

EnergyAustralia Yallourn  
Social and Environmental  
Performance Summary 2017



**EnergyAustralia**  
LIGHT THE WAY

# A Message from the Head of Yallourn

The following report, covering 2017, provides information relating to the EnergyAustralia Yallourn Social and Environmental performance.

As a key takeaway from 2017, the Health and Safety performance was considered below standard and highlighted that safety performance requires everyone to do their part. Injuries sustained as part of the major outage works and within the mine area showed that ongoing efforts are required across the complete site, such that we all seek continuous improvements which lead to a reduced number of injuries.

Environmental performance over the year was very pleasing with no environmental breaches noted. A major facilities audit also identified areas of improvement and EnergyAustralia Yallourn has worked hard to ensure those improvements have been put into place.

Major works were performed to construct the new return water basin and allow the ash repository to be opened providing sufficient space to accept the ash expected for the remaining life of the power station. We continue to work with the EPA to finalise the capping arrangements to be applied to the existing ash deposit as it reaches its final landform.

The Yallourn Mine continues to develop into the Maryvale Field and as noted in the report, we are now rehabilitating more area than we disturb through mining. A significant amount of work has and continues to be done to review and finalise our final rehabilitation plan for the mine. In order to ensure long term stability, the plan encompasses a full pit lake arrangement.

EnergyAustralia Yallourn are also actively involved in the Latrobe Valley Regional Rehabilitation Strategy group, which is run by DEDJTR and seeks to set a safe, stable and sustainable landform for the Latrobe Valley coal mine voids and surrounding areas. The output from this group form an input into the Yallourn Rehabilitation Strategy.

Regional issues around the rehabilitation of the three mines has become a key focus point for the Government and for each on the mines, with each of the businesses having representation on the Latrobe Valley Regional Rehabilitation Strategy group. This area of work will see a gradual increase in community engagement as we draw closer to the station and mine end of life, currently planned for 2032.

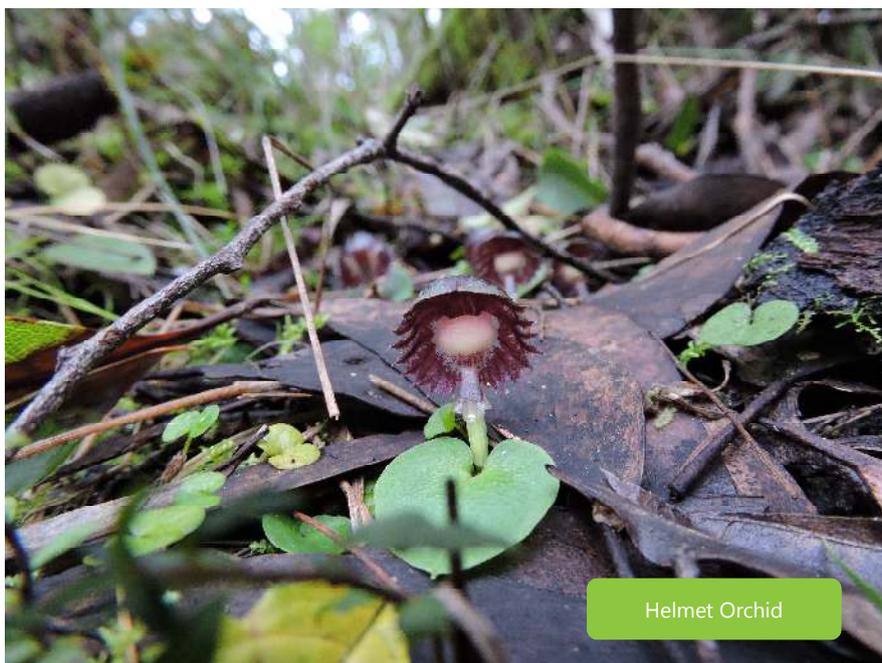
As part of our community engagement, Yallourn personnel participated in the SPARK reading program whereby volunteers from Yallourn spend time at a local primary school (Yallourn North in 2017) assisting children improve their learning skills. This program has been very successful and has provided positive results for both the students and the volunteers. The report also outlines other areas where EnergyAustralia Yallourn personnel are involved in community activities.

Being prepared for the summer period and in particular the threat of fires has seen a lot of work on our Fire Preparedness planning. The report outlines key activities carried out that will reduce our risk in regard to the threat of fire.

The report covers a wide range of topics related to our social and environmental performance and hopefully, you find it interesting and informative.



Mark Pearson  
Head of Yallourn



Helmet Orchid

# Our Performance at a Glance

In 2017, our safety and environment systems performance at a glance shows:

DESCRIPTION	RATING	COMMENTS	MEASURED AGAINST
<b>How we do business</b>			
All Planned Audits Completed (Includes Internal)	★★★	Target achieved	Internal
External Environmental Management System Audit	★★★★★	Certification maintained to ISO 14001	External
External Safety Management System Audit	★★★★★	Certification maintained for OHSAS 18001	External
Safety Health Environment Plans	★★★★	% completion rate achieved	Internal
<b>Our Operations</b>			
Coal Rate	★★★	Target achieved	Internal
Coal Supply Reliability	★★★★★	Target achieved	Internal
Electricity Sent Out	★★	Target not achieved	Internal
<b>Our Employees</b>			
Training – Safety, Health and Environment	★★★★	Target achieved	Internal
Employee Availability	★★	Target not achieved	Internal
<b>Our Safety and Health</b>			
Prosecutions Safety	★★★★	No prosecutions received for safety	External
Prosecutions Environment	★★★★	No Prosecutions received for environment	External
Emergency Response Exercises	★★★★	100% completion to plan	Internal
Safety Site and Workshop Inspections	★★★★	Target exceeded	Internal
Hazardous Material and Storage Assessments	★★★★	Target achieved	Internal
Lost Time Injuries	★★	Zero target not achieved	Internal
Total Injury Frequency Rate	★★	Target not achieved	Internal
Penalty Notices	★★★★	No WorkSafe penalty notices	External
<b>Our Environment</b>			
Wastewater Volume and Quality Discharge	★★★★★	Exceeded target and met EPA licence	External
Net Water Consumed	★★★★★	Exceeded target	Internal
Land Rehabilitated	★★★★★	Exceeded target	Internal
Topsoil Stockpiled	★★★★	Met target	Internal
Greenhouse Gas Emissions Intensity	★★★★	Met target	Internal
Sulphur Dioxide Emissions To Air	★★★★	Met target	External
Oxides of Nitrogen Emissions To Air	★★★★	Met target	External
Carbon Monoxide Emissions To Air	★★★	Met target but worsening performance trend	External
PM<10um Dust Emissions To Air	★★★★	Met target and improving performance trend	Internal
EPA Licence Breach	★★★★★	Met EPA licence	External
Public Enquiries	★★★	7 enquiries received	Internal

