

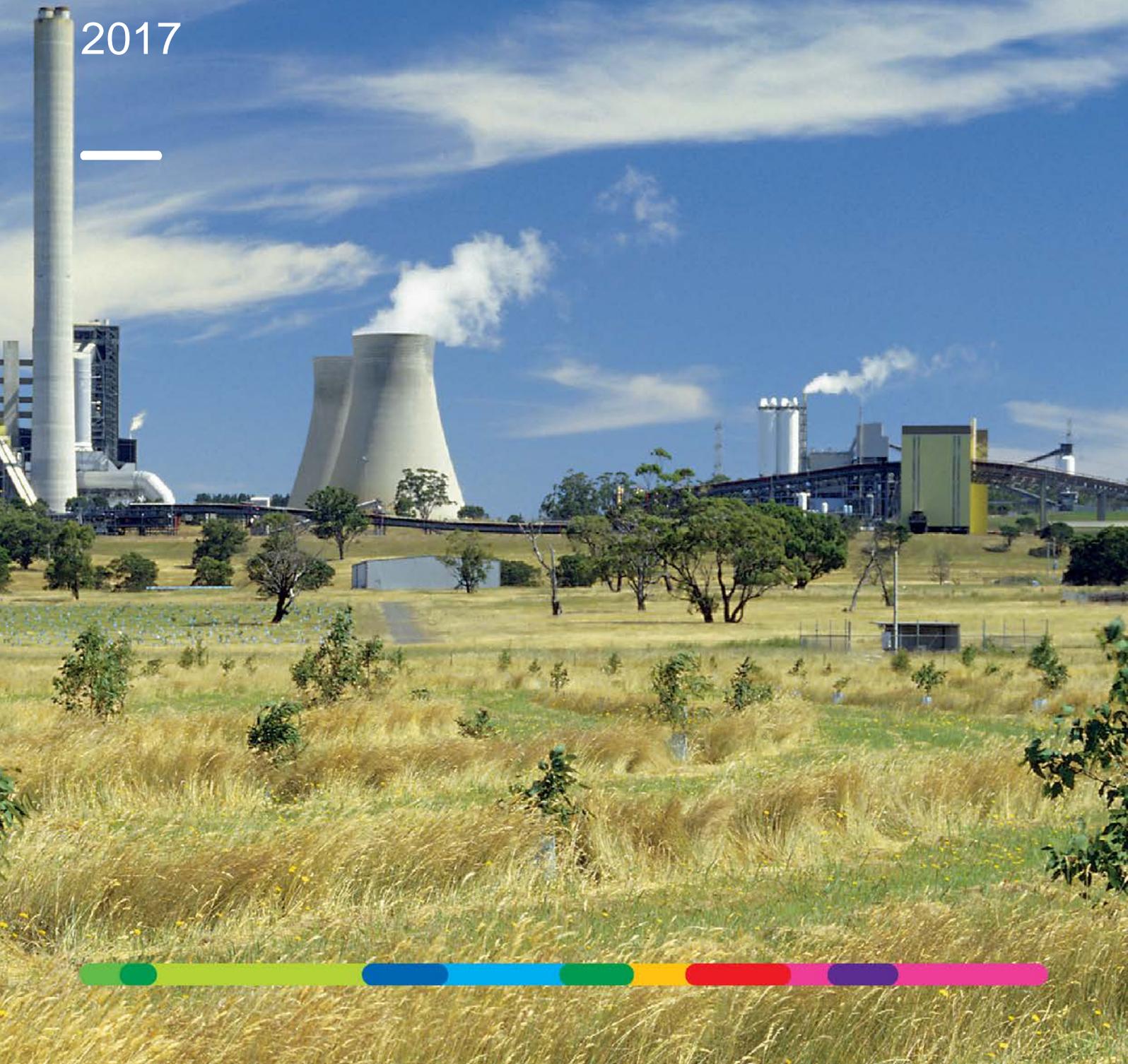


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# Loy Yang B Environment Improvement Plan

## 2017

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## 1 Endorsement

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Consistent with our Environmental Management System, annual environmental planning involves consultation with a wide range of stakeholders including operations and maintenance, engineering, supervisors, team leaders and senior management. Feedback received from any regulator or community engagement opportunity will also be considered.

Key environmental risks and opportunities, along with our business as usual (BAU) environmental objectives, are reviewed.

