black start’ capability (it is possible to start the gas turbines when there is no grid supplied electricity available) to improve system security, stabilisation and emergency response;
- Provide electricity using best available technology and low greenhouse gas emissions;
- Establish an electricity supply that is market-competitive and consistent with current trends and future energy demands; and
- Produce socially acceptable environmental outcomes.

Due to the peaking nature of the power station Colongra generated 436 GWh of electrical power during this reporting period. This is compared to approximately 61 GWh during the previous reporting period. The increase in generation can be attributed to the “energy crisis” that occurred during May - September of 2022. The combination of gas shortages and significant power station outages during that period caused potential / actual periods of energy shortfall in NSW. It is also noted that at times during this crisis Colongra was also under the direction of AEMO as to when the site was required to generate.

Snowy Hydro operated the Colongra turbines for approximately 597 total hours on diesel fuel during this period which is above the 75 hour total limit for any 12 month period imposed by clause 2.2 of the Project Approval. However, of the 597 diesel run

hours, approximately 570 hours were production runs which aligned with the exemption conditions of Clause 2.3 of the Project Approval listed below:

- a) to manage network constraints;
- e) if cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability; and
- g) at the direction of AEMO

The remaining balance (approximately 27 hours) related to maintenance and testing of the plant and diesel fuel system.

## 2.0 Details of Compliance

### 2.1 Project Approval

Condition 6.3 of the Project Approval states that the AEMR is required to review the performance of the Project against the Operational Environmental Management Plan (OEMP), which is required by Condition 5.3 of the Project Approval, as well as the conditions of the Concept Approval, the Project Approval, and other licences and approvals relating to the project as identified in the OEMP.

#### 2.1.1 Operational Environmental Management Plan

Condition 5.3 of the Project Approval requires preparation and implementation of an OEMP. The OEMP addresses the applicable requirements of:

- the Conditions of Concept Approval (05\_0195) issued by the Minister for Planning;
- the Conditions of Project Approval (05\_0195) issued by the Minister for Planning;
- the Statement of Commitments contained within the Project's Environmental Assessment (EA);
- the Submissions Report prepared by Parsons Brinckerhoff Australia Pty Ltd; and
- Applicable New South Wales and Australian environmental legislation.

The OEMP has been developed to be consistent with:

- the (former) Department of Infrastructure, Planning and Natural Resources document: Guideline for the Preparation of Environmental Management Plans (2004); and
- Snowy Hydro's ISO14001 accredited Environmental Management System.

The OEMP is a "living" document controlled electronically within the Snowy Hydro EMS. The Environmental Services Group is responsible for ensuring that the OEMP is current

and that it reflects underpinning legislation and supporting documentation, by updating the OEMP in response to:

- specific review of the OEMP;
- regulatory changes;
- internal audit recommendations;
- external audit recommendations;
- issues identified in Annual Environmental Management Reports;
- staff training changes;
- implementation of corrective actions;
- the inclusion of new initiatives in environmental management; and
- revision of any environmental documentation listed in the OEMP.

The OEMP is reviewed annually and updated as required. Details of performance against the OEMP during the reporting period are provided in **Table 2** of this AEMR.

**Table 2: Compliance with OEMP during this Reporting period**

Reference	Summary of OEMP Section	Details of Compliance
Section 3.0	<p><b>Compliance Requirements Overview</b></p> <p>This section contains the key compliance requirements for the Colongra project.</p>	Compliance requirements within the OEMP and contained within this AEMR are up to date and consistent.
Section 3.5	<p><b>Tracking compliance</b></p> <p>Processes used to track compliance against external approvals.</p>	<p>Compliance registers exist for gas operations in NSW including the Colongra Power Station, and regular updates are received through an external update service.</p> <p>The Asset Change Management System has been adopted at the Colongra site and is used to identify any new compliance risks from changes to plant and equipment.</p> <p>Emissions to air results are reviewed monthly and published on the Snowy Hydro Internet site.</p> <p>Non-compliances are tracked in Snowy Hydro's Event Management System.</p>
Section 4.1	<p><b>Environmental Aspects</b></p> <p>Section identifies that environmental aspects associated with Colongra operation will be updated.</p>	Environmental aspects relating to Colongra are included in the Snowy Hydro aspects and impacts register which is reviewed annually.
Section 4.2	<p><b>Environmental Management Responsibilities</b></p> <p>Environmental responsibilities for employees are detailed in the OEMP.</p>	Environmental responsibilities for Snowy Hydro staff are reviewed and updated as part of the OEMP update.
Section 4.3	<p><b>Reporting &amp; notification</b></p> <p>Statutory requirements for incident reporting, statutory reports, notification to regulators, and reporting within the Snowy</p>	Incident reporting and corrective action management systems are in place. A summary of environmental incidents is provided in Section 3.2.8 of this AEMR. Internal and external reviews of these systems are regularly carried out.