- ★★★★★ Exceed Internal Performance Indicator or Improved Performance
- ★★★★ Achieved Internal Performance Indicator or Improving Performance Trend
- ★★★ Met External Requirements or Worsening Performance Trend
- ★★ Not Met External Requirements or Internal Performance Indicator
- ★ Infringement Notice, Prosecution, Penalty or Contractual Breach

Common Heath (Epacris impressa), which is the Victorian floral emblem



# Sustainable Business Operation

EnergyAustralia Yallourn conducts its operations in accordance with the requirements of the EPA Licence (No 10961) and the Mining Licence (No 5003). The mining licence approved by the Victorian Government allows for mining to continue to 2032. This allows coal to be mined and supplied from Yallourn mine to the adjacent power station until it is scheduled to finally close. The mine and power station will then be rehabilitated for use by the community.

The licence provides certainty for employees and the local community. The decision secures the immediate ongoing operation of the plant and supports planning for its orderly retirement.

The Yallourn power station and mine employs around 500 people and provides around 22 per cent of Victoria's energy supply. On the 10 days when demand was at its highest over summer 2017/18, the plant had 98 per cent availability.

Reliable energy, when it is required most, is achieved only when power station maintenance and coal supply are working in cohesion.

The mining approval means Yallourn can continue investment into plant and operations that align with the vision of a staged retirement, as we are assured we can make investments wisely.

Yallourn continues to measure all environmental aspects and meet regulatory obligations, as well as improve business sustainability.

Key achievements for 2017 include:

- No EPA licence breaches
- A successful BSI-NCSI Surveillance audit of the SHE Management System to ISO14001 and OHSAS18001 was completed in 2017.

## Water

- Wastewater discharges to Morwell River were below

the licence limits of an annual daily mean of 80.5 ML/d and a max daily rate of 150 ML/d whilst meeting all required water quality standards for discharge.

- Efficiency in water use meant that water consumption of 26,776 ML is only 73% of the annual Bulk Water Entitlement of 36,500 ML.
- Water discharge (due to reuse and evaporation) saw 12,306 ML discharge, which is 42% of the EPA Licence wastewater volume limit of 29,383 ML.

## Land

- Covering 31.5 hectares of exposed coal faces for land rehabilitation.
- Continue to rehabilitate more land than disturbed by mining.

## Air

- Average particle emissions of 0.083 g/m<sup>3</sup> was well below the annual business target of 0.1 g/m<sup>3</sup> and well below the EPA licence limit of 0.22 g/m<sup>3</sup>.
- Upgrades to electrostatic precipitators to reduce particle emissions to air.
- Annual performance statements (APS) on licence compliance together with the licence are publicly available on the EPA website. The APS for 2017 financial year was submitted to EPA in September 2017.

## Community Engagement

- The Environmental Review Committee (Agencies and Community stakeholder groups) met four times to review environmental performance.
- Sponsorship was provided to Latrobe Landcare Network for community based conservation projects. These involved tree planting along the Moe Yallourn Rail Trail, school tree planting activities and improving landowner biodiversity habitats.



Mantis Orchid

# Brown Coal Developments

EnergyAustralia is playing an active role in the sustainable development of Victoria's brown coal resource, assisting with the development of technologies and projects across the research, demonstration and commercialization phases.

These technologies and projects offer the potential to use brown coal to build new export focused products and import replacing industries, attracting significant investment and creating jobs in the Latrobe Valley.

In relation to support for brown coal related research, EnergyAustralia is participating in research projects across a number of fields, including high efficiency coal drying and power generation, mining and rehabilitation, carbon

capture and beneficial use of ash. EnergyAustralia values its relationships with research institutions and related organisations including Monash University, Federation University, CSIRO, RMIT, Brown Coal Innovation Australia and ANLEC Research and Development.

EnergyAustralia also continues to work with partners that are seeking to develop commercial scale projects at Yallourn. EnergyAustralia acknowledges the challenges and opportunities for commercialisation of new brown coal related technologies and continues to support these efforts, particularly given the very large resource in Victoria and the attractive properties of brown coal (for example, very low ash content).

# Batter Stability Research Project

In response to a recommendation to the Department of Economic Development, Jobs, Transport and Resources (DEDJTR) from the Technical Advisory Group (TAG), a 'Batter Stability Project' was conducted at the Yallourn Mine to undertake further geotechnical studies to establish a robust technical platform to manage geotechnical risks in the Victorian Brown Coal Mines.

DEDJTR has funded the project and has engaged the Geotechnical and Hydrogeological Engineering Research Group (GHERG) group from Federation University to

undertake the research and provide specifications for the field work.

Yallourn Mine personnel have managed the drilling program and the collection of bore hole samples for laboratory testing.

The TAG, comprising an independent Chair and representatives from Loy Yang Mine, Hazelwood Mine, Yallourn Mine and DEDJTR, was established to provide advice to the project as required.

# Mine Development

Development of Yallourn Mine continued in a south-easterly direction into Maryvale Field for all coal operations and overburden removal activities. The M300 upper slope and M400 lower slope are fully developed with two feeder breakers continuing to operate on each coal level. Backside coal winning to M400 in the floor of Maryvale Field continues to optimise coal recovery and allows the establishment of the Maryvale Dewatering Pond.

Significant quantities of overheight overburden material are being excavated by a truck and shovel operation to allow safe production by Dredger 13 and the fixed overburden system. Overheight material removed by truck and shovel is supporting environmental and geotechnical goals by way of; coal coverage, buttressing and general fill integrated into the mine rehabilitation program. Overburden material, removed by Dredger 13, is placed on the mined out floor of East Field with significant areas of coal coverage gained each year.

# Witts Gully Upgrade

Witts Gully Dam upgrade was completed in 2015, bringing the dam to full compliance with ANCOLD dam safety guidelines and best practice. The two subsequent annual inspections have confirmed the dam is performing to design ANCOLD requirements.