Feedback is collated and reviewed with any environmental initiatives put forward into the forthcoming business plan. All approved initiatives are appropriately assigned, resourced and accounted for in our budget.

This Environmental Improvement Plan is updated annually and any initiatives or actions are consistent with the Loy Yang B Business Plan. Actions are tracked for progress throughout the year.



Tony Hicks

Asset Manager

## 2 Environment Policy



**IPM Operation & Maintenance Loy Yang Pty Ltd**  
**Loy Yang B Power Station**

**LYB.POL.02 - Environmental Policy**

IPM Operation & Maintenance Loy Yang Pty Ltd (the Company) operates and maintains the 1,000 MW brown coal fired station, Loy Yang B Power Station.

The Company recognises the importance of utilising and continuing to improve our compliance position with the ENGIE Operational Excellence framework which includes elements of Environmental management.

LYB is dedicated to the protection of the environment and supports practices that prevent pollution and consistently operates within its environmental licence conditions.

The Company believes that sound environmental performance contributes to its competitive strength, and benefits its customers and employees and the wider community. Company personnel continually strive to improve station efficiency and to responsibly manage the Company's electricity generation operations to manage and minimise its impact on the environment.

Significant environmental regulatory reform is anticipated in the short to medium term that will require diligent review of our key impacts – air/greenhouse emissions, disposal of drainage, ash and saline water and our consumption of natural resources.

To achieve these aims and considering the current circumstances, the Company is committed to:

- Conducting all operations in accordance with the relevant environmental legislation, regulations, obligations, agreements and licences which relate to the Power Station operations and identified environmental aspects and impacts.
- Maintaining and demonstrating compliance to an Environmental Management System certified to AS/NZS ISO 14001 and ensure effective integration with the AS/NZS ISO 9001 Quality Management System.
- Continually improving both the effectiveness of the Environmental Management System to enhance Environmental Performance through the setting and reviewing of Environmental Objectives and Targets within the Business Plan and the annual Environment Improvement Plan.



Tony Hicks	Approved: 26/04/2017
Asset Manager	Review Date: 15/12/2017

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## 4 Site Management and Business Systems

Asset Manager, Tony Hicks

General Manager Operations & Maintenance, *Des Dalton*

General Manager Asset Performance, *Nick Lee (Acting)*

Supporting certified management systems include:

ISO9001      Quality management systems - Requirements

ISO14001      Environmental management systems – Requirements with guidance for use

## 5 Environmental Impacts and Risks

Loy Yang B’s key impacts to the environment include:

	ACTIVITY	HAZARD
<b>Significant Environmental Aspects and Impacts</b>	Flue gas emissions	Flue gas discharge to airshed <ul style="list-style-type: none"> <li>• particulates (dust)</li> <li>• sulphur dioxide</li> <li>• oxides of nitrogen</li> <li>• carbon monoxide</li> </ul>
	Greenhouse emissions	Flue gas emissions containing greenhouse gases
	Amenity – odour, noise and dusts	Loss of public amenity
	Drainage discharges – stormwater and site drainage	Discharge of ash/saline water, chemical effluent or hydrocarbons to the Loy Yang Settling Pond
	Ash disposal – transport of ash solids/saline waters via pipeline to Loy Yang Ash Pond	Ash disposal pipeline failure Loss of ash or saline water outside of the Loy Yang B boundary
	Waste disposal – EPA Prescribed	Incorrect disposal of EPA hazardous wastes. Reliance on contractors and sub-contractors.

## 6 Waste Minimisation

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Loy Yang B is committed to the protection of the environment by reducing waste to landfill and maximising resource recovery.

The control instruction *LYT0135 Waste Management and Disposal* ensures environmental compliance and minimises the impact of LYB contractor or waste disposal activities on the environment through responsible management, while adhering to relevant environmental legislation and other obligations.

Recycling facilities exist for co-mingled items, paper and cardboard, steel, timber, batteries, fluorescent lighting and electrical waste.

Wastes are assessed and categorised in accordance with the EPA Industrial Waste Resource Guidelines, Solid Industrial Waste Hazard Categorisation and Management, Publication 631.

Environmentally hazardous waste is quarantined and removed from site using EPA approved transporters and waste receiver companies as part of the EPA waste certification process.