Reference	Summary of OEMP Section	Details of Compliance
	Hydro internal incident management system.	Statutory environmental reporting requirements have been met for this 2022-2023 reporting period for the Project Approval and EPL 13036 annual return which is based on a financial year (FY).
Section 4.4	<b>Training</b> The training program for Colongra is summarised in this section of the OEMP.	Colongra site personnel are progressively receiving training outlined in the OEMP including training in pollution incident response and training supporting operational risk and incident management, as well as site inductions for projects conducted at site. Site specific environmental awareness training is conducted as part of the site specific induction.
Section 4.5	<b>Environmental Management Plans</b>	Environmental Management Plans for air quality, water, noise and waste have been prepared and are detailed in the OEMP.
Section 4.5.1	<b>Air Quality Management Plan</b> The OEMP Air Quality Management Plan identifies the air quality impacts, risks, control measures and management procedures for Colongra.	Compliance with the Air Quality Management Plan is discussed in Section 3.2 of this AEMR.
Section 4.5.2	<b>Water Management Plan</b> The Water Management Plan comprises this section of the OEMP and identifies the water impacts, risks, control measures and management procedures for Colongra.	Compliance with the Water Management Plan is discussed in Section 3.2 of this AEMR.
Section 4.5.3	<b>Noise Management Plan</b> The Noise Management Plan comprises this section of the OEMP and identifies the noise impacts, risks, control measures and management procedures for Colongra.	Compliance with the Noise Management Plan is discussed in section 3.2 of this AEMR.
Section 4.5.4	<b>Waste Management Plan</b> The Waste Management Plan comprises this section of the OEMP and identifies the waste impacts, risks, control measures and management procedures for Colongra.	Compliance with the Waste Management Plan is discussed in section 3.2 of this AEMR.
Section 4.5.5	<b>Fuel Use Management Plan</b> The Fuel Use Management Plan comprises this section of the OEMP and identifies the risks and control measures for Colongra.	The Fuel Use Management Plan has been complied with, with diesel hours and market conditions reviewed as part of the Gen Ops operations and the monthly EPL emissions process.  Diesel fuel analysis is undertaken in accordance with NGER requirements, while Jemena provide the required gas analysis data.

Reference	Summary of OEMP Section	Details of Compliance
Section 4.5.6	<p><b>Complaints Management Plan</b></p> <p>The Complaints Management Plan comprises this section of the OEMP and identifies the risks, control measures and management procedures for Colongra.</p>	<p>Compliance with the Complaints Management Plan is discussed in section 3.2.7 of this AEMR.</p> <p>Noting no complaints were received during the reporting period.</p> <p>Snowy Hydro uses its internal event management system as the site Complaints Register for Colongra.</p>
Section 5.1	<p><b>Internet Site</b></p> <p>This section requires the Snowy Hydro Internet site is maintained to provide regular, up to date information regarding Colongra.</p>	<p>The Snowy Hydro internet site is maintained and regularly reviewed to ensure compliance with the Concept Approval and this section of the OEMP.</p> <p>The Colongra internet site and key information can be accessed at:</p> <p><a href="https://www.snowyhydro.com.au/about/reports/">https://www.snowyhydro.com.au/about/reports/</a></p>
Section 5.2	<p><b>Telephone Complaints Line</b></p> <p>This section lists the complaints line number and reiterates requirements of the Project Approval and EPL13036.</p>	<p>There were no community complaints received during this period.</p> <p>A free call 24 hour contact line for Safety and Environmental Incidents and Complaints is also provided on the Internet site contact page.</p> <p><a href="http://www.snowyhydro.com.au/contact-us/">http://www.snowyhydro.com.au/contact-us/</a></p> <p>The 24 hour contact telephone number for Colongra inquiries is included in the Snowy Hydro Pollution Incident Response Management Plan (<b>PIRMP</b>) required under EPL13036. An external version of the PIRMP is provided on the Snowy Hydro Internet site.</p> <p><a href="https://www.snowyhydro.com.au/about/reports/">https://www.snowyhydro.com.au/about/reports/</a></p>
Section 6	<p><b>Audits and Inspections</b></p> <p>This section describes audits and inspections undertaken at Colongra.</p>	<p>Weekly site inspections which include key environmental controls (bundling, spill kits, equipment condition and site amenity are undertaken and documented through the Ellipse maintenance system. Maintenance inspections and calibration of environmental equipment/controls are also scheduled through the Ellipse system as required by the manufacturer.</p> <p>External audits of our EMS against the ISO 14001 standard are undertaken annually with recertification audits occurring every 3 years. Site visits to Colongra are determined based on the agreed schedule.</p> <p>A 3 yearly environmental external audit was undertaken in December 2022 and January 2023 as required by the Project Approval. The scope of this audit is set out by Condition 3.8 of the Approval and covered the period of September 2019 to September 2022. The audit found Snowy Hydro demonstrated an overall high level of compliance with the Approval and EPL conditions that were applicable to the operation of Colongra.</p>
Section 7	<p><b>Documentation</b></p> <p>The document control system and key environmental documentation is specified in this section of the OEMP.</p>	<p>Environmental documentation is stored within Snowy Hydro's document management system.</p> <p>Hard copies of inspection documents and waste certificates are also kept on-site as required.</p>



Reference	Summary of OEMP Section	Details of Compliance
Section 8	<b>OEMP Review</b> This section describes the triggers for updating the OEMP.	The OEMP has been reviewed annually and updated as required, refer Section 2.1.1 of this AEMR.

## Implementation of Mitigation and Maintenance Measures

Mitigation measures have been installed and are maintained across the site. Critical environmental controls (mitigation measures) include the following: 24 hr monitored alarming on critical systems (ie equipment status alarms, level and concentration alarms), bunding, an OWW separator, isolated drainage systems for potentially contaminated and clean water, emergency shutoff valves, regular training in emergency management and spill response, and environmental awareness. Daily visual inspections of these critical controls in addition to scheduled maintenance activities is also undertaken.

Maintenance requirements are scheduled in Snowy Hydro's maintenance system and required work activities which is used to schedule and track progress and completion of maintenance activities.

### 2.1.2 Independent Environmental Audit

Condition 3.8 of the Project Approval requires an Independent Environmental Audit (**IEA**) is commissioned 12 months after the commencement of operation of the project, and every three years thereafter. The purpose of the IEA is to assess, among other things, compliance with the requirements of the Project Approval and other licences and approvals that apply to the project, along with the environmental performance of the project against the predictions made and conclusions drawn in the documents referred to under Condition 1.1 of the Project Approval.