Waxlip Orchid



Pictured: Return Water Basin Rehabilitation Prior to Grass (Oct 2017)



## Eastern Return Water Basin Update

Bulk earthworks on the new Eastern Return Basin were completed during July 2017.

The bulk earthworks were followed by the placement of top soil to the upper slopes and grass seeding.

Over the summer months (2017/18), water has been slowly added to the new Basin. During this process, survey monitoring around the Basin has been undertaken as part of the Ground Control Monitoring Program.

Other work in the area included the establishment of a new pumping station at the eastern end of the new basin. The pump station returns water to the Power Station for re-use through the Ashing System, helping achieve sustainable water practices.



Pictured: Return Water Basin Rehabilitation with Grass (Jan 2018)

# Climate Change

EnergyAustralia Yallourn continues to report its annual total greenhouse gas emissions, energy consumption and energy production to the Government in accordance with the National Greenhouse and Energy Reporting Act 2007. This data provides the information required for the implementation of the Government's 'Direct Action' policy.

EnergyAustralia's vision is to be a leader in the clean energy transformation. EnergyAustralia is doing this via the acquisition of renewable and low emissions intensity energy assets that help drive a low emission energy future.

We see the uptake of renewables happening faster in Australia than anywhere else in the world. We need to manage this transition to ensure it meets the needs of our customers (social, environmental and economic).

## Pursuing opportunities through innovation

A core belief we have on sustainable energy is the need to address the energy trilemma: providing a safe and reliable electricity supply, in an environmentally responsible way, at a reasonable cost. While Australia is pursuing an energy transition towards a low carbon future, it is crucial that energy security is not overlooked or taken for granted. EnergyAustralia Yallourn provides approximately 22 per cent of Victoria's energy and about 8 per cent of the National Energy Market.

Energy underpins lifestyle, jobs and economic development. We all want reliable energy, produced and distributed cost-effectively, so that we can enjoy a good quality of life.

For EnergyAustralia Yallourn, it is important that we manage and maintain our asset to ensure that reliable energy can be supplied to meet market demands, and do so in a sustainable way.

Here are some of the ways Yallourn is achieving these goals:

- Making our existing generation assets more efficient. For example, a major maintenance program at Yallourn over the past five years has improved operational efficiency by reducing fan power usage.
- Duct work repairs to reduce power use and conserve energy.



Black Swan in CMP Block G (Yallourn Morwell River Wetlands) with a Eurasian Coot looking on in the background

# Water Conservation

The volume of fresh water extracted from the Latrobe River for Power Station cooling was 26.8 gigalitres (GL) in 2017, well within the Yallourn Bulk Water Entitlement limit of 36.5 GL.

The water consumption rate was 2.46 megalitres/GigaWattHour (ML/GWh) generated, well below the internal business target for water use.

Rainfall across the region decreased 7% in 2017.

# Waste Water

Full compliance with the EPA licence was maintained for wastewater discharges to Morwell River in 2017.

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Monthly Discharge (ML)	945	878	559	887	812	1074	1106	1283	1337	1632	850	944
Year to Date (ML)	945	1822	2381	3267	4079	5153	6259	7542	8879	10512	11362	12306
Max Discharge Allowed YTD (ML)	2061	3961	5764	7937	10545	12960	15826	18917	21751	24601	27225	29383

Table 1: Wastewater discharges to Morwell River



Blue Tongue Lizard

# Mine Progressive Rehabilitation

In 2017, 33 hectares of land was rehabilitated exceeding the plan of 30 hectares. In addition, this was the 13th consecutive year in which the Yallourn Mine has rehabilitated more land than it has disturbed. Figure 1 shows the historical annual disturbance and rehabilitation areas.

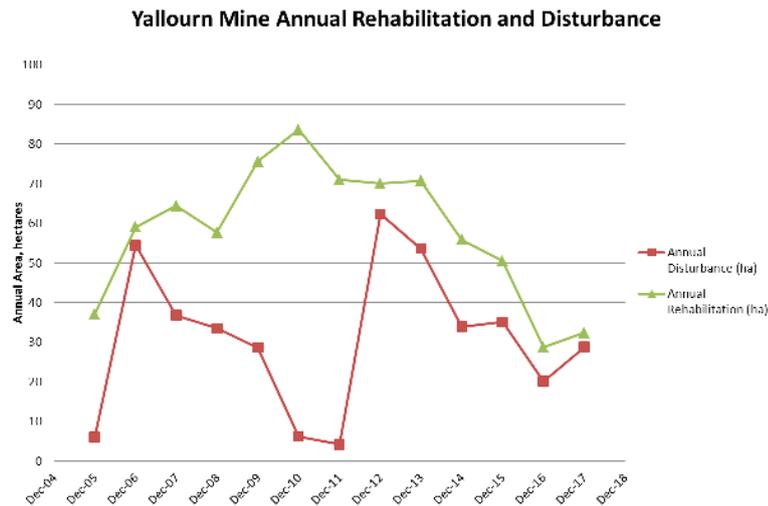


Figure 1: Yallourn Mine Annual Rehabilitation and Disturbance

A major progressive rehabilitation milestone was reached with the completion of the East Field Extension Latrobe Road and Southern Batter Project. The project has seen a significant amount of earthmoving with 492,000 cubic metres of overburden cut and dozer shaped over the permanent coal batter. Due to the large volumes our largest mobile machine, the CAT D11 Dozer, did the bulk of the earthmoving with support from smaller dozers and excavators.

A detailed drainage plan was constructed with slots draining both surface rainfall runoff and also groundwater from a series of horizontal bores drilled into the coal batter. This drainage construction will prevent overtopping of the various benches, therefore preventing significant erosion.

In April a thirteen hectare section of the project was topsoiled and grassed successfully. In May a six hectare section of the Latrobe Road Batter was also topsoiled and grassed with the total grassed area now approximately 37 hectares. Table 1 shows the key performance indicators (KPIs) from the rehabilitation project which began in November 2014.