## 7 Environmental Objectives

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Loy Yang B 2017 Business Plan environmental objectives include:

- i. Maintain environmental compliance in accordance with the site’s EPA accredited licence;
- ii. Engage with the community to provide performance updates and commitments to corporate social responsibility (part of annual community consultation program); and
- iii. Obtain recertification of environment and quality standards against new 2015 ISO standards.

Loy Yang B 2017 Business Plan environmental KPIs include:

Description	Target (Annual)
EPA Reportable Incidents	0

More specific environmental actions/KPIs considered business as usual (BAU) and how they are integrated with normal business and operational processes are described in detail within *QMS.41 Environment Systems Manual*.

Planning and consultation with key stakeholders and users in 2016 identified a range of continual improvement actions to be undertaken in 2017.

Description	Due
Upgrade the continuous emission monitoring system (CEM's) to measure for carbon monoxide, oxides of nitrogen (as NO <sub>2</sub> ) and sulphur dioxide (SO <sub>2</sub> ).	Q4
Engage with EPA's 2017 licence review program for general conditions and power generation sector improving on licence transparency and assessment of compliance	Q1/2
Continue to monitor changes in key state and national regulatory changes: <ul style="list-style-type: none"> <li>- EPA Act reform (Vic)</li> <li>- Clean Air Program, ambient air (National)</li> <li>- Minimata Treaty, mercury (National)</li> </ul>	Q4
Integrate hydrocarbon risk profile within existing Asset Maintenance Strategy	Q2
Continue to improve ash disposal pipeline alignment to reduce instances of coupling erosion and failure	Q4
Decommission and re-design new infrastructure to allow safe transfer of turbine lube oil from the main oil tank (Unit 2)	Q4

## 8 Operating Conditions

Loy Yang B power station operations are undertaken by experienced and trained personnel who work from a central control room location 24/7. All critical aspects of the power station are displayed continuously to the operator through interface terminal and control screens. Audible and visual alarms alert operators to abnormal or emergency conditions, allowing them sufficient time to respond. Examples include particulate and sulphur dioxide monitoring equipment installed in the boiler flue gas emissions discharge (the stack). Alarm conditions are set to highlight adverse trends, allowing the operator sufficient time to undertake a range of actions including reduction of generation to avoid a licence breach.

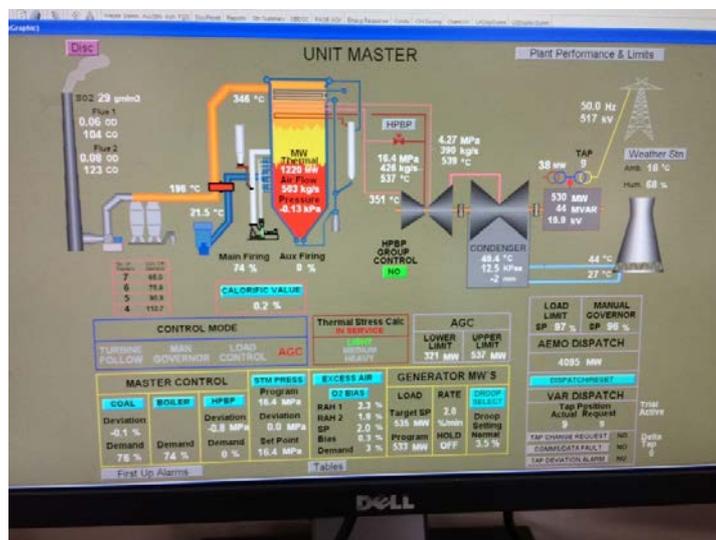


Figure 3 - Image of a Control Room Operator Interface Screen

## 9 Complaint Response

No recorded complaint has been received from the community or stakeholders in the last five years of Loy Yang B's operations in relation to environmental performance.

Loy Yang B has in place incident reporting and public complaints procedures to deal with any environmental related event or situation including public or community complaints.

Incident reporting defined within *LYT0132 Environmental Operating Response* is initiated internally when:

Any unplanned situation or event that occurs (actual or near miss) where:

- Any spill to ground or the drainage system of an environmentally hazardous material or substance;
- Emissions to atmosphere that exceed the operating licence specifications;
- Any incorrect disposal of environmentally hazardous wastes or materials;
- A public complaint regarding the operating of Loy Yang B has been received directly or via a third party such as the EPA.