In October 2022 OptimE Pty Limited (**OptimeE**) was commissioned by Snowy Hydro to conduct an audit of compliance with the requirements of the Project Approval for the construction and operation of the gas turbine power station at Colongra. The audit also included a review of compliance against the sites EPL 13036 and OEMP.

Snowy Hydro demonstrated an overall high level of compliance with the Approval and EPL conditions that were applicable to the operation of the Colongra Power Station. Five opportunities for improvement were identified during the Audit and are being addressed by SHL.

The next IEA is due in October 2025 for the period September 2012 to September 2025.



## 2.2 Colongra Environment Protection Licence No. 13036

In addition to the Project Approval, the other primary regulatory requirement considered in the OEMP is the Colongra EPL 13036 issued under the Protection of the Environment Operations Act 1997 (POEO Act). A link to the latest version of the Colongra EPL 13036 is provided on the Snowy Hydro website and can be found on the EPA Public Register.

The following are conducted for oversight of licence compliance on a monthly basis:

- reviews of compliance with discharge limits identified in the Project Approval and EPL 13036;
- summary tables of emissions to air from each of the turbine units are published on the Snowy Hydro Internet site; and
- reports of non-compliances and issues relating to risk and compliance for review by the Snowy Hydro Executive Safety, Operations, Environment, Risk Committee.

### Variations to EPL13036

During this period there were two (2) variations to the site EPL13036 which are summarised below:

- 23 August 2022 - the EPA varied the Licence to remove conditions L3.5 and L3.6; and
- 30 August 2022 - the EPA varied the Licence to replace conditions E1.1 and E1.2 formalising the requirement to repeat the verification study (for the backup predictive monitoring system) for natural gas operation

### Colongra EPL13036 Annual Return

In accordance with Condition R1 of EPL 13036, Snowy Hydro was required to complete and submit to the NSW Environment Protection Authority (EPA) Annual Return within 60 days of the end the reporting period, comprising:

- a Statement of Compliance; and
- A Monitoring and Complaints Summary.

Summary copies of the Colongra Annual Returns are publicly available on the EPA Public Register. The Annual Return for the period 01 July 2021 to 30 July 2022 was submitted on time.

### Non-compliances

There were no non-compliances with Colongra EPL13036 during this reporting period.

### Stack Emissions Monitoring Results Summary

Please refer to the Air Quality section in this report for detail regarding stack emissions, including information reported to the EPA, stack emissions test results, and continuous emissions reporting summaries.

All emission results during the period have been within the Project Approval and EPL13036 limits.

### **Publication of Pollution Monitoring Data**

In accordance with section 66(6) of the POEO Act, all licensees who maintain a website are required to make any pollution monitoring data collected in compliance with monitoring conditions attached to their licence publicly available on the website.

This data can be accessed via the following link.

<https://www.snowyhydro.com.au/about/reports/reports-colongra-monthly/>

### **Pollution Incident Response Management Plan (PIRMP)**

In accordance with section 153A of the POEO Act, Snowy Hydro is required to prepare and maintain a Pollution Incident Response Management Plan (**PIRMP**). Compliance with the requirements to prepare and maintain PIRMP is certified in the Annual Return. The external version of the PIRMP is accessible through the following link.

<https://www.snowyhydro.com.au/about/reports/>

## **2.3 Snowy Hydro Environmental Management System**

Snowy Hydro has implemented and maintains a business wide Environmental Management System certified to ISO 14001. The EMS undergoes a mandatory Recertification Audit every three years and mandatory annual Surveillance Audits in the intervening years.

Snowy Hydro was recertified to the ISO14001 standard following the most recent EMS recertification audit in October 2022. The inclusion of the Colongra operations in the audit is determined during the scheduling of that year's audit. A site visit to Colongra was included within the scope of the ISO 14001 recertification audit undertaken in 2022.

## **3.0 OEMP Implementation & Monitoring**

Specific environmental management and monitoring actions are required for Colongra under the Project Approval, EPL 13036 and the Statement of Commitments. Implementation of environmental management practices and monitoring results for this reporting period is presented in this section.

### **3.1 Environmental Aspects, Impacts and Risk**

Colongra Aspects & Impacts have been included in the Snowy Hydro Aspects & Impacts Register. A review of the register was undertaken with key stakeholders in January 2020 and any additional aspects specific to Colongra were included in the Register.

An annual review was undertaken by the Snowy Hydro Environment team in 2022 and the register was updated to include the installation of the temporary demineralised water plant and the associated generation of waste brine water which is held onsite in double skinned tanks prior to offsite removal to an approved facility by a licenced waste contractor.

Operational activity was high during the reporting period as a result of the previously explained energy crisis however, with the exception of the temporary exemption period environmental controls have been maintained to the same standard as during the previous reporting period. Overall environmental impacts associated with Colongra operations were negligible during this period.

A baseline contamination study was completed following ownership transfer from the State government to Snowy Hydro. This study identified a number of pre-existing contaminants. Snowy Hydro is working with the previous owner and the NSW EPA to ensure that pre-existing contamination is managed appropriately. To facilitate remediation works the current property owned by Snowy Hydro has been subdivided and a portion of the land will be transferred to the previous owner during March 2023.

A new Lot and DP have been created for the subdivided land with the Colongra PS premises now situated within Lot 122 DP 1290829.

### **3.2 Environmental Management Plans & Monitoring**

The OEMP has identified environmental management plans for air quality, water, noise, waste, fuel use, and complaints, to manage the environmental risks associated with these activities. Performance against these aspects is summarised below.