Parameter	Quantity	Units
In-situ Overburden Shifted by Dozer	492,000	Cubic metres
Topsoil Spread	104,000	Cubic metres
Coal Covered	361,059	Square metres
Grassed Area	370,000	Square metres

Table 2: East Field Extension Batter Rehabilitation KPI's



Pictured above: East Field Extension during active Mining (2013)

Pictured below: East Field Extension showing Coal Coverage and Progressive Rehabilitation (Oct 2017)





Pictured above: A rehabilitated section on the East Field Extension Grass Level following disturbance from mining and in response to the 2014 Hernes Oak Fire. Topsoil Spread (March 2017)

Pictured below: East Field Extension Grass Level - Successful Grass Growth Post Seeding (June 2017)





Following the success of the mulching program in 2016, mulching, weed control and grass spreading was undertaken on the Mid Field Overburden Dump in 2017. These areas will be available for grazing when permanent fencing is installed.

Pictured above: Noxious Weed mulching and spraying success of Mid Field Dump Rehabilitation Zone (May, 2017).

A shoreline revegetation trial program was initiated at the Mid Field Dump and Fire Service Pond interface, to monitor growth rates and erosion prevention capability of riparian vegetation against wave action.

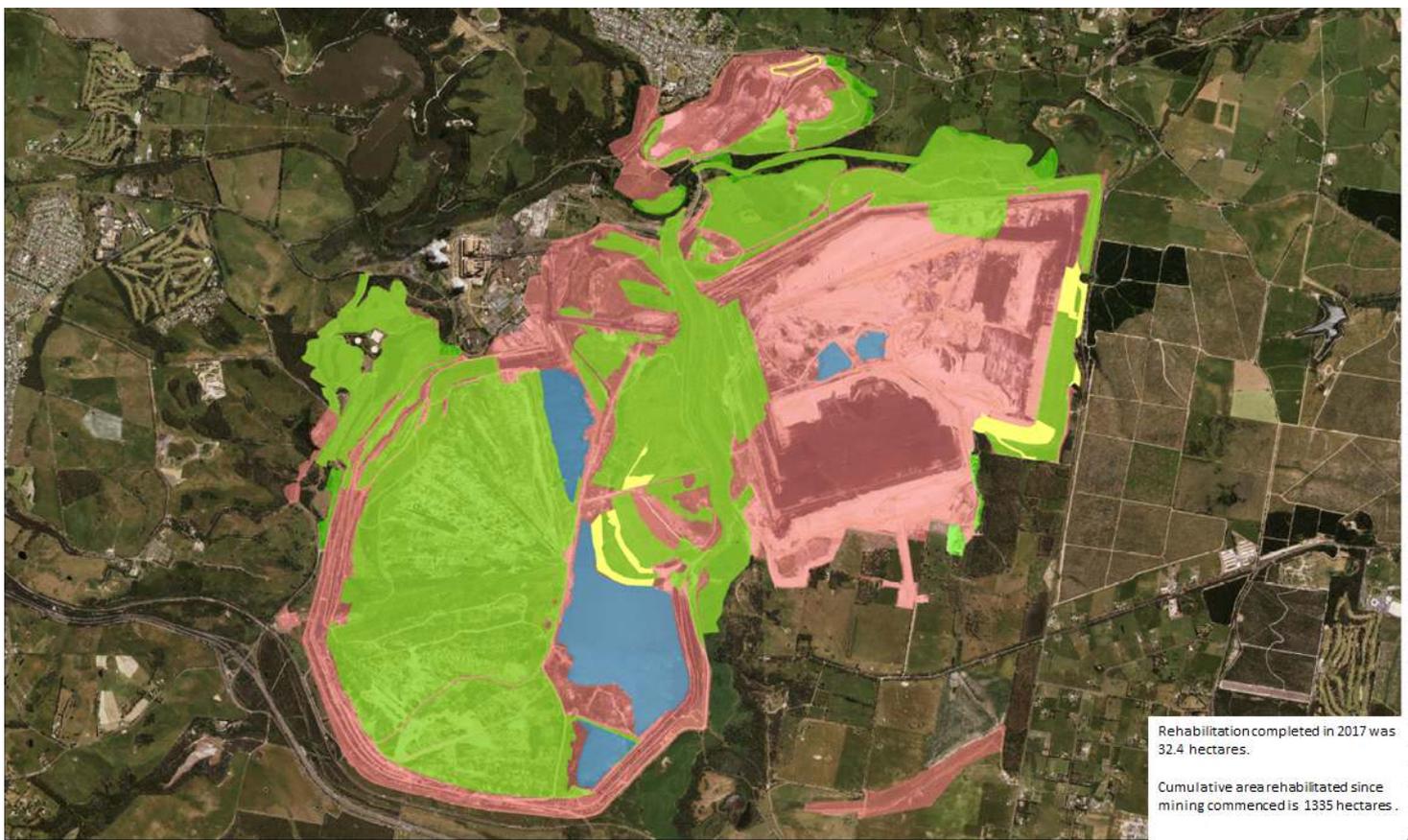
Pictured below: Mid Field Dump Shoreline Planting Project (August 2017).



# Mine Rehabilitation Monitoring

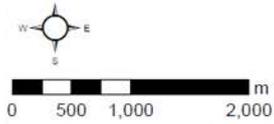
Landscape Function Analysis (LFA) was conducted across 22 transects on the Township Field, Northern Overburden Dump (NOB), Southern Overburden Dump (SOB), East Field Extension Batters (EFX), and Yallourn North Open Cut (YNOC) rehabilitation areas. NOB areas showed significant patch cover improvement, whilst infiltration and nutrient cycling trends are variable across the site. NOB direct seeding areas from 2009 are improving, with the number of stems increasing by 60% from 2014 to 2017. The increase is largely concentrated to middle story species such as acacias. SOB transects all showed increase in patch cover, stability and infiltration. EFX batter zones showed relatively stable results, although two of the transects have a slightly lower rating than baseline sites within the region. This will be continually monitored and treated if required. Risk assessments will continue on EFX batters with remediation works planned to minimise further rills and erosion.

Yallourn Mine rehabilitation and disturbance areas as at 2017, are shown below.



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**Yallourn Mine Rehabilitation and Disturbance 2017**



**Legend**

- Rehab Completed 2017
- Total Area Water Bodies
- Total Area Rehabilitated
- Total Area Worked



Geographical Representation of Yallourn Mine Rehabilitation Areas

# Conservation Management Plan

The Conservation Management Plan (CMP) contains a number of approvals associated with offsetting native vegetation losses caused by mining and protecting native vegetation within the Mining Licence area. There are three major approvals within the CMP which include the:

- Yallourn Mine Conservation Management Plan (2005)
- Offset Plan – Yallourn Coal Field Development Maryvale Field Eastern Extension (2009)
- Environment Protection and Biodiversity Conservation Act (EPBC) 2008/4454 and accompanying DSEWPC Offset Management Plan (2011)

As a subset of the EPBC approval, EnergyAustralia Yallourn gained various additional approvals including three Land Owner Agreements and one Crown Land Licence with the Department of Environment, Land, Water and Planning (DELWP). These approvals allow Strzelecki Gum habitat to be managed in accordance with Federal and State native vegetation requirements.