In any instance where the EPA operating licence conditions have been exceeded, a business notification report is immediately lodged with EPA.

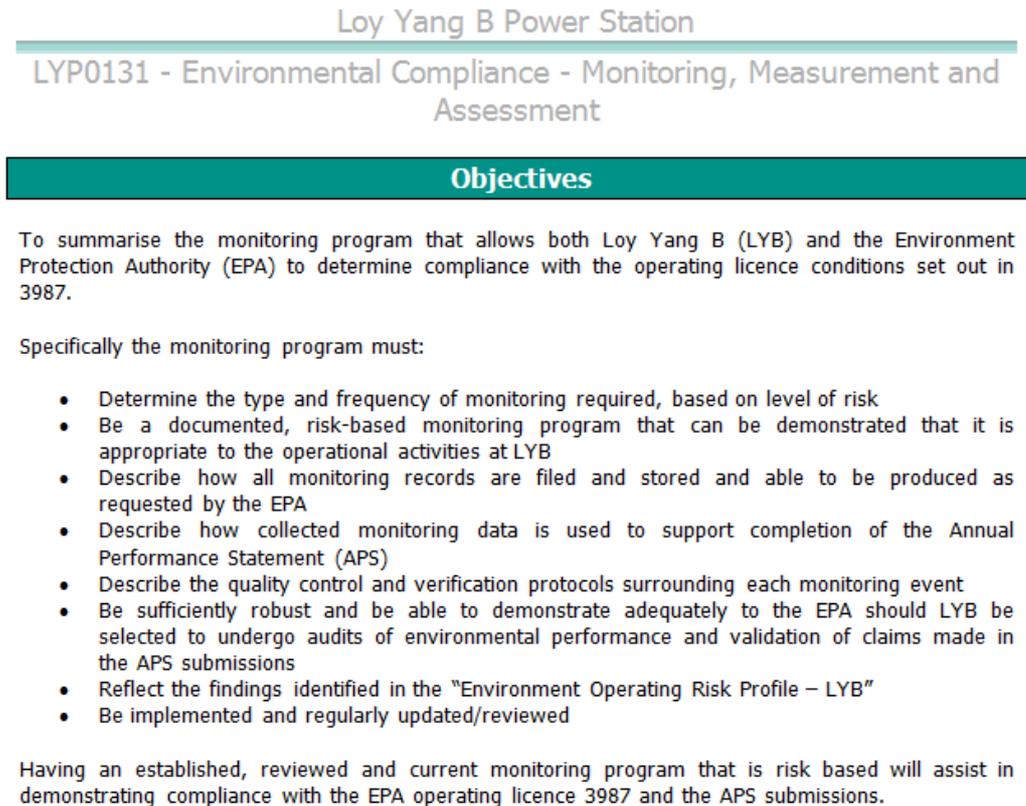
In addition to internal processes, the corporate communications team will promptly communicate any environmental licence breach to the public via our company website and to government regulators. <http://www.engie.com.au/>.

## 10 Contingency Arrangements

LYT0132 Environmental Operating Response provides clear instruction to control room personnel in response to plant abnormalities and alarm conditions relating to the environmental discharge to air and to drains.

Event	Environmental Impact	Control
High particulates or sulphur dioxide in flue gas detected	EPA licence breach (30 min)	Continuous Emissions Monitoring system with the stack  A three minute alarm condition on adverse trends provides sufficient response time for operator to modify process and prevent/avoid a licence breach  Adherence to coal draw directions
Ash disposal pipeline failure between Loy Yang B and AGL Ash Pond	Loss of ash solids and saline water to ground, drains	Online monitoring equipment measuring pH and electrical conductivity in drainage system  Ash pipeline run back pit alarm indicating pipeline failure  Pipeline inspection, monitoring and management routines
Failure or loss of ashing equipment, chemical storages, chemical effluent overflow, oil filled equipment	Loss of environmental hazardous material to the AGL Settling Pond	Online monitoring equipment measuring pH and electrical conductivity in drainage system  Notification to AGL Loy Yang  Settling Pond outlet isolation valve  Pit B3 operation

## 11 Assessment and Monitoring



**Figure 4 - Image of LYP0131 Environmental Compliance – Monitoring, Measurement and Assessment**

Monitoring, measurement, assessment and record keeping are key aspects of environmental compliance. Continuous measurement data for air emissions and drainage discharges is automatically recorded for future interrogation.