Due to the nature of Colongra operation the primary aspect for which data is available is emissions to air, for which comprehensive monitoring data is provided below.

#### **3.2.1 Air Quality**

Colongra emits products of combustion into the surrounding atmosphere via four exhaust stacks. Conditions 3.1 of the Project Approval and Conditions P1 and M2 of the Colongra EPL require that air emissions from the stacks are monitored continuously for oxides of nitrogen (**NOx**), as well as annually for carbon dioxide, dry gas density, moisture content, molecular weight of stack gases and oxygen.

The stack emission monitoring consists of continuous monitoring using in-stack continuous emission monitors (**CEMs**) and verification testing on an annual basis. Stack emissions verification testing (on gas and diesel fuel) was undertaken on the 23 and 24 March for GT 1, 2, 3 and on the 12 May for GT4. The results of the annual verification testing are summarised in **Tables 4 to 7**.

Annual stack emissions testing is undertaken by Ektimo Pty Ltd an external NATA accredited contractor which specialises in industrial air emission monitoring.

The CEMS collects continuous emissions data for NO<sub>x</sub> for each of the emissions stacks as required by EPL 13036 and Project Approval Condition 3.1. Monthly summaries of CEMS monitoring results are published on the Snowy Hydro Internet site at:

<https://www.snowyhydro.com.au/about/reports/reports-colongra-monthly/>

With regards to emissions limits the Project Approval and EPL13036 specify;

- while operating on gas, the concentration limit for NO<sub>x</sub> for all discharge points is 60 milligrams per cubic metre (**mg/m<sup>3</sup>**), measured as an hourly average NO<sub>2</sub> equivalent and in “one hour blocks” as specified in Schedule 5 of POEO (Clean Air) Regulation;
- while operating on distillate fuels only, the concentration limit for NO<sub>x</sub> for all discharge points is 90 mg/m<sup>3</sup>; and
- the concentration limits do not apply during a period of start-up or shutdown, where start-up and shutdown have the same meaning as defined in the POEO (Clean Air) Regulation.

For determination of compliance with nitrogen oxides emission limits, emissions data has been collected in accordance with the EPA method CEM-2. In accordance with the requirements of the Project Approval, EPL13036, and POEO (Clean Air) Regulation, Schedule 5, data have been analysed on the basis of:

- a one hour averaging period, where the hour is a 1 hour block, as opposed to a rolling average. For the purposes of this report, the NO<sub>x</sub> emissions levels reported are the average of all emission concentrations taken from a turbine whilst in normal operation for one hour. Where the turbines were operating for less than one hour, the emissions level is not reported as it would lead to a misrepresentation of emissions from the power station;
- reference conditions of dry gas, 273 K, 101.3 kPa and 15 % O<sub>2</sub>; and
- excluding emissions during periods of start-up or shutdown, as specified by the Project Approval and EPL13036 conditions.

In summary, the CEMs NO<sub>x</sub> levels measured in this reporting period complied with the EPL and Project Approval NO<sub>x</sub> limits and/or the approved exemption period.

The maximum hourly NOx averages during gas-fired operation ranged between 37 mg/m<sup>3</sup> recorded in October and 59 mg/m<sup>3</sup> recorded in July. The mean hourly average each month on gas ranged from a minimum of 30 mg/m<sup>3</sup> during October to a maximum of 52 mg/m<sup>3</sup> in November.

The maximum hourly NOx averages during diesel fuel operation ranged between 61 mg/m<sup>3</sup> and 87 mg/m<sup>3</sup> recorded in July. The mean hourly average each month on diesel ranged from a minimum of 57 mg/m<sup>3</sup> during May to a maximum of 79 mg/m<sup>3</sup> in June.

Noting during the exemption period the maximum hourly NOx average during diesel fuel operation was 189 mg/m<sup>3</sup> and the mean hourly average was 122 mg/m<sup>3</sup>.

Variation in performance is expected as emissions control effectiveness will differ between fuel types and units. Variation in results will also be seen due to the ambient weather conditions throughout the year and the peaking nature of operations where prolonged steady state operations are a rare occurrence, resulting in more variation in emissions levels and consistency of components within the exhaust gas stream.

### Stack Emissions Monitoring Results Summary

The gas fuel emissions monitoring results shown in **Tables 4 to 7** below are provided for the 2022 financial year as this is the period reported in the Annual Return to the EPA, and as such the same data is provided to both agencies.

The emissions results for the remaining reporting period are available through the Snowy Hydro website which is linked below to the 'Continuous Emissions Monitoring Results Summary' section in this report.

During the AEMR reporting period the annual stack emissions tests were conducted, the results of which are also provided in **Tables 4 to 7**.

**Table 4: Stack emissions test results and continuous monitoring results for turbine Unit 1**

Pollutant	Unit of Measure	No. of samples required by licence (this is hourly average excluding start/stop)	No. of samples collected and analysed	Lowest sample value	Mean of samples	Highest sample value
Carbon dioxide	percent	1	1	3.4	3.5	3.6
Dry gas density	kilograms per cubic metre	1	1	1.31	1.31	1.31
Moisture content	percent	1	1	6.5	6.5	6.5
Molecular weight of stack gases	grams per gram mole	1	1	29.3	29.3	29.3
Nitrogen oxides	milligrams per cubic metre	Continuous	100.0%	30	42	58
Oxygen (O2)	percent	1	1	15.0	15.3	15.3
Temperature	Celcius	1	1	495	495	495
Velocity	metres per second	1	1	32	32	32

Volumetric flowrate	cubic metres per second	1	1	380	380	380
*Nitrogen Oxides	milligrams per cubic metre	1	1	-	49	-