Scientific Name	Common Name	2017 CMP Plantings
Acacia brownii	Heath Wattle	440
Acacia dealbata	Silver Wattle	125
Acacia mearnsii	Black Wattle	220
Acacia melanoxylon	Blackwood	130
Acacia stricta	Hop Wattle	450
Acacia verticillata	Prickly Moses	545
Carex appressa	Tall Sedge	200
Cassinia aculeata	Common Cassinia	675
Daviesia latifolia	Hop Bitter-pea	265
Goodenia ovata	Hop Goodenia	1230
Kunzea ericifolia	Burgan	430
Leptospermum continentale	Prickly Tea-tree	1040
Leptospermum lanigerum	Woolly Tea-tree	550
Lomandra longifolia	Spiny-headed Mat-rush	3325
Melaleuca ericifolia	Swamp Paperbark	760
Melicytus dentata	Tree Violet	525
Olearia lirata	Snowy Daisy-bush	770
Ozothamnus ferrugineus	Tree Everlasting	365
Poa labillardierei	Common Tussock	975
<b>Totals</b>		<b>13020</b>

Table 3: Yallourn Mine Planting Program for 2017

Whilst the CMP encompasses various approvals and licences, the primary aim is to improve the quality and size of native vegetation by protection, revegetation and enhanced management. The 2017 program focussed on meeting the DELWP Land Owner Agreement planting targets with 13,070 plantings completed within Strzelecki Gum habitat zones. In addition, the 2017 program included significant campaigns of weed control maintenance and improvement, fencing and fence repairs. The Pest Control Program also includes baiting and monitoring of CMP zones.

Bird surveys were also conducted by the Latrobe Valley Field Naturalists periodically throughout the year at the Block G Wetland Site. There were 72 bird species recorded for 2017. Over 145 bird species have been spotted at the Wetlands, which accounts for over 70% of the local area within Mt Baw Baw, Holey Plains State Park, Mt Worth State Park and Mirboo North. The Australasian Bittern was spotted for the first time at Yallourn during 2017, with the sighting reported to Birdlife Victoria due to its significance.

Our efforts to rehabilitate disturbed areas and conserve habitats is important to maintain and enhance biolinks in the area.



Shrub Plantings in CMP Block 50b

# Safety

EnergyAustralia Yallourn has a strong safety culture, aimed at achieving zero injuries at our work locations.

We uphold safety as an integral part of what we do and we stress that safety is a value that is never to be compromised. We strive for zero injuries and take all incidents and injuries very seriously. Safety incidents are indications of where we need to work harder and reach the ultimate goal of zero injuries in our work place.

The Health and Safety performance for 2017 was below expectations. The Total Injury Frequency Rate (TIFR) for 2017 was 13.2, significantly above the target of < 5.85. There was a major outage in 2017, increasing the exposure to the safety risks associated with heavy maintenance work. A focus on outage safety is a key priority for 2018.

The historical record of Total Injury Frequency Rate (TIFR) is tabled below which demonstrates that 2017 was against the trend of improvement, over time.

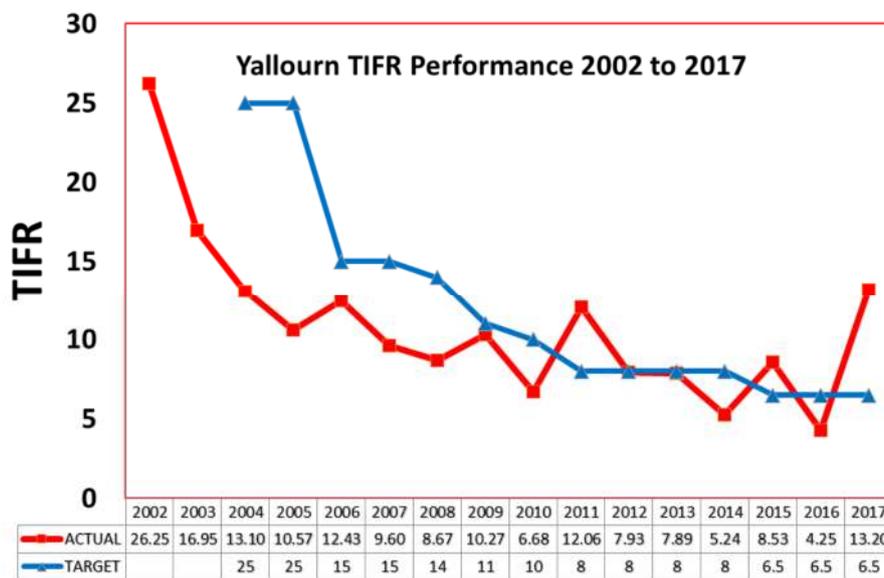


Figure 2: Yallourn TIFR Performance

## Safety and Health Achievements

Significant safety and health achievements in 2017 were:

- Launch of an EnergyAustralia wide Enterprise Management Certification;
- Introduction of a Life Saving Rules Policy;
- Continuation of Drug and Alcohol Random Testing Procedure;
- ICAM investigation training carried out for 13 site personnel to be lead investigators;
- Health Awareness Program;
- Nine significant emergency exercises during the year, including a major exercise involving the EnergyAustralia Yallourn Crisis Management Team, Incident Response Team and Government Agencies.