Maintenance routines (inspections, measurements, calibrations) of key operating plant associated with significant environmental impacts are programmed to designated work groups at defined intervals. Follow-up corrective actions are initiated should any maintenance routine fail to meet defined performance criteria.

Monthly environmental reporting to senior management consists of detailed assessment of continuous measurement data to ensure compliance. EPA reportable event/licence breaches are reported immediately to EPA via its business notification hotline.

## 12 Review and Reporting

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Formal management system reviews occur quarterly where environmental performance, audit findings, complaints, non-compliance, investigation outcomes, environmental actions and opportunities for performance are tabled and discussed.

This is in addition to monthly communications (OHSE committee/monthly reports) to senior management and employees of detailed environmental performance that includes compliance, air, water, greenhouse and efficiency and waste.

EPA reporting occurs annually and includes the Annual Performance Statement (APS) and submission to the National Pollutant Inventory (NPI).

## 13 Auditing

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The environmental management system is integrated with other systems including quality and safety. An internal audit program is prepared annually with audit topics selected on the basis of their risk profile.

In July 2016, the EPA undertook a compliance assessment for the 2014-2015 Annual Performance Statement (APS) submissions regarding reported discharges to air. The assessment confirmed 100 per cent compliance with these conditions and did not result in any requirements or recommendations being issued.

Other routine external audits regarding environmental performance include:

- ISO14001 surveillance (9 monthly) and re-certification (3 yearly)
- ENGIE International (annual)
- Loy Yang B Facility Audit (5 yearly) – EIP specific

## 14 Community Engagement

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Loy Yang B will continue to identify opportunities to engage the community in 2017. This could include mediums such as television, radio, newspapers and direct mail out, and communication with our stakeholder group developed during 2016.

In 2016, two public community stakeholder sessions were held at the Traralgon Business Centre (February and October) specifically to share information regarding the planned Turbine Retrofit project and allow interested parties to ask questions and provide any feedback. Newspaper, television, radio, website and direct contact (email/mail out) were used to advertise the forums and also to respond with additional information after the sessions.

The objectives of the community engagement program with respect to the Turbine Retrofit were:

1. Actively engage with the local community and interested stakeholders at an early stage of the project;
2. Identify potential impacted or interested stakeholders who may have an opinion of the proposal;
3. Ensure stakeholders received factual information regarding the proposal by utilising a range of engagement methods;
4. Seek opinions from stakeholders and provide an effective mechanism for the receipt and management of feedback including complaints;
5. Ensure feedback was encouraged;
6. Consider and respond to feedback received; and
7. Meet requirements of Loy Yang B's EPA accredited licence and the expectation of the EPA in relation to community engagement.

Good attendance from a wide cross-section of the community including local business and government representatives was seen at both sessions. A range of questions/topics were raised by forum attendees:

- Specific project details/timing/investment
- Greenhouse emissions and greenhouse intensity/efficiency
- Additional requirement for increased coal and emissions
- Any associated health impacts from the proposal
- Renewables and the electricity market and the role of baseload electricity
- Community benefits of the proposal
- Employment opportunities during construction and ongoing

## 15 Turbine Retrofit Project 2019/2020

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Following the 2016 community engagement sessions and review of its works approval application, the EPA granted approval in January 2017 for the project to proceed with several conditions. The two material conditions were:

WA\_W8 You must install a continuous emission monitoring system, at licensed air discharge points, to monitor Carbon monoxide and Oxides of Nitrogen (as NO<sub>2</sub>) prior to commencement of any commissioning of the works covered by this approval.

WA\_R4 Before the commencement of any commissioning, you must provide, to the satisfaction of the EPA, a report that includes: (a) evidence that at least 114MW of coal fired electricity generation capacity has been retired in Victoria since the date of issue of this approval(excluding, for the purposes of determining such generation capacity that has been retired, any new generation capacity that is commissioned in Victoria since the date of this approval), and (b) evidence of the installation of the continuous emission monitoring system to monitor Carbon monoxide and Oxides of Nitrogen (as NO<sub>2</sub>) as specified in WA\_W8.

A detailed design review is in progress and due for completion in 2017. Following this, manufacture of turbine materials will commence and are due for delivery to site ahead of the planned outages in 2019 and 2020.