\*Annual Stack Emission Test Results

**Table 5: Stack emissions test results and continuous monitoring results for turbine Unit 2**

Pollutant	Unit of Measure	No. of samples required by licence (this is hourly average excluding start/stop)	No. of samples collected and analysed	Lowest sample value	Mean of samples	Highest sample value
Carbon dioxide	percent	1	1	3.6	3.6	3.6
Dry gas density	kilograms per cubic metre	1	1	1.31	1.31	1.31
Moisture content	percent	1	1	6.3	6.3	6.3
Molecular weight of stack gases	grams per gram mole	1	1	29.3	29.3	29.3
Nitrogen oxides (Nox)	milligrams per cubic metre	Continuous	100.0%	14	35	51
Oxygen (O2)	percent	1	1	15.1	15.2	15.2
Temperature	Celcius	1	1	499	499	499
Velocity	metres per second	1	1	31	31	31
Volumetric flowrate	cubic metres per second	1	1	380	380	380
*Nitrogen Oxides	milligrams per cubic metre	1	1	-	41	-

\*Annual Stack Emission Test Results

**Table 6: Stack emissions test results and continuous monitoring results for turbine Unit 3**

Pollutant	Unit of Measure	No. of samples required by licence (this is hourly average excluding start/stop)	No. of samples collected and analysed	Lowest sample value	Mean of samples	Highest sample value
Carbon dioxide	percent	1	1	3.4	3.5	3.5
Dry gas density	kilograms per cubic metre	1	1	1.31	1.31	1.31
Moisture content	percent	1	1	5.3	5.3	5.3
Molecular weight of stack gases	grams per gram mole	1	1	29.3	29.3	29.3
Nitrogen oxides (Nox)	milligrams per cubic metre	Continuous	100%	27	35	57
Oxygen (O2)	percent	1	1	15.1	15.2	15.2
Temperature	Celcius	1	1	500	500	500
Velocity	metres per second	1	1	31	31	31
Volumetric flowrate	cubic metres per second	1	1	370	370	370
*Nitrogen Oxides	milligrams per cubic metre	1	1	-	42	-

**Table 7: Stack emissions test results and continuous monitoring results for turbine Unit 4**

Pollutant	Unit of Measure	No. of samples required by licence (this is hourly average excluding start/stop)	No. of samples collected and analysed	Lowest sample value	Mean of samples	Highest sample value
Carbon dioxide	percent	1	1	2.4	3.2	3.3
Dry gas density	kilograms per cubic metre	1	1	1.31	1.31	1.31
Moisture content	percent	1	1	5.9	5.9	5.9
Molecular weight of stack gases	grams per gram mole	1	1	29.3	29.3	29.3
Nitrogen oxides (Nox)	milligrams per cubic metre	Continuous	100%	34	40	48
Oxygen (O2)	percent	1	1	15.2	15.3	15.4
Temperature	Celcius	1	1	506	506	506
Velocity	metres per second	1	1	33	33	33
Volumetric flowrate	cubic metres per second	1	1	400	400	400
*Nitrogen Oxides	milligrams per cubic metre	1	1	-	45	-

\*Annual Stack Emission Test Results

### Continuous Emissions Monitoring Results Summary

Continuous emissions monitoring for Nitrogen Oxides (**NOx**) is required for all operations of the power station. These are summarised monthly and published on the Snowy Hydro Internet site as required by EPL13036. The summaries are not reproduced in this AEMR, and are available through the following link:

<https://www.snowyhydro.com.au/about/reports/reports-colongra-monthly/>

### 3.2.2 Water

Water monitoring is not required under the approvals, licences and permits applicable to Colongra.

However, as outlined in the OEMP, in the event of any uncontrolled surface water discharge from the site, the discharge may be monitored should there be concerns in relation to water quality. In this event a number of physical parameters are identified for monitoring including pH, Total Dissolved Solids, Suspended Solids, Dissolved Oxygen, Heavy Metals, Trace Elements, and Oil and Grease.

As there were no uncontrolled discharges recorded during this reporting period water monitoring for the above parameters was not undertaken.

Six monthly monitoring of discharge from the oily water separator pit was undertaken for physical parameters and oil and greases as required by the OEMP. Oil and grease results were below detection levels.

### **3.2.3 Noise**

Project Approval condition 2.12 and EPL 13036 condition L5 require Colongra to operate and maintain the premises and plant to ensure that the noise contributions from the power station to the background acoustic environment do not exceed the maximum allowable noise contributions specified in Table 3 of the Project Approval. The noise emissions from the power station were verified and reported to NSW Planning by Delta Electricity following construction and commissioning.

Effective noise mitigation results from design and construction of the power station, and in addition Colongra operates under procedures to manage any unexpected noise emissions from the site. These procedures include operating checklists, and ensuring all doors, vents and louvers are closed as required during operation to limit noise from the generator/turbine enclosures.

During operation, noise monitoring is undertaken after any community complaint at the receiver in order to verify noise levels from the power station, as per the corrective actions section of the OEMP. Where this occurs, results would be submitted to the Department of Planning and Environment (**DPE**) in the AEMR and to the EPA in the Colongra EPL Annual Return. This process was not required to be implemented as there were no noise complaints related to site operation during this reporting period.

### **3.2.4 Waste**

Waste types commonly generated onsite include waste oil, general waste, recyclables (paper and plastics). All liquid and non-liquid waste generated onsite is classified in accordance with EPA environmental Guidelines prior to offsite disposal at a licenced facility. No waste material generated outside the site is accepted onto the site for storage/processing or treatment.

Overall waste generation from day to day operations at Colongra is considered to be minimal. Licenced contractors (such as Cleanaway) are engaged to dispose of the general waste, co mingled recyclables (paper and plastics), metal recyclables and oily waste to a licenced facility. Prescribed waste is recorded and tracked in accordance with EPA requirements.