# W436 Major Outage

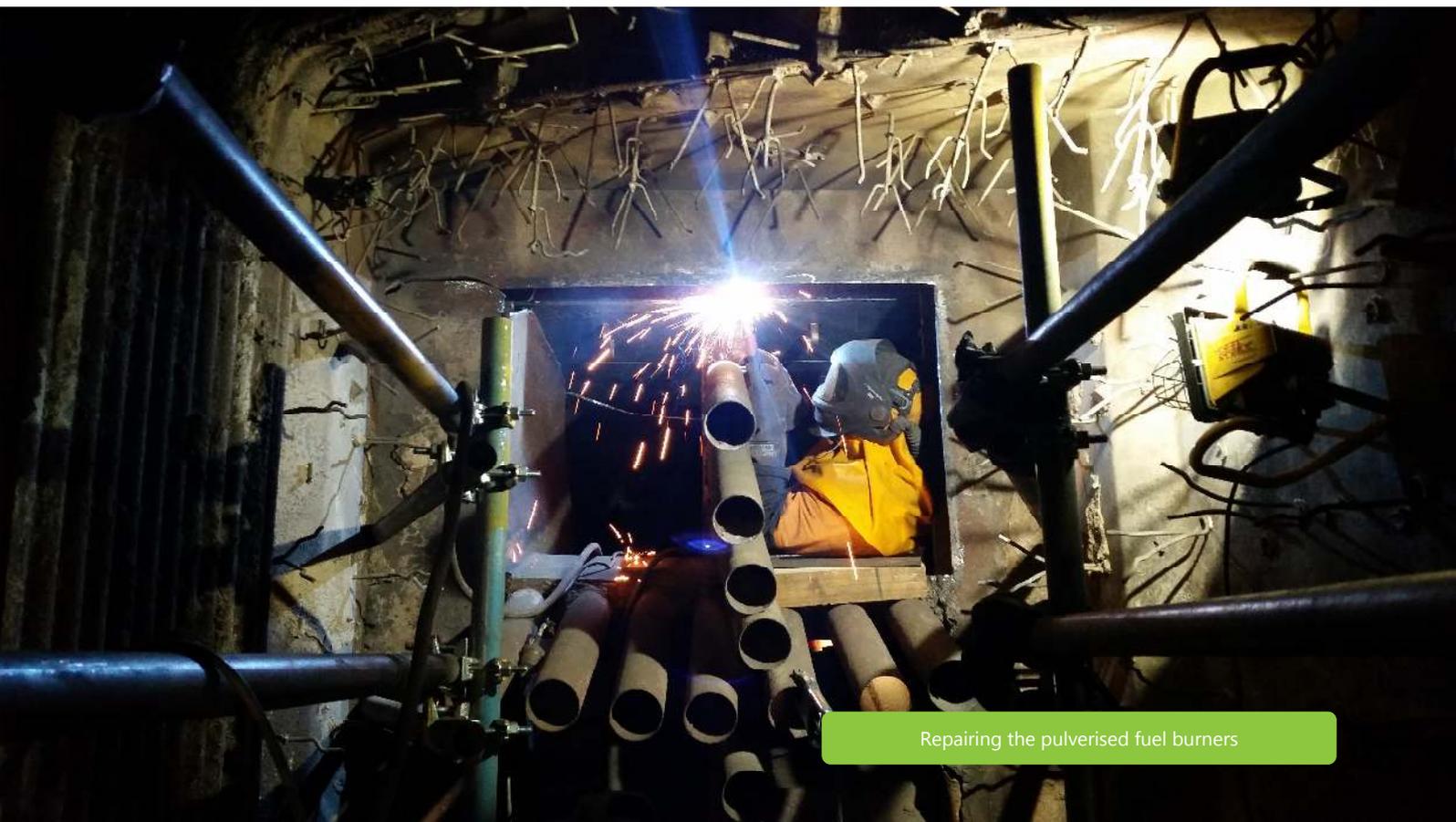
Each of the four Yallourn operating units has a planned Major Outage every 6 years:

A Major Outage or Plant Shutdown is an opportunity to carry out inspections, repairs and modifications to one of the operating units that cannot be done under normal operating conditions.

During normal operation much of the plant associated with running the units is operating continuously 24hrs per day, seven days per week and as would be expected these plant items slowly wear or degrade. This can mean, for example, steel ductwork through an erosion process becomes thinner to the point where holes can appear. Mechanical rotating items wear, causing clearances between components to become bigger, potentially reducing the efficiency of these machines. Heat exchangers can become less efficient due to a build-up of solids on the heat conducting surfaces. During a major outage many of these issues are addressed, to bring the performance and efficiency levels back as close as possible to design values.

Some of the works carried out during W436 were:

- Rectifying air ingress issues into the condenser so that the turbine efficiency was improved;
- Rectifying many leaks in ducts associated with the main firing plant so that the combustion process would be improved and Induced Draft fans could operate at a lower load, saving electricity used in house;
- On many pumps, the clearances between rotating parts were brought back to design values making these pumps operate more efficiently;
- Turbine blades and diaphragms checked to ensure that clearances were correct to provide optimum efficient operation;
- Electrostatic Dust Precipitators (EDP) were checked to ensure that the electrodes and collecting plates were correctly aligned to help ensure optimum efficiency;
- Many different types of Heat exchangers were inspected, cleaned and tested to ensure they would operate at the required efficiency;
- Insulation and cladding, in places was replaced to minimise heat loss;
- Many valves were either repaired or replaced, to ensure that process fluids were controlled correctly, avoiding wasting energy and cost in replacing lost fluids;
- The boiler and associated tubes were thoroughly cleaned to ensure heat exchange processes would occur as required, maximising efficiency.



Repairing the pulverised fuel burners

# Fire Preparedness

Yallourn Mine achieved a good year regarding fire prevention with no substantial fires being recorded. The fire season was relatively mild with regards to weather and whilst a number of small fires did occur in the Latrobe Valley area, there was no impact on Yallourn Mine. Minor smouldering coal fires caused by coal dust build-up within the engine bay and exhaust systems of dozers continues to be the most common issue. These fires are quickly and effectively controlled by the machine operators using the installed deluge systems.

Within the mine, the total area of exposed coal continues to be reduced year after year, as the coverage of the Latrobe Road batters and East Field Extension progresses.

EnergyAustralia Yallourn have gone through a major fire preparedness and management exercise. Our fire preparedness activities for the Yallourn Mine in 2017, consisted of the following key items:

- Development and implementation of a Trigger Action Response Plan (TARP) for high fire danger days;
- On-going coal coverage of Eastfield mine floor, Latrobe Road batters, Maryvale Field floor and tail end slopes to reduce the area of exposed coal;
- Grass slashing and vegetation reduction completed in December 2017;
- Relocation of 1.6km of Township Fire Service main including the installation of additional rotating sprays and hydrants, improving fire service water coverage and access to the lower levels of Township Field;
- Extension of fire service mains to M100, M300 & M400 levels;
- Improved water pressure control via installation of pressure reducing stations at M405 and M700;
- Monthly fire preparedness review meetings with WorkSafe during the fire season;
- Monthly Bushfire Mitigation meetings chaired by Estate Services, with attendees including CFA, DEDJTR, DELWP, Latrobe City Council, VicRoads and VLine;
- Monthly meeting with DEDJTR including reporting of fire statistics;
- Pre-Season briefing by CFA to provide advice on the expected fire conditions over the summer period;
- DEDJTR audits of:
  - i) Fire Service Mains and Supply lines, and,
  - ii) Operating Areas and Conveyor Fire Systems;
- Annual spray test to record water coverage in the operating area with aerial photography captured using drone technology.