Individual Contractors, in consultation with the site personnel and their contract qualification requirements, are responsible for monitoring housekeeping, waste collection, storage, and disposal procedures and facilities.

Additionally, contractors are required to prepare an EMP prior to the commencement of any special projects. All EMP's are reviewed and approved by Snowy Hydro to ensure environmental risks and appropriate management measures have been identified and are adopted by the contractor.



Surveillance of site waste minimisation and disposal guidelines has been conducted as part of the routine inspections by Colongra site Production Technicians, and by Project Managers associated with site related project activities. No significant waste management issues were identified during the routine inspections.

### **3.2.5 Fuel Use**

The Fuel Use Management Plan has been complied with, with diesel hours and market conditions recorded and tracked by Snowy Hydro's Generation Operations group (**Gen Ops**) following each diesel run (see Appendix 1).

It is noted that gas is used preferentially with diesel used as a backup fuel when there are limitations on the gas supply or when diesel runs are required for plant maintenance. Ultra low sulphur diesel fuel is sourced for all diesel generation.

### **3.2.6 Meteorological Data**

As required by the site EPL, meteorological data was collected during site generation activities. The data is available within Snowy Hydro's SCADA system and a direct download of the equipment is also undertaken on a regular basis. Monitoring and maintenance of the weatherstation is undertaken in accordance with the operating manual and scheduled in the site maintenance planning system to ensure the equipment is operating reliably.

### **3.2.7 Complaints Register**

No complaints were received during the reporting period and as such a summary table detailing how complaints were addressed and resolved has not been included. Snowy Hydro uses its internal event management system as the site Complaints Register for the Colongra.

All complaints are treated as incidents, and the use of the system enables tracking and investigation of complaints, the recording of preventative actions that may be outcomes of an investigation and tracking of those actions to closure.

### **3.2.8 Environmental Incidents and Corrective/Preventative actions**

In summary, three potential environmental incidents and two potential hazards were recorded at Colongra during this period relating to minor hydrocarbon/chemical spills onsite and spills in bunded areas.

There were no notifiable environmental incidents and therefore no notifications to regulators occurred during this period.

Details of corrective/preventative actions will be provided in relation to notifiable incidents, however given that there were no such incidents no corrective or preventative actions are reported for the current reporting period.

## 4.0 Predicted Performance & Achievement of Environmental Goals

Condition 6.3(c) of the Project Approval states that the AEMR shall include:

*"identification of any circumstances in which the environmental impacts and performance of the project during the year have not been generally consistent with the environmental impacts and performance predicted in the documents listed under condition 1.1 of this approval, with details of additional mitigation measures applied to the project to address recurrence of these circumstances."*

A review of the data collected during the reporting period identified that other than the increase in operational hours due to the energy crisis and the air emissions exemption, there were no significant changes in circumstances to the previous reporting period.

To address the recurrence of the necessity for the air emissions exemption Snowy installed a temporary demineralisation plant on the site and is currently undertaking an assessment of the business case for a more permanent installation able to produce demineralised water at increased volumes when required.

The environmental performance of Colongra was generally consistent with the original predictions made and conclusions drawn in the documents listed under Condition 1.1.

It should be noted that Colongra power station has four gas turbines with a nominal output of 660 MW total and a licensed annual generation capacity of 1,000 GWh to 4,000 GWh, as identified in EPL 13036 Administrative Condition A1. As a result of the energy crisis and market conditions, Colongra generated approximately 463 GWh during the reporting period.

Using environmental monitoring to air and complaints management as the key assessment mechanisms, the environmental performance of Colongra power station was able to be assessed against the performance goals established through the various approvals, licences and permits for the project.

No physical environmental impacts were found in excess of those predicted by the environmental assessment studies or in excess of environmental licence, planning or legislative limits during this reporting period.

Air quality modelling was undertaken to assess the potential impacts of increased emissions on ground level NO<sub>2</sub> concentrations at surrounding sensitive receivers during the temporary exemption period 16 to 23 June 2022. The modelling found that potential air quality impacts to the surrounding areas were low and within or equal to the EPA's

impact assessment criterion. As such, it's considered that the environmental goals of the project have been achieved during the reporting period.

## **5.0 Overall Performance Against Licences and Approvals**

There are a number of conditions in the project approval related to the construction and commissioning phases of the project. As such they are no longer relevant to current site operations.

Of the remaining conditions there were no non-conformances against the Approval conditions, similarly there were no non-compliances with the site EPL conditions.

## Appendix 1 - Table of Diesel Run Hours

Notes - PTR = Plant test run, rows highlighted in blue indicate run hours that were not exempt from the 75 hour limit.

Date	Unit	Run Hours	Applicable Market Exemption Condition as per Clause 2.3	Exemption Criteria Met	Reason for use of fuel oil and market conditions
21/02/2022	CG1	3	2.3 (a) To manage network system constraints	Yes	
21/02/2022	CG2	3.5	2.3 (a) To manage network system constraints	Yes	
21/02/2022	CG4	3.75	2.3 (a) To manage network system constraints	Yes	
01/03/2022	CG3	0.3	PTR or none of the above	No	Test of fuel changeover after failure
15/03/2022	CG1	0.5	PTR or none of the above	No	Scheduled test of change over capability
23/03/2022	CG3	0.08	PTR or none of the above	No	Offline test
23/03/2022	CG3	1.5	PTR or none of the above	No	Emissions testing
24/03/2022	CG1	1.33	PTR or none of the above	No	
24/03/2022	CG2	1.5	PTR or none of the above	No	Emissions testing
07/04/2022	CG3	1	PTR or none of the above	No	Fault finding on the FO system
12/04/2022	CG4	2	PTR or none of the above	No	Emissions testing
05/05/2022	CG2	9.75	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply.
05/05/2022	CG4	0.75	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply.
05/05/2022	CG1	7.75	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply.

Date	Unit	Run Hours	Applicable Market Exemption Condition as per Clause 2.3	Exemption Criteria Met	Reason for use of fuel oil and market conditions
06/05/2022	CG2	9.25	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply
06/05/2022	CG1	6.5	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply
07/05/2022	CG1	6	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply
08/05/2022	CG1	6.5	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply
09/05/2022	CG3	4	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply
09/05/2022	CG1	5.75	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply
09/05/2022	CG4	5.5	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply
10/05/2022	CG1	7.25	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply
10/05/2022	CG3	5	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply

Date	Unit	Run Hours	Applicable Market Exemption Condition as per Clause 2.3	Exemption Criteria Met	Reason for use of fuel oil and market conditions
11/05/2022	CG1	1.83	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply
11/05/2022	CG3	5.5	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply
11/05/2022	CG1	5.75	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply
12/05/2022	CG3	5.25	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply
12/05/2022	CG4	5.5	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply
12/05/2022	CG1	5.25	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply
13/05/2022	CG1	5.25	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply
13/05/2022	CG3	3	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply
18/05/2022	CG2	0.667	PTR or none of the above	No	PTR after repairs to Demin water pipework.
23/05/2022	CG2	3.6	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply

Date	Unit	Run Hours	Applicable Market Exemption Condition as per Clause 2.3	Exemption Criteria Met	Reason for use of fuel oil and market conditions
23/05/2022	CG3	2.5	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply
25/05/2022	CG3	4.65	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply
25/05/2022	CG2	5.15	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply
26/05/2022	CG3	3.15	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply
26/05/2022	CG2	3.15	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply
27/05/2022	CG3	4.65	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply
27/05/2022	CG2	4.9	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply
28/05/2022	CG2	4.06	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply
28/05/2022	CG3	5.06	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply
01/06/2022	CG4	1.16	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply

Date	Unit	Run Hours	Applicable Market Exemption Condition as per Clause 2.3	Exemption Criteria Met	Reason for use of fuel oil and market conditions
03/06/2022	CG2	2.5	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply
03/06/2022	CG3	2.5	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply
03/06/2022	CG4	2.5	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply
05/06/2022	CG3	2.65	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply
05/06/2022	CG2	2.15	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run and insufficient gas supply
08/06/2022	CG4	5	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
09/06/2022	CG4	1.1	PTR or none of the above	No	PTR for emissions testing tuning Demin water.
09/06/2022	CG1	7	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
10/06/2022	CG2	5.5	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
10/06/2022	CG3	5.5	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.



Date	Unit	Run Hours	Applicable Market Exemption Condition as per Clause 2.3	Exemption Criteria Met	Reason for use of fuel oil and market conditions
13/06/2022	CG2	3	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
13/06/2022	CG3	2.5	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
13/06/2022	CG4	2	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
14/06/2022	CG3	1.1667	2.3 (g) Direction from AEMO	Yes	Operation of unit was extended under direction form AEMO, fuel change was required.
14/06/2022	CG1	4.85	2.3 (g) Direction from AEMO	Yes	Operation of unit was extended under direction form AEMO, fuel change was required.
14/06/2022	CG4	1.12	2.3 (g) Direction from AEMO	Yes	Operation of unit was extended under direction form AEMO, fuel change was required.
14/06/2022	CG4	2.9	2.3 (g) Direction from AEMO	Yes	Operation of unit was extended under direction form AEMO, fuel change was required.
14/06/2022	CG2	3.4667	2.3 (g) Direction from AEMO	Yes	Operation of unit was extended under direction form AEMO, fuel change was required.
14/06/2022	CG3	3.016	2.3 (g) Direction from AEMO	Yes	Operation of unit was extended under direction form AEMO, fuel change was required.
15/06/2022	CG3	2.2	2.3 (g) Direction from AEMO	Yes	Operation of unit was extended under direction form AEMO, fuel change was required.
15/06/2022	CG4	3.73	2.3 (g) Direction from AEMO	Yes	Operation of unit was extended under direction form AEMO, fuel change was required.
15/06/2022	CG2	2.2	2.3 (g) Direction from AEMO	Yes	Operation of unit was extended under direction form AEMO, fuel change was required.
15/06/2022	CG3	1	2.3 (g) Direction from AEMO	Yes	AEMO direction and availability of gas.