Fire service sprays operating in Maryvale Field

# Mines Rescue Competition

The 2017 Minerals Council of Australia Victorian Divisions annual mines rescue competition was held at EnergyAustralia Yallourn over three days in October. Ten emergency response teams from Victoria, New South Wales and Queensland competed in a range of exercises designed to test their core disciplines in First Aid, Firefighting, Rope Rescue, Team Skills, Search and Rescue, Breathing Apparatus Practical and Theory.

As the host site, to provide nine challenging and realistic events for the competition was a feat. Reports from the competing teams found that the scenarios designed, replicated incidents that could be found at their own sites.

Estate Services, our onsite contractor, again represented EnergyAustralia and were successful in winning the following.:

- Overall Safety Award sponsored by Worksafe Victoria;
- 2nd in First Aid;
- 2nd in Firefighting;
- 3rd in Rope Rescue;
- Russell Masters the team captain came 3rd in the captains judging.

Estate Services Team for the Victoria Mineral Council Mines Rescue Competition. Winners of the Overall Team Safety Award



Estate Services Alliance Rescue Team participating in the Fire Fighting Exercise at the Victorian Minerals Council Mine Rescue competition

# Health and Wellbeing

Good health is good for everyone including strengthening engagement at work and happier employees. At EnergyAustralia we appreciate the individual needs of employees require a broad range of health and wellbeing initiatives.

People need different things at different life stages in their work, they have different requirements in their personal life, and overall, they have different requirements in terms of their health and wellbeing at various stages and phases of life – changing day-to-day.

We appreciate that with the diversity of people at our site, we need to make an effort to facilitate as many activities and provide resources to help improve their health and well-being.

EnergyAustralia takes an integrated approach to work health combined with occupational safety and injury prevention, all encompassed in our health and wellbeing initiatives to enhance worker health and prevent work-related injuries and illness.

In 2017, there were a number of Health and Wellbeing initiatives undertaken:

- The Influenza vaccination program immunized 205 employees onsite;
- Over 40 internal 'Kettle Report' articles covering health topics and advice, whilst seven newsletters were distributed throughout the year to inform and keep site personnel up-to-date on health matters;
- The overall hearing test completion rate for EnergyAustralia employees decreased slightly in 2017. With the inclusion of contractors, including Ventia, RTL and Belle Banne, the number of hearing tests undertaken increased in 2017;
- A health check program was offered to all Power Station & Mine employees this year. The health checks covered blood pressure, blood glucose, blood cholesterol and weight checks;
- Peak flow for lung function has also been added to tests the Occupational Health Centre can conduct;
- EnergyAustralia was part of the Red Cross Latrobe Valley Blood Drive, along with six other businesses, with 75 donations from site employees;
- Overall presentations to the OH&S Centre were increased in 2017, partially due to the increase in the number of employees on site over the Major Outage;
- Foreign bodies in eyes continue to be the most common injury with 73 presentations. Of these, 63 were managed by Occupational Health Centre staff and 10 employees sent for further treatment offsite;
- Muscle sprains and strains were the second most common injury with 30 presentations;
- In 2017, 38 employees were referred offsite for further treatment to various facilities such as Latrobe Regional Hospital (20), GP Clinics 8, and Leunig & Farmer Optometrists (10), a 40% increase from 2016.

## EnergyAustralia Environmental Community Projects

EnergyAustralia continues to support land recovery and biodiversity projects in consultation with Latrobe Catchment Landcare Network (LCLN). LCLN work with local communities to improve the long-term sustainability of farming and the environment in west and central Gippsland.

EnergyAustralia believe the activities and intentions of LCLN align with ours, to work to improve environmental impacts, improve educational outcomes for farmers and landowners and raise environmental awareness in our local community.

In 2017, EnergyAustralia Yallourn sponsorship went to projects that continue our vision of environmental stewardship and improve environmental health in our geographical area.

The following programs were carried out in 2017:

- Moe Rail Trail – assist in the maintenance and development of the Moe Rail Trail working towards the management master plan for the trail, developed by Indigenous Design;
- National Tree Day activities – a number of community and school tree day activities were rolled out. The Landcare Network provided assistance at all planting events with the sponsorship funding;
- Educational Programs – it's important that an appreciation of the natural environment starts at an early age and we are proud to help support the Junior Landcare Program, promoting environment education programs at local schools as well as schools garden programs.

# Community Partnership and Engagement

EnergyAustralia Yallourn takes great pride in supporting our local community programs.

Yallourn ran two successful community support programs throughout 2017. To be considered, applications for both programs needed to address one of EnergyAustralia's priority areas for funding:

- **Education:** Funding aimed at promoting education and knowledge acquisition. This can include programs with a social or environmental focus and organisations which support career or skill development;
- **Social Inclusion:** Funding aimed at facilitating social inclusion. This is aimed at initiatives that support community cohesion and can include such things as men's sheds, upgrading communal facilities, improving local amenities and supporting vulnerable community members.

Applications for funding up to \$10,000 were invited through two grant rounds. Round 1 was open for applications during March, while the second and final round was open during September.

We received a number of high quality applications, with the following selected to receive funding for their specified projects:

- Statewide Autistic Services – \$10,000
- Moe Neighbourhood House – \$7,000
- Crinigan Bushland Reserve – \$5,718
- Old Gipps town – \$2,495
- Moe United Soccer Club – \$7,500
- Newborough Primary School – \$6,500

In addition, local organisations, clubs and schools receiving support included:

- Lowanna College
- Yallourn North Cricket Club
- Baw Baw Latrobe Local Learning & Employment Network
- Baringa Special School
- Rotary Club of Moe
- Yallourn Bowling Club

In 2017, we advertised and appointed two external representatives to join Yallourn's community partnership team. The additional community knowledge that these two appointees brought to the decision making process was extremely beneficial and both have indicated their willingness to continue with the team in 2018.



Volunteers at Yallourn North Primary School for the SPARK Reading Program

# EnergyAustralia Environment Review Committee (ERC) Report of Independent Chairman 2017 Year

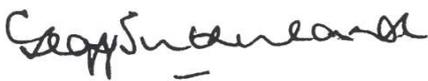
When a licence was granted for the on-going generation of electricity from coal won from a new format of the Yallourn Brown Coal mine, it incorporated a demanding set of operating standards and procedures to ensure minimal disturbance of, and impact on, the environment and the well-being of the human, animal and vegetation states pertaining in the mine itself and the surrounding areas. This called for the establishment of operating procedures and conduct of the highest order which were set out in the licence to operate until 2026 and under health safety and environmental impact restrictions, to be monitored by the relevant government and professional agencies.

Such has been the overall satisfaction of the limiting of adverse impacts and the achievement of a high level of improvement of the overall restoration of the mine site to date, that the Government and Energy Australia have entered into conversation on the extension of the mining licence to 2032.

Assisting in the achievement of this level of performance has been the overseeing, monitoring and reporting by the independent Environment Review Committee (ERC) established at the outset to ensure compliance with the licence requirements and the containment of any adverse impact on the community and the environment. This committee comprised elected community members, professional officers of the connected government departments, and Energy Australia executives and an Independent Chair.

Ready response to the findings of public enquiries post major events such as bush-fires, waste and land-fill audits and hydro-geological assessments have been complemented by community Landcare and tree-planting and support of gardens and 'rail-trail' revegetation and weed management programmes, all of which continue unabated.

In all of the above, the community of Victoria is well served by its volunteers as evidenced by the spirit of the recent Community Forum and its constructive input.



**(Dr) Geoff Sutherland OAM**  
(Independent Chair ERC)



# EnergyAustralia Yallourn Performance

- Brown coal-fired power station and captive mine
- 1,480MW (2 x 360MW, 2 x 380MW)
- Plant commissioned between 1974 and 1982
- Shareholding of 100% acquired in 2003 with operational control by CLP

PARAMETER	UNIT	2017	2016	2015
<b>1. Operation</b>				
Electricity sent out <sup>(1)</sup>	GWh	9,946	10,483	10,256
Coal consumed	TJ	152,901	158,761	152,669
Oil consumed	TJ	365	324	361
Thermal efficiency	%	23.6	23.9	24.3
Equivalent availability factor (EAF) <sup>(2)</sup>	%	83.00	87.79	84.60
<b>2. Air Emissions</b>				
CO <sub>2</sub> e (Scopes 1 & 2)	kT	14,412	15,298	14,635
SO <sub>2</sub> <sup>(3)</sup>	kT	18.2	21.0	21.3
NO <sub>x</sub> <sup>(3)</sup>	kT	14.5	14.6	15.2
Particulate (Total) <sup>(5)</sup>	kT	5.9	6.2	6.3
<b>3. Water</b>				
Water Withdrawal	Mm <sup>3</sup>	29.3	28.8	29.4
from marine water resources	Mm <sup>3</sup>	0	0	0
from freshwater resources	Mm <sup>3</sup>	28.0	27.4	28.1
from municipal sources	Mm <sup>3</sup>	1.288	1.397	1.257
Water Discharged	Mm <sup>3</sup>	14.225	15.243	14.231
treated wastewater discharged to sea	Mm <sup>3</sup>	0	0	0
treated wastewater discharged to freshwater bodies	Mm <sup>3</sup>	12.306	13.617	12.587
wastewater discharged to sewerage	Mm <sup>3</sup>	1.9	1.6	1.6
Water Reused / Recycled	Mm <sup>3</sup>	0.0	0.0	0.0
<b>4. Environmental Compliance</b>				
Regulatory non-compliance resulting in fines or prosecutions	No.	0	0	1
Licence limit exceedance & other non-compliance	No.	0	0	0
<b>5. By-products &amp; Waste Management</b>				
Ash produced	kT	275	272	260
Ash recycled / sold	kT	0	0	0
<b>Hazardous waste <sup>(6)</sup></b>				
produced	T (solid) / kl (liquid)	130 / 177	108 / 315	211 / 223
recycled	T (solid) / kl (liquid)	0.2 / 177	0.4 / 255	1.4 / 222
disposed	T (solid) / kl (liquid)	129 / 0.1	107 / 60.8	209 / 0.9
<b>Non-hazardous waste <sup>(6)</sup></b>				
produced	T (solid) / kl (liquid)	3239 / 0	1990 / 0	1945 / 0
recycled	T (solid) / kl (liquid)	1318 / 0	766 / 0	1043 / 0
disposed	T (solid) / kl (liquid)	1922 / 0	1225 / 0	902 / 0
<b>6. Safety</b>				
Employee - Fatalities	No.	0	0	0
Employee - Days lost / charged	No.	47	1	25
Employee - Lost Time Injuries	No.	6	1	3
Employee - Occupational Disease	No.	0	0	0
Employee - Total Work Hours	No.	569081	383794	371959
Contractor - Fatalities	No.	0	0	0
Contractor - Lost time Injuries	No.	3	1	2
Contractor - Total Work Hours	No.	866593	791998	1033339
<b>7. Employee Development</b>				
Employees <sup>(7)</sup>	No.	204	199	201
Safety, health and environment training <sup>(8)</sup>	Hours	11,476	5,041	8,247

## Notes:

- (1) Sent out, with mine.
- (2) Data aligned with local regulatory reporting requirements.
- (3) SO<sub>2</sub> and NO<sub>x</sub> data estimated using emission factors derived from plant emissions monitoring conducted every six months.
- (5) Particulate emissions from power generation and mine sources from 2014. Prior to this from Power Station only.
- (6) Waste categorised in accordance with local regulations. Contractor waste has been included.
- (7) Full time equivalent.
- (8) Includes employees and contractors safety, health and environment training.

Data have been independently verified by V&C Environment Consultants Pty Limited. Verification statement is available upon written request.



**EnergyAustralia**<sup>®</sup>

### **More Information**

For more information on EnergyAustralia's Social and Environmental principles and practices please visit [www.energyaustralia.com.au](http://www.energyaustralia.com.au) or call (03) 5128 2000