Date	Unit	Run Hours	Applicable Market Exemption Condition as per Clause 2.3	Exemption Criteria Met	Reason for use of fuel oil and market conditions
15/06/2022	CG4	1	2.3 (g) Direction from AEMO	Yes	AEMO direction and availability of gas.
16/06/2022	CG3	4.56	2.3 (g) Direction from AEMO	Yes	AEMO direction and availability of gas.
16/06/2022	CG2	4.116	2.3 (g) Direction from AEMO	Yes	AEMO direction and availability of gas.
17/06/2022	CG1	1.4	2.3 (g) Direction from AEMO	Yes	AEMO direction and availability of gas.
17/06/2022	CG2	4.816	2.3 (g) Direction from AEMO	Yes	AEMO direction and availability of gas.
17/06/2022	CG2	2.98	2.3 (g) Direction from AEMO	Yes	AEMO direction and availability of gas.
17/06/2022	CG2	3.98	2.3 (g) Direction from AEMO	Yes	AEMO direction and availability of gas.
17/06/2022	CG3	3.83	2.3 (g) Direction from AEMO	Yes	AEMO direction and availability of gas.
17/06/2022	CG3	3	2.3 (g) Direction from AEMO	Yes	AEMO direction and availability of gas.
17/06/2022	CG3	4	2.3 (g) Direction from AEMO	Yes	AEMO direction and availability of gas.
18/06/2022	CG2	1.5	2.3 (g) Direction from AEMO	Yes	AEMO direction and availability of gas.
18/06/2022	CG3	1.5	2.3 (g) Direction from AEMO	Yes	AEMO direction and availability of gas.
19/06/2022	CG2	3.5	2.3 (g) Direction from AEMO	Yes	AEMO direction and availability of gas.
19/06/2022	CG3	3.66	2.3 (g) Direction from AEMO	Yes	AEMO direction and availability of gas.
19/06/2022	CG2	4.01	2.3 (g) Direction from AEMO	Yes	AEMO direction and availability of gas.
19/06/2022	CG3	4.01	2.3 (g) Direction from AEMO	Yes	AEMO direction and availability of gas.
21/06/2022	CG2	2.166	2.3 (g) Direction from AEMO	Yes	AEMO direction and availability of gas.
21/06/2022	CG3	2.183	2.3 (g) Direction from AEMO	Yes	AEMO direction and availability of gas.
21/06/2022	CG3	10.716	2.3 (g) Direction from AEMO	Yes	AEMO direction and availability of gas.
22/06/2022	CG3	2.1	2.3 (g) Direction from AEMO	Yes	AEMO direction and availability of gas.
22/06/2022	CG2	2.04	2.3 (g) Direction from AEMO	Yes	AEMO direction and availability of gas.
22/06/2022	CG2	8	2.3 (g) Direction from AEMO	Yes	AEMO direction and availability of gas.

Date	Unit	Run Hours	Applicable Market Exemption Condition as per Clause 2.3	Exemption Criteria Met	Reason for use of fuel oil and market conditions
28/06/2022	CG3	5	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
29/06/2022	CG2	3	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
29/06/2022	CG3	2.66	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
29/06/2022	CG3	2.66	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
30/06/2022	CG3	3.66	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
30/06/2022	CG3	6.66	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
30/06/2022	CG4	7.5	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
30/06/2022	CG2	3.66	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
01/07/2022	CG3	7	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
01/07/2022	CG4	3.2	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.

Date	Unit	Run Hours	Applicable Market Exemption Condition as per Clause 2.3	Exemption Criteria Met	Reason for use of fuel oil and market conditions
01/07/2022	CG4	4.5	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
02/07/2022	CG3	5.5	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
02/07/2022	CG4	6.5	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
04/07/2022	CG4	7.56	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
05/07/2022	CG4	7.75	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
06/07/2022	CG2	7	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
07/07/2022	CG2	7.2	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
08/07/2022	CG2	7.3	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
09/07/2022	CG3	7	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
10/07/2022	CG3	7	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.

Date	Unit	Run Hours	Applicable Market Exemption Condition as per Clause 2.3	Exemption Criteria Met	Reason for use of fuel oil and market conditions
11/07/2022	CG3	7	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
12/07/2022	CG3	6.5	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
12/07/2022	CG1	6.5	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
12/07/2022	CG4	6.5	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
13/07/2022	CG3	10	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
15/07/2022	CG3	8	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
16/07/2022	CG3	8.48	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
17/07/2022	CG3	3	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
17/07/2022	CG3	3.5	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
18/07/2022	CG3	7	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.

Date	Unit	Run Hours	Applicable Market Exemption Condition as per Clause 2.3	Exemption Criteria Met	Reason for use of fuel oil and market conditions
19/07/2022	CG3	7.5	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
20/07/2022	CG3	7.5	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
21/07/2022	CG3	7	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
22/07/2022	CG3	7	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
23/07/2022	CG4	7	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
24/07/2022	CG3	5	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
25/07/2022	CG3	6	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
26/07/2022	CG3	7	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
27/07/2022	CG3	7	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
28/07/2022	CG3	7	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.

Date	Unit	Run Hours	Applicable Market Exemption Condition as per Clause 2.3	Exemption Criteria Met	Reason for use of fuel oil and market conditions
29/07/2022	CG3	8	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
09/09/2022	CG4	1.58	PTR or none of the above	No	Routine 2M Fuel Oil Test run
31/10/2022	CG2	1	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
31/10/2022	CG4	2	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
31/10/2022	CG4	1.5	2.3 (e) Cessation of operation would otherwise lead to a loss or reduction in electricity necessary to maintain the required network supply security and reliability	Yes	Market run, availability of gas.
15/11/2022	CG4	0.533	PTR or none of the above	No	PTR fuel change over post valve servicing maintenance.
24/11/2022	CG3	0.533	PTR or none of the above	No	PTR fuel change over post valve servicing maintenance.
02/12/2022	CG2	0.5	PTR or none of the above	No	PTR fuel change over post valve servicing maintenance.
07/12/2022	CG4	8	PTR or none of the above	No	PTR to tune engine.
07/12/2022	CG1	0.167	PTR or none of the above	No	PTR fuel change over post valve servicing maintenance.
08/12/2022	CG4	2	PTR or none of the above	No	PTR valve tuning
14/12/2022	CG2	2	PTR or none of the above	No	PTR noise survey
14/12/2022	CG3	2	PTR or none of the above	No	PTR noise survey
<b>Total Diesel Run Hours</b>		<b>598</b>			
<b>Total Exempt Hours</b>		<b>570</b>			
<b>Total Non-Exempt Hours</b>		<b>27</b>			